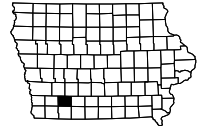


ADAMS COUNTY

Bridge Replacement-CCS
BRF-034-3(039)--38-02

LETTING DATE
OCT 20 2026



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 6	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	ML034
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan and Staging Notes
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3	Typical Staged Cross Sections
* J.4	Staging and Traffic Control Sheets Stage 1
* J.5	Staging and Traffic Control Sheets Stage 2
* J.6	Staging and Traffic Control Sheets Stage 3
U Sheets	500 Series, Mod.Stds. and Detail Sheets
* U.1 - 2	Modified DR-402
V Sheets	Bridge and Culvert Situation Plans
* V.1 - 4	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1 - 9	Mainline Cross Sections
	* Color Plan Sheets



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
ADAMS COUNTY
Bridge Replacement-CCS
US 34 over Metz Creek, 2.3 miles West of W. Jct. IA 25

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
22-02-034-010
PROJECT NUMBER
BRF-034-3(039)--38-02
R.O.W. PROJECT NUMBER
NHSN-034-3(040)--2R-02

FUTURE EVENT DATES:
D5 - 11/15/2024
D4 - 06/23/2026

DESIGN DATA RURAL			
2027	AADT	2,594	V.P.D.
2047	AADT	3,040	V.P.D.
2047	DHV	314	V.P.H.
	TRUCKS	21	%
	Total		
	Design ESALs	1,775,200	

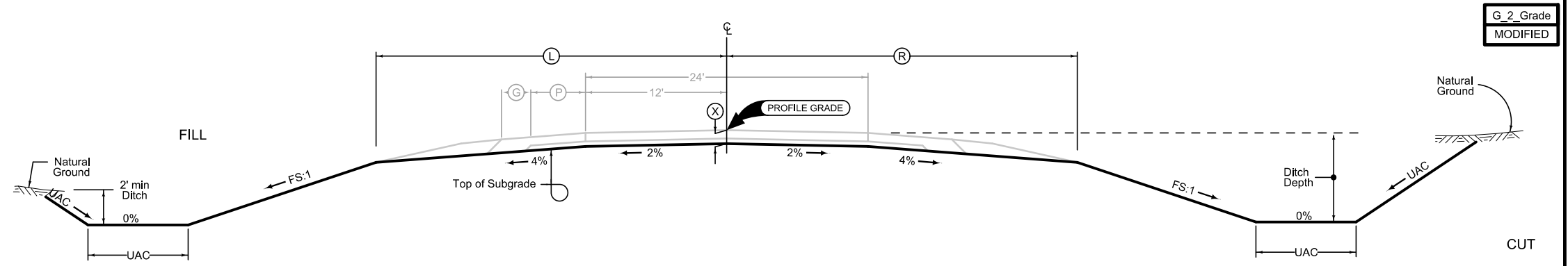
INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D3 PLAN - Date: 08/09/2024

LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	Ⓐ Feet	Ⓑ Feet	ⓧ Inches	FS
ML034	622+98.90 623+32.90	32.94	32.94	24	3
ML034	625+86.94 626+81.95	32.94	32.94	24	3
ML034	626+81.95 627+70.00	28.82	28.82	24	3



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

2 LANE GRADING

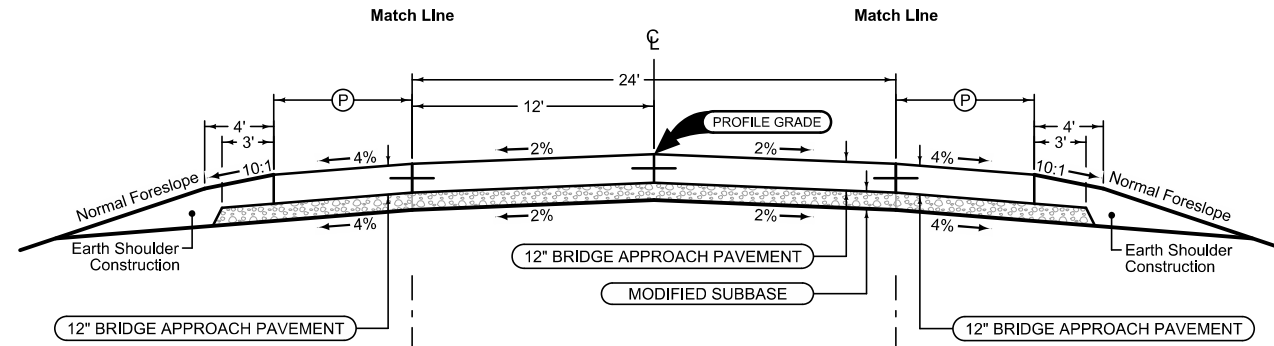
See plan & profile sheets and cross sections for additional details of ditches and backslopes.

G_2_Grade
MODIFIED

Shoulder at Bridge Approach

Mainline Jointing:
See Standard Road Plan BR-205.

2_P_FullIPCC_04-20-21		(P)
STATION TO STATION		Feet
623+32.98	624+05.00	11.58
625+15.00	625+87.02	11.58



Mainline Jointing:
See Standard Road Plan BR-205.

2P_04-21-20	
STATION TO STATION	
623+32.98	624+05.00
625+15.00	625+87.02

Shoulder at Bridge Approach

Mainline Jointing:
See Standard Road Plan BR-205.

2_P_FullIPCC_04-20-21		(P)
STATION TO STATION		Feet
623+32.98	624+05.00	11.58
625+15.00	625+87.02	11.58

See Tab 112-6 for Bridge Approach Pavement quantities.

See Standard Road Plan BR-205 for details.

US 34
Bridge Approach Pavement

Full Depth PCC Shoulder

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

2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
619+88.90	622+98.90	10
627+70.00	630+80.94	10

Paved Shoulder at Guardrail

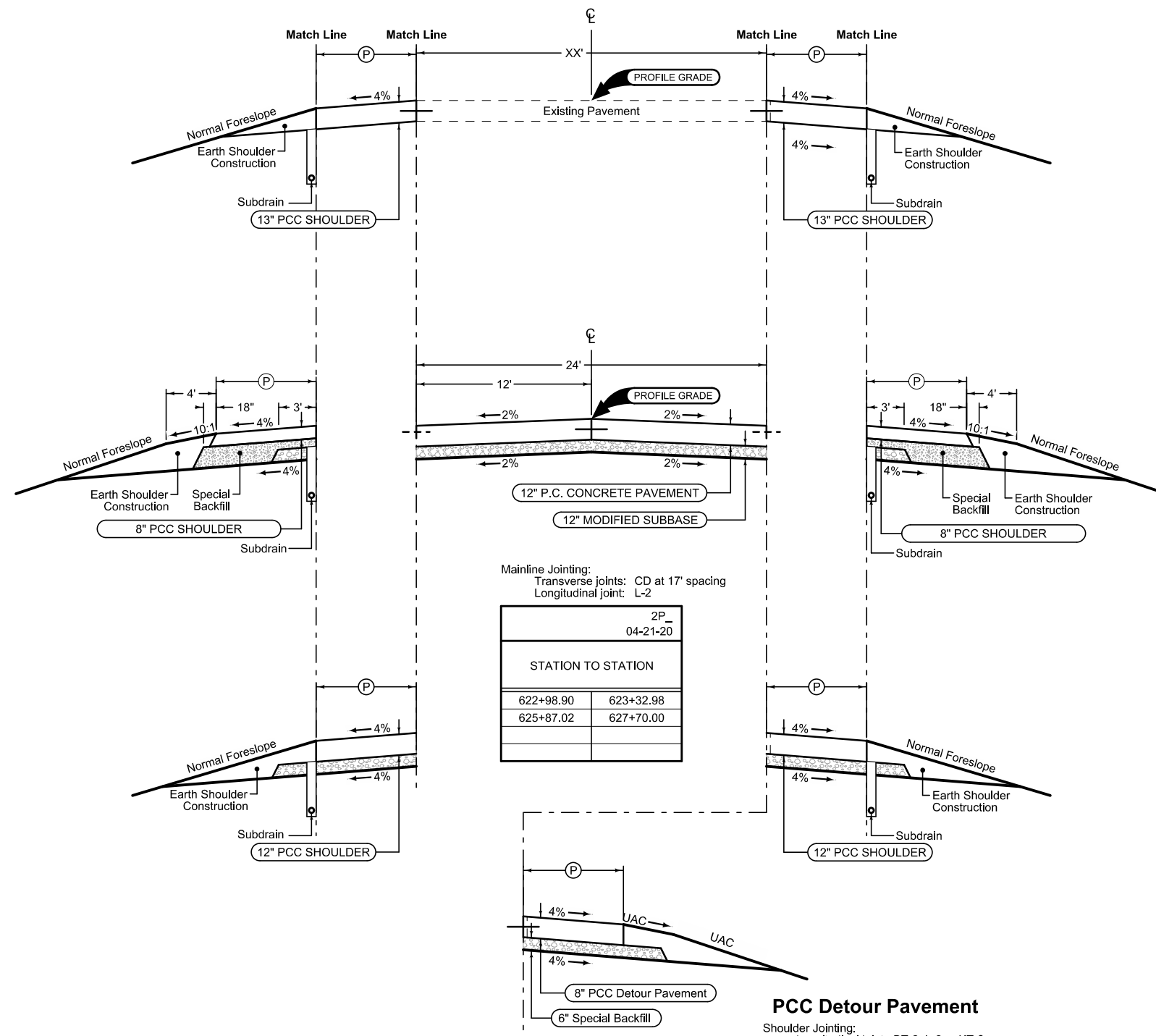
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

2_P_Guard_04-21-20		
STATION TO STATION	(P)	Feet
622+50.49	622+70.49	3.55
622+70.49	623+19.83	3.55-1.58
623+19.83	623+32.98	1.58
625+87.02	626+12.60	1.58
626+12.60	626+61.95	1.58-3.55
626+61.95	626+81.95	3.55

Full Depth PCC Shoulder

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

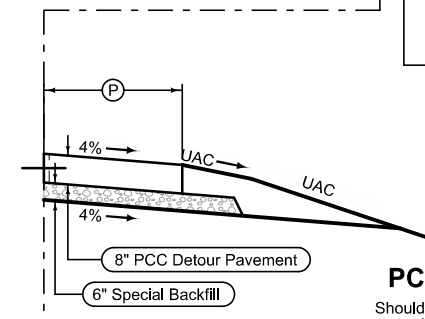
2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
622+98.90	623+32.98	10
625+87.02	627+70.00	10



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

2P_04-21-20		
STATION TO STATION	(P)	Feet
622+98.90	623+32.98	10
625+87.02	627+70.00	10

2P_04-21-20		
STATION TO STATION	(P)	Feet
622+98.90	623+32.98	10
625+87.02	627+70.00	10



PCC Detour Pavement

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

2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
622+98.90	624+34.30	3.7
624+85.64	627+70.00	3.7

Full Depth PCC Shoulder

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

2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
619+88.90	622+98.90	10
627+70.00	630+80.94	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
622+38.07	622+58.07	3.55
622+58.07	623+07.42	3.55-1.58
623+07.42	623+32.98	1.58
625+87.02	626+00.09	1.58
626+00.09	626+49.44	1.58-3.55
626+49.44	626+69.44	3.55

Full Depth PCC Shoulder

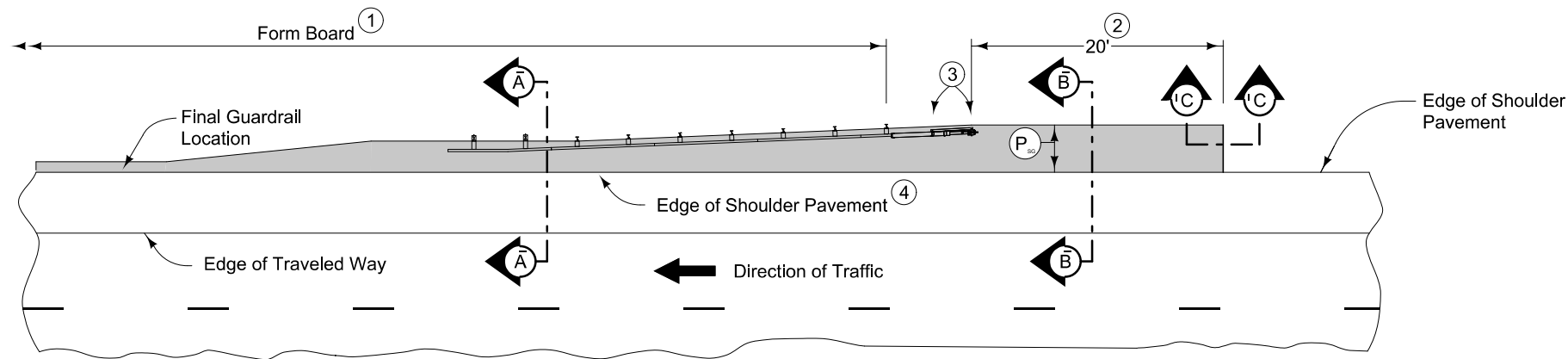
Shoulder Jointing:
 Longitudinal joint: BT-2, L-2 or KT-2
 Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
622+98.90	623+32.98	10
625+87.02	627+70.00	10

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

**US 34
 Paved Shoulder at Guardrail,
 Paved Shoulder, and Detour Pavement**



PLAN VIEW

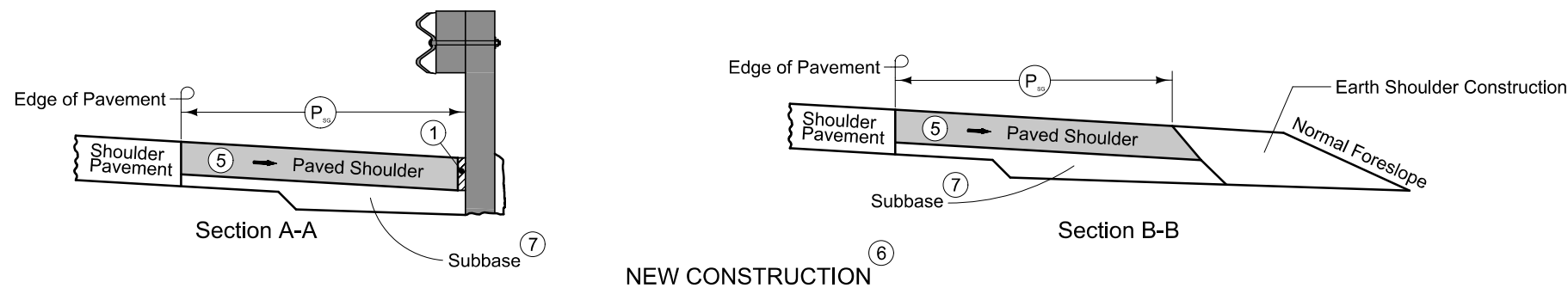
10" HMA Paved Shoulder at guardrail. 9" PCC may be substituted with the following jointing layout:

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

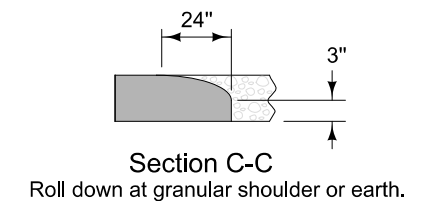
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

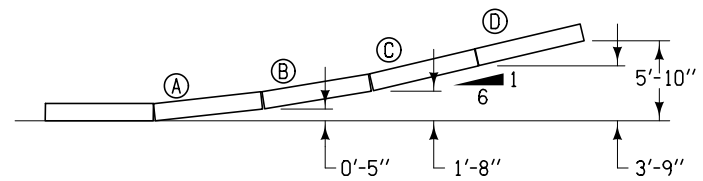
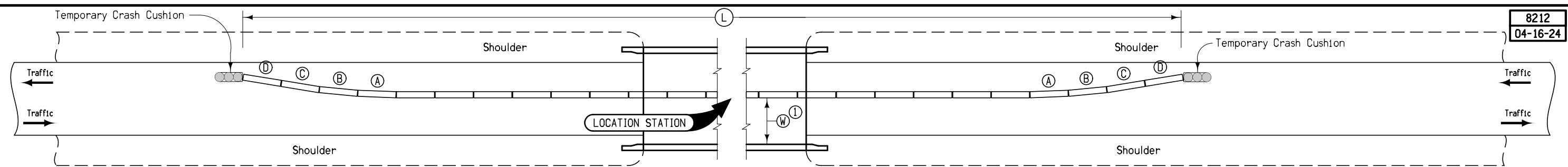
- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves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



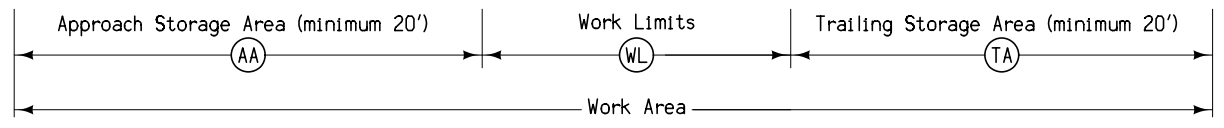
NEW CONSTRUCTION



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



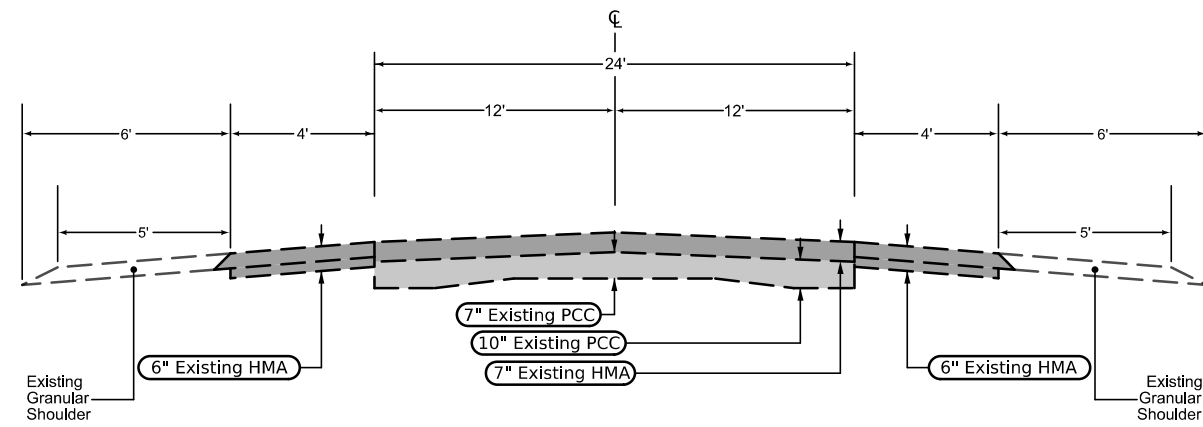
BARRIER OFFSETS FOR FLARE SECTIONS



Station	Side	AA	WL	TA	L	Anchored	W ^①	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
624+59.92	LT	181.0	110	330.1	748.4	X	X	Stage 2, J Sheets
624+60.00	RT	181.8	110	330.0	748.8		X	Stage 3, J Sheets

① Where W is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.

**TEMPORARY CONCRETE BARRIER LAYOUT
for Two-Way Traffic**



**US 34
Existing Pavement**

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- Water Hydrant (Rural)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

UTILITY LEGEND

- FO1 — FO1D, AREON - Quality D
- FO2 — FO2D, Windstream - Quality D
- FO3 — FO3D, ICN - Quality D
- W — WL1D, SIRWA - 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.	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%
Orange	(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

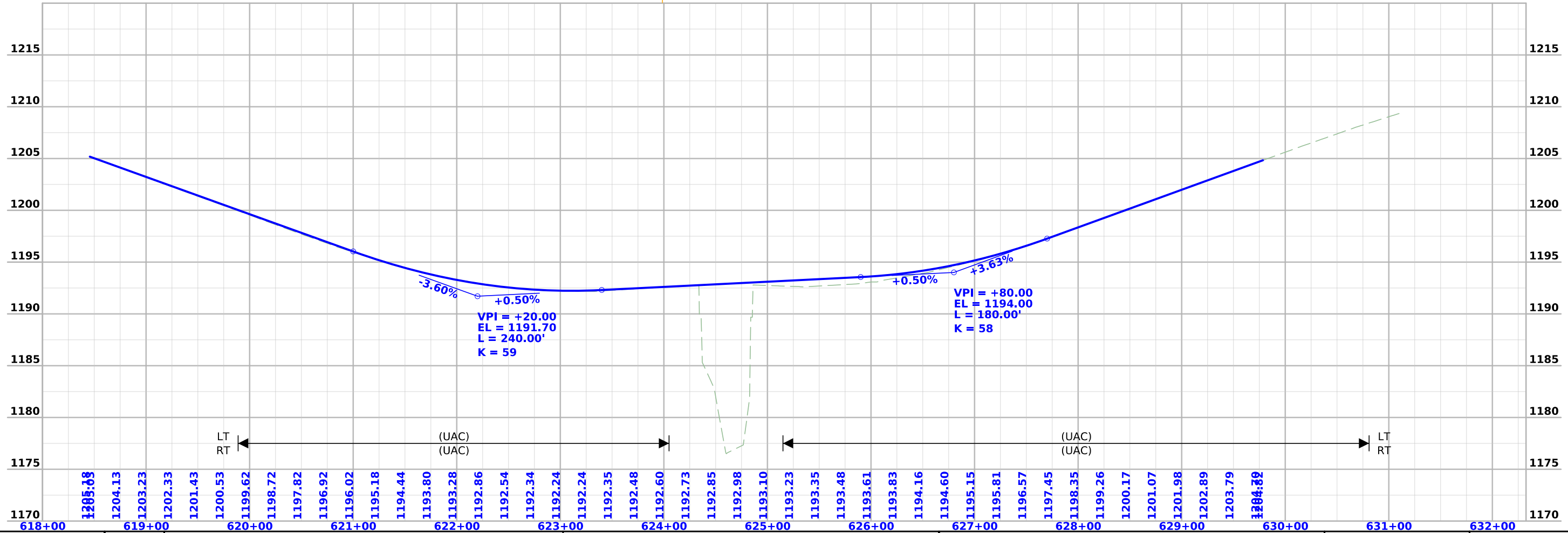
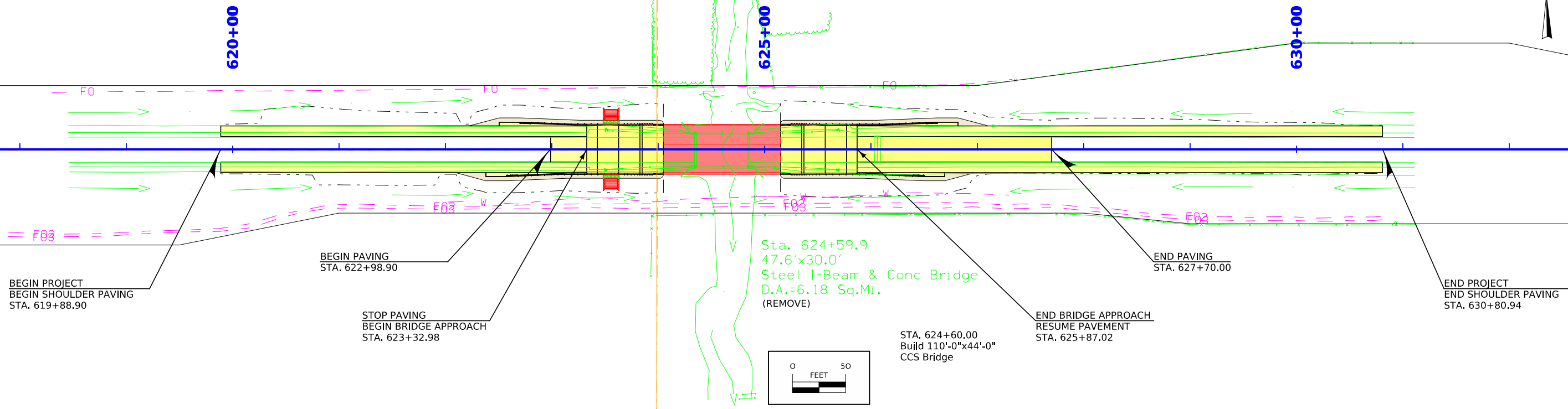
RIGHT-OF-WAY LEGEND

- 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)

Grant TWP.
T-71N R-32W
SEC. 03



Survey Information

SURVEY INDEX

Adams County
BRF-034-3(39)--38-02
West Platte River 2.3 mi W of W Jct. IA 25
PIN: 22-02-034-010
Type of Work: Bridge Unspecified
Project Directory: 0203401022

Survey Personnel

Paul Harry – Survey Party Chief
Bob Fredrickson – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 09/11/2023
End Date 09/28/2023

General Information

This survey is for US Hwy 34 bridge over W Platte River 2.3 miles west of west junction IA 25. 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 12
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment was provided by District 4 ROW office.

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
02VANILLA AVE	6228751.08	22290504.25	1259.97	CP SET FENO MON IN WESTERLY ROW COUNTY ROAD VANILLA AVE 1.0 MILES NORTH OF HWY 34
02UNION AVE	6220325.39	22285244.78	1255.83	CP SET FENO MON IN EASTERLY ROW COUNTY ROAD UNION AVE 0.6 MILES SOUTH OF HWY 34
20340740	6223537.15	22289916.04	1212.01	CP FND IDOT CONC REF MON W 1/2IN RBR IN GOOD CONDITION
STRING	6223623.73	22284996.8	1271.21	CP FND NGS 2ND ORDER HORIZONTAL AZIMUTH MARK AS DESCRIBED

ALIGNMENT COORDINATES

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
1	ML034	604+14.16	6223646.69	22287238.56															
2	ML034	631+21.88	6223605.91	22289945.98															
2	ML034	635+35.74	6223599.68	22290359.78															

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Through traffic on US 34 shall be maintained at all times.
Utilize single lane closure with temporary signals for staged bridge and pavement construction. Refer to Staging Notes and Staging Detail sheets for additional details.

108-26A
08-01-08

STAGING NOTES

Stage 1:
Traffic: Single lane EB closure with signals, TC-216 Modified (signal timing and distances).
Construction: Widen EB lane with shoulder strengthening/detour pavement.

Stage 2:
Traffic: Single lane WB closure with signals, TC-217 Modified (signal timing and distances).
Construction: WB half of bridge approach, mainline pavement, and guardrail.

Stage 3:
Traffic: Single lane EB closure with TBR, TC-217 Modified (signal timing and distances).
Construction: EB half of bridge approach, mainline pavement, and guardrail.

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
US 34	WB/EB	Adams	US-34 Bridge over Metz Creek	Bridge	Barrier	FHWA 13331	Horizontal	N/A			N/A	
US 34	WB/EB	Adams	US-34 Bridge over Metz Creek	Bridge	Temporary Signal	FHWA 13331	Vertical	N/A			N/A	
US 34	WB/EB	Adams	US-34 Bridge over Metz Creek	Bridge	Barrier	FHWA 13331	Horizontal	N/A			N/A	
US 34	WB/EB	Adams	US-34 Bridge over Metz Creek	Bridge	Temporary Signal	FHWA 13331	Vertical	N/A			N/A	
US 34	WB/EB	Adams	US-34 Bridge over Metz Creek	Bridge	Barrier	FHWA 13331	Horizontal	N/A			N/A	
US 34	WB/EB	Adams	US-34 Bridge over Metz Creek	Bridge	Temporary Signal	FHWA 13331	Vertical	N/A			N/A	

NOTES:
(1): Restriction is during Bridge Approach Reconstruction.
(2): Vertical Height restriction of Temporary Traffic Signals shall follow clearance requirements in Article 2528.03.G.2.a.3)a) and 2528.03.G.2.a.3)d) of the Standard Specifications.

**CROSS SECTION VIEW COLOR LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

**CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**





















	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

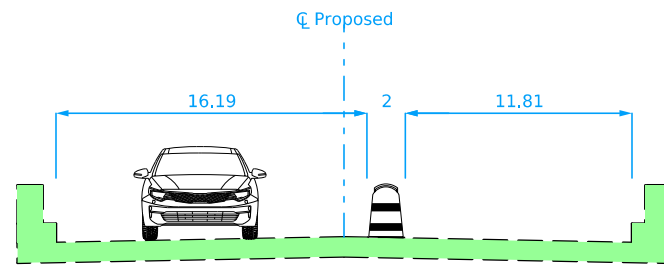
**PLAN VIEW PATTERN AND SYMBOL LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**

	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout		Lane Identification

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

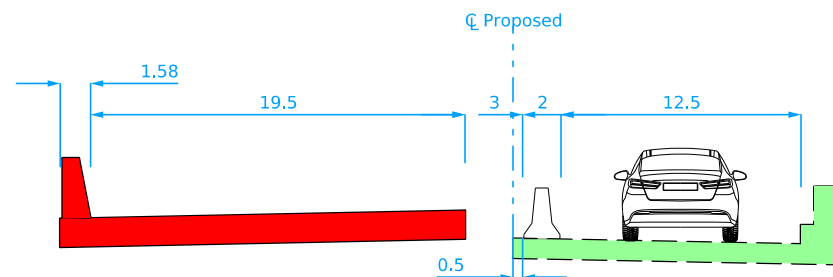
**TRAFFIC CONTROL
AND
STAGING
LEGEND AND SYMBOL
INFORMATION SHEET**

(COVERS SHEET SERIES J)



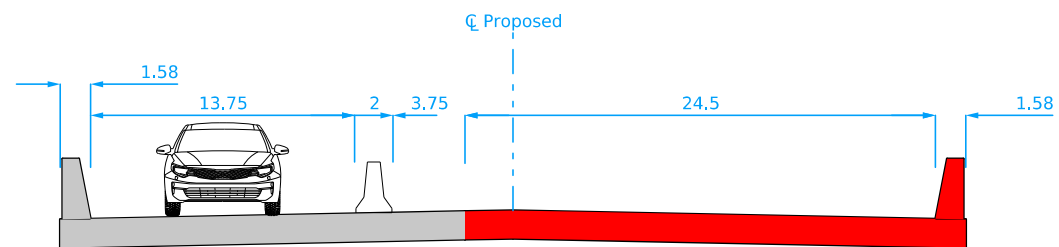
Section shown in the direction of stationing.

US 34 Stage 1
EB Shoulder Strengthening



Section shown in the direction of stationing.

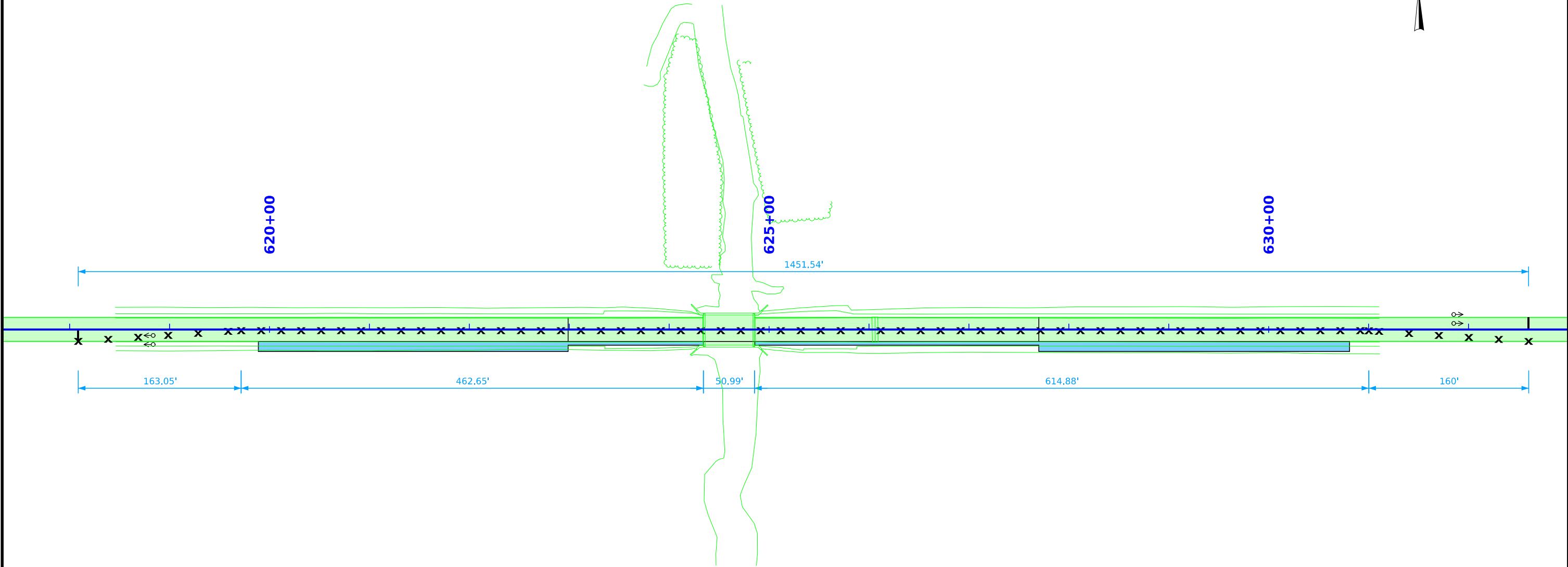
US 34 Stage 2
WB Bridge Construction
and Pavement



Section shown in the direction of stationing.

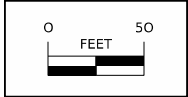
US 34 Stage 3
EB Bridge Construction
and Pavement

Grant TWP.
T-71N R-32W
SEC. 03

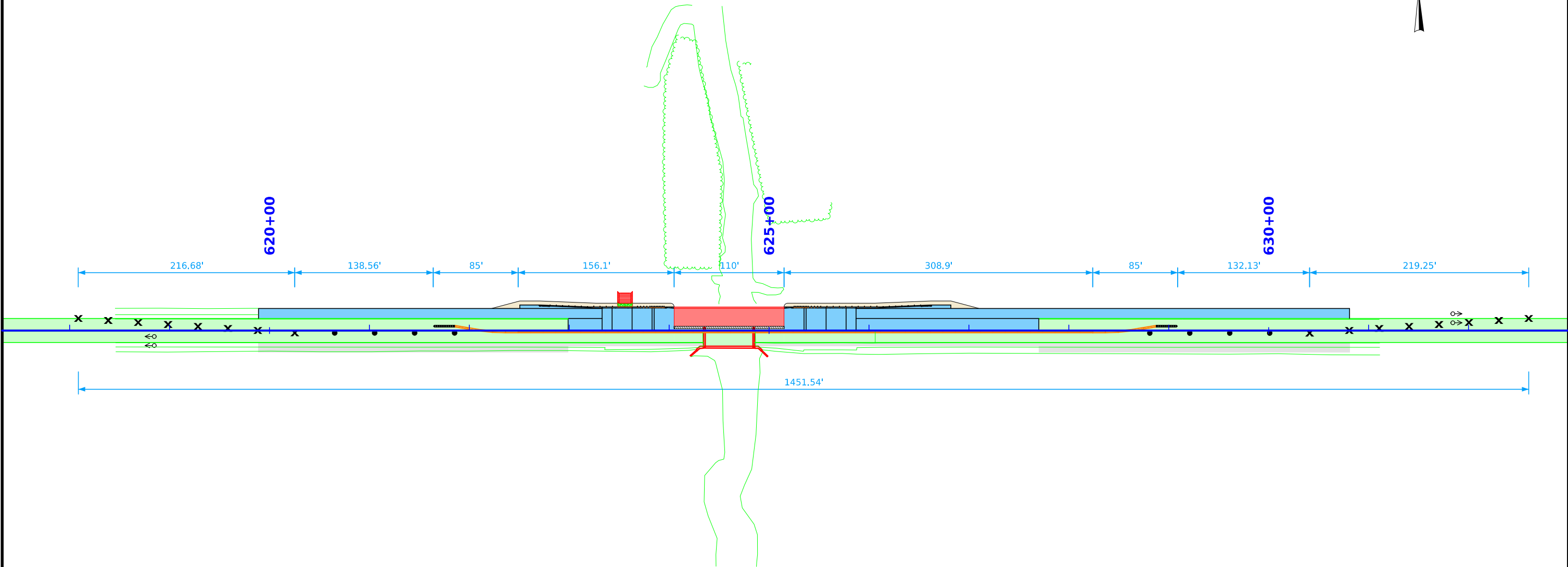


Notes:
Refer to Standard Road Plan TC-216
for additional details.

US 34 Stage 1
EB Shoulder Strengthening

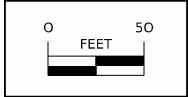


Grant TWP.
T-71N R-32W
SEC. 03

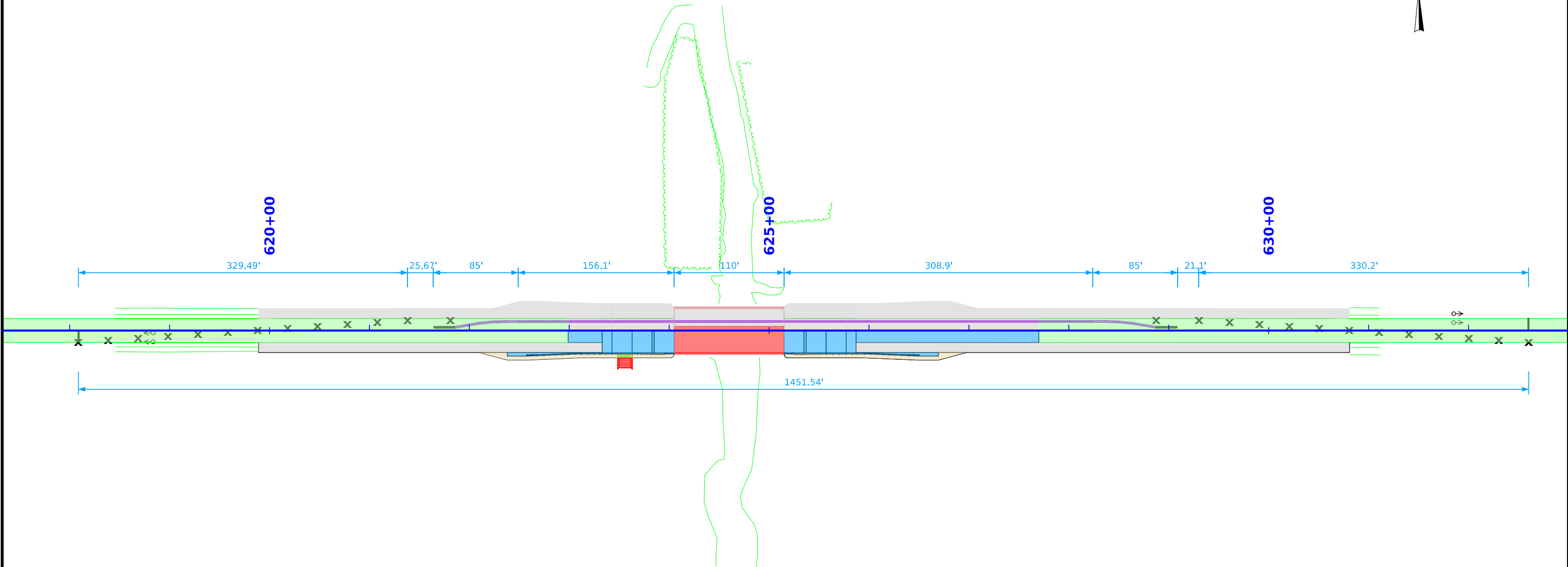


Refer to Standard Road Plan TC-217
for additional details.

US 34 Stage 2 WB Bridge Approach and Pavement

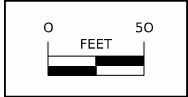


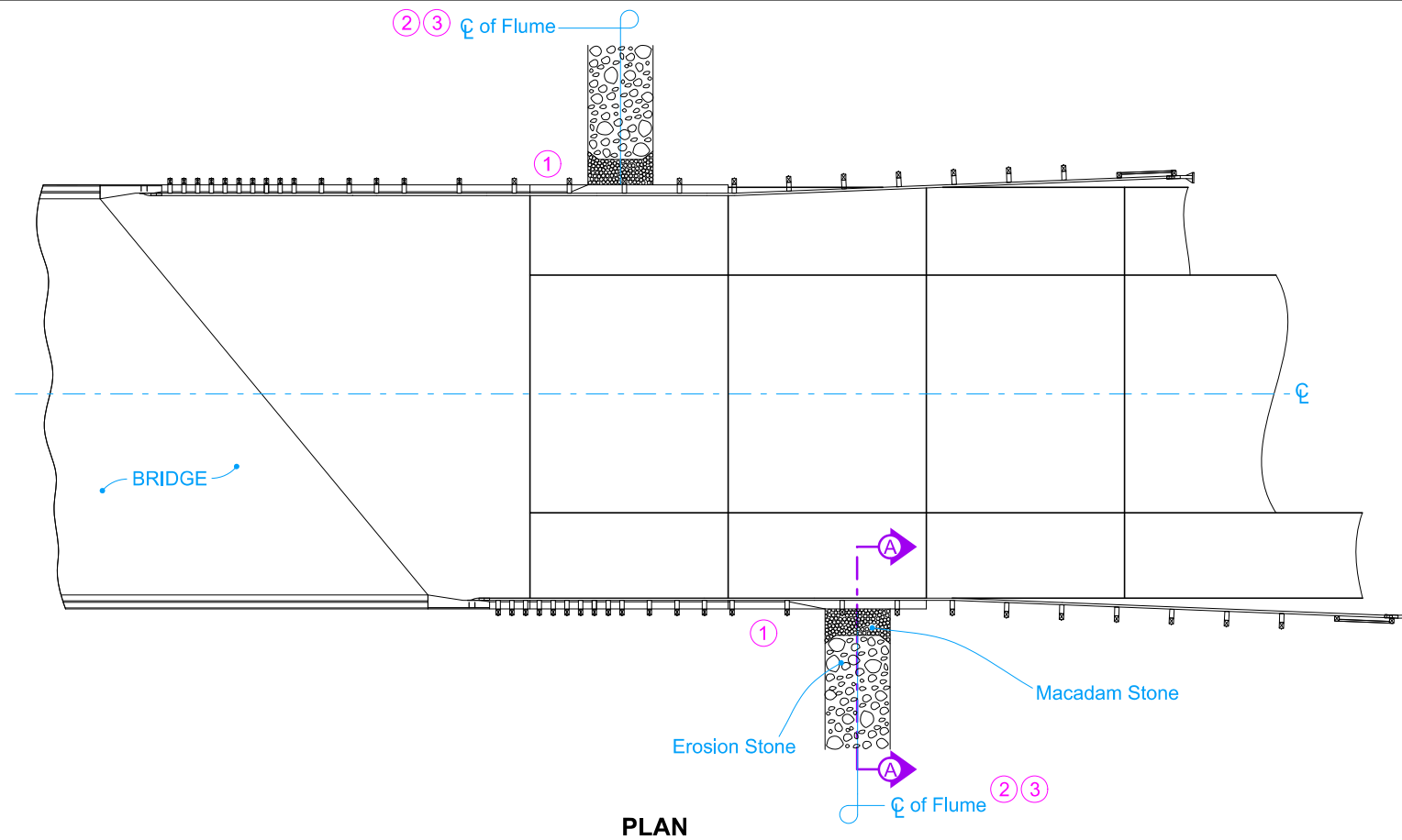
Grant TWP.
T-71N R-32W
SEC. 03



Refer to Standard Road Plan TC-217
for additional details.

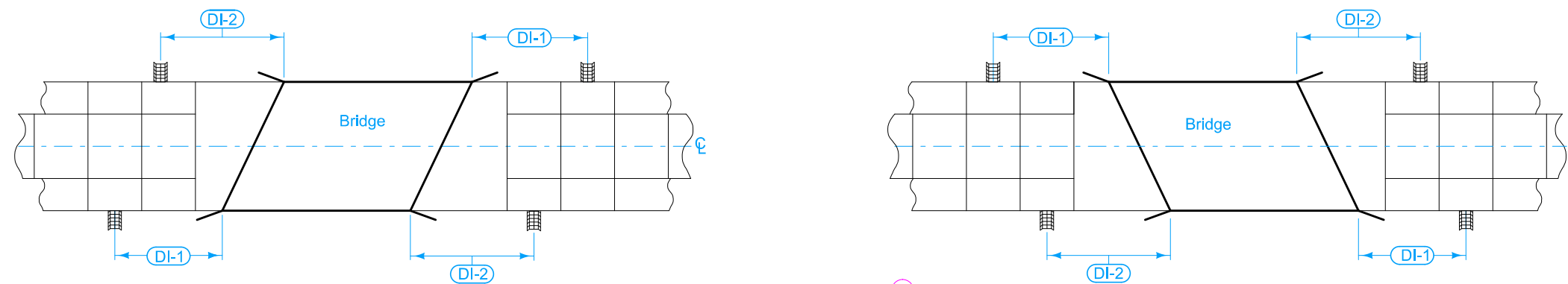
US 34 Stage 3 EB Bridge Approach and Pavement



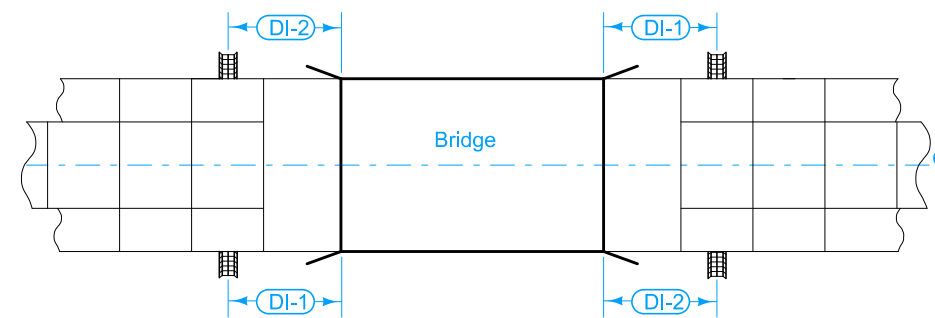


Price bid for "Bridge End Drain, DR-402" is full compensation for furnishing, installing, and constructing the Bridge End Drain as shown.

- ① Continue 4 inch sloped curb to edge of flume per section B-B. Refer to BR-201, BR-202, BR-203, BR-204, or BR-205 for details of 4 inch curb.
- ② DI-1 and DI-2 distances measured from center of Bolt Pattern. Refer to BA-202.
- ③ Extend rock flume to toe of backslope. If no backslope exists, extend rock flume a minimum of 4 feet beyond the toe of foreslope.



FLUME LOCATIONS (Skewed Bridge)



FLUME LOCATIONS (Non-Skewed Bridge)

Possible Contract Items:
Bridge End Drain, DR-402

Incidental to Bridge End Drain:
Macadam Stone Base Material
Erosion Stone
Engineering Fabric
Excavation, hauling, and disposing of material

Possible Tabulation:
104-8A

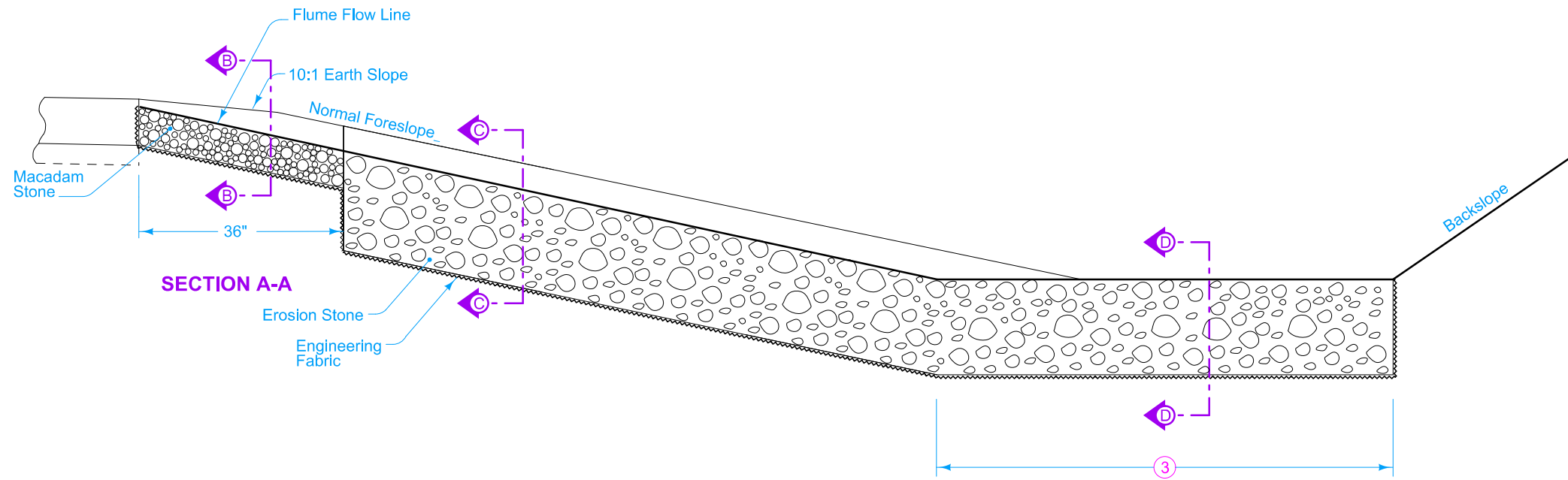
MODIFIED

MODIFICATIONS: Changed overall width of sections B-B, C-C, and D-D from 7'-6" to 15'-0".

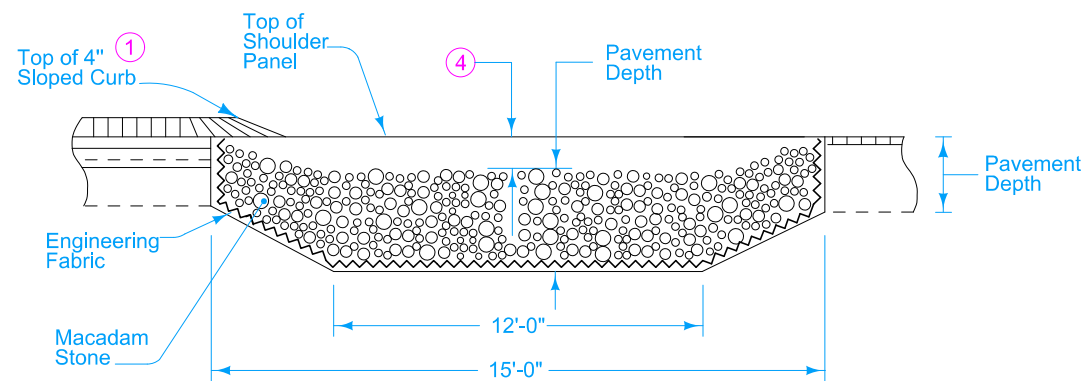
ROCK FLUME FOR BRIDGE END DRAIN

DR-402

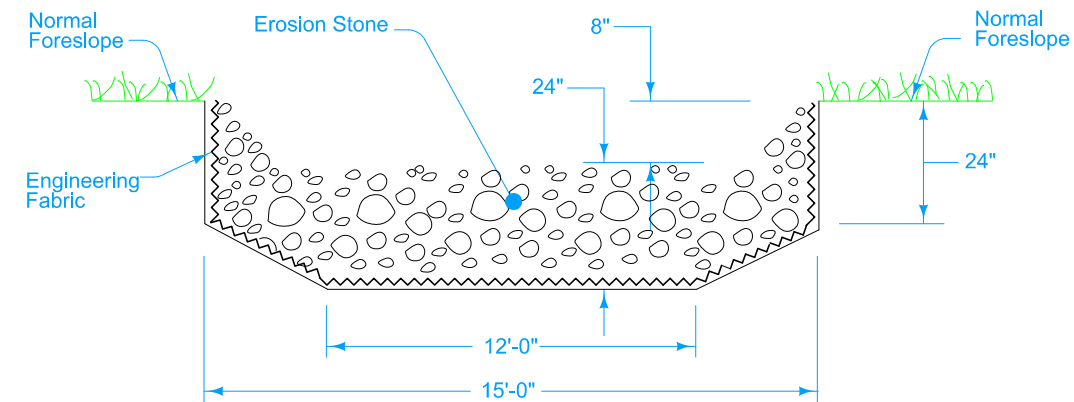
Sheet 1 of 2



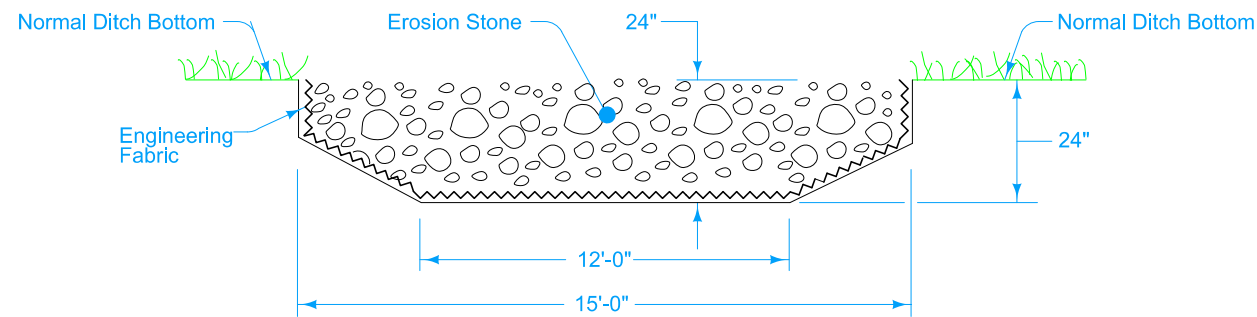
- ① Continue 4 inch sloped curb to edge of flume per section B-B. Refer to BR-201, BR-202, BR-203, BR-204, or BR-205 for details of 4 inch curb.
- ③ Extend flume to toe of backslope. If no backslope exists, extend rock flume a minimum of 4 feet beyond the toe of foreslope.
- ④ Transitions from 2 inches at edge of pavement to 8 inches within 3 feet.
- ⑤ Transition the flume flow line depth from 8 inches at the toe of slope to 0 inches with an approximate transition rate of 2 inches per 1 foot horizontal.



SECTION B-B

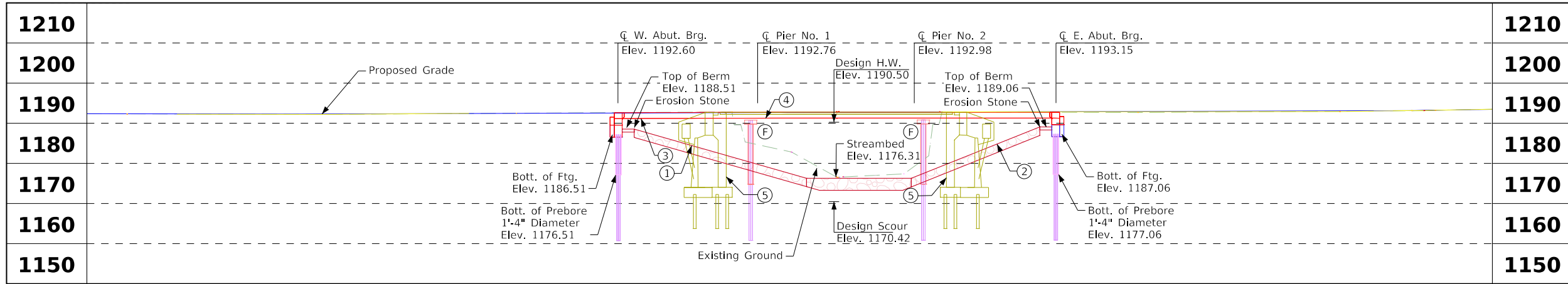


SECTION C-C

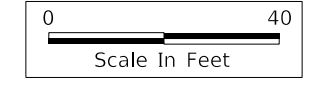


SECTION D-D ⑤

MODIFIED
MODIFICATIONS: Changed overall width of sections B-B, C-C, and D-D from 7'-6" to 15'-0".
ROCK FLUME FOR BRIDGE END DRAIN
DR-402 Sheet 2 of 2

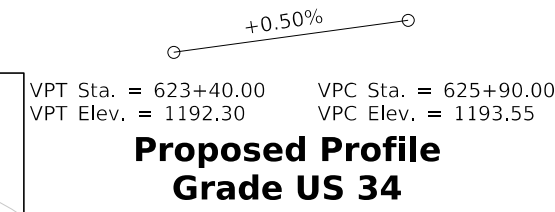


See Design Sheet 3 for Hydraulic Data and Revetment Details.



- 1 Class E Revetment - 24" Thickness, 3.5:1 Max, slope normal to abutment.
- 2 Class E Revetment - 24" Thickness, 2.5:1 Max, slope normal to abutment
- 3 Operational Low Beam, Elev. 1191.05
- 4 Channel Low Beam, Elev. 1191.22
- 5 Potential Pile Conflicts. Verify during final design.
- 6 110'-0" x 44'-0" PPCB Bridge, Sta. 624+73.00

Section A-A (Longitudinal Section Along C Prop. US 34)

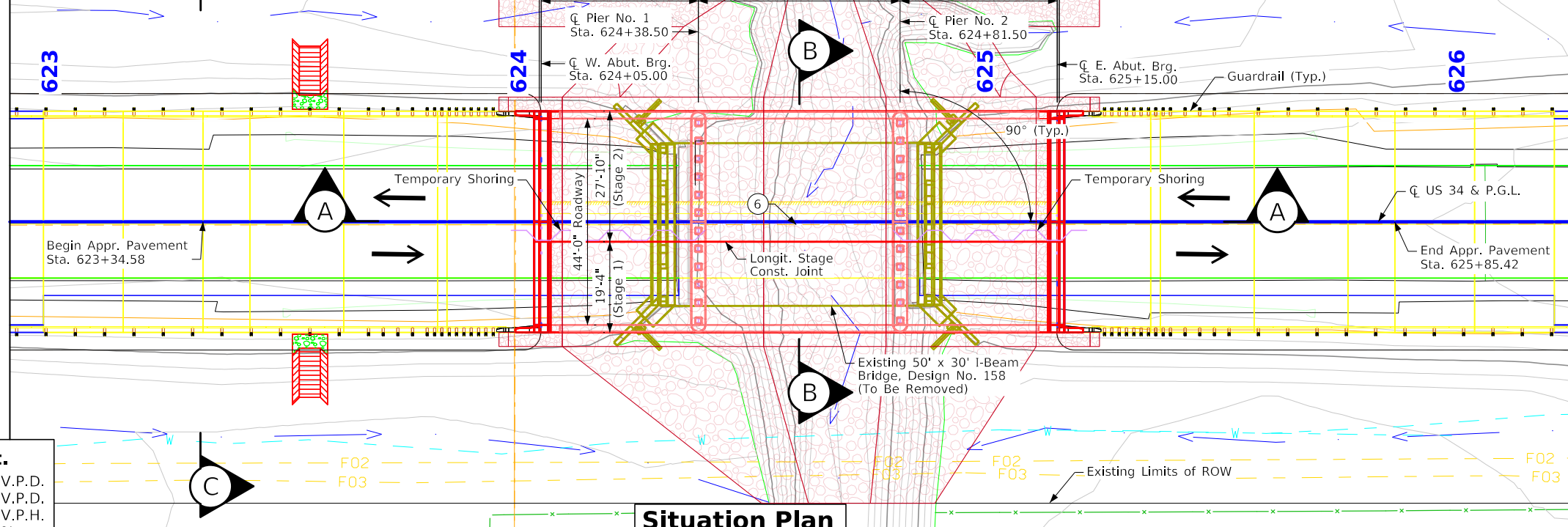
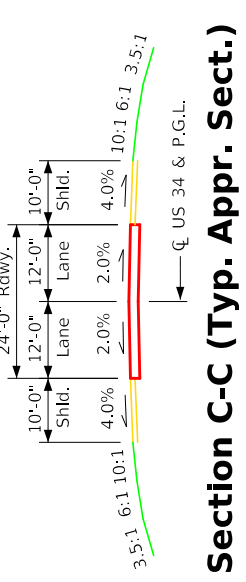


General Notes:
 This design is for the replacement of the existing 50' x 30' I-Beam Bridge, Adams Design No. 158. FHWA No. 13330. Maint. No. 0273.85034

- Design Notes:
- TSS TL4 (38") single slope bridge railing proposed.
 - Standard integral abutments.
 - Pier Type - Pile Bent Pier
 - Superstructure Type - CCS
 - Class E Revetment Stone.
 - Existing substructure and piles to be removed to 1' below prop. grade.
 - Final design to take into account proposed pier piling may be in conflict with bridge substructure.
 - Existing footing design is unknown.
 - Construction will be staged (See V.4).
 - The bridge does not meet Iowa DOT's desired operational freeboard per BDM 3.2.2.4. The proposed bridge provides reduced velocities through the bridge and lower water surface elevations to reduce over topping. Final design aspects in the BDM related to inundation required.
 - An Iowa DNR Flood Plain Permit is required. Preliminary Design will submit the application and place the permit in the PW Regulatory_Permits subdirectory folder upon receipt.
 - Final Design shall consider the need for temporary shoring to accommodate staging of bridge construction and include in the final plans as necessary.

- Plan Notes:
- Top of bridge deck at centerline roadway is 0.03" below the profile grade to account for parabolic crown.
 - Class E Revetment Stone is embedded.

Floodplain Development Permit Notes:
 The bridge will be designed to withstand the applicable effects of ice and horizontal stream loads and uplift forces associated with the Q100.



US 34 Traffic Est.

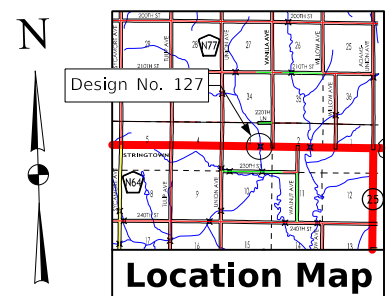
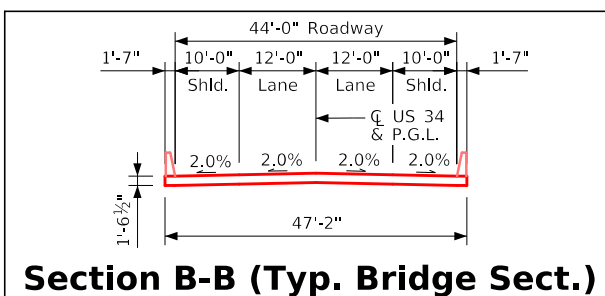
2027 AADT	2,600	V.P.D.
2047 AADT	3,000	V.P.D.
2047 DHV	-	V.P.H.
Trucks	21	%
Total		
Design ESALS	---	

Utilities Legend
 FO1 - AREON, Quality D
 FO2 - Windstream, Quality D
 FO3 - ICN, Quality D
 W - SIRWA, Quality D
 Utilities shown on this sheet are for information only, see Road Design sheets for final utility information.

Location
 US 34 over Metz Creek
 T-71N R-32W
 Section 3
 Grant Township
 Adams County
 Bridge Maint. No. 0273.85034
 FHWA No. 13331
 Latitude 40.978970°
 Longitude -94.513196°

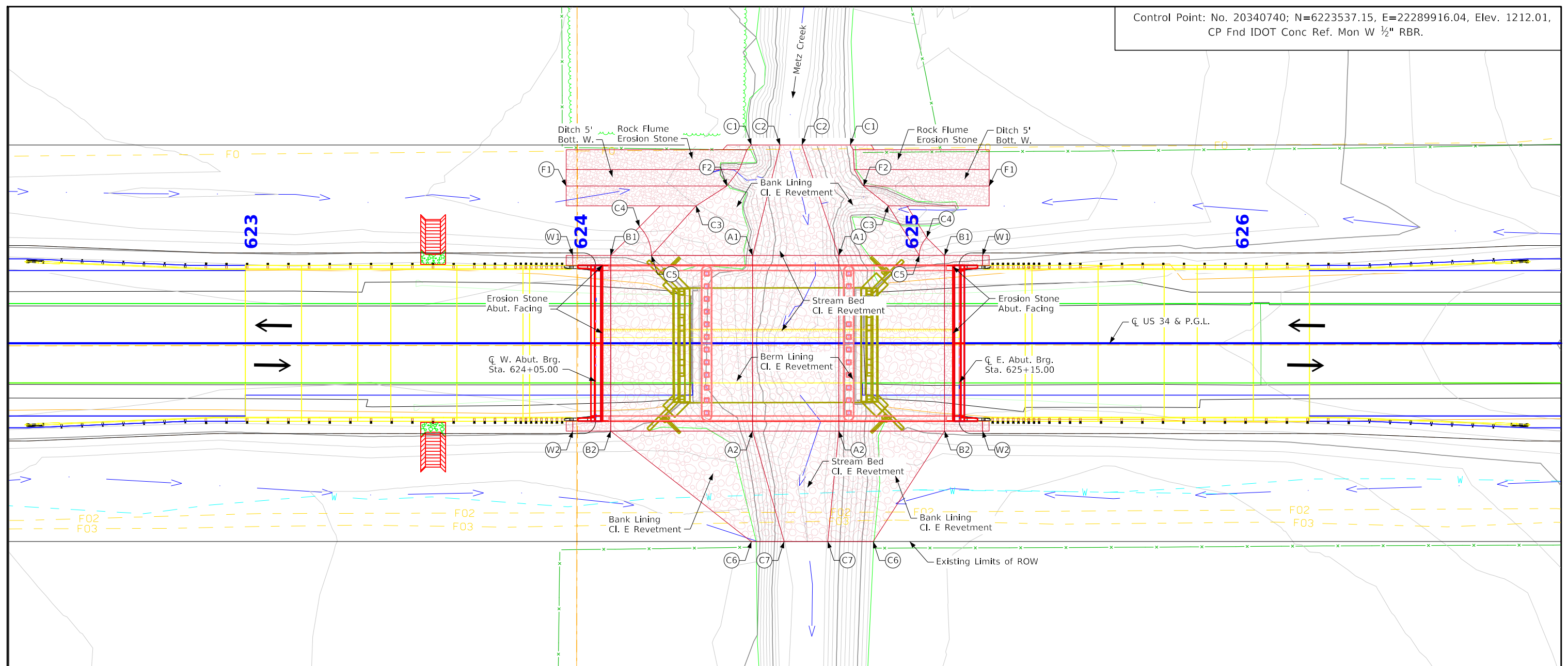
Design History at This Site
 (Includes This Design)

Dsn. No.	Type of Work
4721	Original Design
2329	Raise
158	Major Remodel
179	Repair/Overlay
106	Scour Countermeasure
127	Bridge Replacement



Preliminary
 Design For 0° Skew
110'-0" x 44'-0" Continuous Concrete Slab Bridge
 33'-6" End Spans 43'-0" Interior Span
Situation Plan
 STA. 624+60.00 (US 34) Turn-in Date: August 2024
Adams County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 127 Design Sheet No. 1 of 4 FHWA No. 13331

Control Point: No. 20340740; N=6223537.15, E=22289916.04, Elev. 1212.01,
CP Fnd IDOT Conc Ref. Mon W 1/2" RBR.



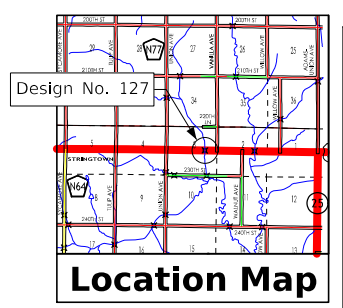
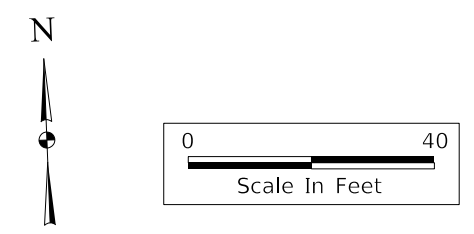
Site Plan

Berm Slope Location Table						
Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	624+52.41	26.58' Lt.	1176.25	624+78.48	26.58' Lt.	1176.25
A2	624+52.41	26.58' Rt.	1176.25	624+78.48	26.58' Rt.	1176.25
B1	624+09.50	26.58' Lt.	1188.51	625+10.50	26.58' Lt.	1189.06
B2	624+09.50	26.58' Rt.	1188.51	625+10.50	26.58' Rt.	1189.06
W1	623+99.50	26.58' Lt.	1192.01	625+20.50	26.58' Lt.	1193.20
W2	623+99.50	26.58' Rt.	1192.01	625+20.50	26.58' Rt.	1193.20

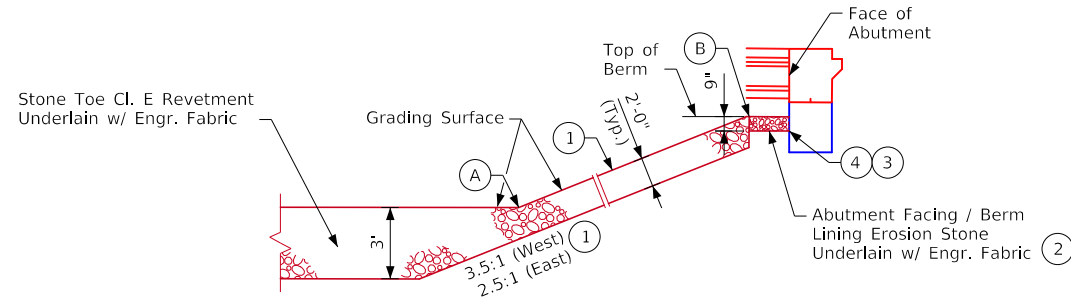
Berm Slope Elevations Reflect The Grading Surface
Notes:
GCL - Grading Control Line

- West Bank Grading Control:
- (C1) 624+51.99, 60.00' Lt., Top/Bank, GCL, Elev. 1185.00
 - (C2) 624+60.74, 60.00' Lt., Toe/Bank, GCL, Elev. 1176.25
 - (C3) 624+35.34, 41.58' Lt., Top/Bank, GCL, Elev. 1185.00
 - (C4) 624+18.19, 35.27' Lt., Bench, GCL, Elev. 1185.00
 - (C5) 624+21.79, 26.58' Lt., Top/Bank/Berm, GCL, Elev. 1185.00
 - (C6) 624+51.96, 60.00' Rt., Top/Bank, GCL, Elev. 1186.00
 - (C7) 624+61.96, 60.00' Rt., Toe/Bank, GCL, Elev. 1176.25
- N.W. Ditch/Flume Grading Control:
- (F1) 624+96.00, 47.58' Lt., Bott./Edge Ditch/Flume, Elev. 1185.01
 - (F2) 625+44.62, 47.58' Lt., Top/Bank/Flume, Elev. 1183.00

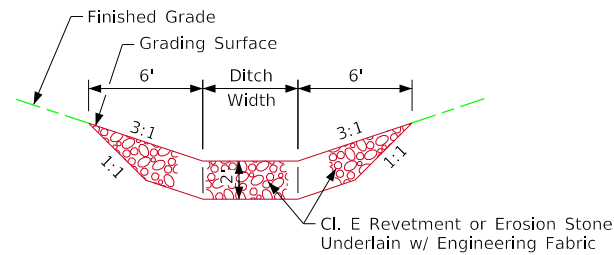
- East Bank Grading Control:
- (C1) 624+81.97, 60.00' Lt., Top/Bank, GCL, Elev. 1186.00
 - (C2) 624+67.34, 60.00' Lt., Toe/Bank, GCL, Elev. 1176.25
 - (C3) 624+93.48, 41.58' Lt., Top/Bank, GCL, Elev. 1186.00
 - (C4) 625+05.09, 31.99' Lt., Bench, GCL, Elev. 1186.00
 - (C5) 625+02.86, 26.58' Lt., Top/Bank/Berm, GCL, Elev. 1186.00
 - (C6) 624+88.89, 60.00' Rt., Top/Bank, GCL, Elev. 1187.00
 - (C7) 624+75.14, 60.00' Rt., Toe/Bank, GCL, Elev. 1176.25
- N.E. Ditch/Flume Grading Control:
- (F1) 625+24.00, 47.58' Lt., Bott./Edge Ditch/Flume, Elev. 1186.20
 - (F2) 624+85.99, 47.58' Lt., Top/Bank/Flume, Elev. 1184.00



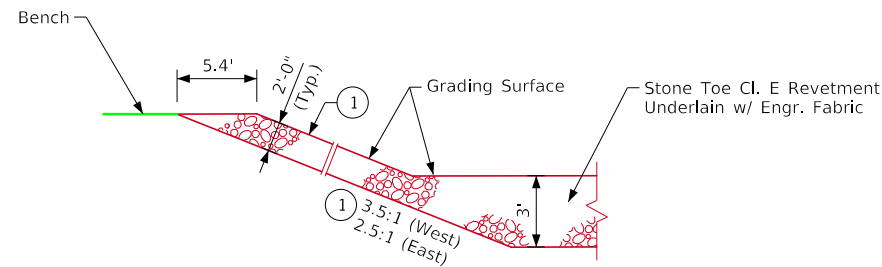
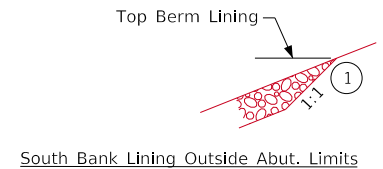
Preliminary
Design For 0° Skew
110'-0" x 44'-0" Continuous Concrete Slab Bridge
33'-6" End Spans 43'-0" Interior Span
Situation Plan - Site
STA. 624+60.00 (US 34) Turn-in Date: August 2024
Adams County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 127 Design Sheet No. 2 of 4 FHWA No. 13331



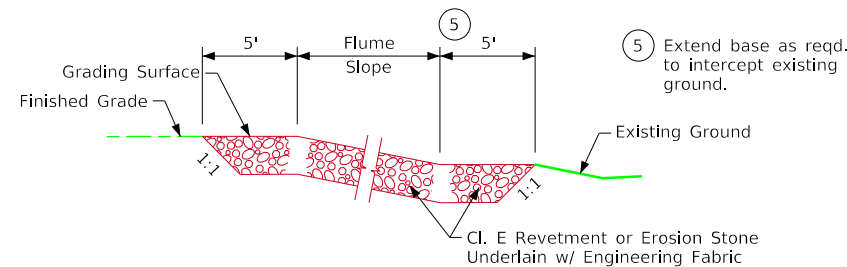
Section Through Berm Lining and Stream Bed



Section Through Rock Flume



Section Through North Bench/Bank Lining and Stream Bed



Section Along Rock Flume

Hydraulic Data

Drainage Area = 6.13 Sq. Mi.
 Stream Slope = 11.56 Ft./Mi.
 Avg. Low Water Stage = Elev. 1185.07

Q_{25} = 3,286 CFS
 Stage = Elev. 1189.75

Q_{50} = 4,164 CFS
 Stage = Elev. 1190.50
 Avg. Bridge Velocity = 4.56 FPS

Q_{100} = 5,117 CFS
 Stage = Elev. 1191.52
 Operational Low Beam = Elev. 1191.05
 Backwater = +0.38 Ft.
 Avg. Bridge Velocity = 5.66 FPS

Q_{200} = 6,152 CFS
 Stage = Elev. 1191.71
 Calculated Design Scour = Elev. 1170.42

$Q_{Overtop}$ = 6,665 CFS
 Avg. Bridge Velocity = 6.82 FPS
 Calculated Check Scour = Elev. 1169.36

Q_{500} = 7,400 CFS
 Roadway Overtop = Elev. 1192.23
 Sta. 623+10.73

- ① Slope normal to \perp Abut. / Grading Control Line.
- ② Extend facing out to lateral limits of wing armoring.
- ③ Carry engineering fabric up to face of abutment.
- ④ Slope normal to bank grading control line (GCL).

Estimated Berm Armoring Quantities

Revetment Type - Location	Revetment Cl. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	Excavation Class 10, Channel (CY)
Berm Lining - West	281.2	9.9	287.2	181.9
Bank Lining - West	217.1	-	212.4	135.7
Flume Lining, N.W.	-	822.0	114.3	513.8
Berm Lining - East	217.3	9.9	222.9	142.0
Bank Lining - East	195.7	-	184.8	122.3
Flume Lining, N.E.	-	481.9	88.9	301.2
Stream Bed	460.0	-	298.0	287.5
Totals	1,371.3	1,323.7	1,408.5	1,684.4

Excavation quantity calculated from grading surface.
 Revetment and Erosion Stone estimated at 1.6 Ton/CY

Hydraulic Design

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.

Jaelyn Gutman
 26392
 IOWA

Printed or Typed Name: _____ Date: _____
 License renewal date is December 31, 2025

Pages or sheets covered by this seal: Sheets V.1 thru V.3

Preliminary

Design For 0° Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

Situation Plan - Misc.

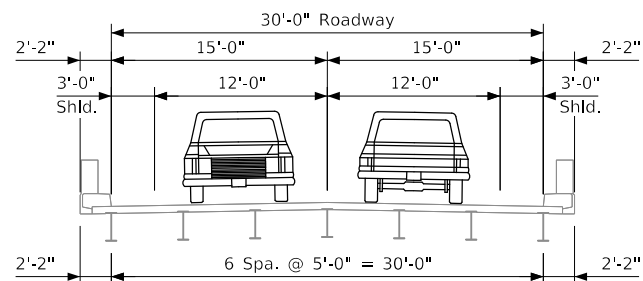
STA. 624+60.00 (US 34) Turn-in Date: August 2024

Adams County

IOWA DEPARTMENT OF TRANSPORTATION

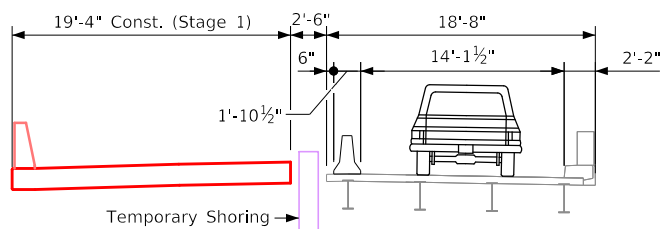
Design No. 127 Design Sheet No. 3 of 4 FHWA No. 13331





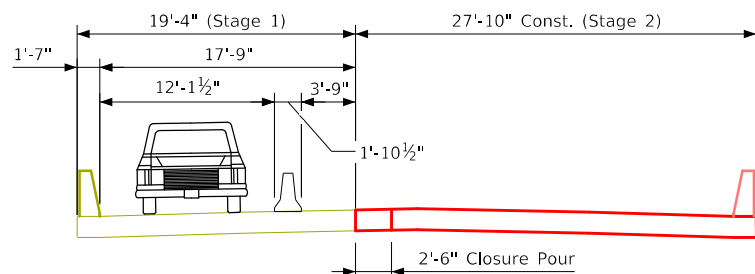
Existing Bridge Cross Section

(Looking East)



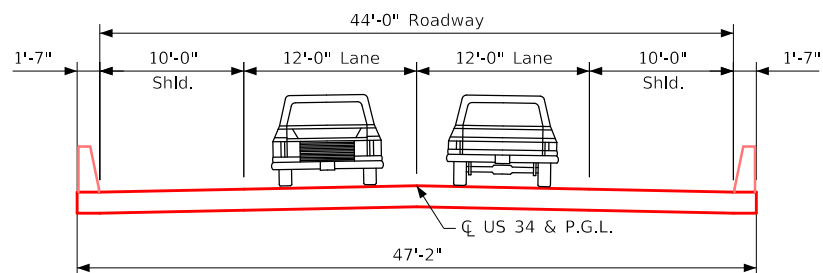
Stage 1 Cross Section

(Looking East)



Stage 2 Cross Section

(Looking East)



Final Cross Section

(Looking East)

Note:
Closure pour may not be necessary and may be eliminated if deemed acceptable during final design.



Preliminary

Design For 0° Skew

110'-0" x 44'-0" Continuous Concrete Slab Bridge

33'-6" End Spans 43'-0" Interior Span

Staging Plan

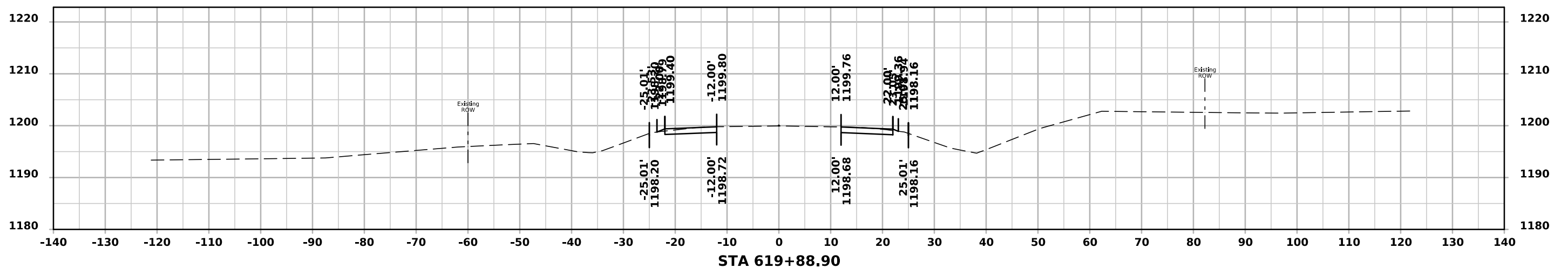
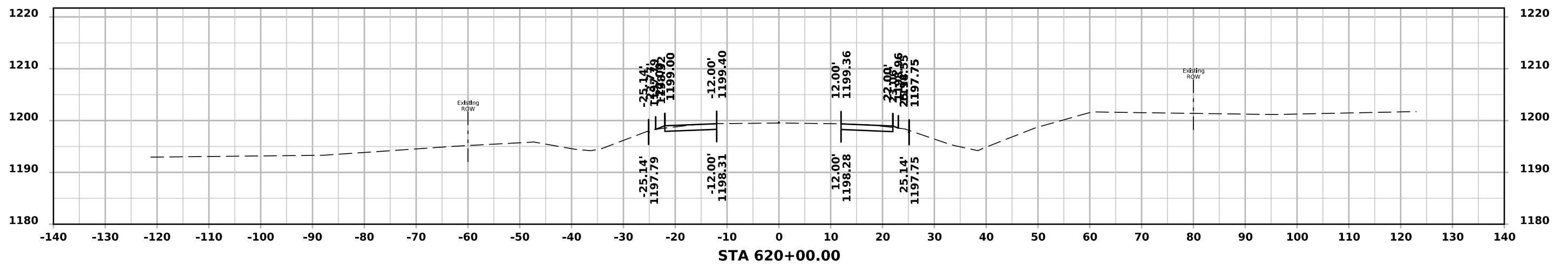
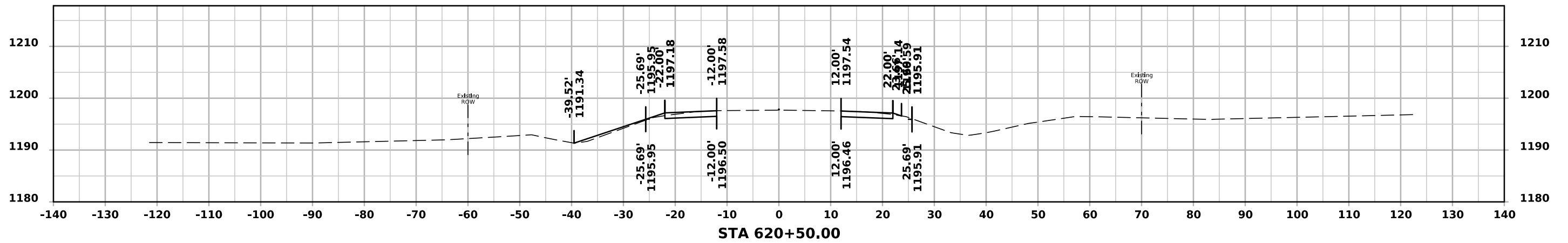
STA. 624+60.00 (US 34) Turn-in Date: August 2024

Adams County

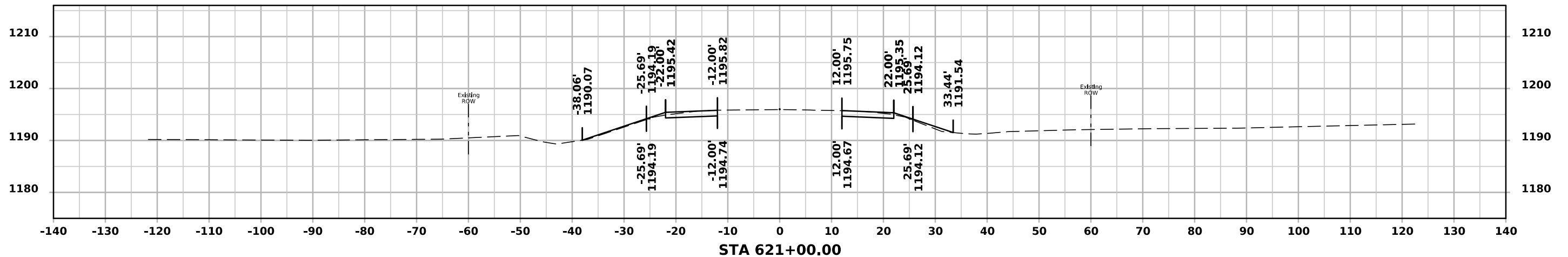
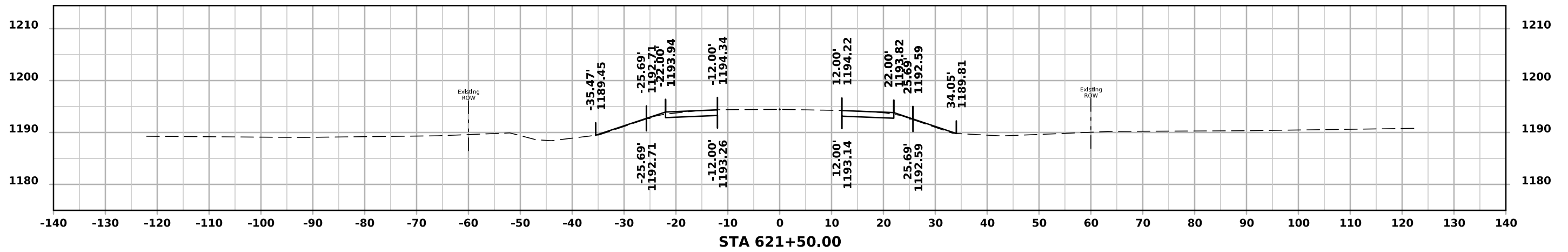
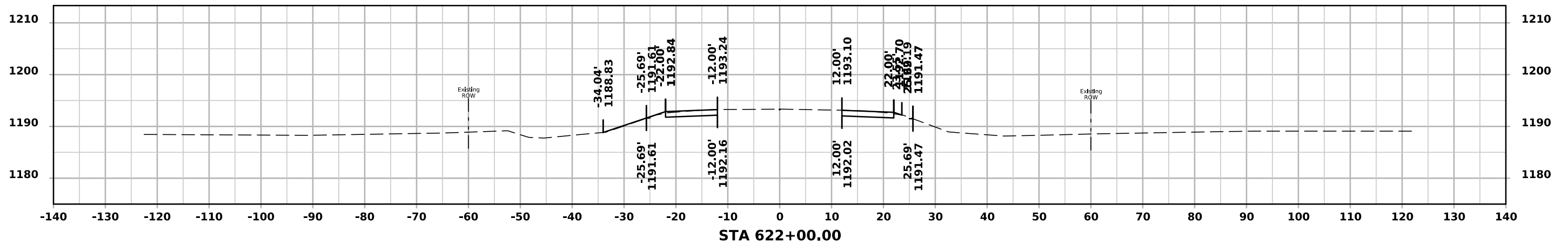
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 Design Sheet No. 4 of 4 FHWA No. 13331

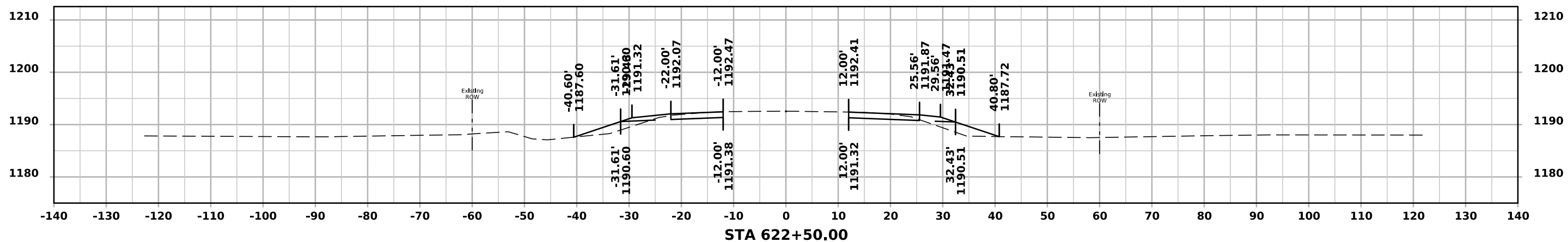
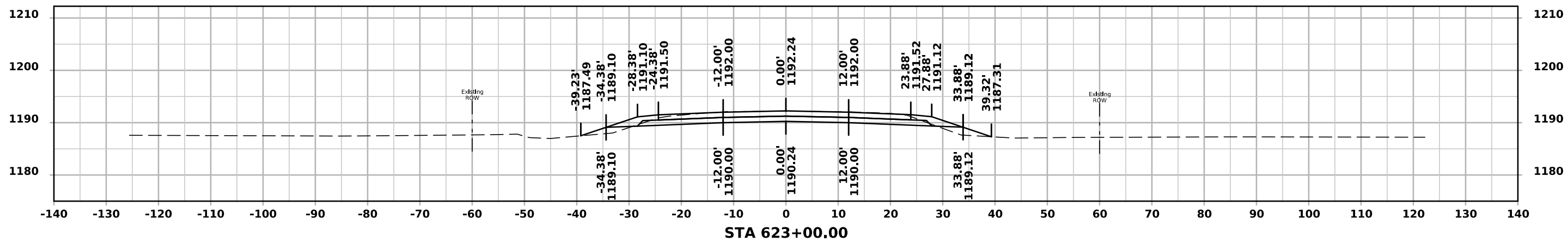
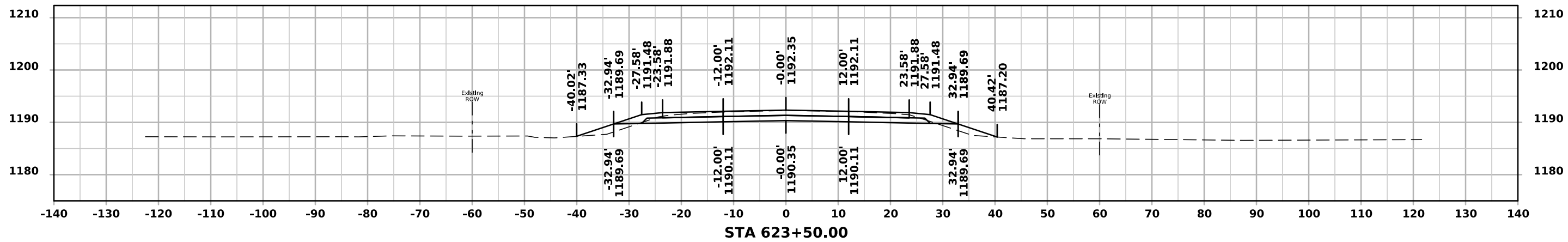
ML - US34



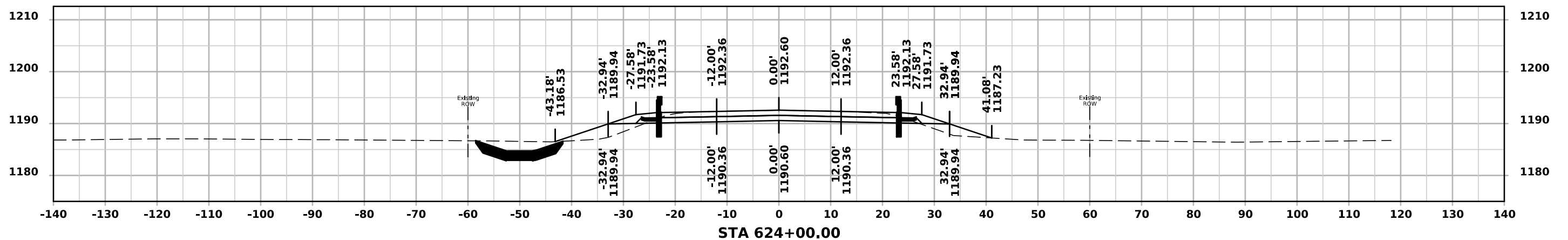
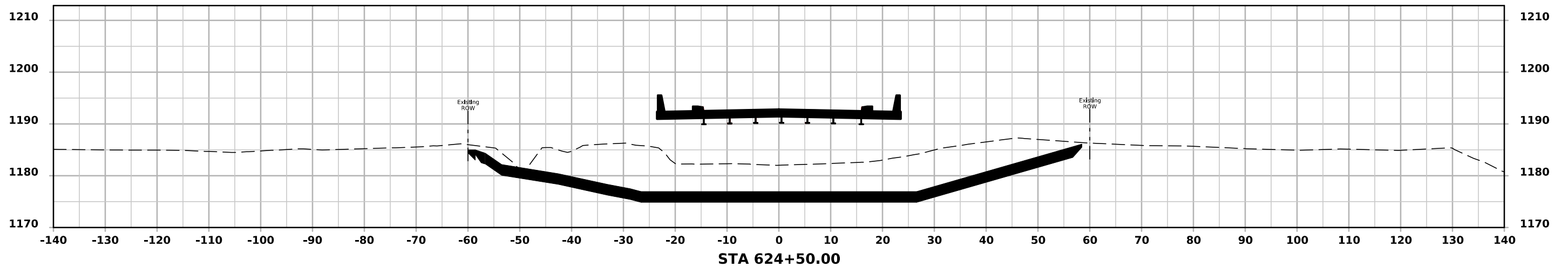
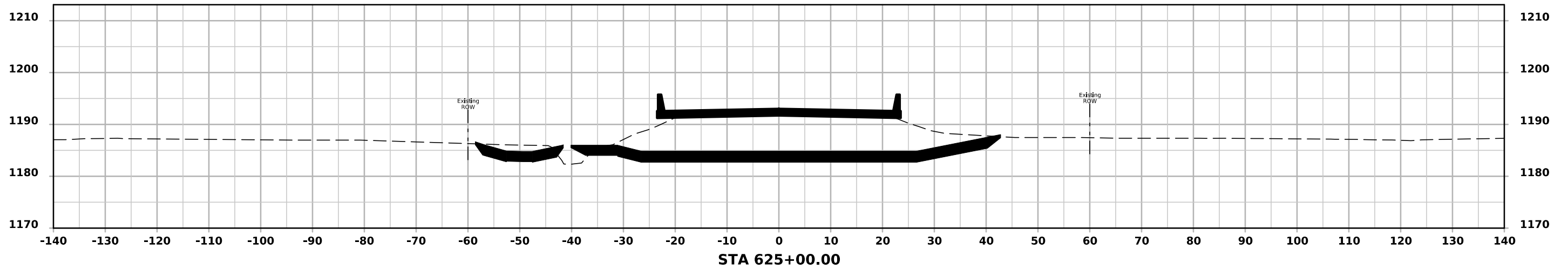
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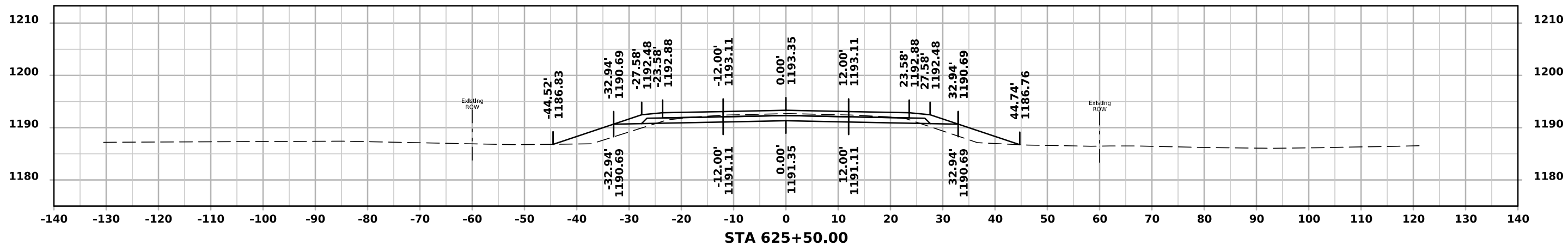
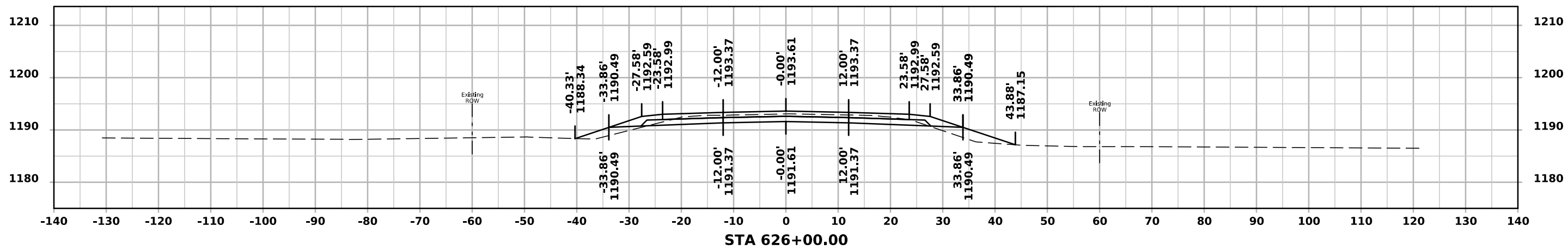
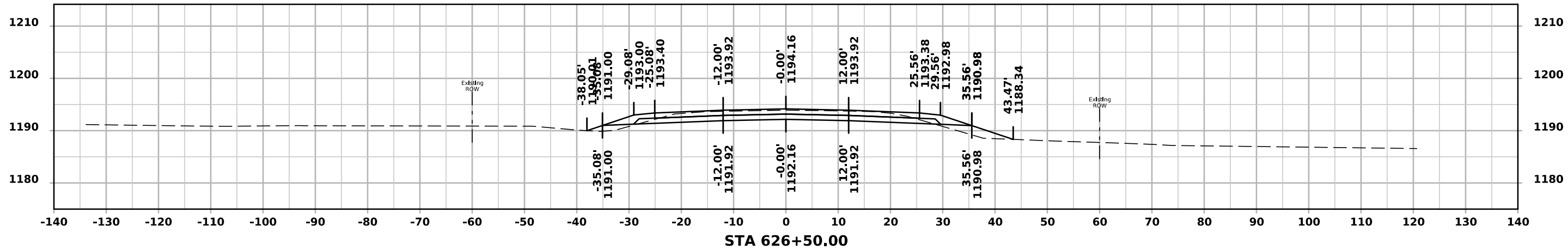
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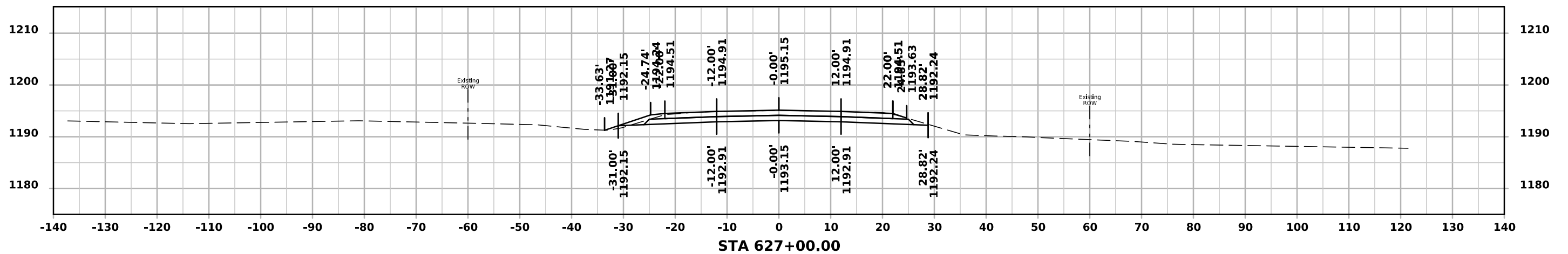
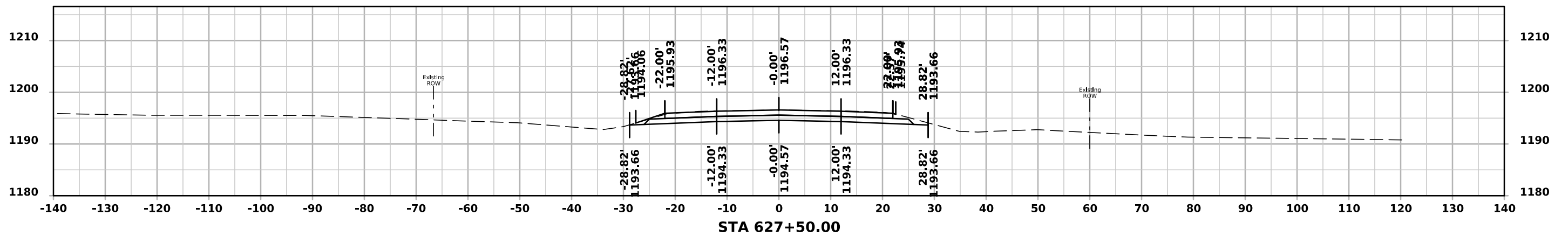
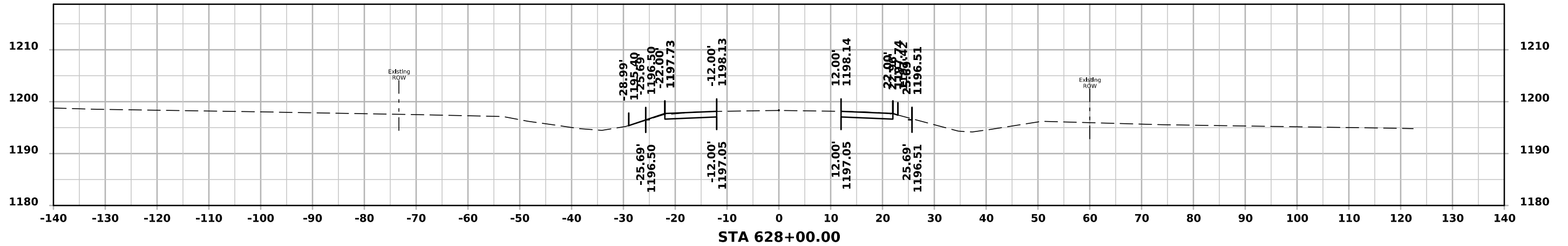
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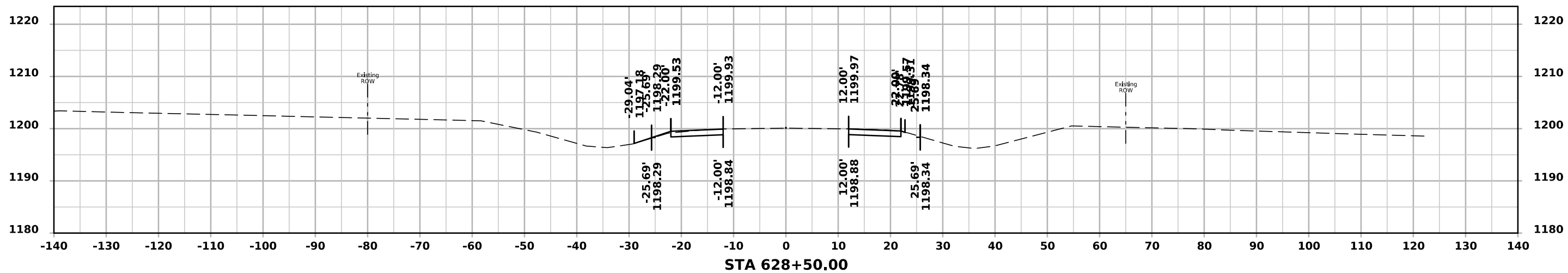
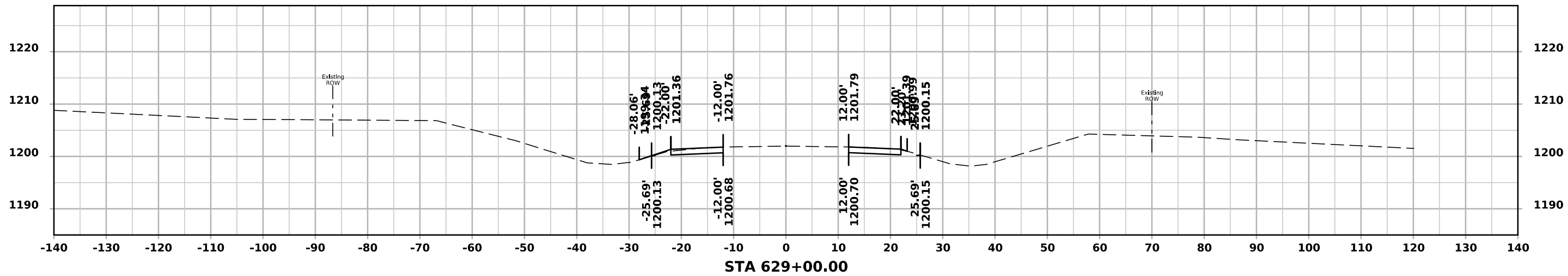
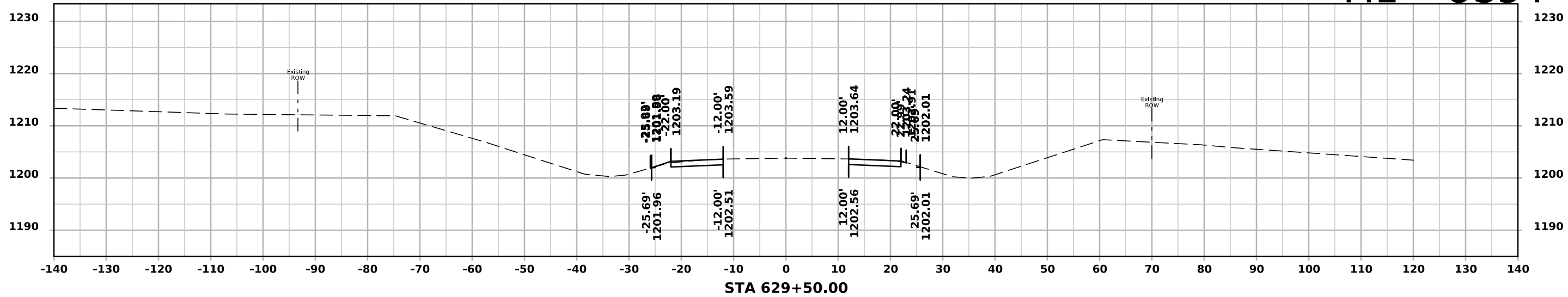
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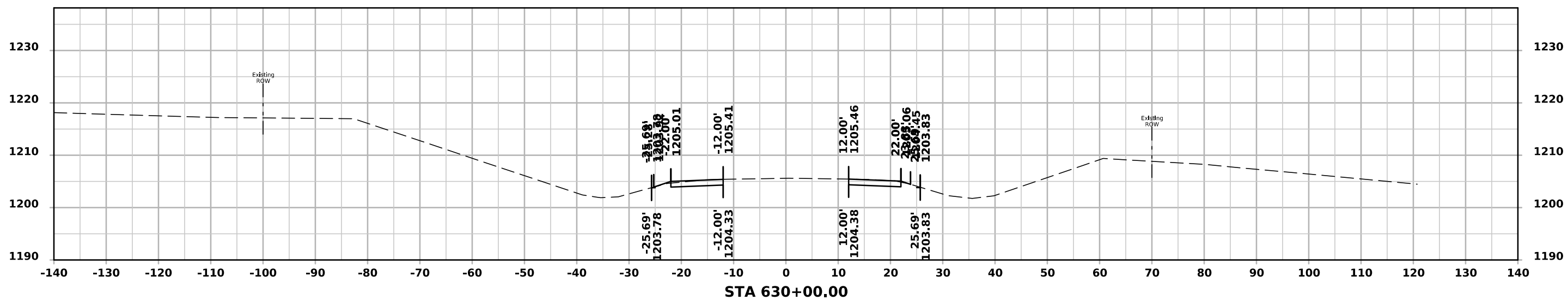
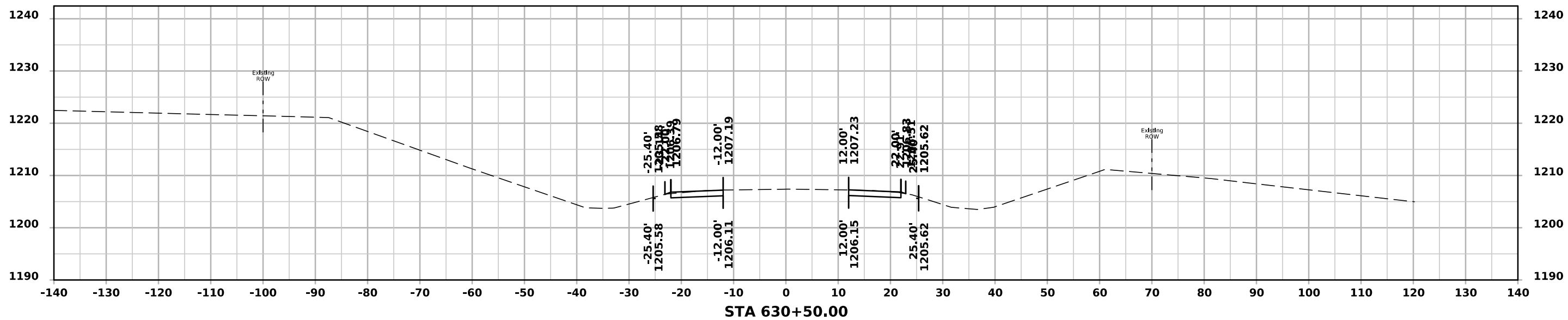
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