

LETTING DATE
10-20-2020

BRIDGE REPLACEMENT-PPCB
BRFN-069-4(105)--39-77

POLK CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

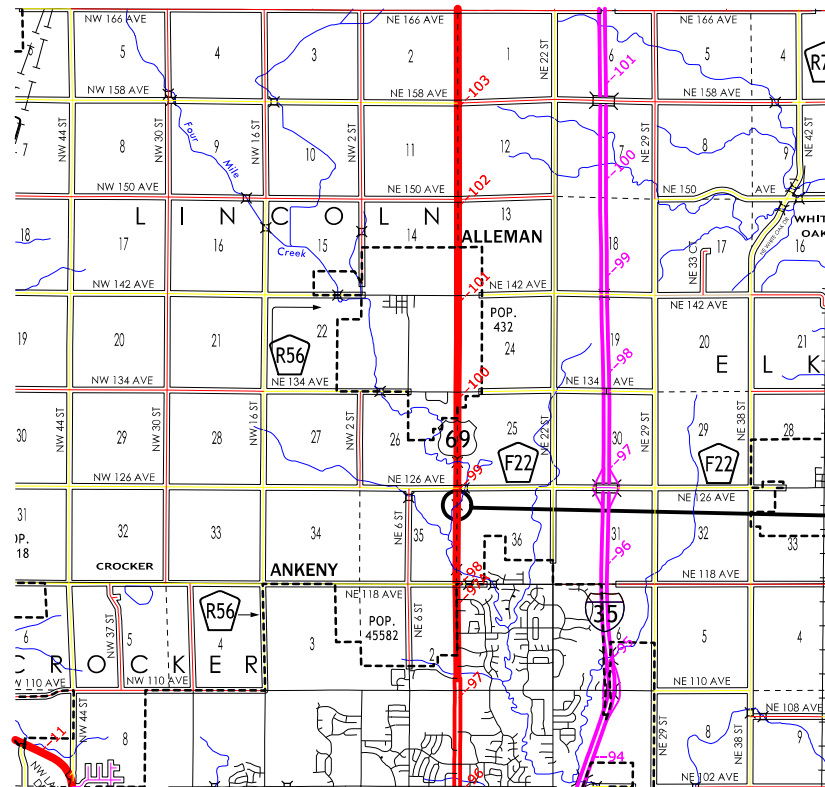
POLK COUNTY
BRIDGE REPLACEMENT-PPCB

Four Mile Creek 0.1 mi S 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.



Project Location

REVISIONS

TOTAL

17

PROJECT IDENTIFICATION NUMBER

15-77-069-010

PROJECT NUMBER

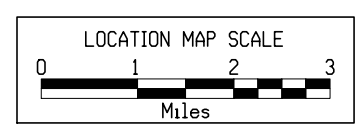
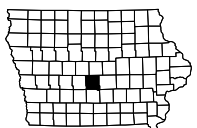
BRFN-069-4(105)--39-77

R.O.W. PROJECT NUMBER

STPN-069-4(106)--2J-77

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
* A.1	Title Sheet
* A.1	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 2	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 69
G Sheets	Survey Sheets
* G.1	Survey Information
* G.2 - 3	Control Point Vicinity Map and Coordinate Listing
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
* J.2	Detour Map
V Sheets	Bridge and Culvert Situation Plans
V.1 - 2	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1 - 5	US 69
	* Color Plan Sheets



DESIGN DATA RURAL			
2020	AADT	6700	V.P.D.
2040	AADT	9700	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	--	%
	Total		
	Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Allison L. P. Smyth	Primary Signature Block
X	X	X

D4 PLAN - Date: 6/23/2020
Letting - Date: 10/20/2020

PRELIMINARY PLANS

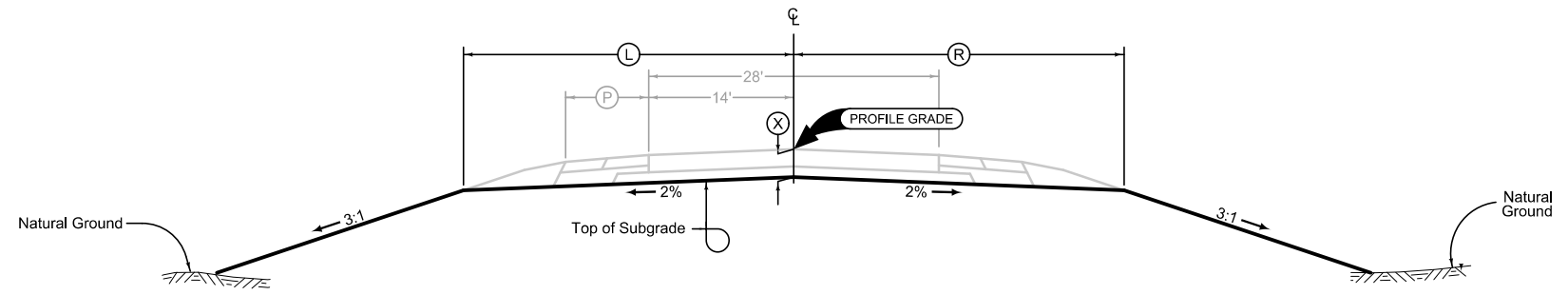
Subject to change by final design.

D5 PLAN - Date: 12/08/2017

LOCATION		DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION	(L) Feet	(R) Feet	(X) Inches
US 69	204+88	205+15	25.5 to 32.5	
US 69	205+15	205+52	32.5	
US 69	205+52	205+81	32.5 to 30.5	
US 69	205+85	206+33	30.5	
US 69	207+66	208+62	30.5	
US 69	208+62	209+00	30.5 to 32.5	
US 69	209+00	209+33	32.5	
US 69	209+33	209+60	32.5 to 25.5	
US 69	204+73	205+00	25.5 to 32.5	
US 69	205+00	205+35	32.5	
US 69	205+35	205+80	32.5 to 30.5	
US 69	205+80	206+68	30.8 to 35.1	
US 69	208+00	208+85	30.8 to 35.1	
US 69	208+85	209+19	35.1 to 36.3	
US 69	205+72.32	205+82.32		24
US 69	205+82.32	206+55.07		24 to 36
US 69	207+78.93	208+51.68		36 to 24
US 69	208+51.68	208+61.68		24

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

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.



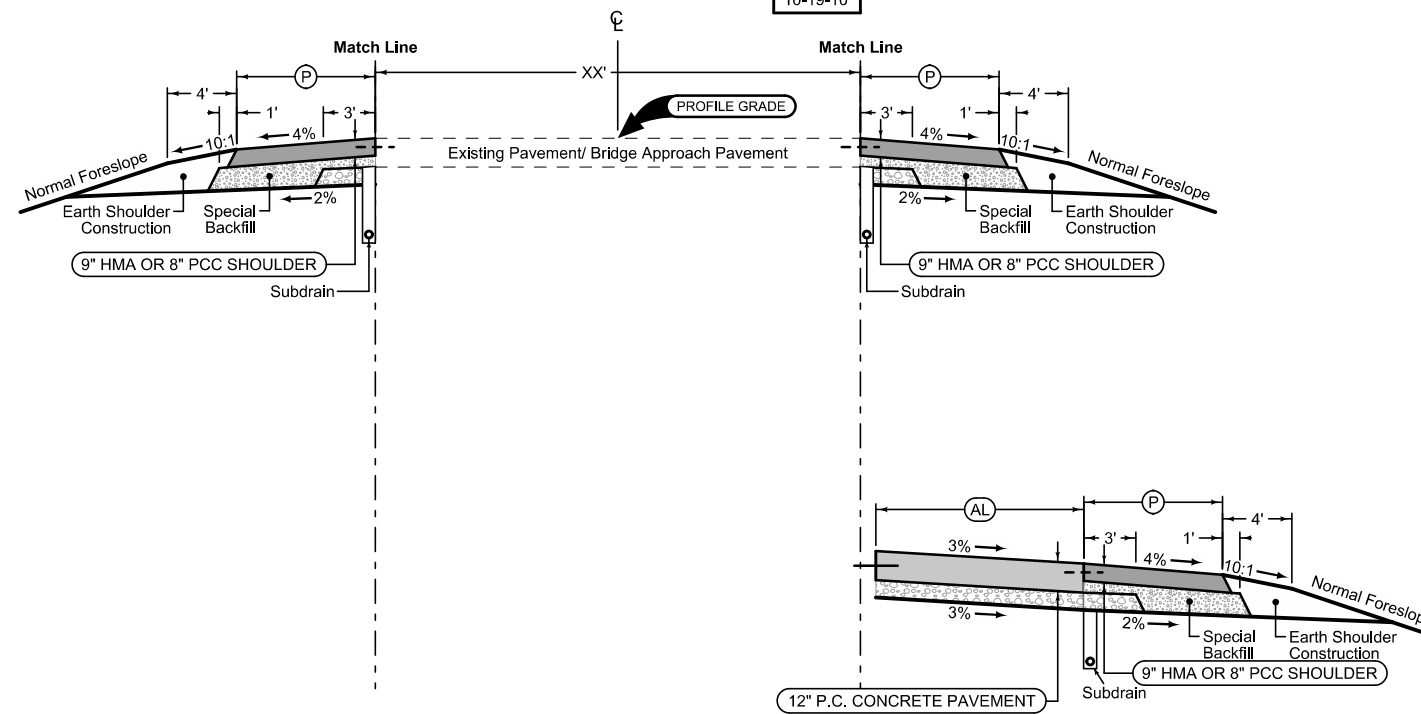
**2 LANE GRADING
(No Ditch Section)**

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_ 10-17-17		
STATION TO STATION	(P) Feet	
205+15.76	205+48.02	7.13
205+48.02	205+72.32	7.13 to 6.16
205+72.32	205+82.32	10.15 to 9.75
205+82.32	205+85.43	9.75 to 9.63
205+85.43	206+22.32	9.63
208+11.68	208+31.57	9.63
208+31.57	208+61.68	9.63
208+61.68	208+62.94	5.57
208+62.94	209+00.35	5.57 to 7.13
209+00.35	209+32.88	7.13

Paved Shoulder Panel
Paved Shoulder Panel
Paved Shoulder Panel



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_ 10-17-17		
STATION TO STATION	(P) Feet	
205+01.39	205+33.65	7.13
205+33.65	205+71.06	7.13 to 5.63
205+71.07	205+72.32	5.13
205+72.32	206+02.32	9.63
206+02.32	206+22.32	9.63
208+11.68	208+5.68	2.71 to 4.13
208+54.68	208+85.85	4.13 to 6.54
208+85.85	208+98.09	6.54 to 7.0
208+98.09	209+18.07	7.0

Paved Shoulder Panel
Paved Shoulder Panel

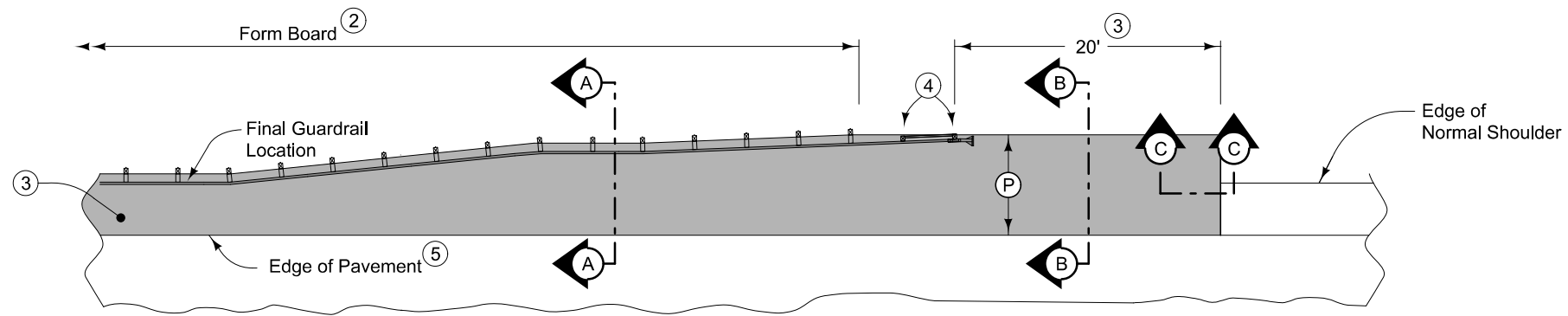
Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

2_AuxLane_PCC_ 10-18-16		
STATION TO STATION	(AL) Feet	
208+11.68	208+31.68	3.0 to 3.7
208+31.68	208+51.68	3.7 to 4.4
208+51.68	208+61.68	4.4 to 4.7

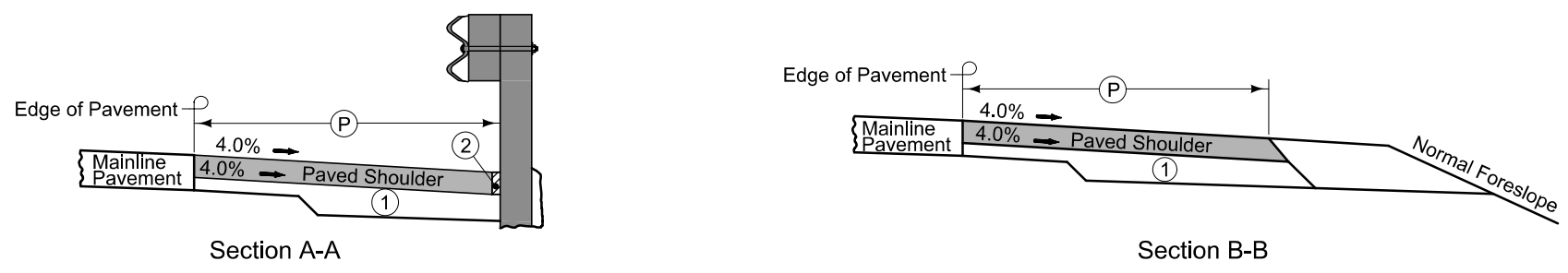
See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

ROADWAY IDENTIFICATION

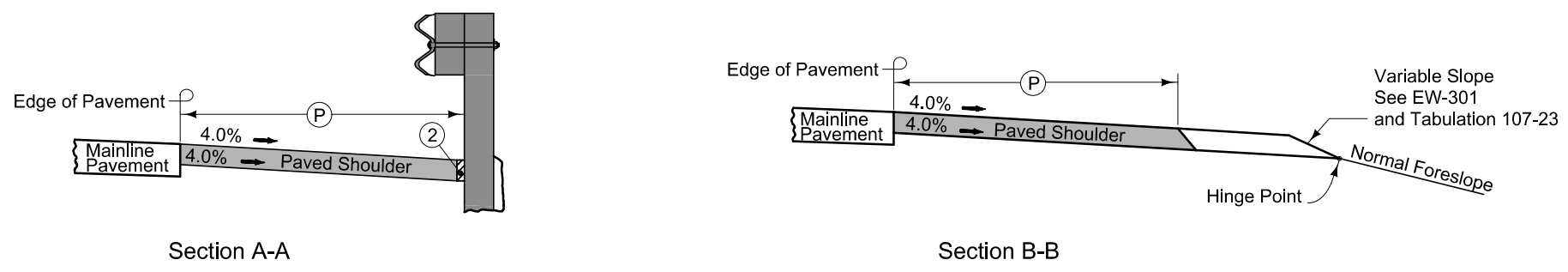


PLAN VIEW

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.

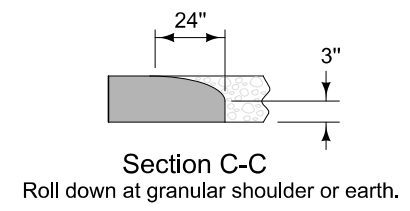


NEW CONSTRUCTION



EXISTING SHOULDER

- 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.



PAVED SHOULDER AT GUARDRAIL

SURVEY SYMBOLS

- BCL Bridge Centerline
- BL Topo Breakline
- BLS Bridge Low Steel
- BNK Stream Bank
- BRG Bridge
- C Centerline BL of Road (ML or SR)
- CU Back of Curb
- D Centerline Draw or Stream (Down)
- ← DU Centerline Draw or Stream (Up)
- EP Edge of Paved Roads (ML or SR)
- EW Edge of Water
- FO — FO1D Fiber Optic Co. 1 - Quality D
- x— FW Wire Fence
- GDL Guard Rail Steel
- GU Gutter In Front of Curb
- LIN Miscellaneous Line
- SH Paved Shoulder
- SNP Unpaved Shoulder
- Tile — TIL Tile Line
- WC Wild Card (Misc. Field Shot)
- SP Stream Profile
- SIGN SI Sign
- SBR Size of Bridge
- REF Reference Tie Point
- PRO Profile Shot
- PPA Power Pole Co. 1
- PI Tangent Point
- OUT Tile Outlet
- CP Control Point
- BD Bridge Deck

UTILITY LEGEND

- FO — Aureon Network Services - Quality D
- Consumers Energy

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

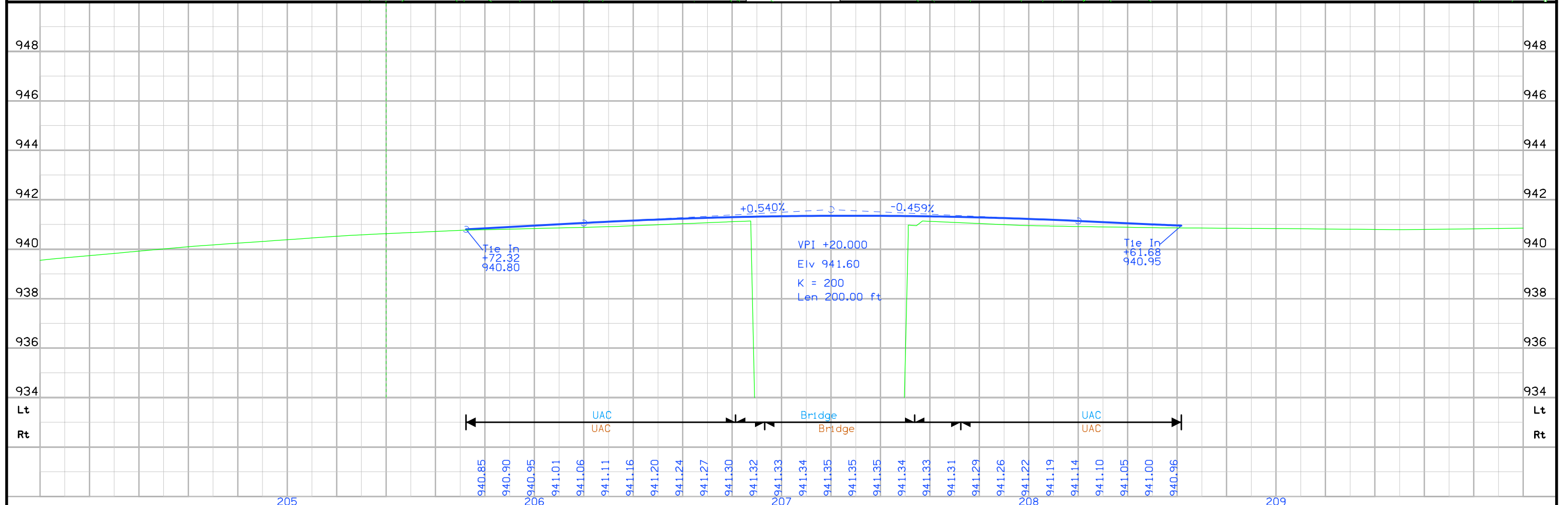
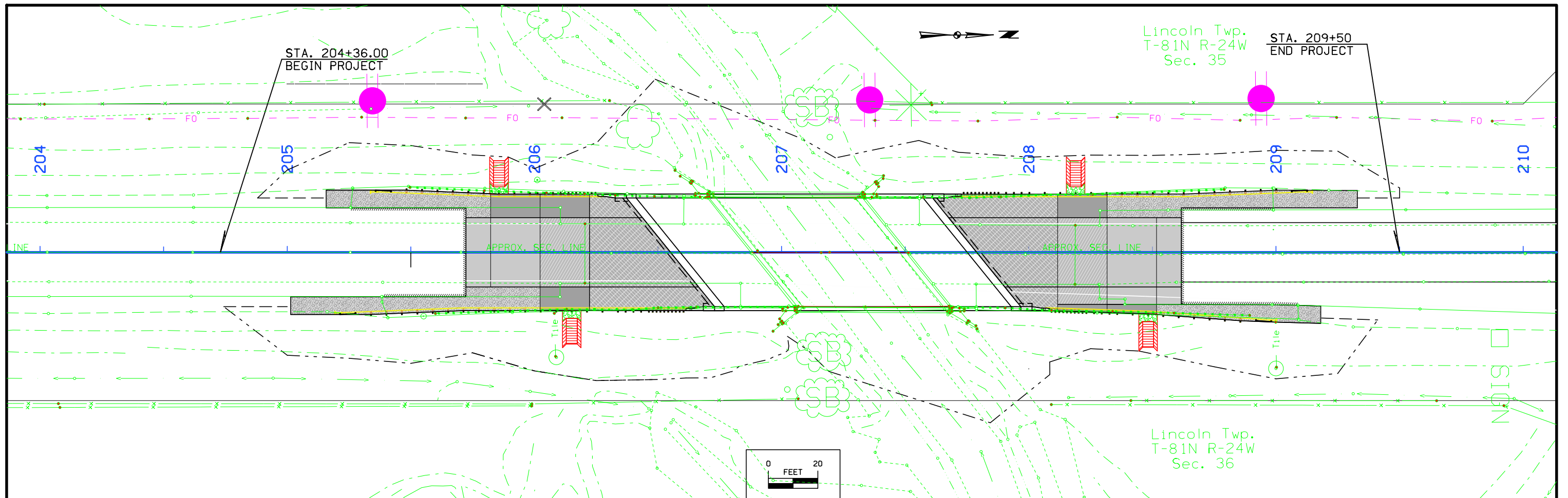
- Reference Point
- Station
- ▲ Section Corner
- Ground Line Intercept
- //// Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- ▨ Pavement Removal
- ▩ Clearing & Grubbing Area

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)



Survey Information

Polk County
BRFN-069-4(105)-39-77
Four Mile Creek 0.1 mi S of Co Rd F22
Sap-0822
PIN 15-77-069-010

General Information

Measurement units for this survey are US survey feet. This survey is @ Four Mile Creek 0.1 mi S of Co Rd F22. Project datum and control information is provided by Design Survey Office.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12A). Ellipsoidal Height GRS80 was computed at project Pts. 1, 2 and 3, by conducting six hour static sessions.

Vertical equations as follows:

Brg S. Br. St. this survey Elev. = 937.33
= Brg S. Br. St. Project # FN-69-4(53)21-77 Elev. = 937.84

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 8 (U.S. Survey Feet) This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station. Network datum: NAD83(2011) for Epoch 2010.00. Coordinates were determined by conducting six hour static observation at project Pts. 1, 2 and 3.

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:

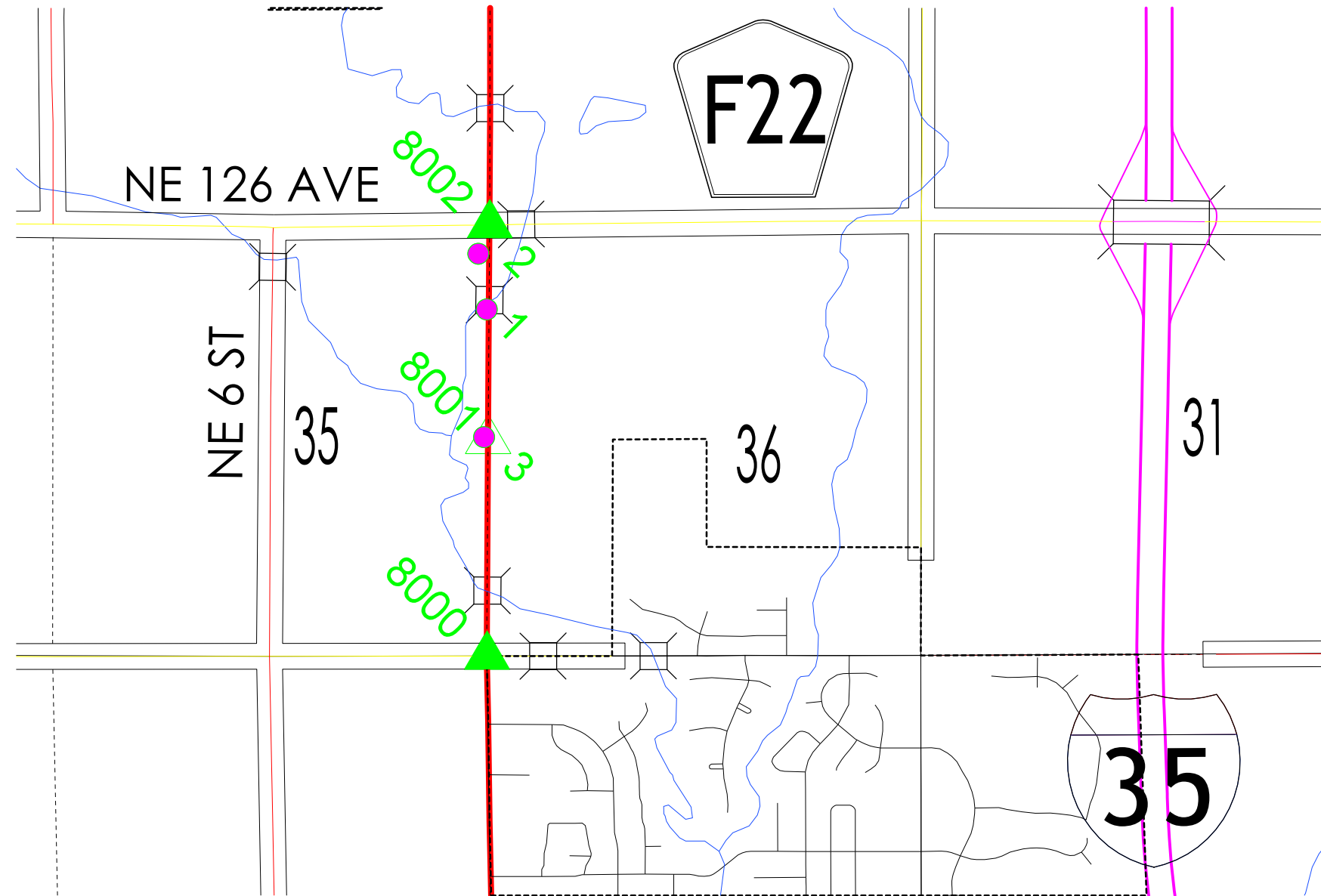
PI Sta. 163+58.5 This Survey
= PI Sta. 189+98.0 As-built Plans Project # 187 (3)

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)

CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 8

Coordinate listing from next sheet will be used with 1aRTN for monument
recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

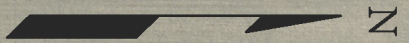
Ia. Regional Coordinate System Zone 8

Point Name	Northing	Easting	Elevation	Feature Definition	Description
1	7560570.59	18531678.30	939.55	CP	SET IRON PIN 29' W OF US 69 74' NE POWER POLE 31' E CONC COR POST
2	7561251.24	18531575.35	948.54	CP	SET FENO MONUMENT 137.4' W OF US 69 > 73' W POWER POLE 8' E FENCE
3	7559009.90	18531645.04	935.08	CP	SET FENO MONUMENT 50.5' W OF US 69 86' S POWER POLE 43' N CONC COR POST
8000	7556329.48	18531682.30	0.00	PI	STA 163+58.5 FD MAG NAIL
8001	7558967.26	18531695.21	0.00	PI	STA 189+98.0 FD MAG NAIL IN X
8002	7561601.56	18531715.55	0.00	PI	STA 216+32.1 AB PLANS FD MAG NAIL IN X

Polk	ROW: STPN-069-4(106)--2J-77			PIN 15-77-069-010																
	Four Mile Creek 0.1 mi S of Co Rd F22																			
		STATE		COUNTY		CITY			TEMP EASE		BORROW									
PARCEL NOWNER NAM	FEE	EASE		FEE	EASE		FEE	EASE		EXCESS			FEE	T.E.	MITIGATION	OTHER	HOUSE	BUILDING(S	A/C ONLY	TOTAL ACQ.
1	Earl M Reinhart Residuary Trust - Fee											824 SF								
2	Scott A O'Mara - Fee											1050 SF								
2 Parcels	"TOTALS	0 AC	0 AC	0 AC	0 AC		0 AC	0 AC		0 AC	0 AC		0 AC	0 AC	0 AC					
		0 SF	0 SF	0 SF		0 SF	0 SF		0 SF	0 SF		1874 SF								

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

Lincoln Twp.
T-81N R-24W
Sec. 35



TEMPORARY EASEMENT TO SHAPE
①
EARL M. REINHART
RESIDUARY TRUST

206+30
±75'

206+85
±75'

207+35
±75'

TEMPORARY EASEMENT TO SHAPE
②

SCOTT A. AND GALE O'MARA

208+05
±75'

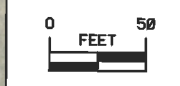
Lincoln Twp.
T-81N R-24W
Sec. 36

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: ATINKEN /JLARSON
ROW #: STPN-069-4(106)--2J-77
Plan Date: 12/21/17

Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition



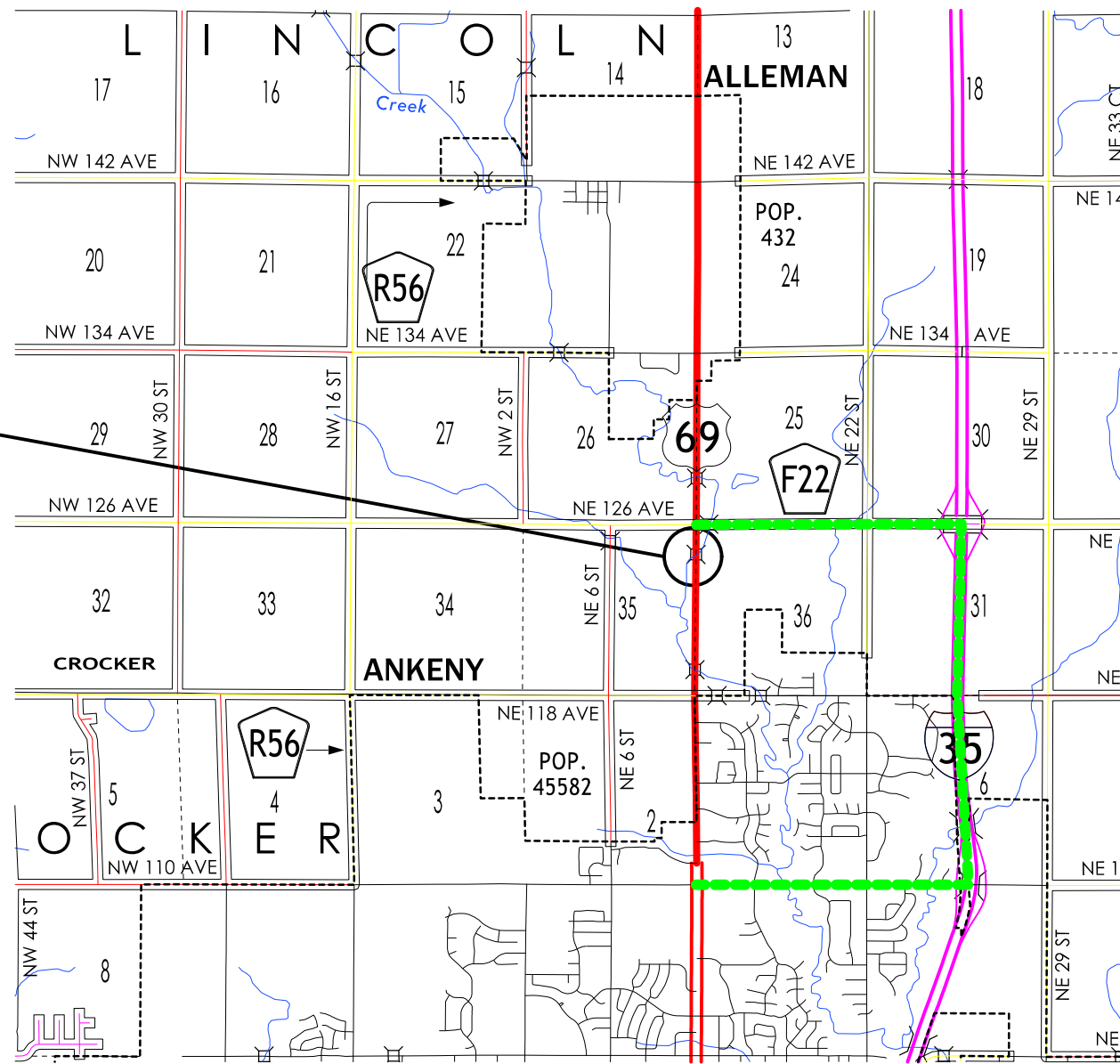
511 TRAVEL RESTRICTIONS

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 69	Both	Polk	Four Mile Creek 0.1 mi S of Co Rd F22	Four Mile Creek	Bridge	7799.1S069	Closed		0	0	44'	

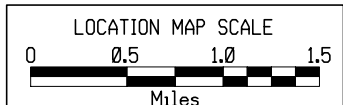
TRAFFIC CONTROL PLAN

Traffic will be maintained via off-site detour. Refer to Detour Map on Sheet J.2.

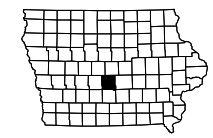
Project Location



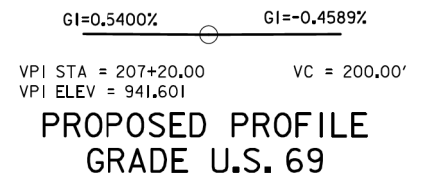
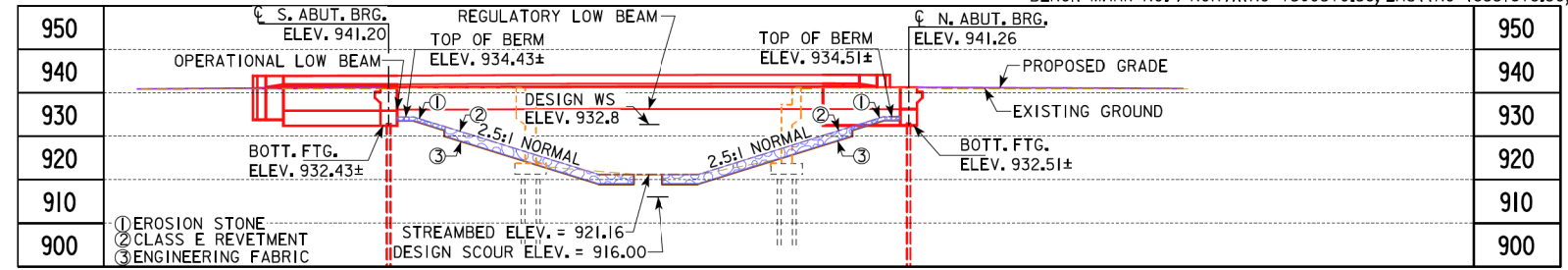
----- Detour Route



Project Detour Map
BRFN-069-4(105)--39-77

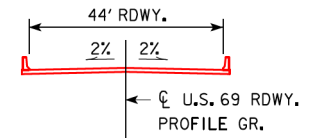


BENCH MARK NO. 1 NORTHING 7560570.59, EASTING 18531678.30, ELEV. 939.55, SET IRON PIN 29' W OF US 69 74' NE POWER POLE 31' E CONC COR POST



LONGITUDINAL SECTION ALONG ϕ APPROACH ROADWAY

- NOTES:
 1. TOP OF BRIDGE DECK CROWN 0.03 BELOW PROFILE GRADE.
 2. 34 INCH, TL-4 BRIDGE RAILING PROPOSED.
 3. BTC BEAMS PROPOSED.



TYPICAL BRIDGE SECTION

HYDRAULIC DATA

DRAINAGE AREA = 24.7 SQ. MI.
 STREAM SLOPE = 10.5 FT./MI.
 AVG. LOW WATER STAGE = 922.9

Q₅₀ = 2315 CFS
 STAGE = 932.2
 REGULATORY LOW BEAM = 936.35
 BACKWATER = 0.2 FT.

Q₁₀₀ = 2873 CFS
 STAGE = 932.8
 OPERATIONAL LOW BEAM = 936.18
 BACKWATER = 0.3 FT.
 AVG. BRIDGE VELOCITY = 5.0 FPS

Q₂₀₀ = 3400 CFS
 STAGE = 933.3
 CALCULATED DESIGN SCOUR = 916.0

Q₅₀₀ = 4119 CFS
 STAGE = 933.9
 CALCULATED CHECK SCOUR = 916.0

UTILITIES LEGEND:

- FO - FIBER OPTIC - AUREON NETWORK SERVICES
 ● - UTILITY POLES - CONSUMERS ENERGY

TRAFFIC ESTIMATE

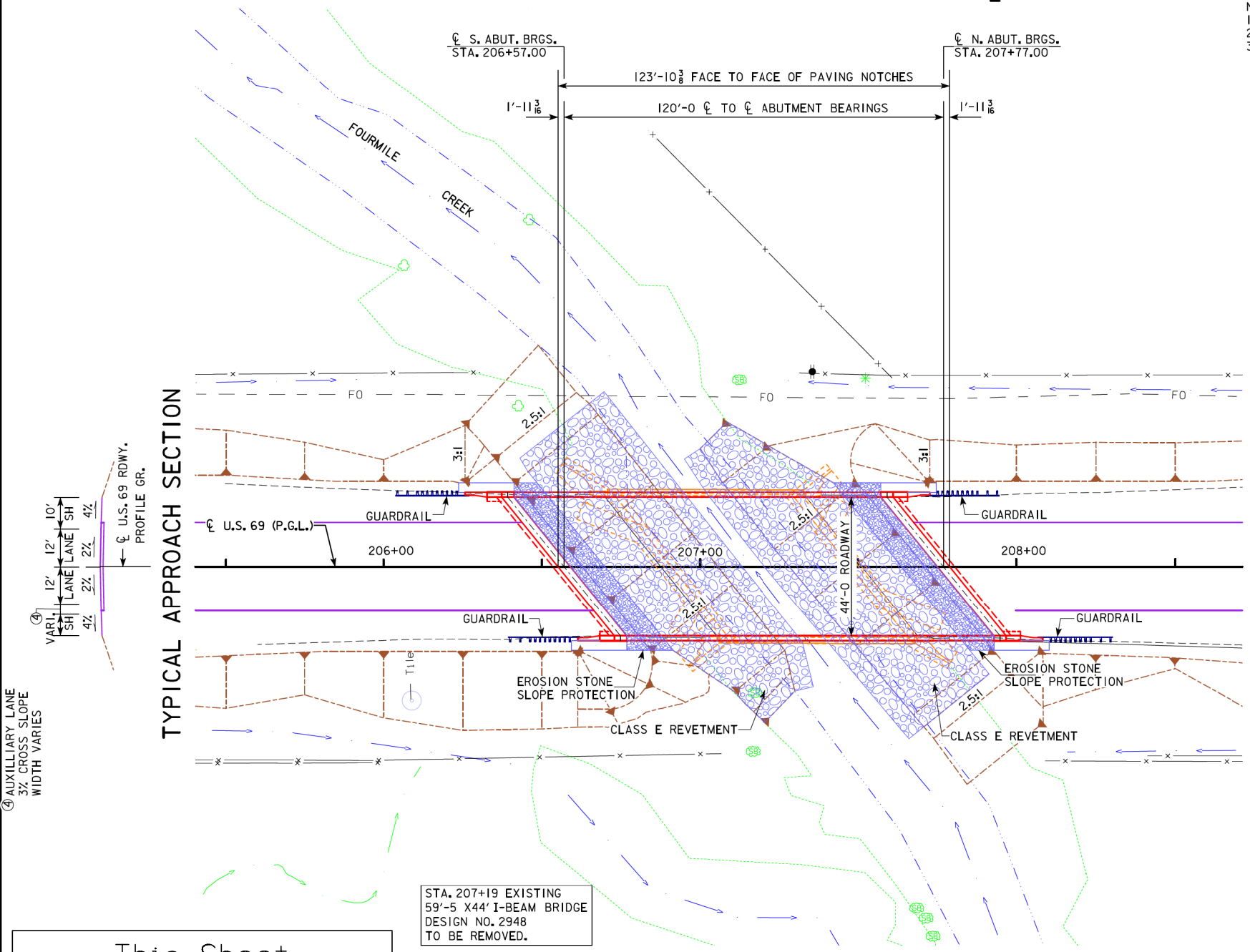
2020 AADT	6700	V.P.D.
2040 AADT	9700	V.P.D.
202L DHV	-	V.P.H.
TRUCKS	4	%
TOTAL DESIGN ESALS	-	

LOCATION

U.S. 69 OVER FOURMILE CREEK
 T-81N R-24W
 SECTION 35/36
 LINCOLN TOWNSHIP
 POLK COUNTY
 FHWA NO. 40671
 BRIDGE MAINT. NO. 7799.IS069
 LATITUDE 41.788755°
 LONGITUDE -93.600402°
 PRELIMINARY

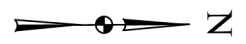
DESIGN FOR 39° SKEW (R.A.)
120'-0" x 44'-0" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 (BTC BEAMS)
SITUATION PLAN
 STATION 207+17.00 (U.S. 69) NOVEMBER 2017
POLK COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 2 FILE NO. 31471 DESIGN NO. 121

TYPICAL APPROACH SECTION

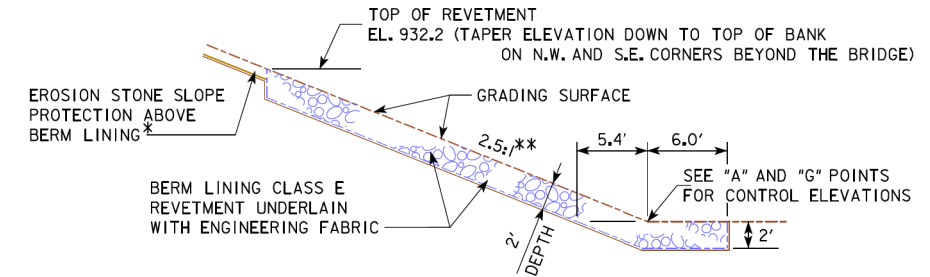
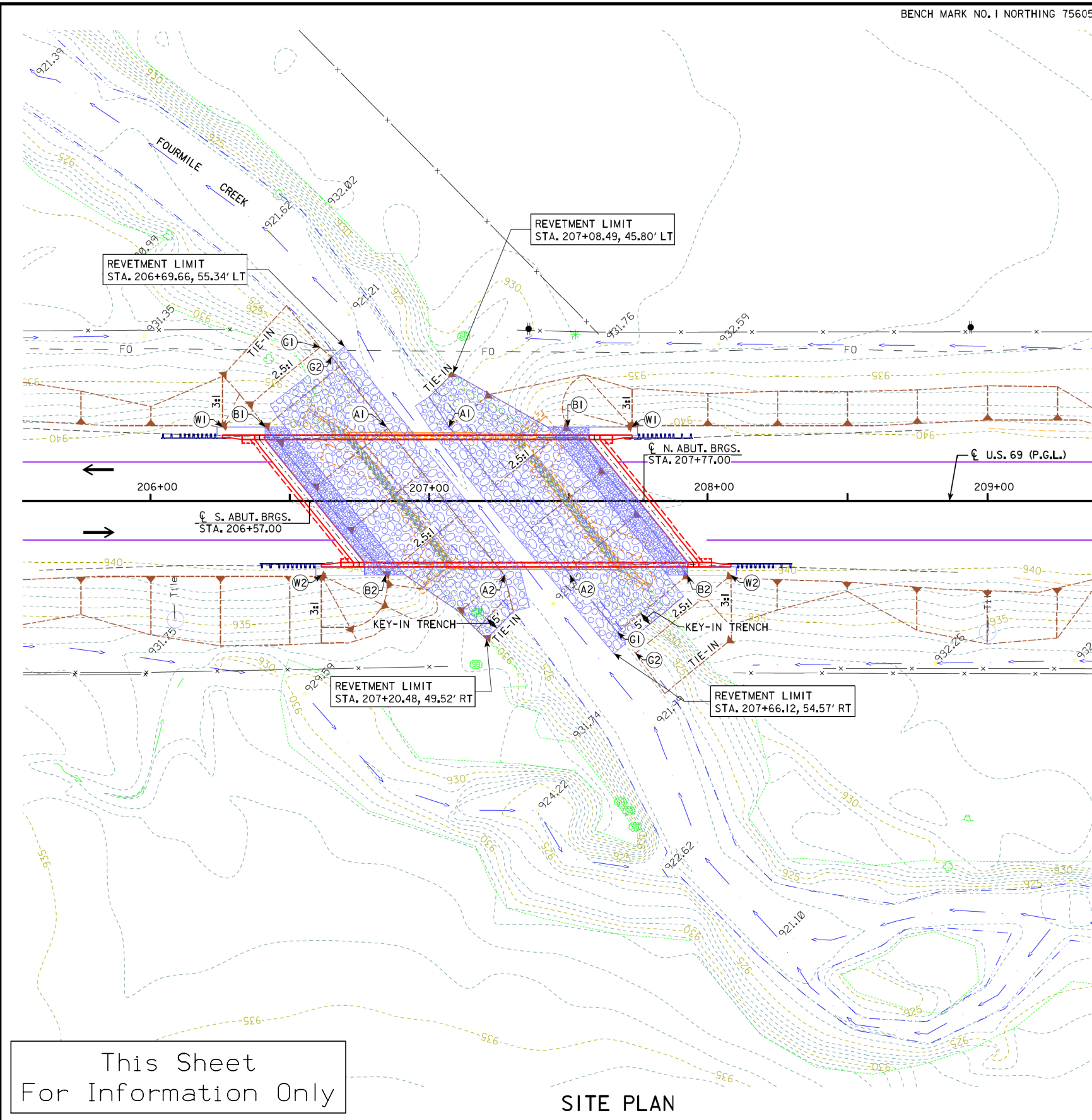


STA. 207+19 EXISTING
 59'-5" X 44' I-BEAM BRIDGE
 DESIGN NO. 2948
 TO BE REMOVED.

SITUATION PLAN

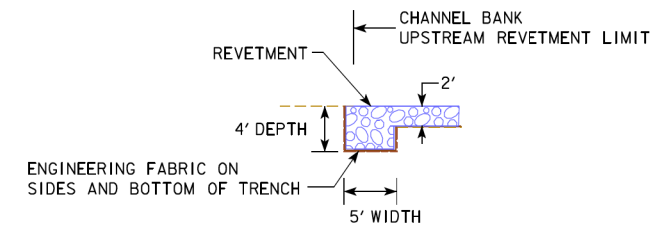


This Sheet
 For Information Only



* SEE SUBDRAIN DETAILS - PLACE EROSION STONE SLOPE PROTECTION UNDER BRIDGE + 3' BEYOND DECK
 ** VARY TO MATCH EXISTING BANK SLOPE NEAR TIE-INS

SECTION THRU EMBEDDED REVELMENT BERM



SECTION THROUGH KEY-IN TRENCH

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	206+84.63	26.58' LT	920.94	207+07.05	26.58' LT	920.99
A2	207+26.95	26.58' RT	921.31	207+50.52	26.58' RT	921.38
B1	206+41.26	26.58' LT	934.43	207+49.68	26.58' LT	934.51
B2	206+84.32	26.58' RT	934.43	207+92.74	26.58' RT	934.51
W1	206+25.68	26.58' LT	940.50	207+72.68	26.58' LT	940.71
W2	206+61.32	26.58' RT	940.65	208+06.32	26.58' RT	940.60
G1	206+60.88	55.08' LT	921.16	207+67.52	47.00' RT	921.53
G2	206+67.76	48.04' LT	920.79	207+73.92	54.44' RT	922.47

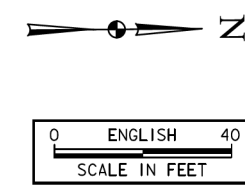
BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES				
LOCATION	REVELMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - SOUTH	468.3	27.4	571.8	309.8
BERM LINING - NORTH	460.3	28.0	562.0	305.4
TOTALS	928.6	55.4	1133.9	615.2

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

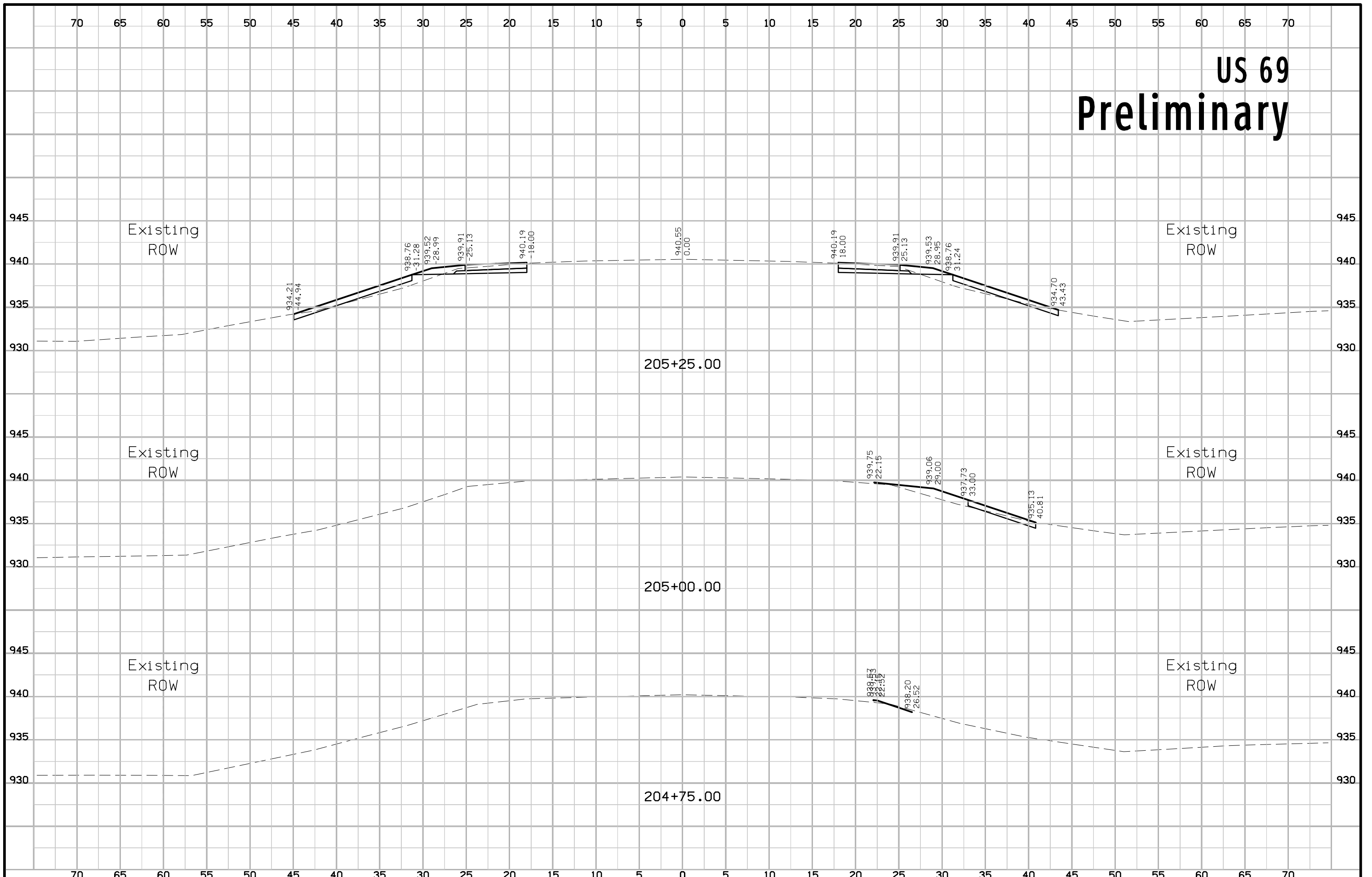
This Sheet For Information Only

SITE PLAN

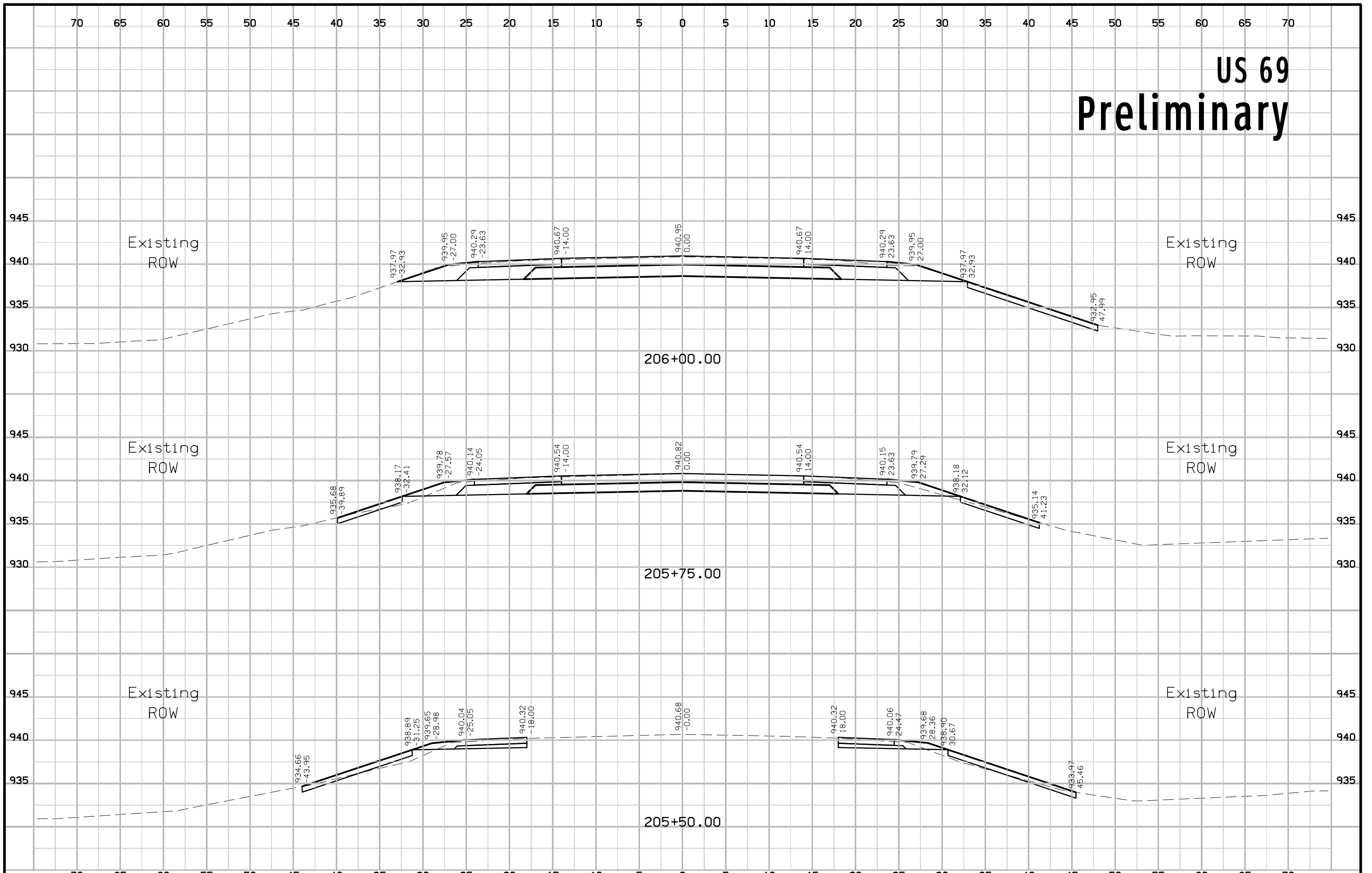


PRELIMINARY
 DESIGN FOR 39° SKEW (R.A.)
120'-0 x 44'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 120'-0 SPAN (BTC BEAMS)
SITUATION PLAN - SITE
 STATION 207+17.00 (U.S. 69) NOVEMBER 2017
POLK COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 2 FILE NO. 31471 DESIGN NO. 121

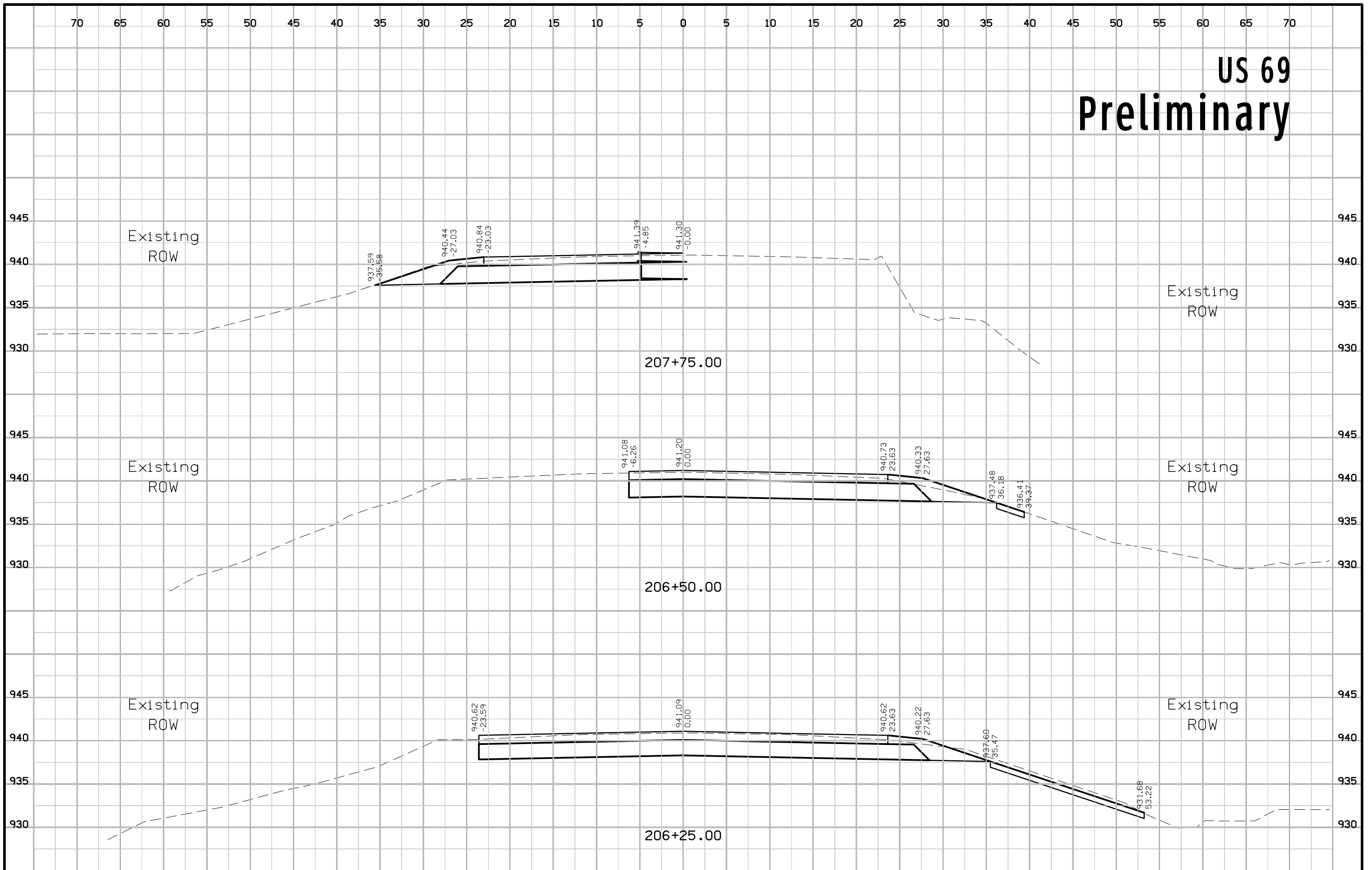
US 69 Preliminary

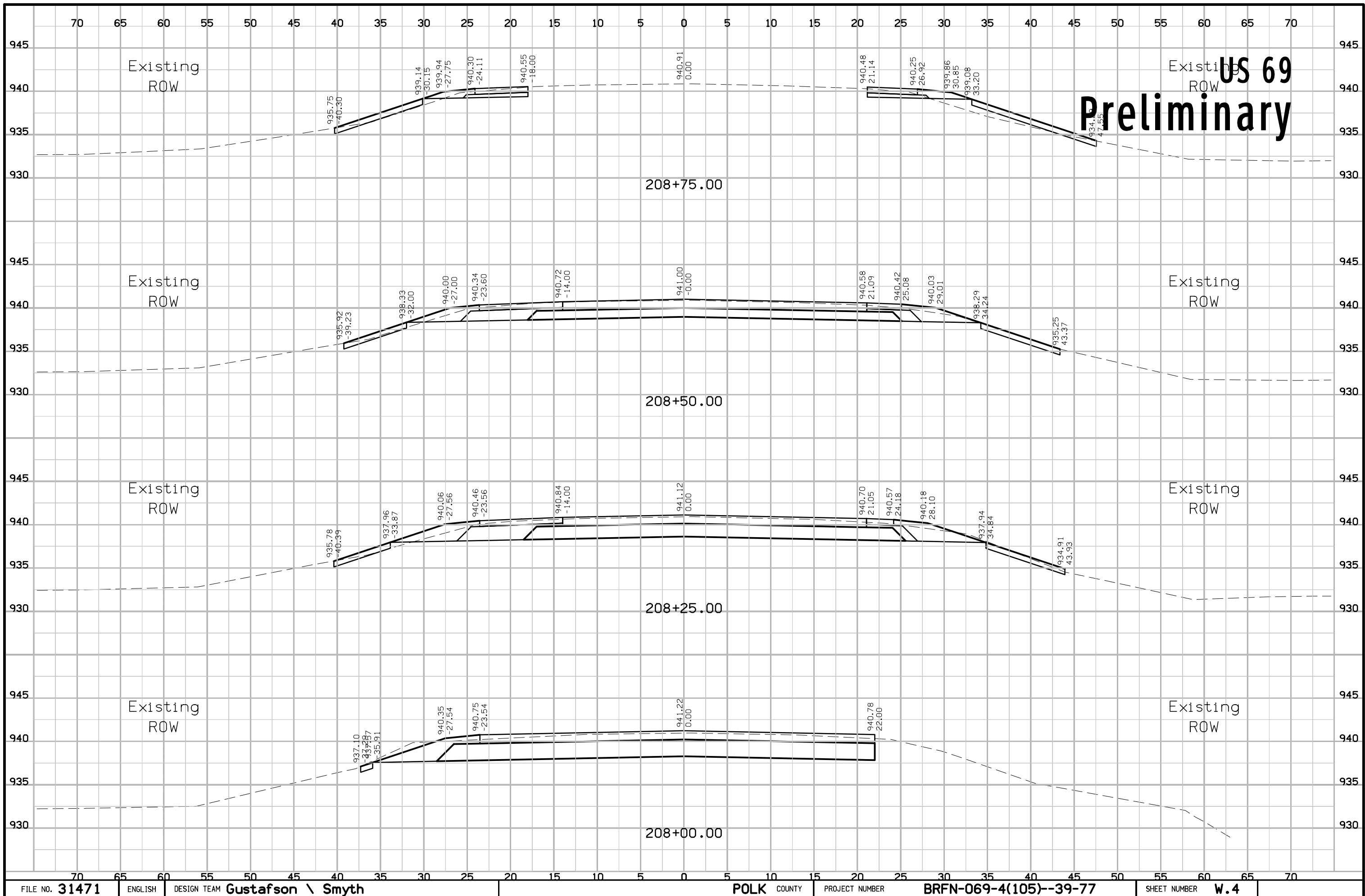


US 69 Preliminary



US 69 Preliminary





US 69 Preliminary

