

LETTING DATE
 12-17-2024
 RCB Culvert Replacement - Twin Box
 BRFN-078-4(25)--39-44

Henry COUNTY



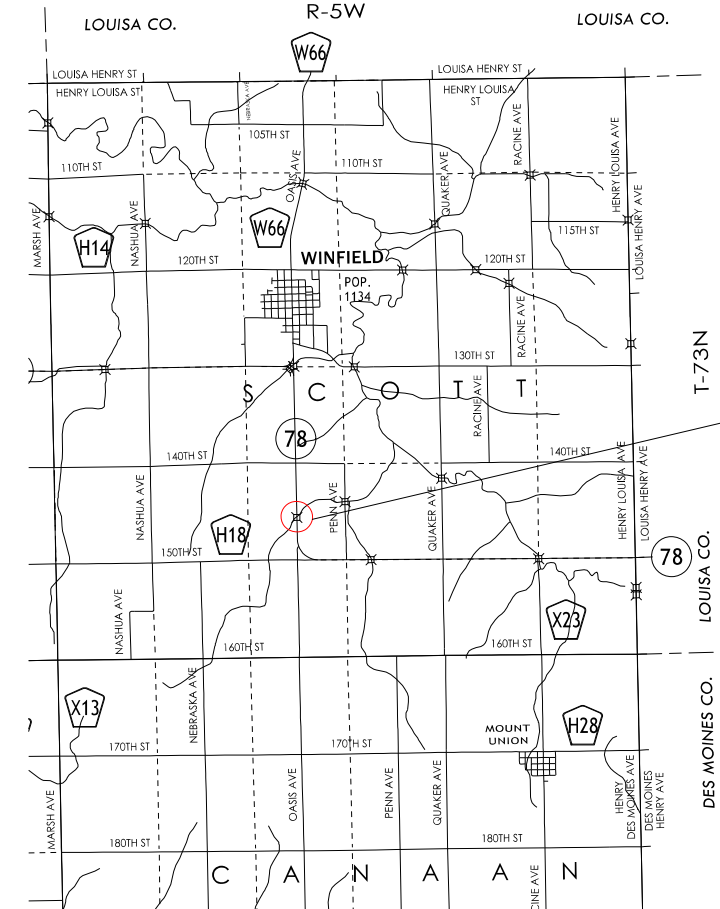
PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
Henry COUNTY
 RCB Culvert Replacement - Twin Box
 IA 78 Bridge over Stream 0.3 mi W of E Jct Co Rd W66

REVISIONS

TOTAL
17

PROJECT IDENTIFICATION NUMBER	20-44-078-010
PROJECT NUMBER	BRFN-078-4(25)--39-44
R.O.W. PROJECT NUMBER	STPN-078-4(26)--2J-44

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	IA 78
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.2	Detour Route
V Sheets	Bridge and Culvert Situation Plans
V.1	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 5	Mainline Cross Sections

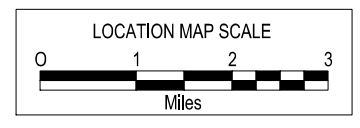


SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.
 Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



PROJECT LOCATION
 Sta. 96+22.67
 M.P. 44.98



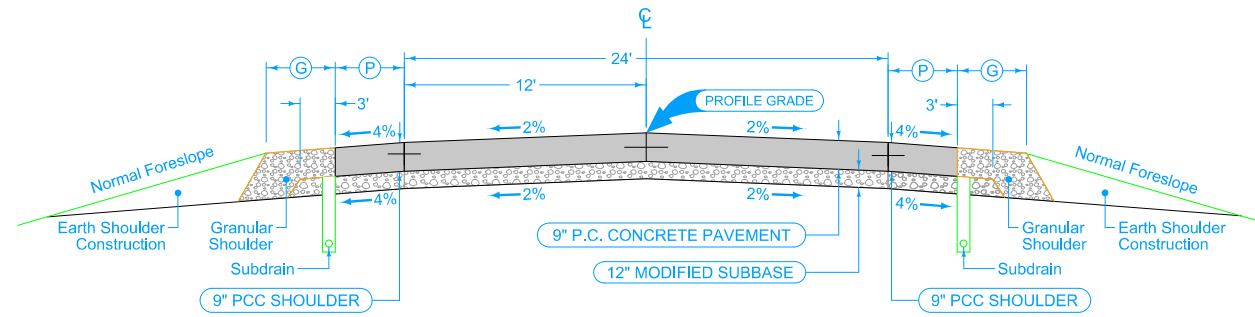
DESIGN DATA RURAL	
2025 AADT	800 V.P.D.
2045 AADT	1000 V.P.D.
20 - DHV	- V.P.H.
TRUCKS	9 %
Total Design ESALs	-

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

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 12-8-23



Full Depth PCC Combination Shoulder

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

2_C_FullPCC_04-21-20			
STATION TO STATION		(P) Feet	(G) Feet
95+00.00	97+45.00	4	6

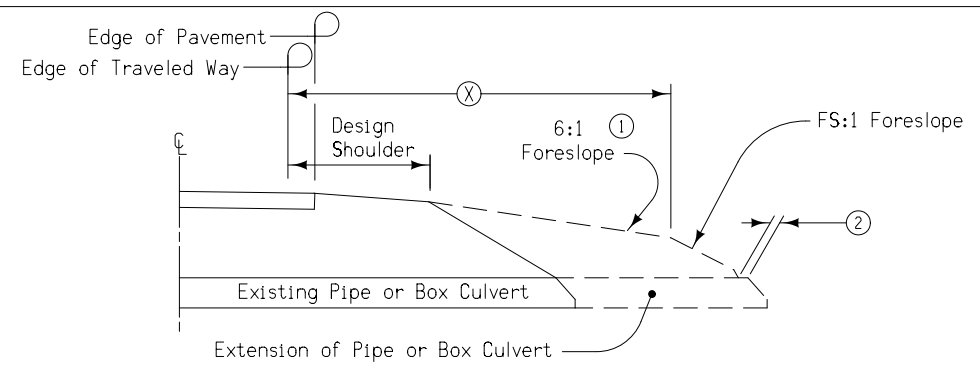
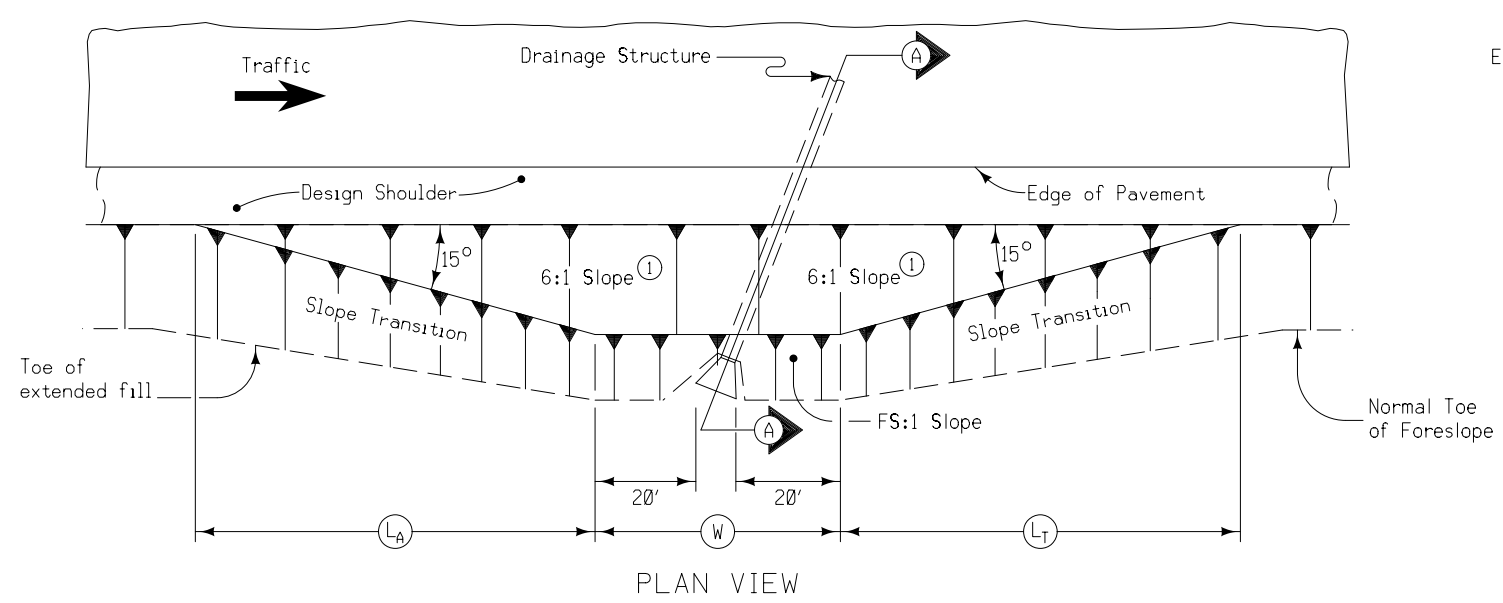
Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2

2P_04-21-20	
STATION TO STATION	
95+00.00	97+45.00

Full Depth PCC Combination Shoulder

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

2_C_FullPCC_04-21-20			
STATION TO STATION		(P) Feet	(G) Feet
95+00.00	97+45.00	4	6



SECTION A-A

STRUCTURE LOCATION		Ⓜ	Ⓛ _A	Ⓛ _T	Ⓧ	ⓕ _S
STATION ③	SIDE	Feet	Feet	Feet	Feet	
96+22.67	RT	55	53	53	24	3:1
96+22.67	LT	55	53	53	24	3:1

At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, flatten as indicated so as to cover the structure. Minimum earth cover is 6 inches.

- ① Slope may be flatter than 6:1.
- ② 6 inch minimum for pipe installations or to top of headwall on RCB.
- ③ At Ⓡ of road.
- Ⓜ = Pipe or RCB opening width plus 20 feet each side.

BARNROOF FORESLOPE AT
SKEWED DRAINAGE STRUCTURE

SURVEY SYMBOLS

<p>⊕ AST, Above Ground Storage Tank</p> <p>BB, Billboard</p> <p>BBB, Bottom of Bridge Beam</p> <p>BCL, Bridge Centerline</p> <p>BD, Bridge Deck</p> <p>⊙ BIN, Grain Bin</p> <p>--- BL, Topo Breakline</p> <p>BLD, Building or Foundation</p> <p>BLS, Bridge Low Steel</p> <p>△ BM, Bench Mark</p> <p>BNK, Stream Bank</p> <p>BRG, Bridge</p> <p>C, Centerline BL of Road -ML or SR</p> <p>CAV, Cave</p> <p>CEL, Cell Phone Tower</p> <p>CIS, Cistern</p> <p>CON, Concrete or A/C Slab</p> <p>CP, Control Point</p> <p>CRP, Corporation Line</p> <p>CS, Curve Point</p> <p>CU, Back of Curb</p> <p>CUL, Culvert</p> <p>D, Centerline Draw or Stream -Down</p> <p>DAB, Drainage Area Boundary</p> <p>DIK, Centerline of Dike or Dam</p> <p>DTM, Photogrammetry Elevation Control Check</p> <p>DU, Centerline Draw or Stream -Up</p> <p>EB, Electrical Box</p> <p>EG, Edge of Gravel Road</p> <p>ENP, Edge Paved Entrance and Park Lot</p> <p>ENT, Centerline BL of Entrance</p> <p>ENU, Edge Unpaved Entrance and Parking</p> <p>EP, Edge of Paved Roads -ML or SR</p> <p>EW, Edge of Water</p> <p>FCL, Chain Link and Security Fence</p> <p>FENO, FENO Monument</p> <p>FHD, Fire Hydrants</p> <p>FLG, Flag Poles</p> <p>FP, Filler Pipe</p> <p>FW, Wire Fence</p> <p>FWD, Wood Fence</p> <p>GDC, Guard Rail Cable</p> <p>GDL, Guard Rail Steel</p> <p>GP, Guard Post -Less Than 4 Posts</p> <p>GPR, Guard Post -4 or More Posts</p> <p>GR, Ground Shot</p> <p>GRV, Grave</p> <p>GU, Gutter In Front of Curb</p> <p>GV, Gas Valve</p> <p>HDG, Hedge Row</p> <p>HS, Hydric Soil -Wetlands</p> <p>HT, Electrical Highline Tower</p> <p>IN, Storm Sewer Intake</p> <p>INB, Storm Sewer Beehive Intake</p> <p>LC, Lot Corner</p> <p>LIN, Miscellaneous Line</p> <p>LP, L.P. Tank</p> <p>LUM, Luminaire</p> <p>MH, Utility Access -Manhole</p> <p>MIS, Miscellaneous</p> <p>MM, Mile Marker Post</p> <p>OUT, Tile Outlet</p> <p>PC, Curve Point</p> <p>PCP, Photo Control Point</p> <p>PCT, Photo Control Target</p> <p>PI, Tangent Point</p> <p>PIP, Pipe Culvert</p> <p>PL, Location of Photo -Wetlands</p> <p>PLG, Location of General Photo</p> <p>POC, Curve Point</p> <p>POST, Spiral Point</p>	<p>PR, Electric Riser Pole</p> <p>PRO, Profile Shot</p> <p>PT, Curve Point</p> <p>REF, Reference Tie Point</p> <p>RET, Retaining Walls</p> <p>RIP, Rip-Rap</p> <p>ROC, Rock Outcropping</p> <p>ROW, Right of Way Mark</p> <p>RR, Centerline of Railroad Tracks</p> <p>RRB, Railroad Signal Box</p> <p>RRF, Railroad Frog</p> <p>RRR, Railroad Rail</p> <p>RRS, Railroad Signal</p> <p>RRW, Railroad Switch</p> <p>RT, Radio Tower</p> <p>S, Soil Sampling Site -Wetlands</p> <p>SBR, Size of Bridge</p> <p>SC, Spiral Point</p> <p>SCR, Section Corner</p> <p>SEP, Septic Tank</p> <p>SF, Silt Fence -Wetlands</p> <p>SG, Staff Gauge -Wetlands</p> <p>SH, Paved Shoulder</p> <p>SHR, Shrub</p> <p>SI, Sign</p> <p>SL, Speed Limit Sign</p> <p>SLN, Section Line</p> <p>SLO, Silo</p> <p>SNK, Sink Hole</p> <p>SNP, Unpaved Shoulder</p> <p>SP, Stream Profile</p> <p>STP, Stump</p> <p>SWK, Sidewalk</p> <p>SWP, Swamp or Marsh</p> <p>TA, Tower Anchor</p> <p>TBO, Telephone Booth</p> <p>TCB, Traffic Signal Box</p> <p>TDC, Tree Deciduous</p> <p>TDL, Traffic Detection Loop</p> <p>TER, Terrace</p> <p>TEV, Evergreen Tree</p> <p>TFR, Tree Fruit</p> <p>TGP, Telegraph Pole</p> <p>TIL, Tile Line</p> <p>TLNL, Tree Line Left</p> <p>TLNR, Tree Line Right</p> <p>TOP, Top of Bridge Pier</p> <p>TPA, Telephone Pole Co. 1</p> <p>TPB, Telephone Pole Co. 2</p> <p>TPC, Telephone Pole Co. 3</p> <p>TR, Telephone Riser Pole</p> <p>TRL, Trail</p> <p>TS, Spiral Point</p> <p>TSB, Telephone Switch Box</p> <p>TSG, Traffic Signal</p> <p>TSL, Traffic Signal and Luminare</p> <p>TV, Satellite TV Dish</p> <p>TVP, TV Pedestal</p> <p>TW, Top of Water</p> <p>UB, Utility Box</p> <p>UE, Utility Elevation</p> <p>UPH, Utility Pot Hole - Quality A</p> <p>UST, Underground Tank</p> <p>UV, Underground Utility Vault</p> <p>VS, Channel Cross Section</p> <p>WC, Wild Card -Misc. Field Shot</p> <p>WEL, Well</p> <p>WHD, Water Hydrant</p> <p>WHU, RV Water Hook Up</p> <p>WM, Wind Mill</p> <p>WND, Wind Turbine</p> <p>WV, Water Valve</p>
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UTILITY LEGEND

<p>— TI —</p> <p>— W —</p> <p>— G —</p> <p>— FO —</p>	<p>TLID, Windstream Communications - Quality D</p> <p>WLID, Rathbun Rural Water - Quality D</p> <p>PPA, Alliant Energy</p> <p>GLID, Winfield, City of - Quality D</p> <p>FOID, Windstream Communications - Quality D</p>
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PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		Design Color No.
Lavender	(9)	Temporary Pavement Shading
Yellow	(4)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Yellow	(220)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading
Red	(3)	Delineates Restricted Areas

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

Reference Point	Survey Line
Station	Section Corner
Ground Line Intercept	Saw Cut
Guardrail	Guardrail
Trench Drain	Trench Drain
HighTension Cable Guardrail	HighTension Cable Guardrail
Sheet Pile	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
	Access Control
	Property Line

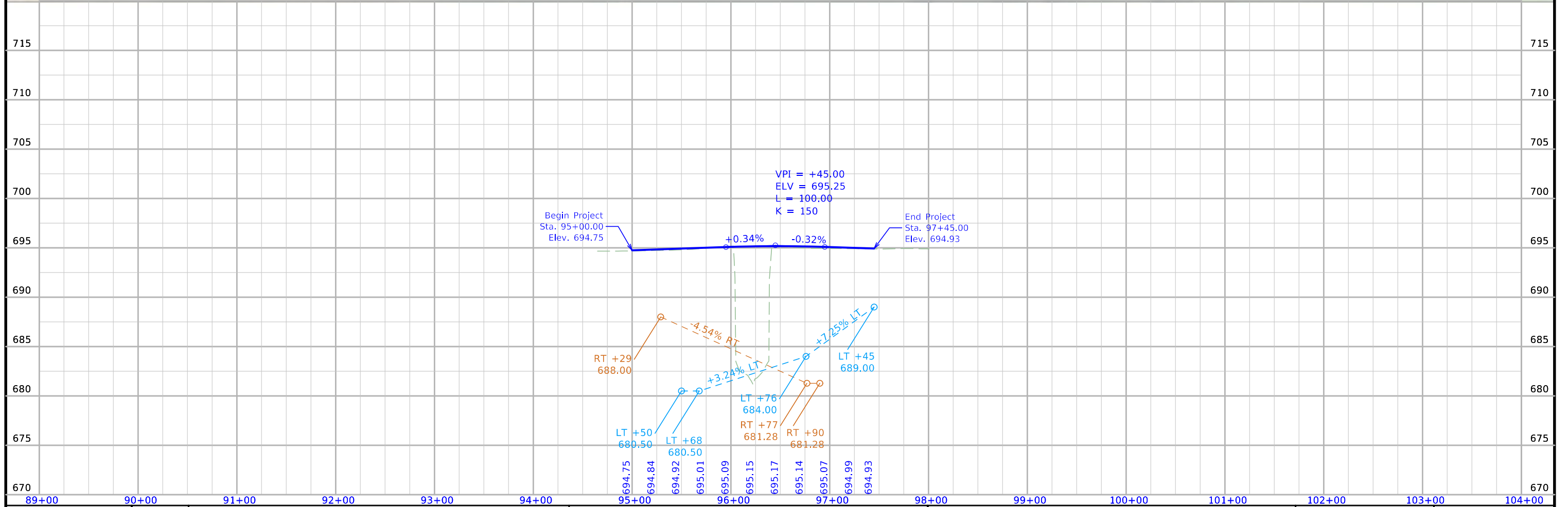
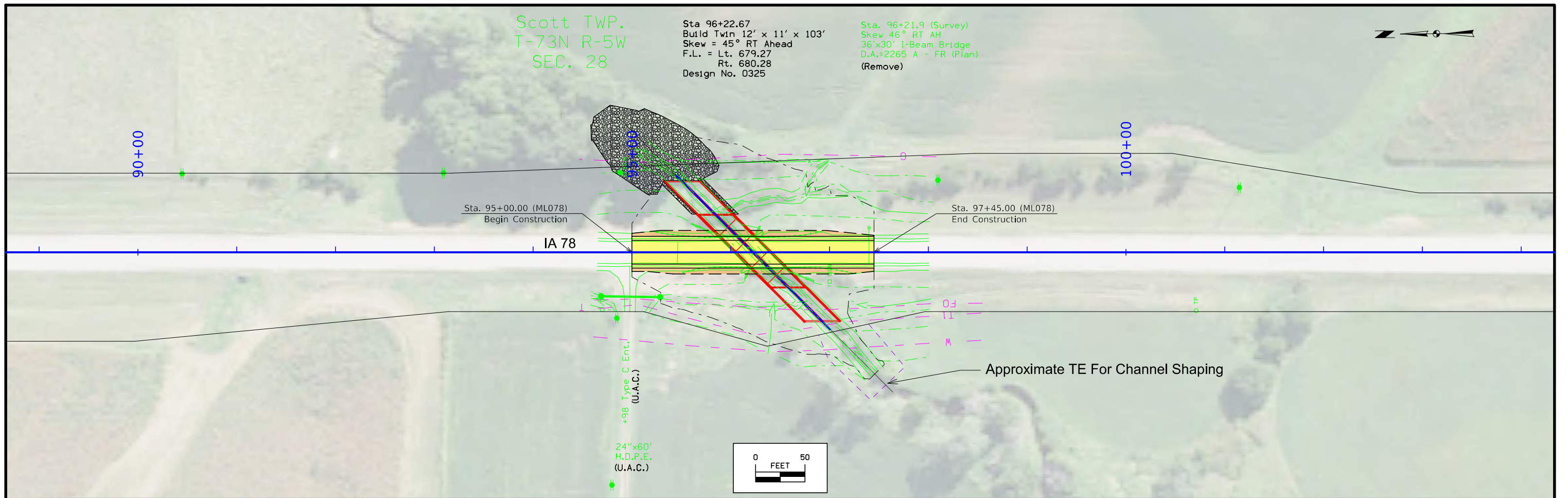
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

Scott TWP.
T-73N R-5W
SEC. 28

Sta 96+22.67
Build Twin 12' x 11' x 103'
Skew = 45° RT Ahead
F.L. = Lt. 679.27
Rt. 680.28
Design No. 0325

Sta. 96+21.9 (Survey)
Skew 46° RT AH
36'x30' I-Beam Bridge
D.A.=2265 A - FR (Plan)
(Remove)



89+00	90+00	91+00	92+00	93+00	94+00	95+00	96+00	97+00	98+00	99+00	100+00	101+00	102+00	103+00	104+00
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Survey Information

SURVEY INDEX

County: Henry
PIN: 20-44-078-010
Project Number: BRFN-078-4(25)—39-44
Location: IA 78 0.3 mi W of E Jct Co Rd W66
Type of Work: Bridge Replacement
Project Directory: 4407801020

Survey Personnel

Nels Sutherland – Survey Party Chief
Myron Fox – Survey Party Chief

Date(s) of Survey

Begin Date 11/10/2021
End Date 03/14/2022

General Information

Measurement units for this survey are US survey feet. This survey is for IA 78 bridge replacement 0.3 mi W of E Jct Co Rd W66. This project is a Full DTM Survey.

Project Control

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. Two or more five-minute observations were taken with appropriate time spans between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

PROJECT DATUM: NAD83(2011) EPOCH 2010.00

VERTICAL DATUM: NAVD88

COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 14

GEOID MODEL: 2012bu3

Alignment Information

The alignment created for this project was based off as-built plan set F-352(6) and coordinates provided by the district 5 Land Survey office in Fairfield, Ia.

Survey stationing relates to as-built plan stationing as follows:

POT Sta. 79+79.70 Plan
= Survey POT Sta. 79+79.70 (Held)

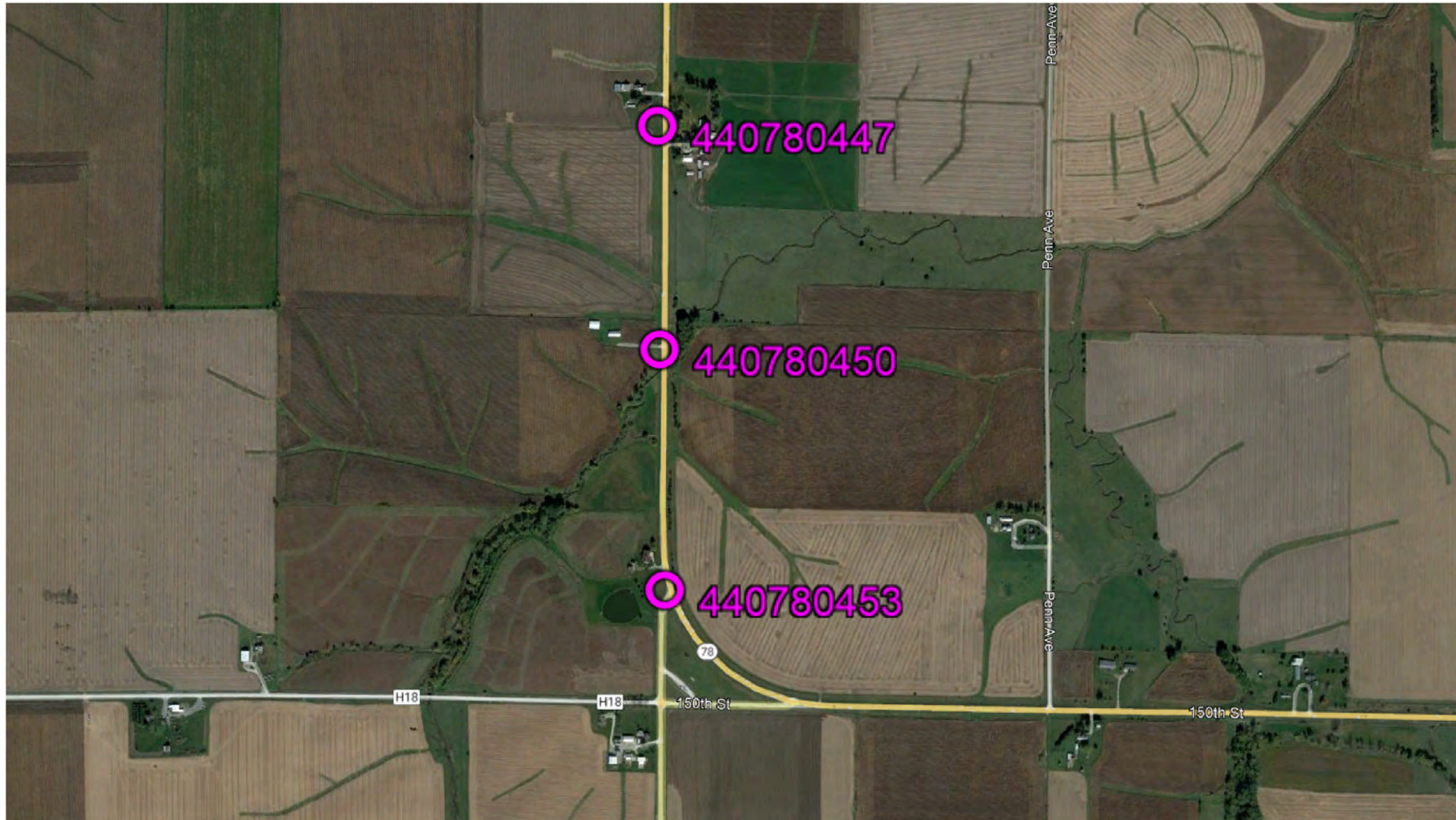
TS Sta. 106+36.60 Plan
= Survey TS Sta. 106+39.69

Utility Information

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

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 2010.00 - Ia. RCS Zone 14
VERT. DATUM: NAVD88 - Geoid Model 2012bu3

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) EPOCH 2010.00
 1a. Regional Coordinate System Zone 14

VERT. DATUM: NAVD88
 Geoid Model 2012bu3
 Project Control Marks are Bench Marks

Point Name	Northing	Easting	Elevation	Code Description
440780453	6506723.89	24448179.38	729.33	CP from the intersection of H18 and Oasis Ave proceed N 780ft along Oasis Ave point is 55ft NW of cl of Oasis Ave Idot FENO mon w/brass disc 4in below surface
440780450	6508403.99	24448146.76	693.59	CP from the intersection of 140th st and hwy 78 proceed S 2875ft along hwy 78 point is 31ft W of cl of hwy 78 5/8th x 42in rebar 4in below surface
440780447	6509937.38	24448138.26	726.93	CP from the intersection of 140th st and hwy 78 proceed S 1335ft along hwy 78 point is 55ft W of cl of hwy 78 ROW rail cut x on ball 1ft above ground

NOTE:

The first two digits in the control point name refer to the county number.
 The next 3 digits refer to the highway number.
 The next 3 digits refer to the highway milepost.
 The last digit refers to the distance from the referenced milepost to the nearest tenth of a mile.

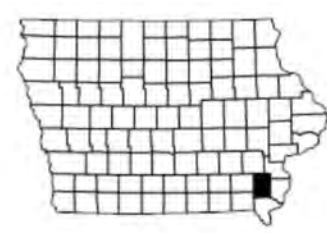
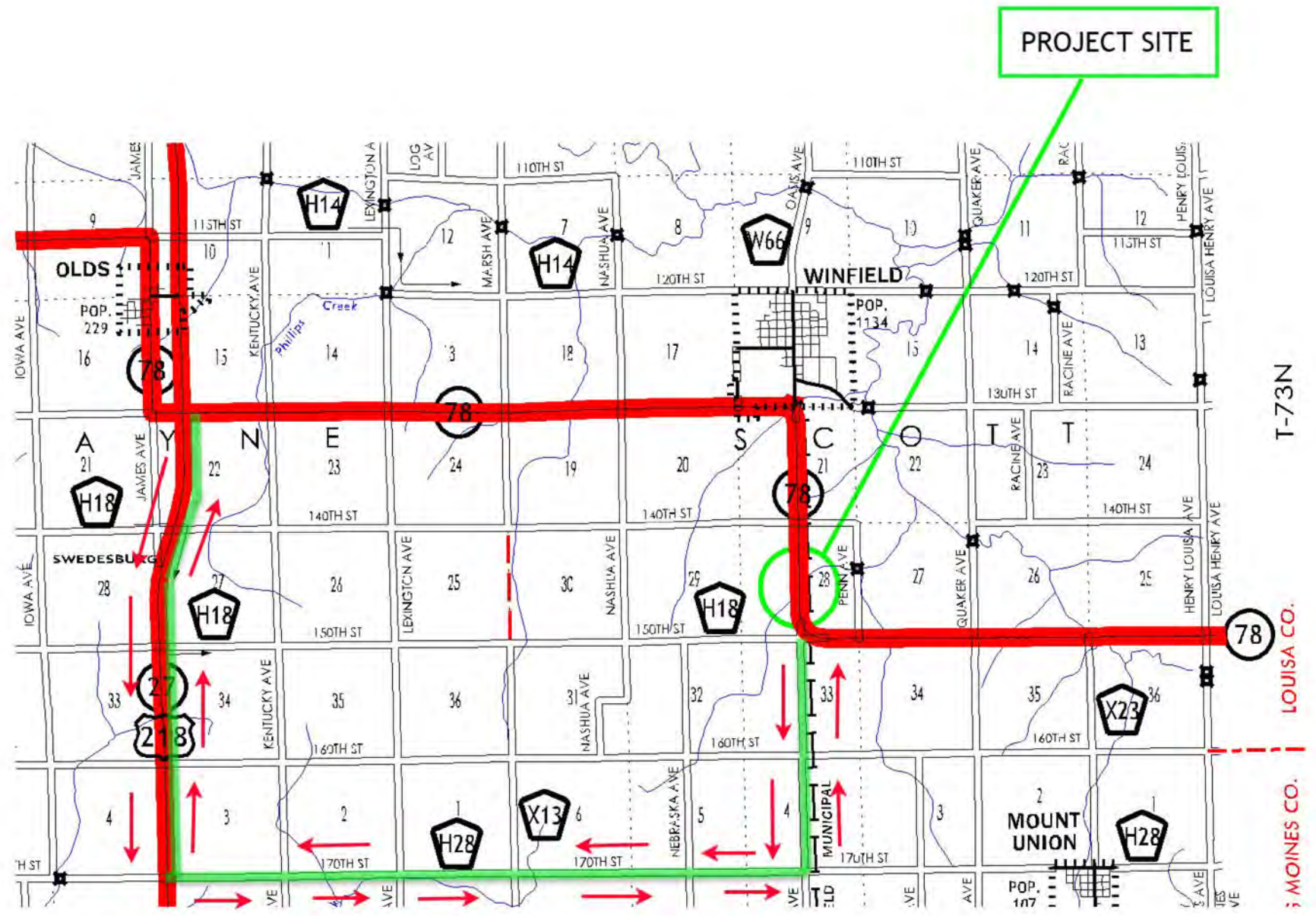
511 TRAVEL RESTRICTIONS

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
IA 78	Both	Henry	IA 78 Bridge over stream 0.3 mi W of E Jct Co Rd W66				Closure					

108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA 78 will be closed, and an offsite detour will be utilized.
 Access to properties shall be maintained at all times.
 The Contractor shall install, maintain, and remove signing for the detour. Detour signs will become property of the Contractor.
 Refer to J-sheets for the detour signing plan.



HENRY COUNTY
 On IA 78 Over Stream 0.3 mi W of E Jct
 Co Rd W66
 BRFN-078-4(25)- -39-44
 PIN: 20-44-078-010



CROSS SECTION VIEW COLOR LEGEND

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

NOTES:

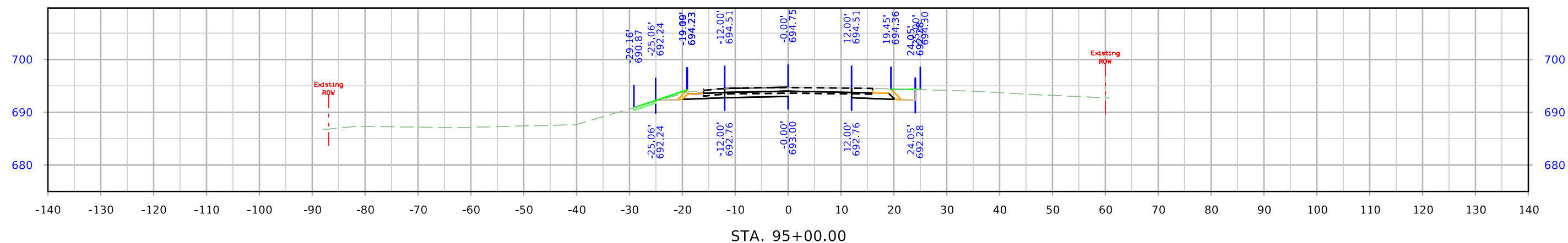
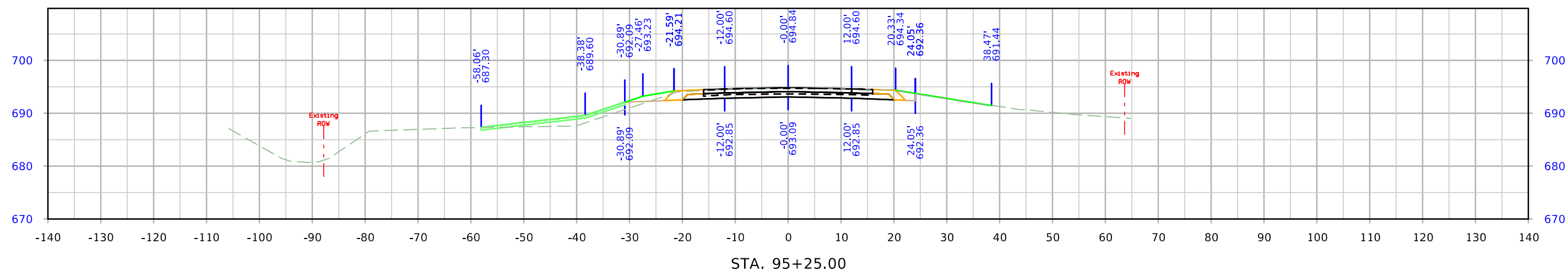
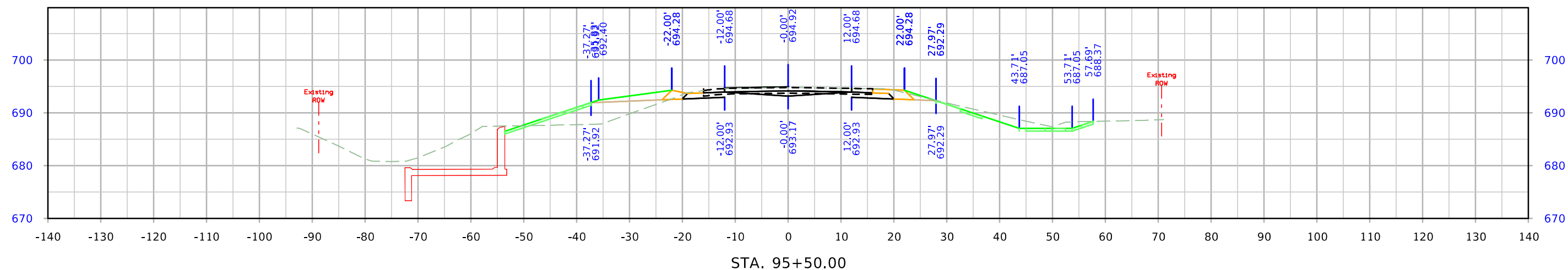
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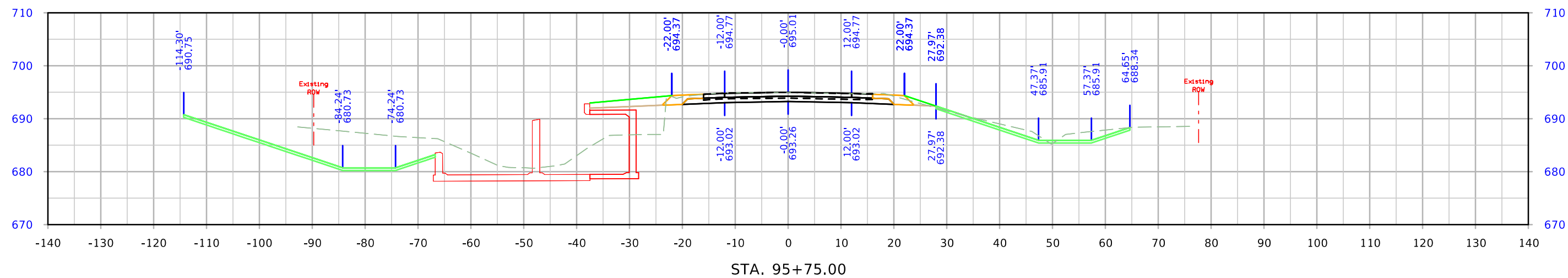
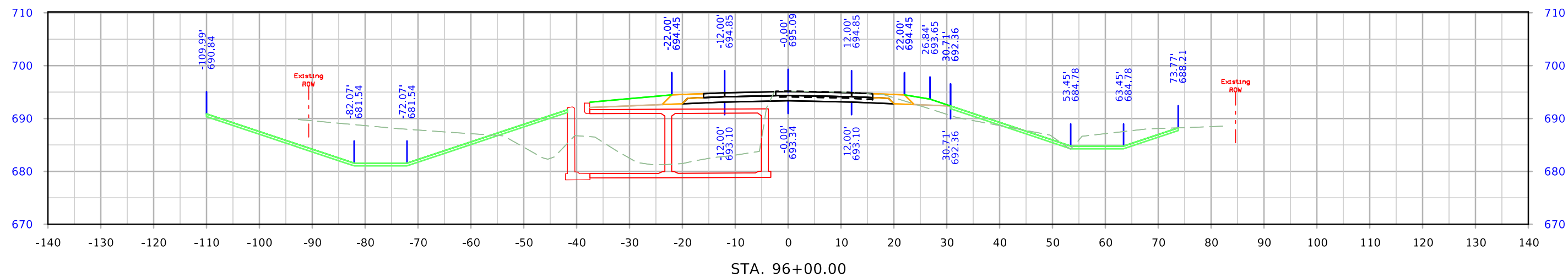
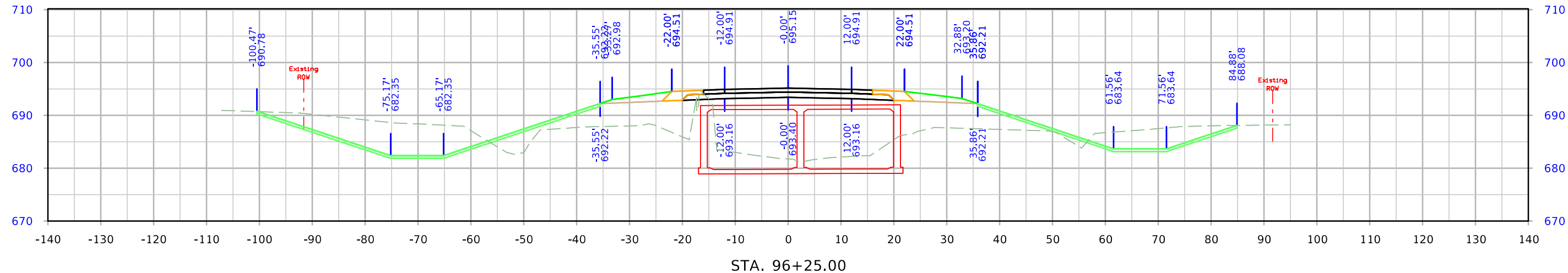
NOTES:

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CROSS SECTIONS LEGEND AND INFORMATION SHEET

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





IA 78

