

LETTING DATE
11-15-2022

BRIDGE-UNSPECIFIED
BRF-069-4(117)--38-77

POLK CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

POLK COUNTY
BRIDGE-UNSPECIFIED

Fourmile Creek 0.3 mi N of Co Rd F22

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



H Sheets

REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

19-77-069-010

PROJECT NUMBER

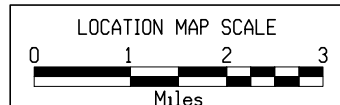
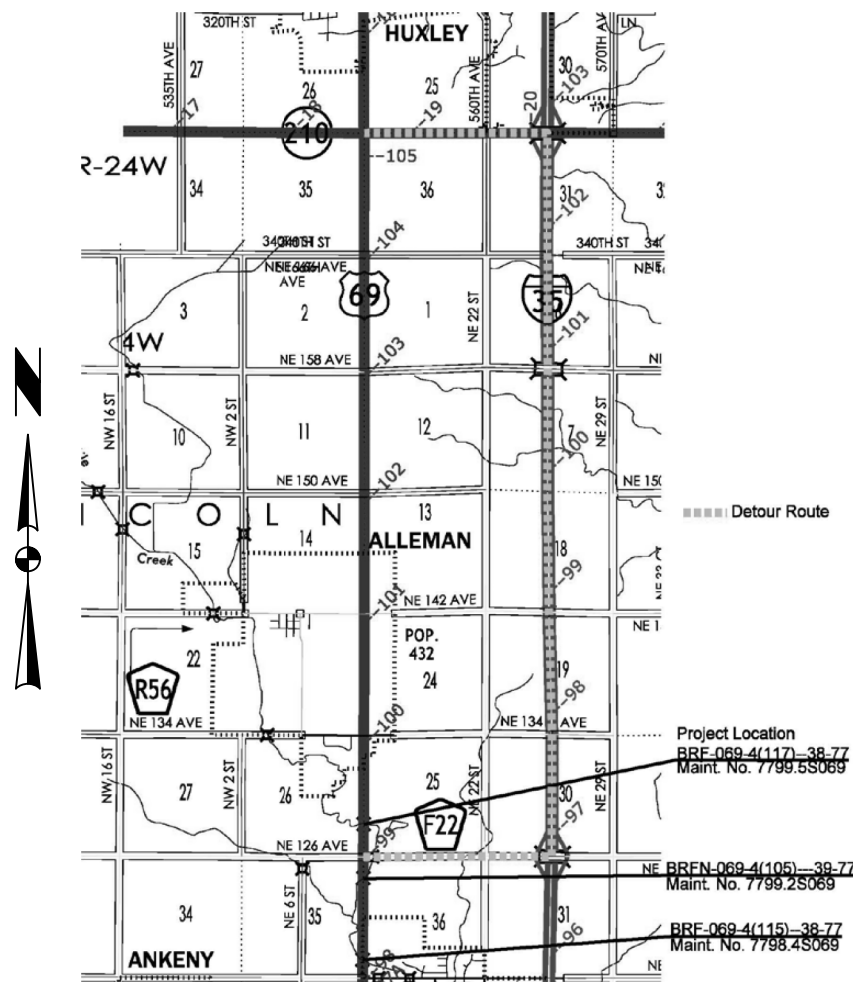
BRF-069-4(117)--38-77

R.O.W. PROJECT NUMBER

STPN-069-4(118)--2J-77

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 3	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 5	US 69
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
* J.1	Staging Notes Stage
V Sheets	Bridge and Culvert Situation Plans
V.1 - 2	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1 - 8	Cross Sections Legend & Symbol Information Sheet
	* Color Plan Sheets



S4 PLAN - Date: 6-8-2021
D4 PLAN - Date: 7-19-2022
Letting - Date: 11-15-2022

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 11-3-2020

DESIGN DATA RURAL

20--	AADT	6,700	V.P.D.
20--	AADT	8,600	V.P.D.
20--	DHV	890	V.P.H.
	TRUCKS	3	%
	Total		
	Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

FILE NO. 31913

ENGLISH

DESIGN TEAM Gustafson \ Smyth

POLK COUNTY

PROJECT NUMBER

BRF-069-4(117)--38-77

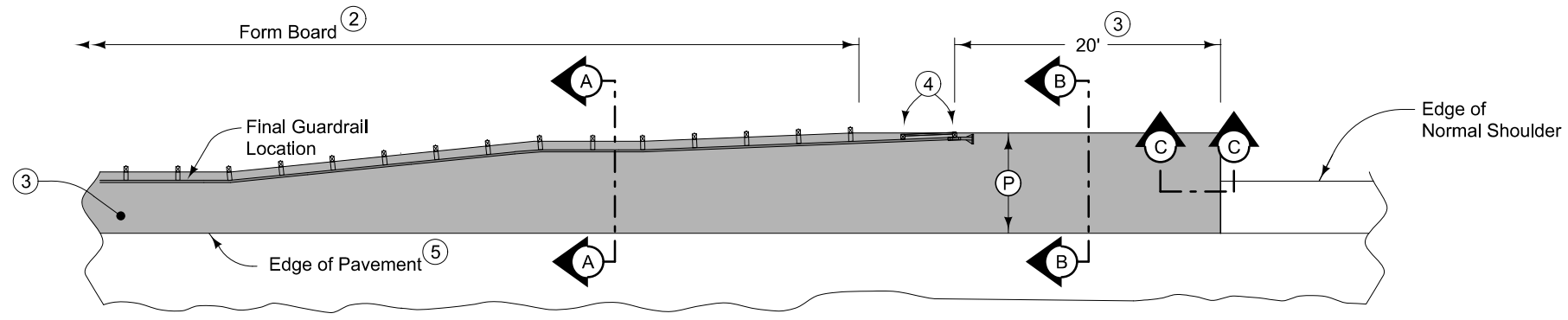
SHEET NUMBER

A.1

1:42:39 PM 11/3/2020

ASMYTH

pw:\ntPwInt\1.dot.int.lan:PWMain\Documents\Projects\7706901019\DistrictDesign\SHT_77069117.A01.dgn



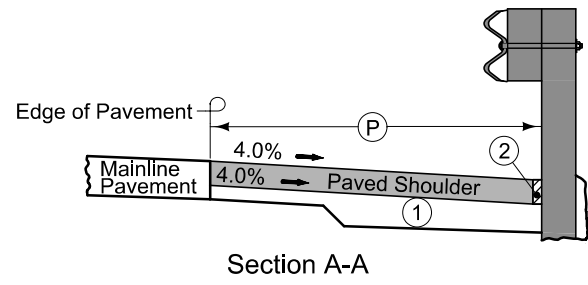
PLAN VIEW

9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

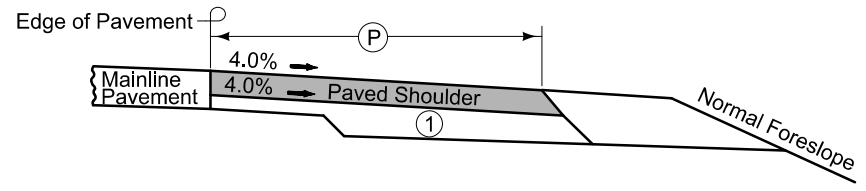
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal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



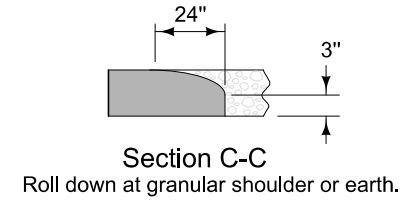
Section A-A



Section B-B

NEW CONSTRUCTION

- ① For subgrade treatment, refer to other details in the plan.
- ② 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. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.

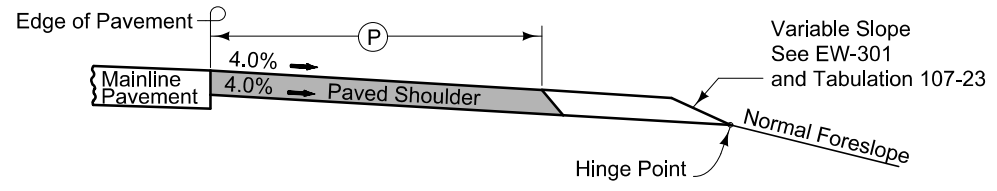


Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL



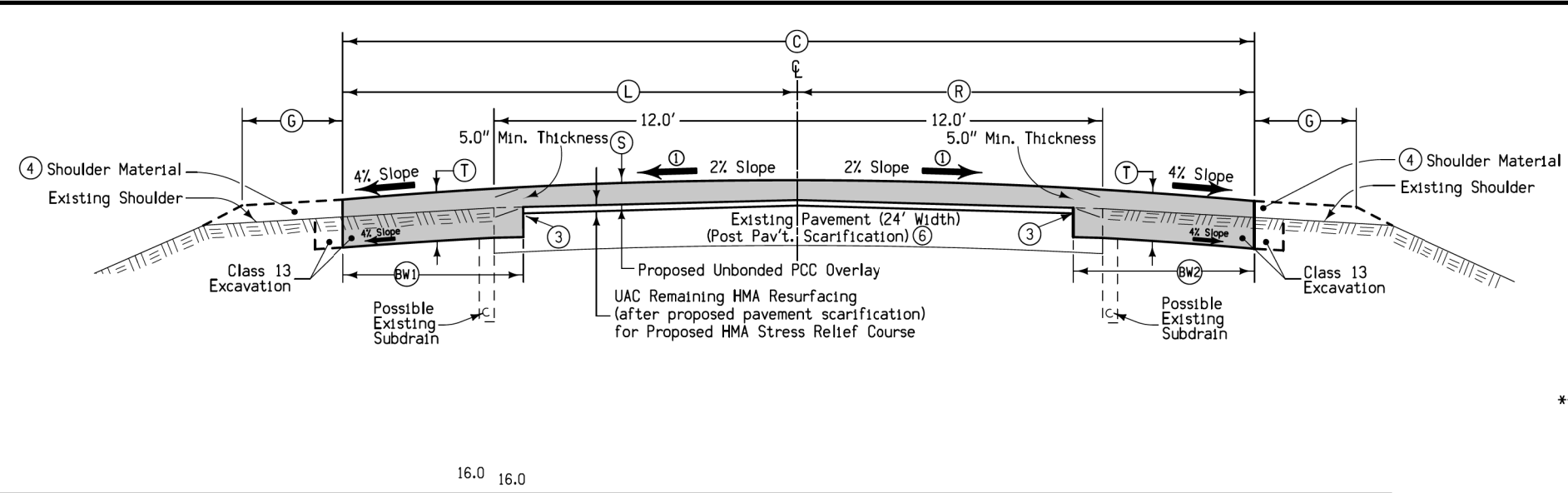
Section A-A



Section B-B

EXISTING SHOULDER

PCC-2
Special



- ① Typical section shown may be modified appropriately in areas of super elevated curves or other locations specifically designated by the engineer. At existing super elevated areas match existing cross slopes and transition rates.
- ② Class 13 quantities include trench width (BW) plus 1' x both Lt. & Rt. sides.
- ③ Provide a vertical clean edge similar to milling machine results. Incidental to Class 13 Excavation.
- ④ Shoulder material as specified elsewhere in these plans; refer to Typical 7135 on sheet B.8 for Type 'B' shoulder adjacent to PCC overlay.
- ⑤ Refer to Typical ML-JNT1 on sheets B.9 - B.12.
- ⑥ Refer to Typical MILL-2 on sheet B.2.

*** The contractor shall pave proposed shoulders thru all unpaved side road, paved side roads, and entrance intersections. At the existing paved intersections, the existing pavement will be removed.

Location			Overlay Quantities (Per Location)								Remarks			
Road	Station To Station		(S)	(C)	(L)	(R)	Class 13			(T)	(BW1)	(BW2)	(G)	
			Inches	Feet	Feet	Feet	Cu. Yds.	PCC Overlay Cu. Yds.	PCC Overlay Sq. Yds.	Inches	Feet	Feet	Feet	
US 69	209+78 (C)	212+50	5.0	36.0	18.0	18.0	68	212	1088	9.5	8.0	8.0	4.0	Div. 1
US 69	224+00	227+74 (D)	5.0	36.0	18.0	18.0	94	291	1496	9.5	8.0	8.0	4.0	Div. 1
US 69	233+36 (E)	254+65	5.0	36.0	18.0	18.0	532	1656	8516	9.5	8.0	8.0	4.0	Div. 1
US 69	254+65	261+00	5.0	36.0	18.0	18.0	159	494	2540	9.5	8.0	8.0	4.0	Div. 2

- (C) Begin at Transition Pavement from existing Bridge Approach Pavement, refer to Typ. 7308B on sheet B.5.
- (D) Stop at Transition Pavement to existing Bridge Approach Pavement, refer to Typ. 7308B on sheet B.5.
- (E) Resume at Transition Pavement from Bridge Approach Pavement, refer to Typ. 7308B on sheet B.5.

**TYPICAL CROSS SECTION
PCC OVERLAY WITH BASE WIDENING
(AFTER PAVEMENT SCARIFICATION)**

This Sheet for Information Only

SURVEY SYMBOLS

- △ PI Tangent Point
- CP Control Point
- PCP Photo Control Point
- WC Wild Card (Misc. Field Shot)
- + REF Reference Tie Point
- ▲ SCR Section Corner
- BRG Bridge
- GDL Guard Rail Steel
- CU Back of Curb
- GU Gutter In Front of Curb
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- LIN Miscellaneous Line
- SIGN
- SI Sign
- SNP Unpaved Shoulder
- FW Wire Fence
- > D Centerline Draw or Stream (Down)
- PPA Power Pole Co. 1
- BD Bridge Deck
- BCL Bridge Centerline
- CON Concrete or A/C Slab
- OUT Tile Outlet
- TILE
- TIL Tile Line
- F02 — FO2D Fiber Optic Co. 2 - Quality D
- SBR Size of Bridge
- DTM Photogrammetry Elv Control Check
- ← DU Centerline Draw or Stream (Up)
- BNK Stream Bank
- BL Topo Breakline
- TW Top of Water
- EW Edge of Water
- COS Square Bridge Pier Column
- BLS Bridge Low Steel
- TOP Top of Bridge Pier
- F0 — FO1D Fiber Optic Co. 1 - Quality D
- PLG Location of General Photo

UTILITY LEGEND

This is a POINT 25 Project and is subject to the provisions of IAC 761-115.25.

- F0 - Aureon Network Services
Jeff Klocko
7760 Office Plaza Drive South
West Des Moines, IA 50266
(515) 830-0445
jeff.klocko@aureon.com
- F02 - Huxley Communications Cooperative
Brant Strumpfer
102 N Main Ave
Huxley, IA 50010
(515) 597-2281
brant@huxleycommunications.net

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.		
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

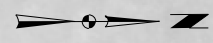
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

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

**PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET**

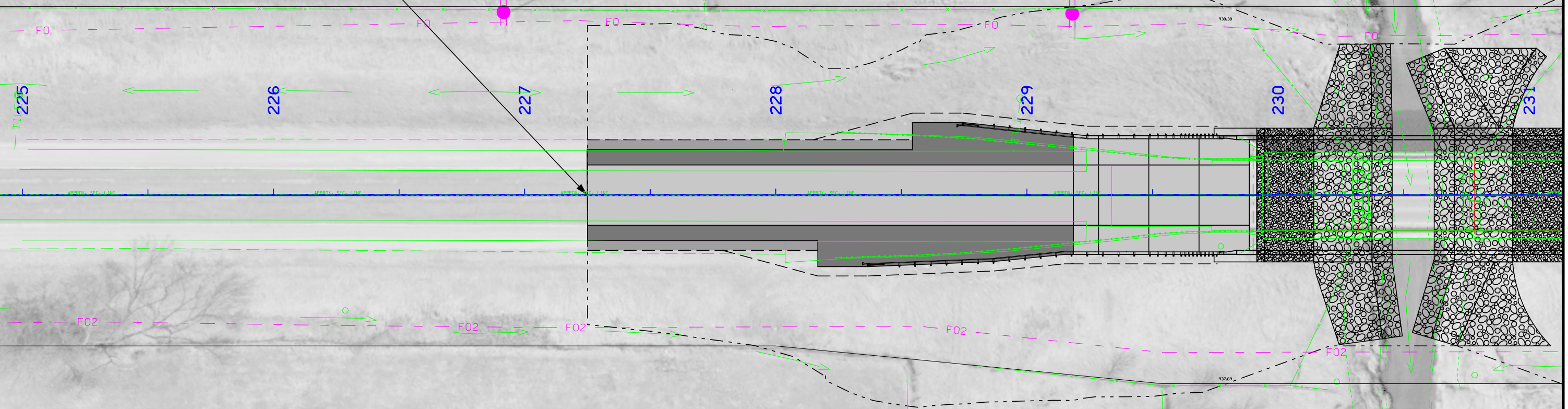
(COVERS SHEET SERIES D, E, F, & K)



Lincoln Twp.
T-81N R-24W
Sec. 26

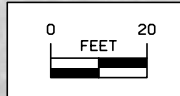
Li
T-

Sta. 227+25
Begin Construction

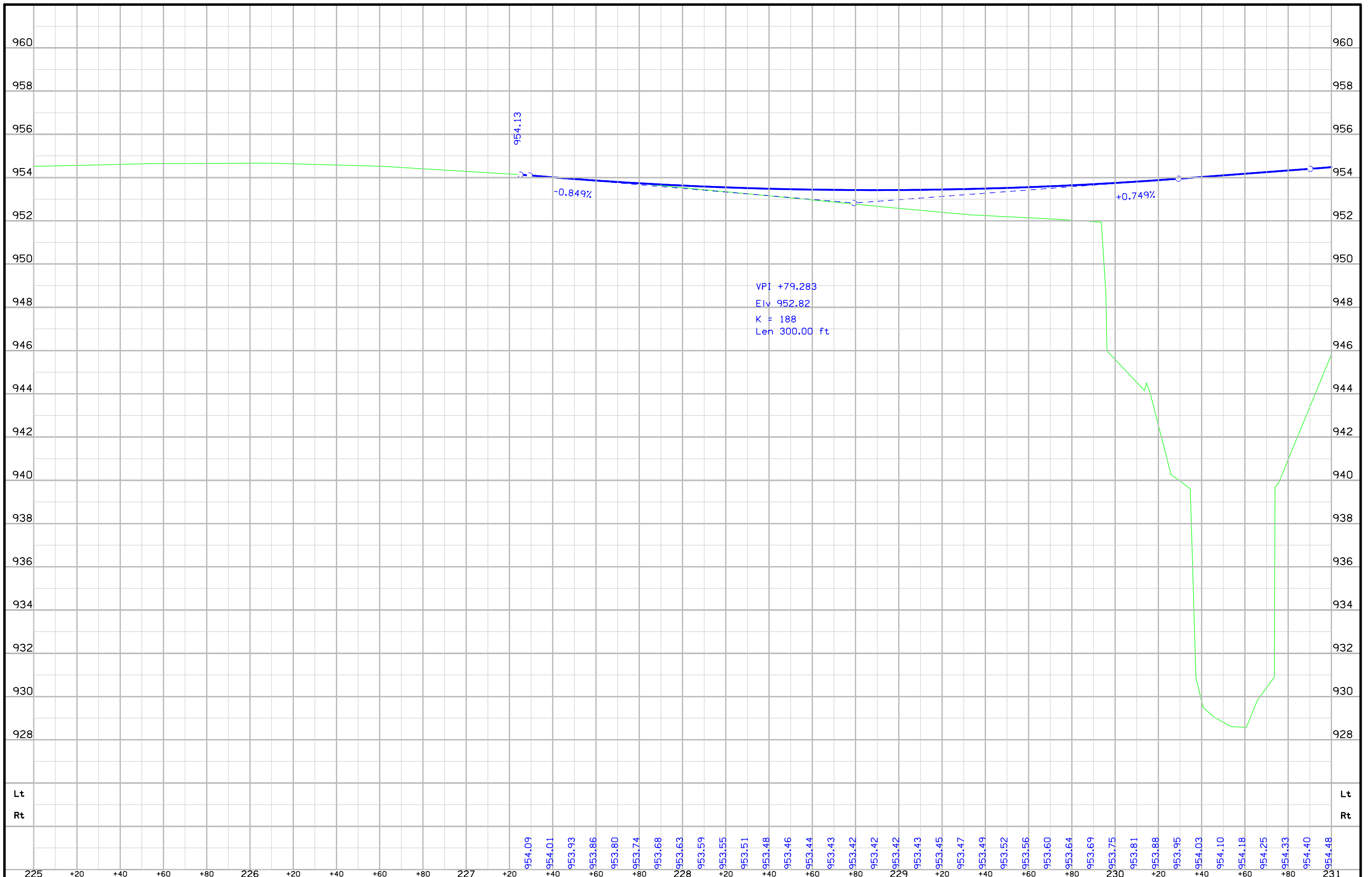


Lincoln Twp.
T-81N R-24W
Sec. 25

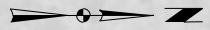
(Remove)
Sta. 230+55
120' X 28' Continuous I-Beam Bridge
D.A.=20.5 SQ Miles R-H
Build
Sta. 230+55.00
130'-0 x 44'-0 PPCB Bridge



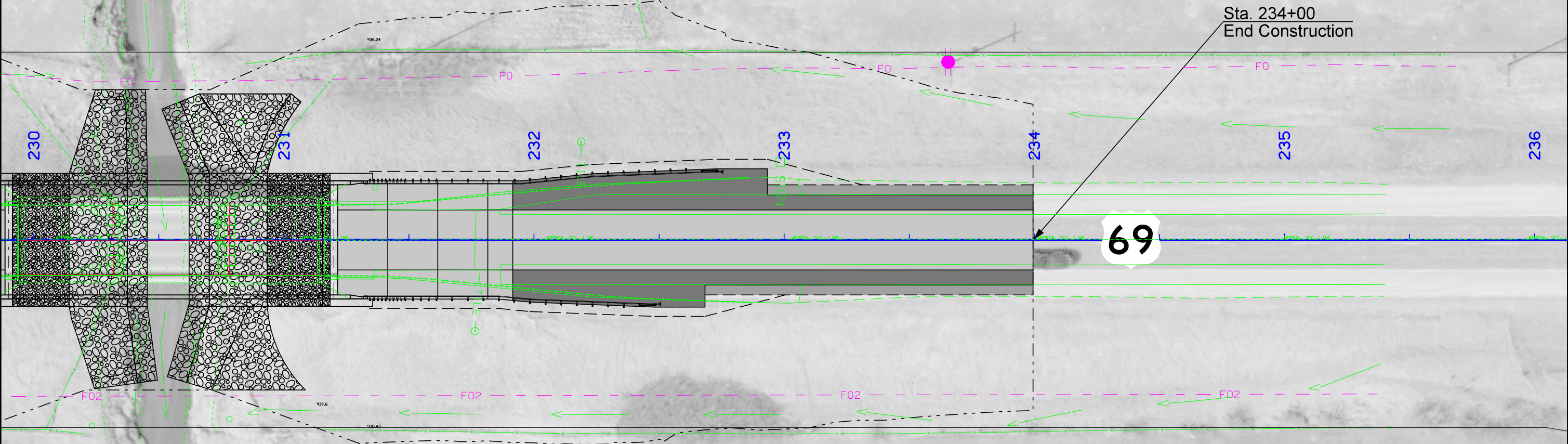
US 69 Bridge
Replacement



Lincoln Twp.
T-81N R-24W
Sec. 26

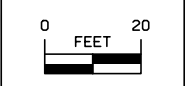


Sta. 234+00
End Construction

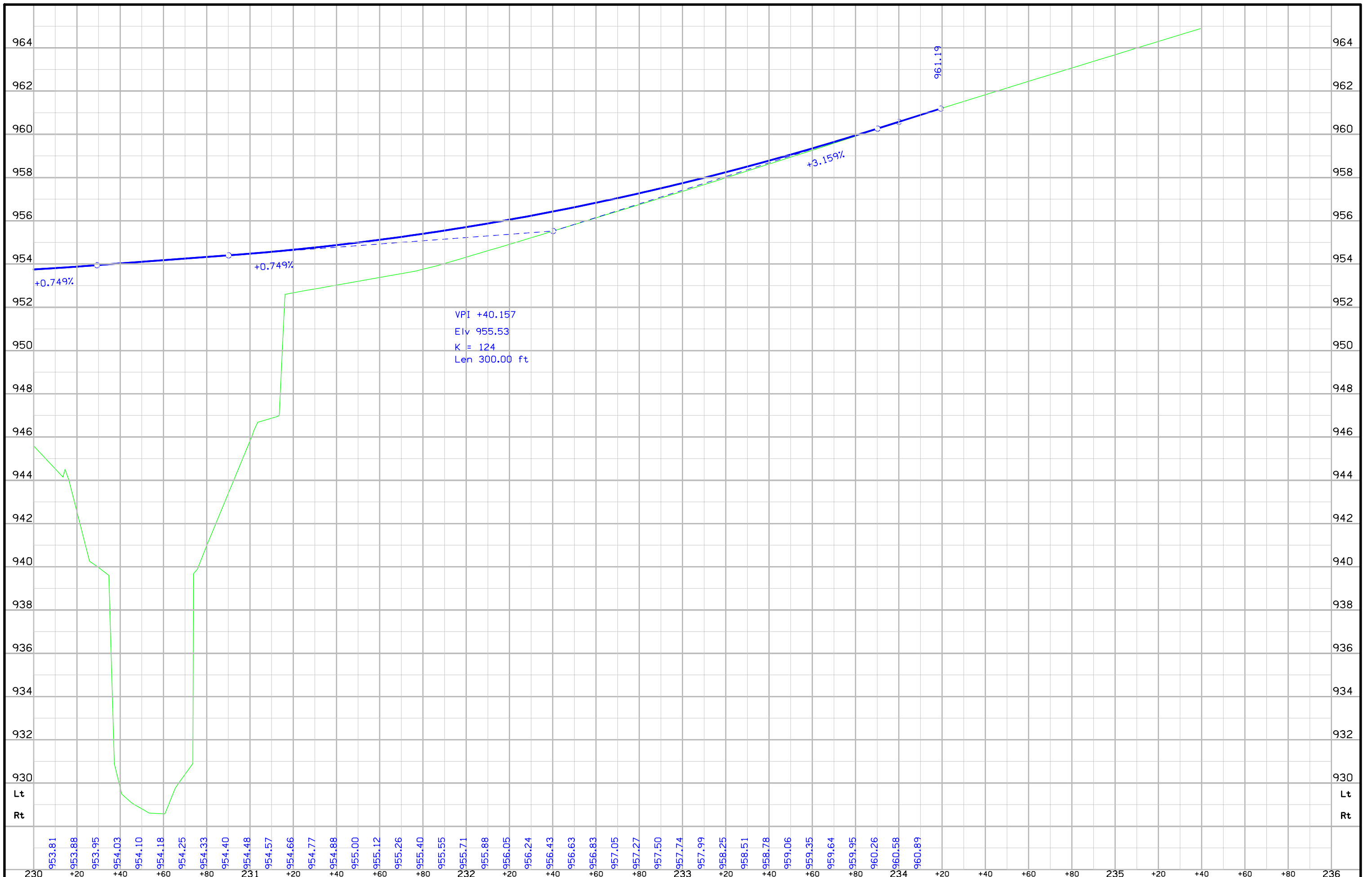


(Remove)
Sta. 230+55
120' X 28' Continuous I-Beam Bridge
D.A.=20.5 SQ Miles R-H
Build
Sta. 230+55.00
130'-0 x 44'-0 PPCB Bridge

Lincoln Twp.
T-81N R-24W
Sec. 25



US 69 Bridge
Replacement



FILE NO. 31913	ENGLISH	DESIGN TEAM Gustafson \ Smyth	POLK COUNTY	PROJECT NUMBER BRF-069-4(117)--38-77	SHEET NUMBER D.5
-----------------------	---------	--------------------------------------	--------------------	---	-------------------------

Survey Information

Polk County
BRF-069-4(117)--38-77
Four Mile Creek 0.3 mi N of Co Rd F22
19-77-069-010
Sap-0882.2

Date(s) of Survey

Begin Date 09/19/2019
End Date 03/04/2020

General Information

Measurement units for this survey are US survey feet. This survey is for unspecified bridge work, @ Four Mile Creek 0.3 mi north of Co Rd F22. Project datum and control information is provided by Design Survey Office. This project is a partial field survey, supplemented with photo control.

Vertical Control

Vertical Control was established on this project by 6 hour GPS static sessions. Vertical datum for this survey is relative to NAVD88. Geoid 12 B was used in processing. GRS80 Ellipsoidal Height was computed at project Pts. Vertical control was checked with IARTN checks.

This survey observed AB Plan bridge cap to compare to local ground control:

South bridge cap AB Plans Project # FN-69-4 (54)--21-77 Elevation 948.95
= South bridge cap Survey Elev. = 948.50

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 8 (U.S. Survey Feet). This survey control is relative to IARTN reference stations. IARTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011). Coordinates were determined by conducting six hour static observations. control was checked with IARTN checks.

Point Name	Northing	Easting	Elevation	Description
CP 2	7561251.242	18531575.348	948.536	Feno Monument
3	7559009.902	18531645.037	935.075	Feno Monument
CP 4	7553632.672	18531699.541	938.074	Feno Monument
CP 5	7566498.859	18531693.108	979.906	Feno Monument

Alignment Information

US Hwy 69

The alignment for this survey is a retrace of As-built Plans Project # 187 (3). Survey stationing was equated to the plan at PI Sta. 189+98.0, and was run back and ahead with no equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 163+60.20 This Survey
= PI Sta. 163+58.5 As-built Plans Project # 187 (3)
= PI Sta. 163+56.41 As-built Plans Project # STP-69-4(87)--2C-77

PI Sta. 189+98.0 This Survey
= PI Sta. 189+98.0 As-built Plans Project # 187 (3)

PI Sta. 216+32.38 This Survey
= PI Sta. 216+32.1 As-built Plans Project # 187 (3)

PI Sta. 242+72.91 This Survey
= PI Sta. 242+73.1 As-built Plans Project # 187 (3)

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

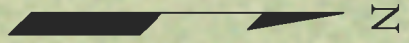
VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 8

Point Name	North	East	Elevation	Feature Definition-Description
3	7559009.90	18531645.04	935.08	CP FENO MONUMENT 50.5' west of US Hwy 69, 86' south power pole, 43' north conc corner post, 10' east of fence
CP2	7561251.24	18531575.35	948.54	CP FENO MONUMENT 377' southwest intersection of US Hwy 69 & County Rd. F22, 37.4' west of US Hwy 69, 73' west power pole, 8' east fence
CP4	7553632.67	18531699.54	938.07	CP FENO MONUMENT On a fore slope just west of intersection US Hwy 69 & NE 47th St.. The mark is 141' northwest of sta. sign 135, 113' northwest of luminaire pole, 99' west of luminaire pole, 94' south of power pole, 28' east of fence, 17' west of the west edge ac slab.
CP5	7566498.86	18531693.11	979.91	CP FENO MONUMENT On a fore slope just west of US Hwy 69 . The mark is 378' southwest intersection US Hwy 69 & NE 134th Ave, 29.5' west center US Hwy 69, 89' northwest of sta. sign 265, 89' southwest of mile marker 100, 117' north of water valve, 42' east of south corner hdwl and wing rcb.

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

Lincoln Twp.
T-81N R-24W
Sec. 26



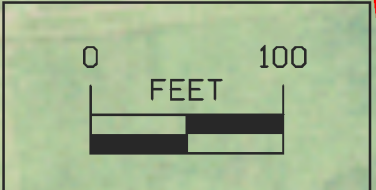
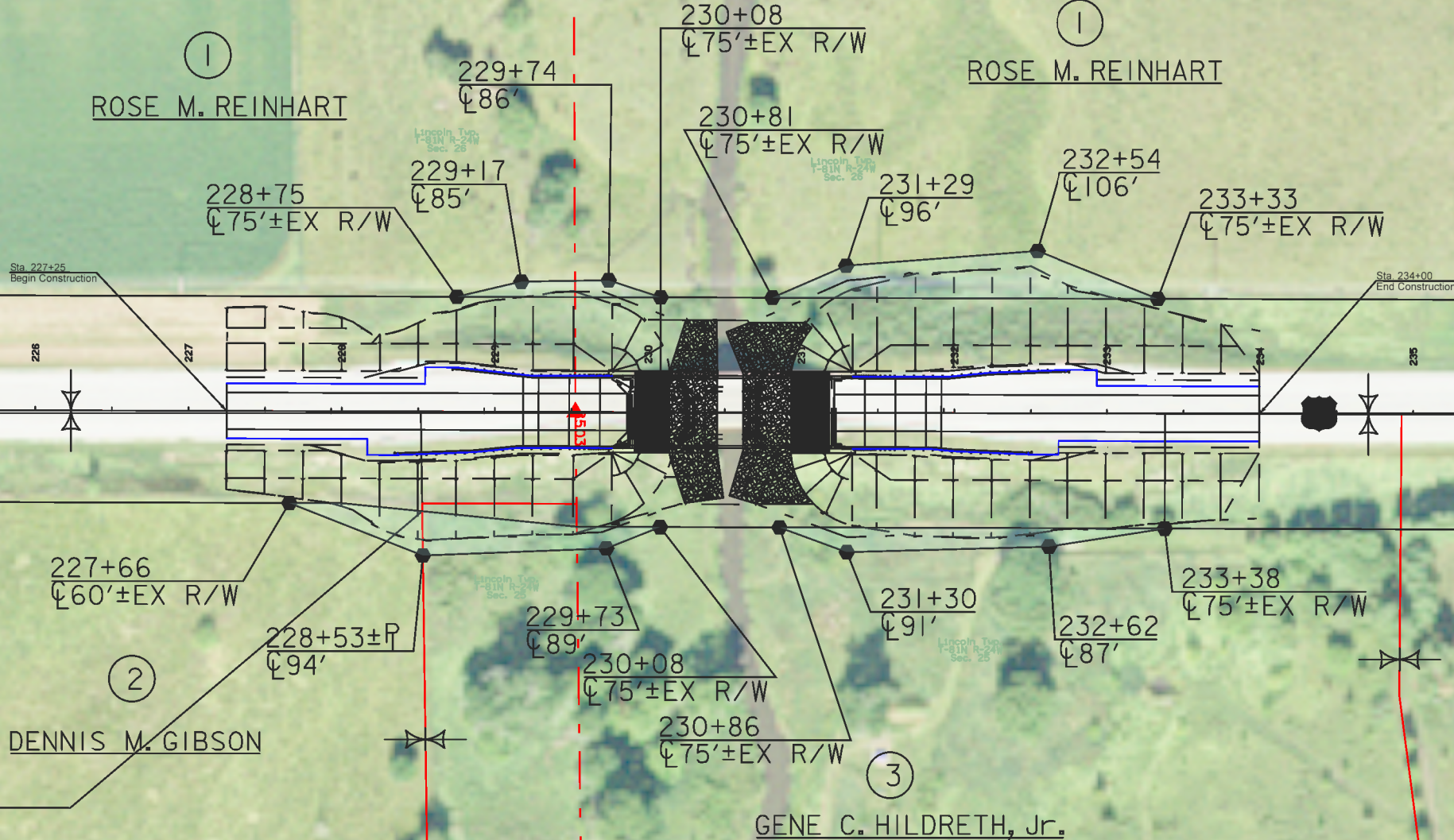
ROSE M. REINHART

ROSE M. REINHART

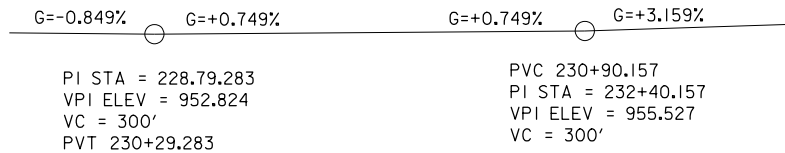
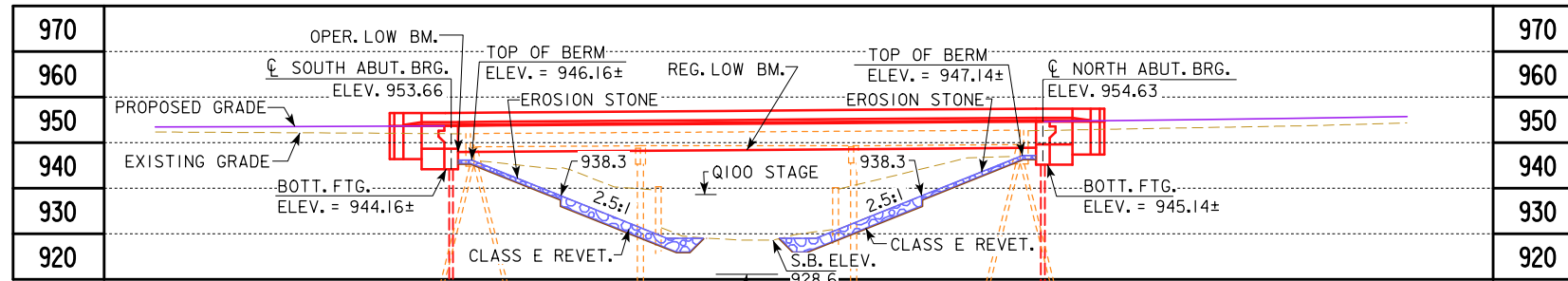
DENNIS M. GIBSON

GENE C. HILDRETH, Jr.

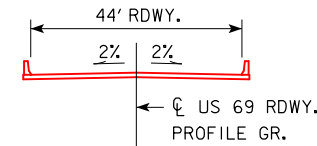
Lincoln Twp.
T-81N R-24W
Sec. 25



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: ATINKEN /JLARSON	
ROW #: STPN-069-4(118)--2J-77	
Plan Date: 01/11/21	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



PROPOSED PROFILE GRADE US 69



TYPICAL BRIDGE SECTION

HYDRAULIC DATA

DRAINAGE AREA = 24.2 SQ. MI.
 STREAM SLOPE = 10.6 FT./MI.
 AVG. LOW WATER STAGE = 929.5

Q₅₀ = 2291 CFS
 STAGE = 938.3
 REGULATORY LOW BEAM = 948.36
 BACKWATER = 0.3 FT.

Q₁₀₀ = 2848 CFS
 STAGE = 938.6
 OPERATIONAL LOW BEAM = 947.91
 BACKWATER = 0.4 FT.
 AVG. BRIDGE VELOCITY = 6.9 FPS

Q₂₀₀ = 3400 CFS
 STAGE = 939.0
 CALCULATED DESIGN SCOUR = 921.1

Q₅₀₀ = 4084 CFS
 STAGE = 939.4
 CALCULATED CHECK SCOUR = 920.1

ROADWAY OVERTOP
 STA. 228+88.7, ELEV. 953.42

50, 100 & 500 YR. DISCHARGES FROM THE POLK COUNTY F.I.S., DATED FEB. 1, 2019.
 200 YR. DISCHARGE FROM STAGE/DISCHARGE PLOT.
 F.I.S. DATUM IS THE SAME AS THE PROJECT DATUM.

TRAFFIC ESTIMATE

2023 AADT	6700	V.P.D.
2043 AADT	8600	V.P.D.
202_ DHV	890	V.P.H.
TRUCKS	3	%
TOTAL DESIGN ESALs		

LOCATION

US 69 OVER FOURMILE CREEK
 T-8IN R-24W
 SECTION 25/26
 LINCOLN TOWNSHIP
 POLK COUNTY
 FHWA NO. 40681
 BRIDGE MAINT. NO. 7799.5S069
 LATITUDE 41.795170°
 LONGITUDE -93.600348°

PRELIMINARY

130'-0 x 44'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

130'-0 SINGLE SPAN (BTD BEAMS)
SITUATION PLAN
 STATION 230+55.00 (US 69) SEPTEMBER 2020
POLK COUNTY

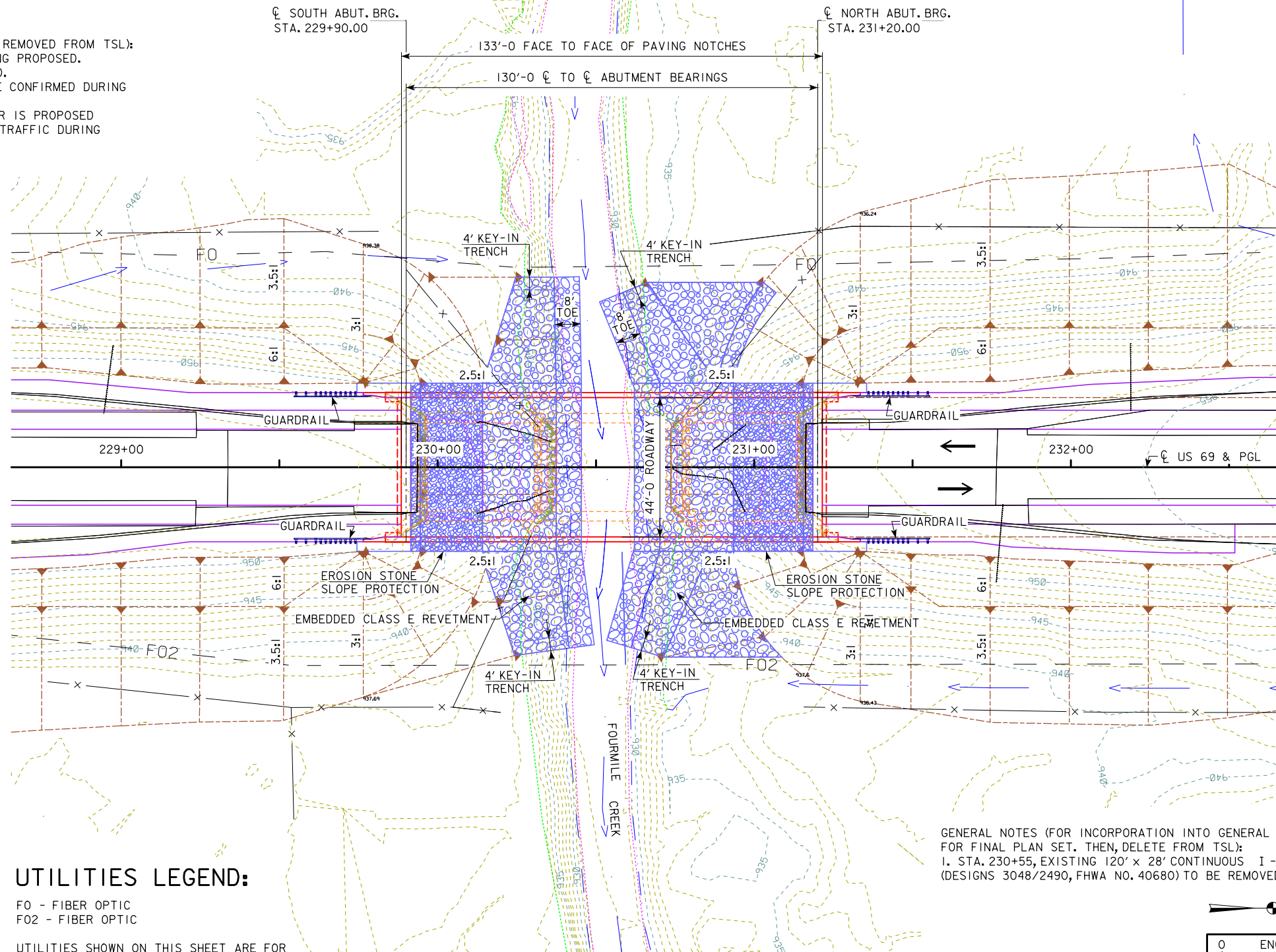
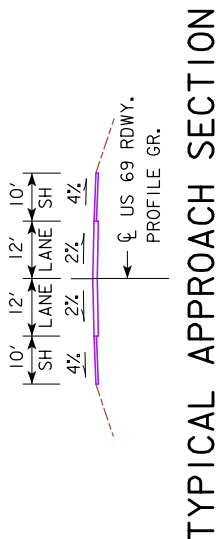
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 2 FILE NO. 31913 DESIGN NO. 223

NOTES:

- TOP OF BRIDGE DECK CROWN 0.03 BELOW PROFILE GRADE.
- EROSION STONE AND CLASS E REVETMENT ARE EMBEDDED.

DESIGN NOTES (TO BE REMOVED FROM TSL):

- TL-3 BRIDGE RAILING PROPOSED.
- BTD BEAM PROPOSED.
- BERM SLOPES TO BE CONFIRMED DURING FINAL DESIGN.
- AN OFF SITE DETOUR IS PROPOSED FOR MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.

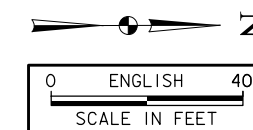


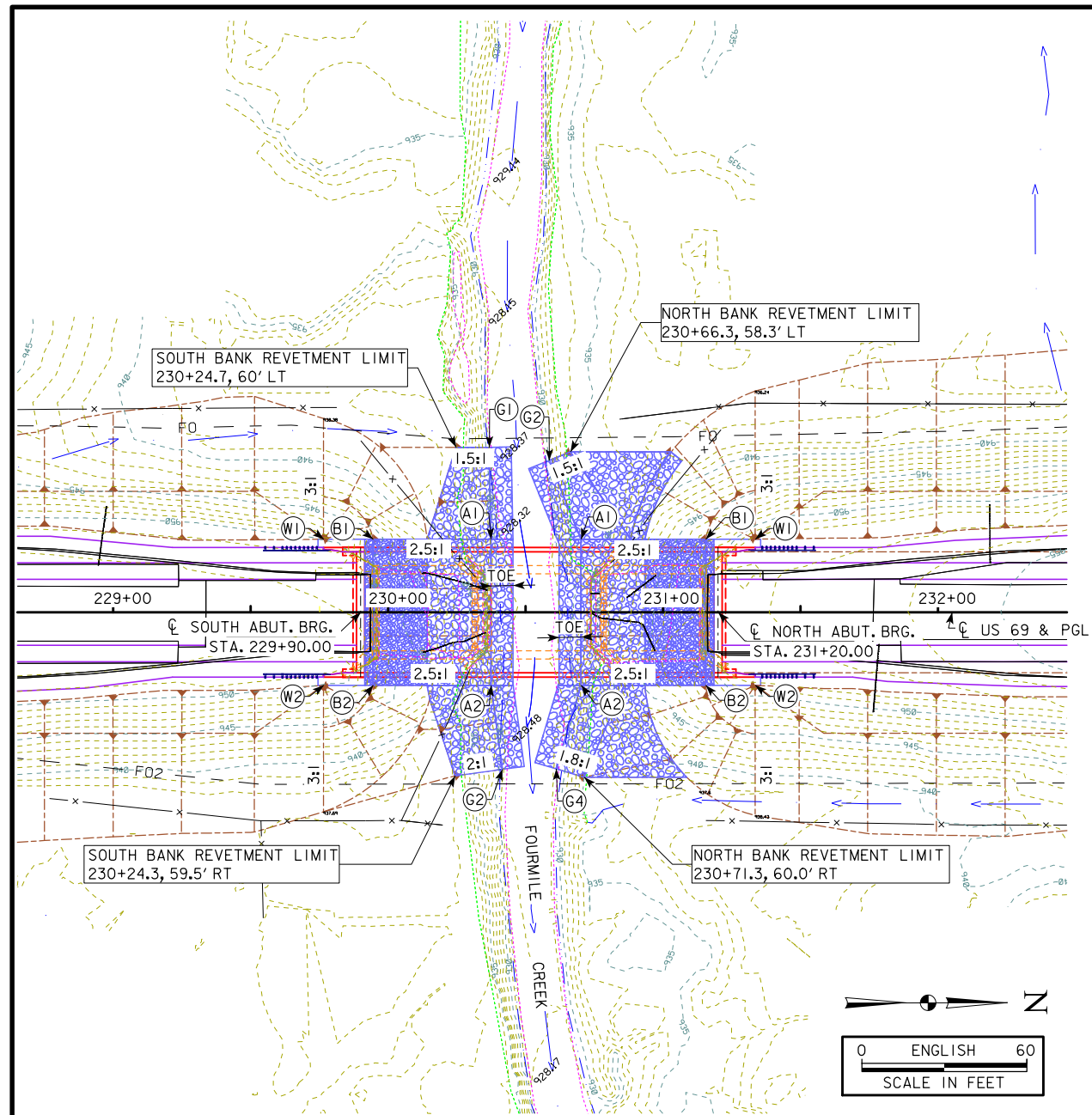
UTILITIES LEGEND:

F0 - FIBER OPTIC
 F02 - FIBER OPTIC

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

GENERAL NOTES (FOR INCORPORATION INTO GENERAL NOTES FOR FINAL PLAN SET. THEN, DELETE FROM TSL):
 1. STA. 230+55, EXISTING 120' x 28' CONTINUOUS I-BEAM BRIDGE (DESIGNS 3048/2490, FHWA NO. 40680) TO BE REMOVED.



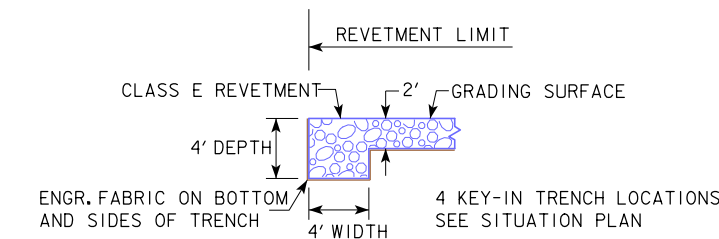


SITE PLAN

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	230+37.40	26.58' LT	929.00	230+70.15	26.58' LT	929.00
A2	230+37.40	26.58' RT	929.00	230+70.15	26.58' RT	929.00
B1	229+94.50	26.58' LT	946.16	231+15.50	26.58' LT	947.14
B2	229+94.50	26.58' RT	946.16	231+15.50	26.58' RT	947.14
W1	229+76.50	26.58' LT	953.04	231+33.50	26.58' LT	954.21
W2	229+76.50	26.58' RT	953.04	231+33.50	26.58' RT	954.21

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

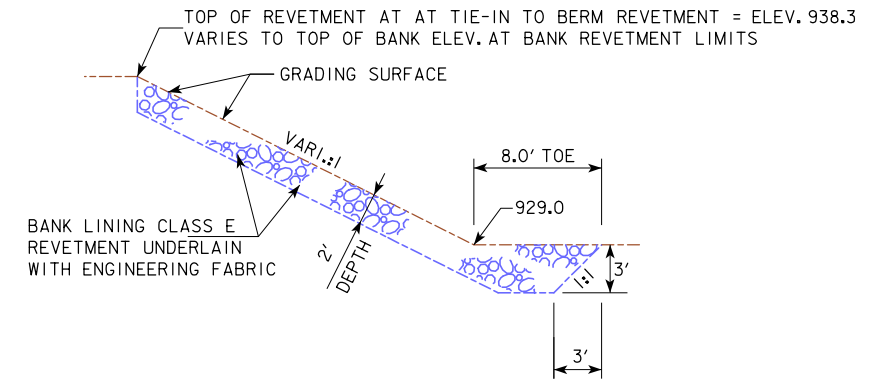
GRADING CONTROL POINTS
 G1: 230+36.75, 60.00' LT, ELEV. 929.0
 G2: 230+41.55, 57.16' RT, ELEV. 929.0
 G3: 230+58.57, 55.23' LT, ELEV. 929.0
 G4: 230+61.08' 56.96' RT, ELEV. 929.0



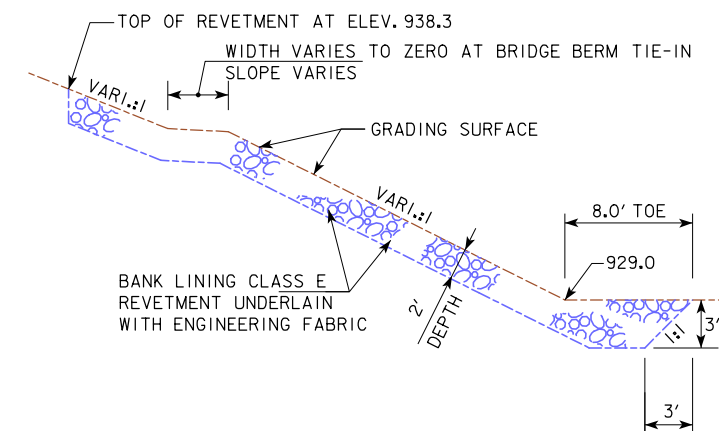
SECTION THRU KEY-IN IN TRENCH

ESTIMATED BERM/BANK ARMORING QUANTITIES				
LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	216.5	57.8	363.9	171.0
BANK LINING - SOUTH ABUTMENT	255.4	0.0	266.0	159.6
BERM LINING - NORTH ABUTMENT	216.6	64.1	378.4	175.0
BANK LINING - NORTH ABUTMENT	356.6	0.0	375.1	222.9
TOTALS	1045.1	121.9	1383.4	728.5

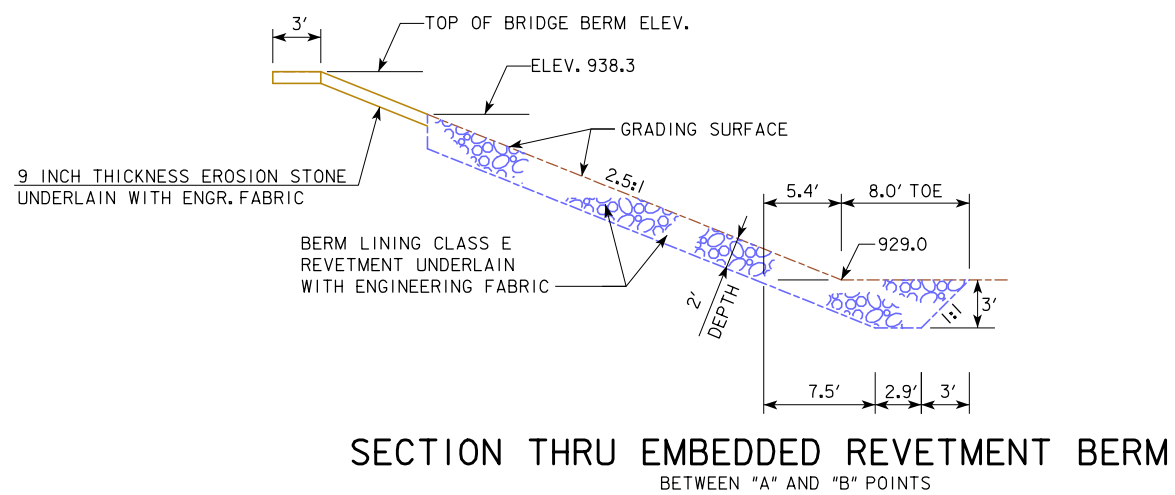
EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



SECTION THRU EMBEDDED REVETMENT SOUTH BANK



SECTION THRU EMBEDDED REVETMENT NORTH BANK



SECTION THRU EMBEDDED REVETMENT BERM BETWEEN "A" AND "B" POINTS

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.

Patricia G. Schwarz SEPT 3, 2020
 Signature Date
 Patricia G. Schwarz
 Printed or Typed Name

My license renewal date is December 31, 2020

Pages or sheets covered by this seal: 1 AND 2 OF 2

PRELIMINARY

DESIGN FOR 0° SKEW

130'-0 x 44'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

130'-0 SINGLE SPAN (BTD BEAMS)

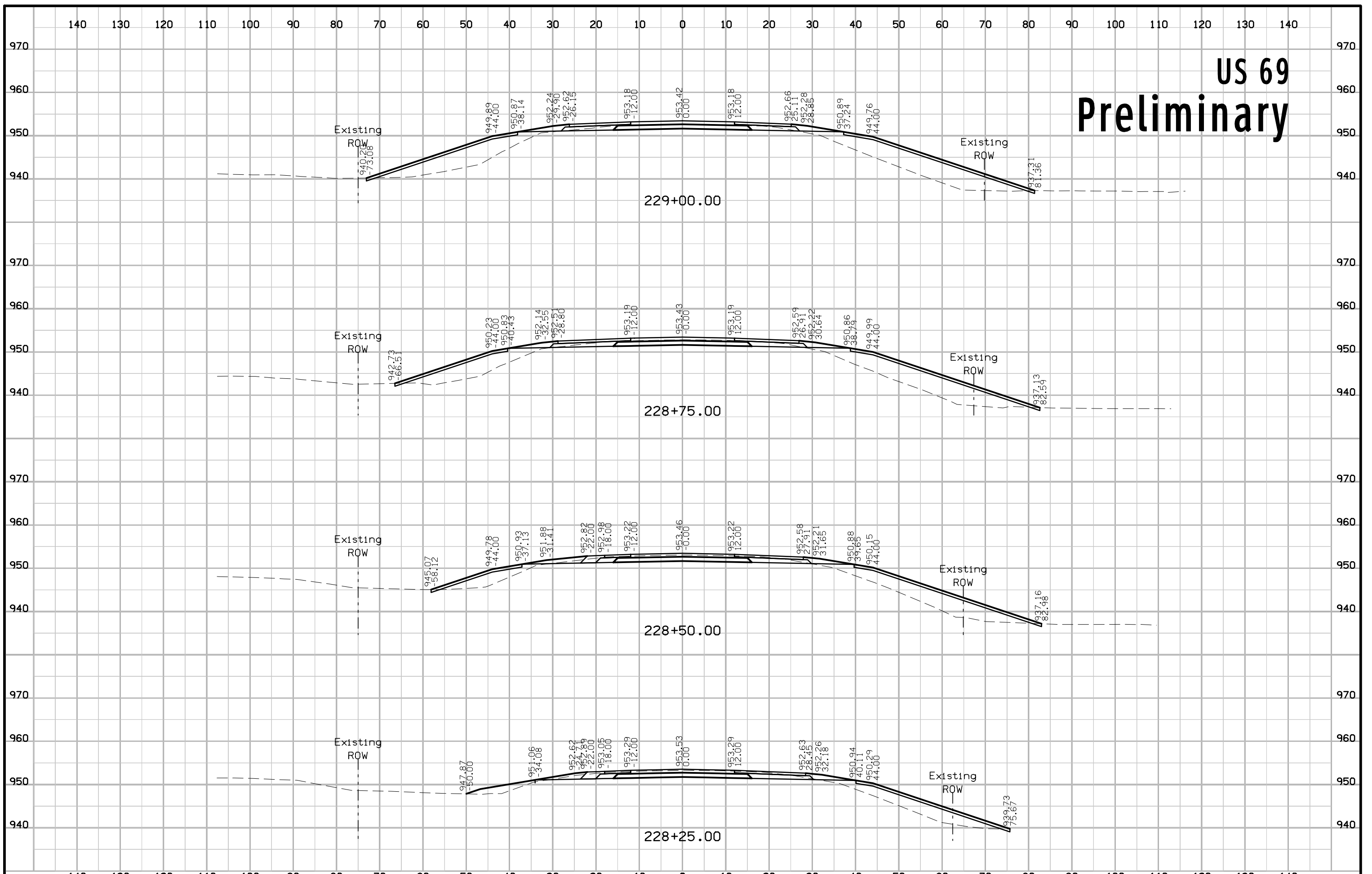
SITUATION PLAN-SITE

STATION 230+55.00 (US 69) SEPTEMBER 2020

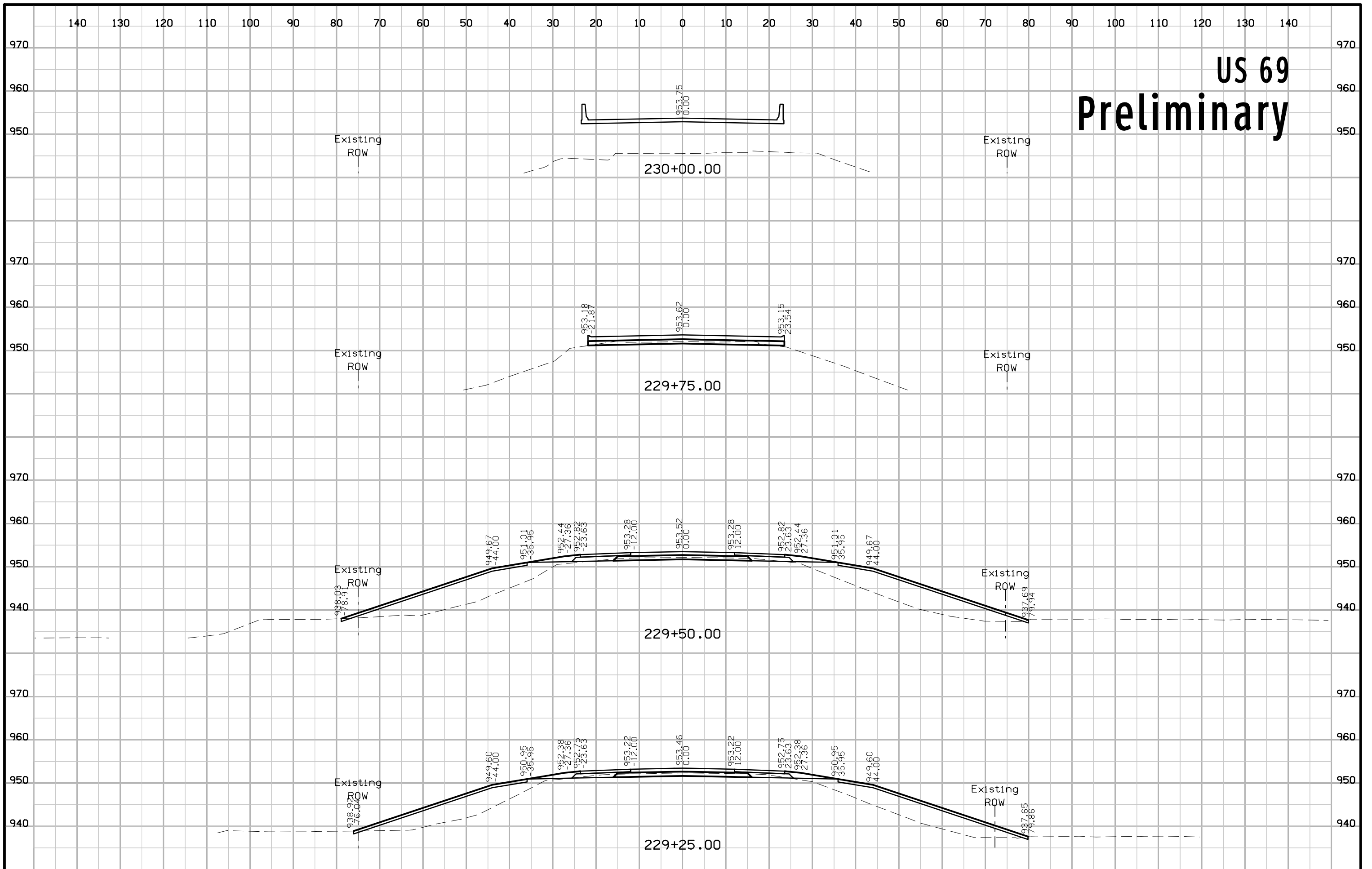
POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 2 FILE NO. 31913 DESIGN NO. 223

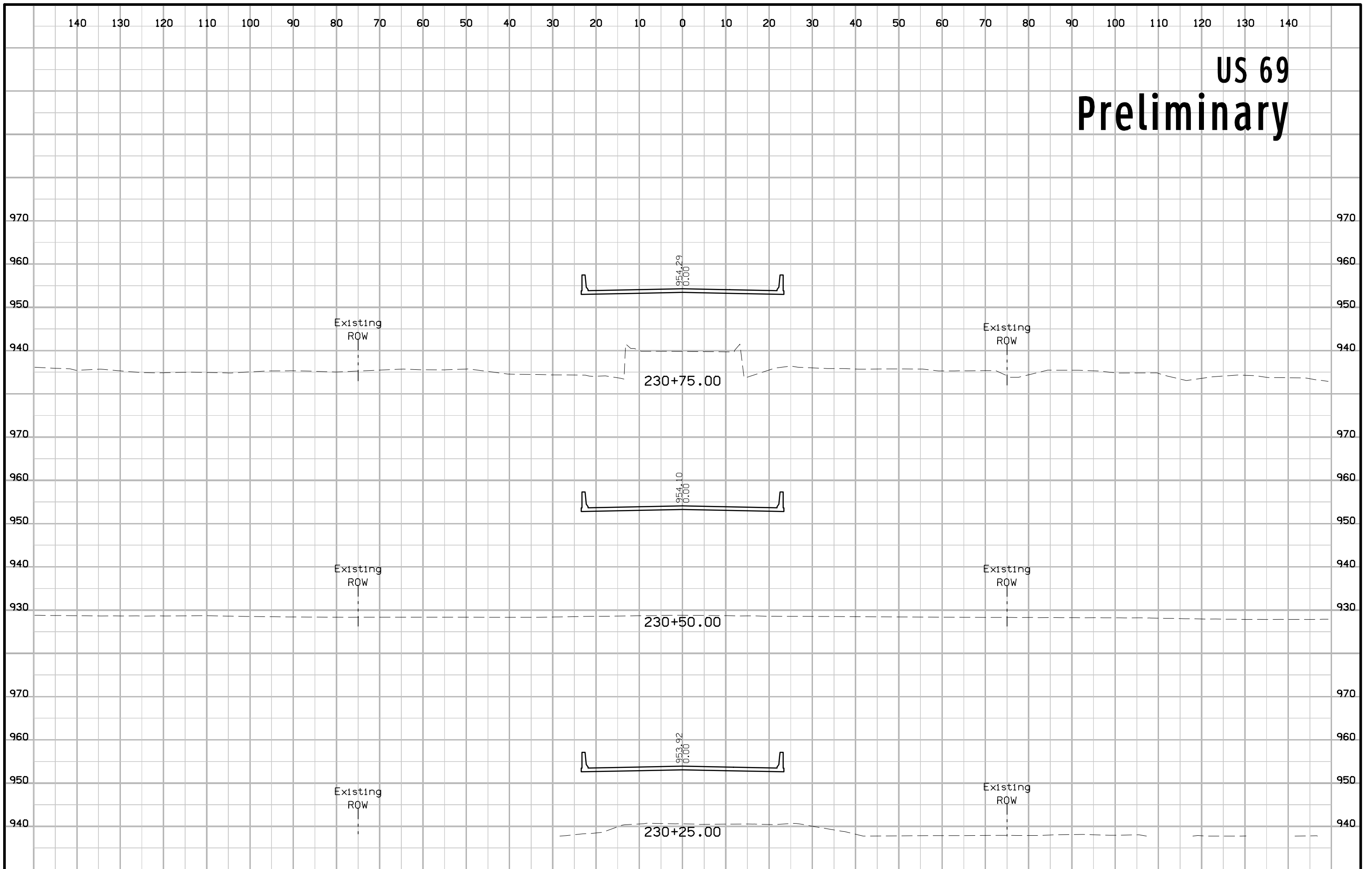
US 69 Preliminary



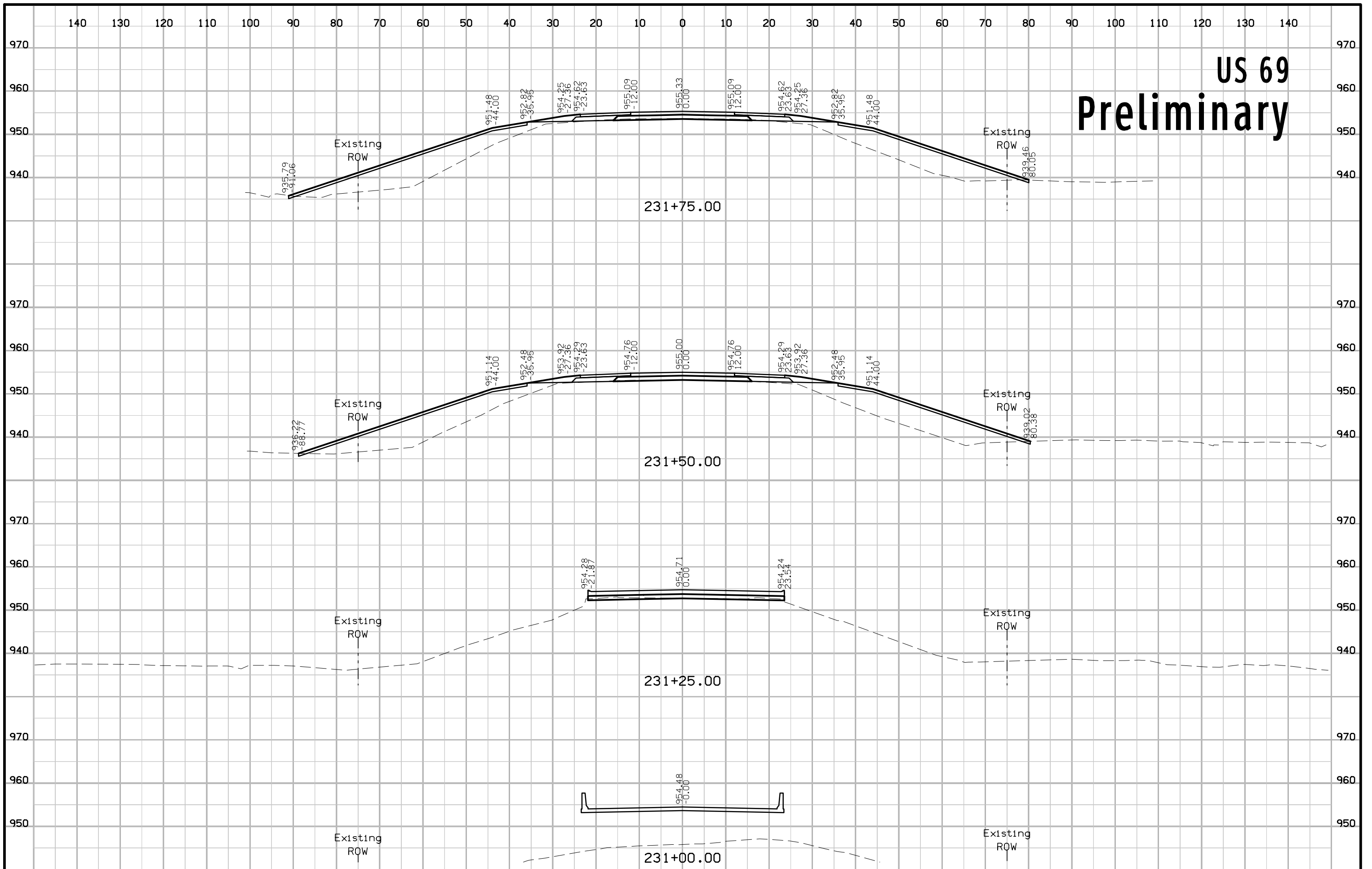
US 69 Preliminary



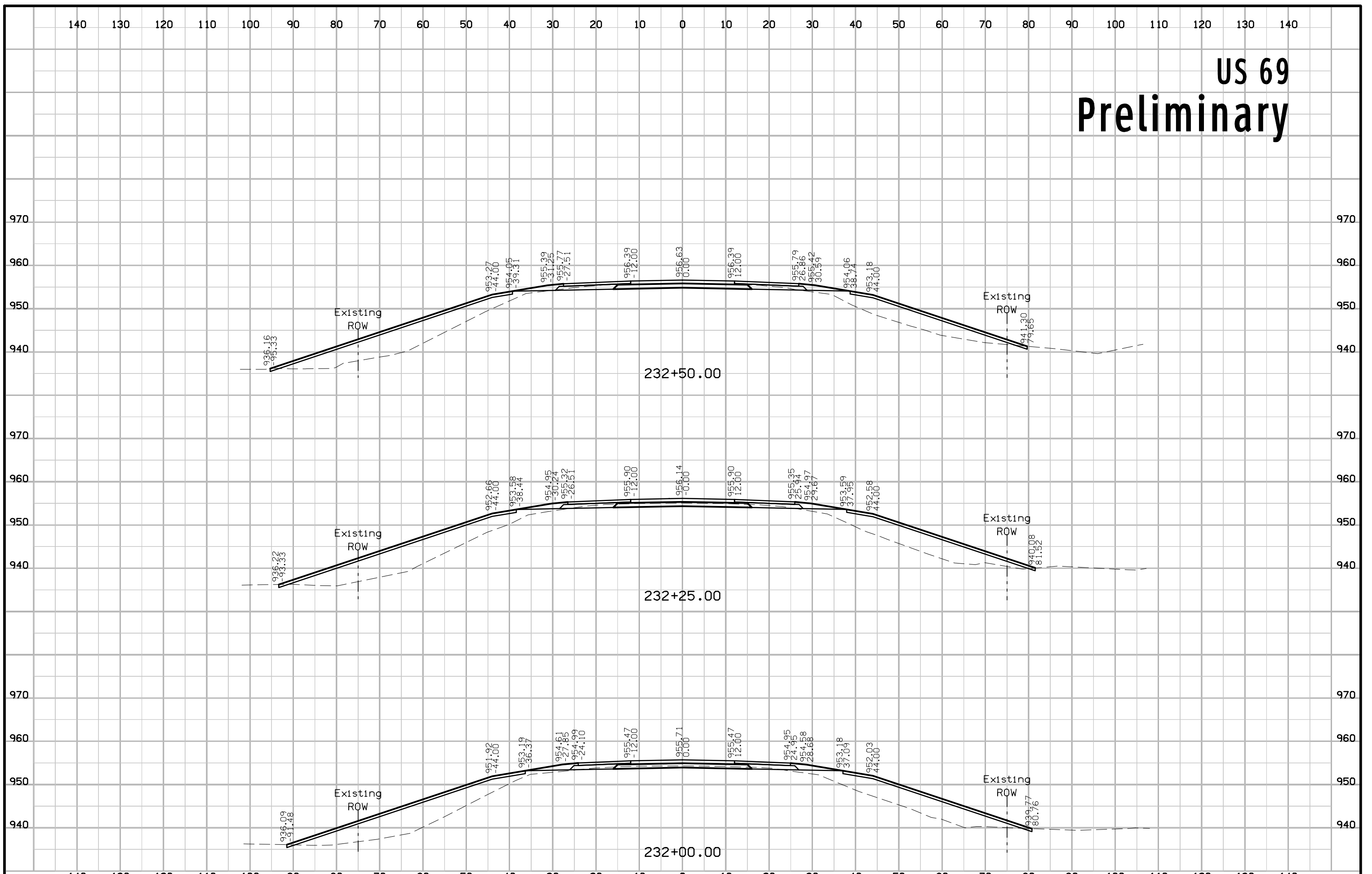
US 69 Preliminary



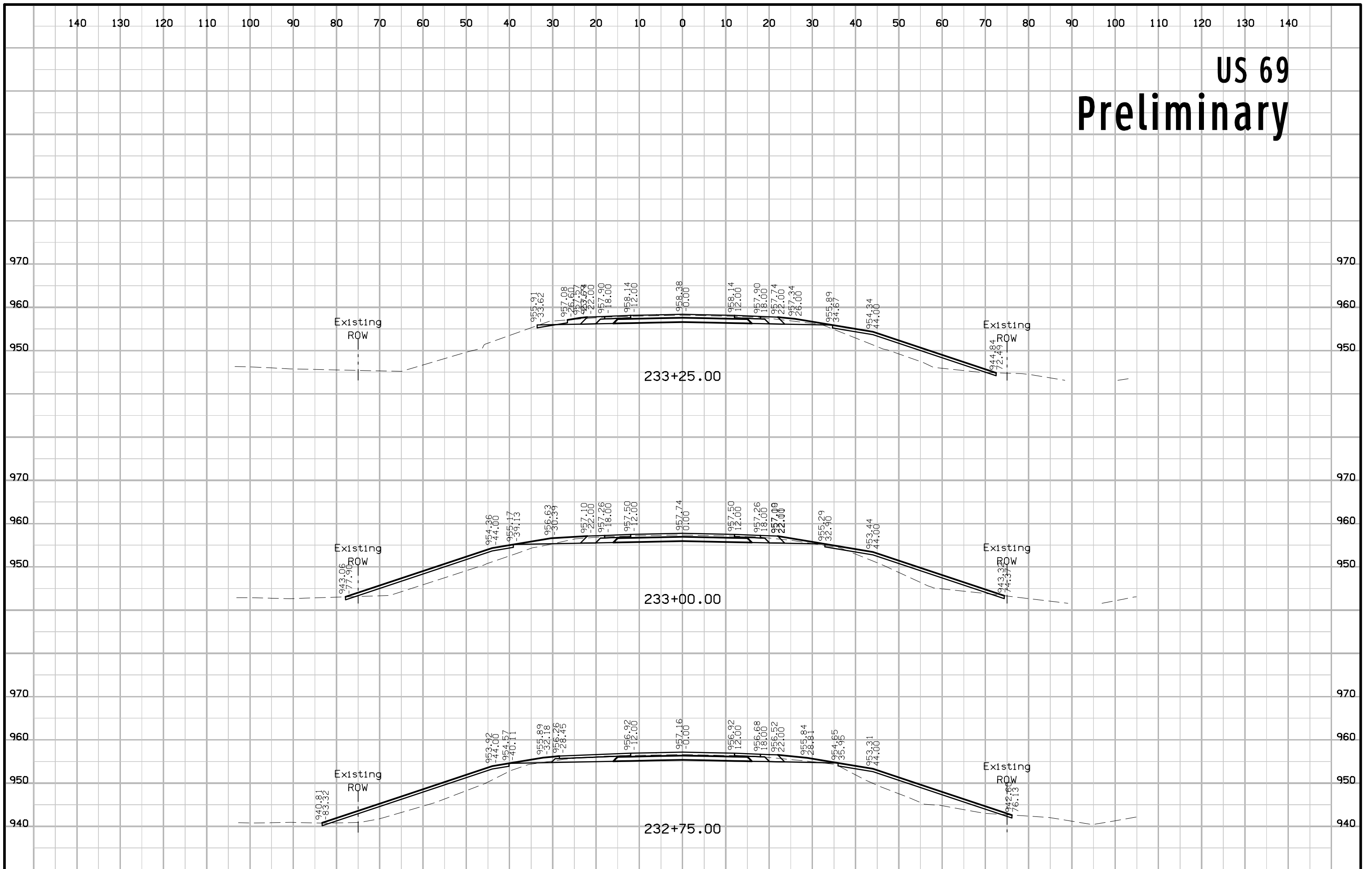
US 69 Preliminary



US 69 Preliminary



US 69 Preliminary



US 69 Preliminary

