



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
WEBSTER COUNTY
Pipe Culverts
At Co Rd D68 and 1.3 mi W of E Jct IA 175 (2 Locations)

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

22-94-169-030

PROJECT NUMBER

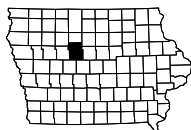
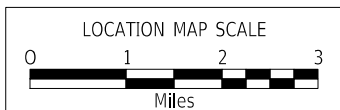
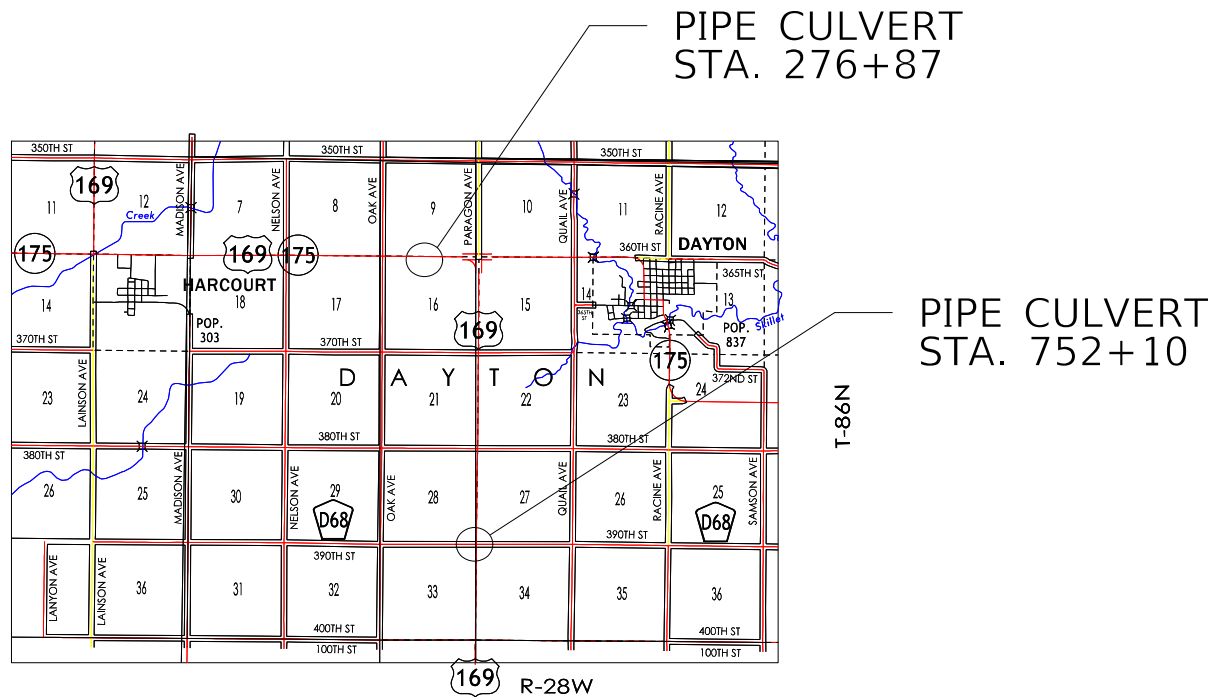
NHSN-169-6(94)--2R-94

R.O.W. PROJECT NUMBER

NHSN-169-6(95)--2R-94

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet/Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Culvert location Sta. 752+10 - U.S. 169
* D.2	Culvert location Sta. 276+87 - U.S. 169
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
U Sheets	500 Series, Mod.Stds. and Detail Sheets
U.1	Proposed Culvert Configuration - Co.Rd. D-68/US169
W Sheets	Mainline Cross Sections
W.1 - 3	Culvert location Sta. 752+10 - U.S. 169
W.4	Culvert location Sta. 276+87 - U.S. 169
X Sheets	Side Road Cross Sections
X.1	Proposed Culvert Locations
	* Color Plan Sheets



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

ROADWAY 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.

Allison L. P. Smyth XX-XX-XXXX
Signature Date
Allison L. P. Smyth
Printed or Typed Name
My license renewal date is December 31, 2024

Pages or sheets covered by this seal: A.1, B.1, D.1-D.2, G.1-G.3, J.1-J.2, W.1-W.4, & X.1

SURVEY SYMBOLS

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

SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

Remark Abbreviations
QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

FOID, Lehigh Valley Telephone- Quality D
PPA, Alliant Energy

UTILITY LEGEND









FOID, Lehigh Valley Telephone- Quality D
PPA, Alliant 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.	
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

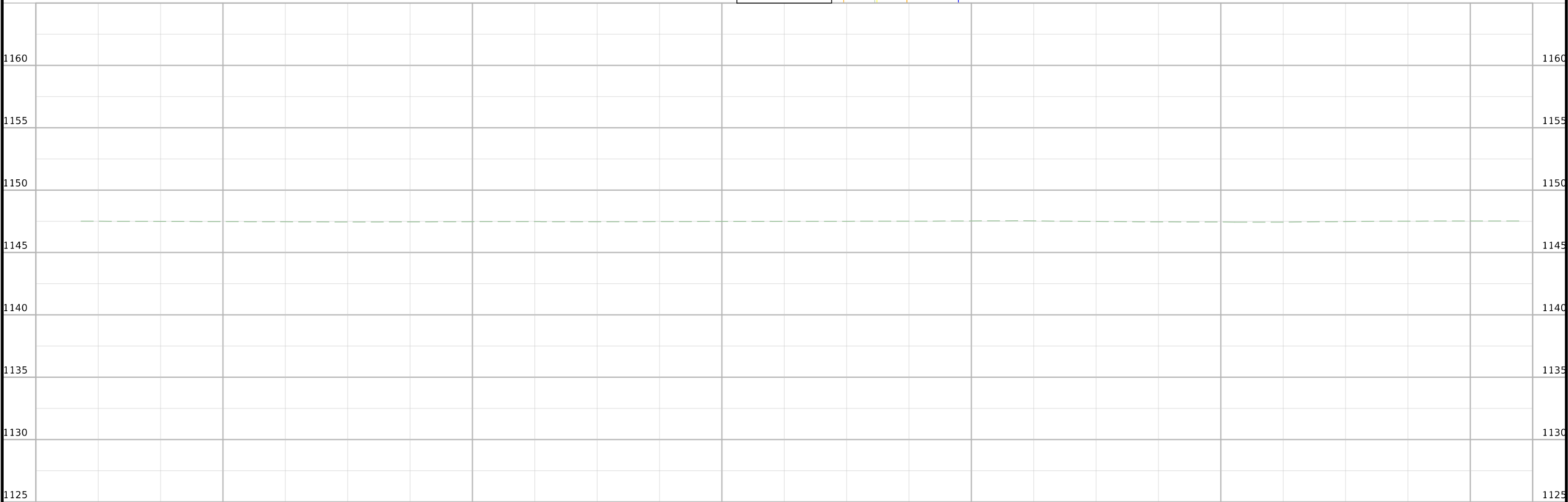
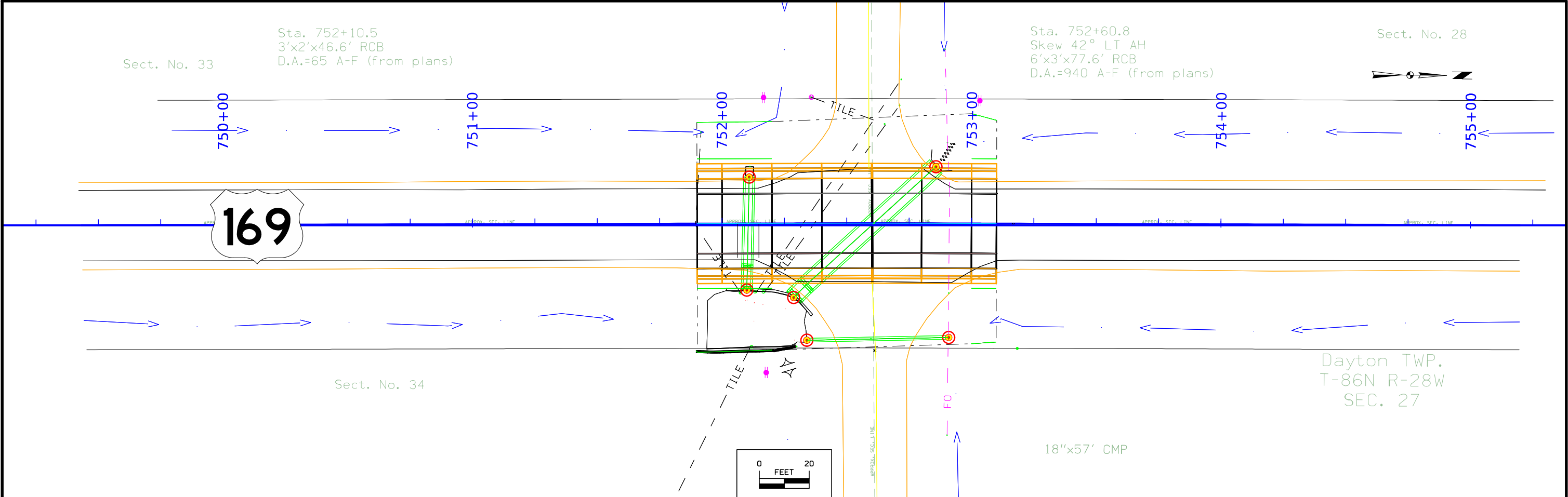
LINEWORK	Design	Color No.	
Green	(10)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

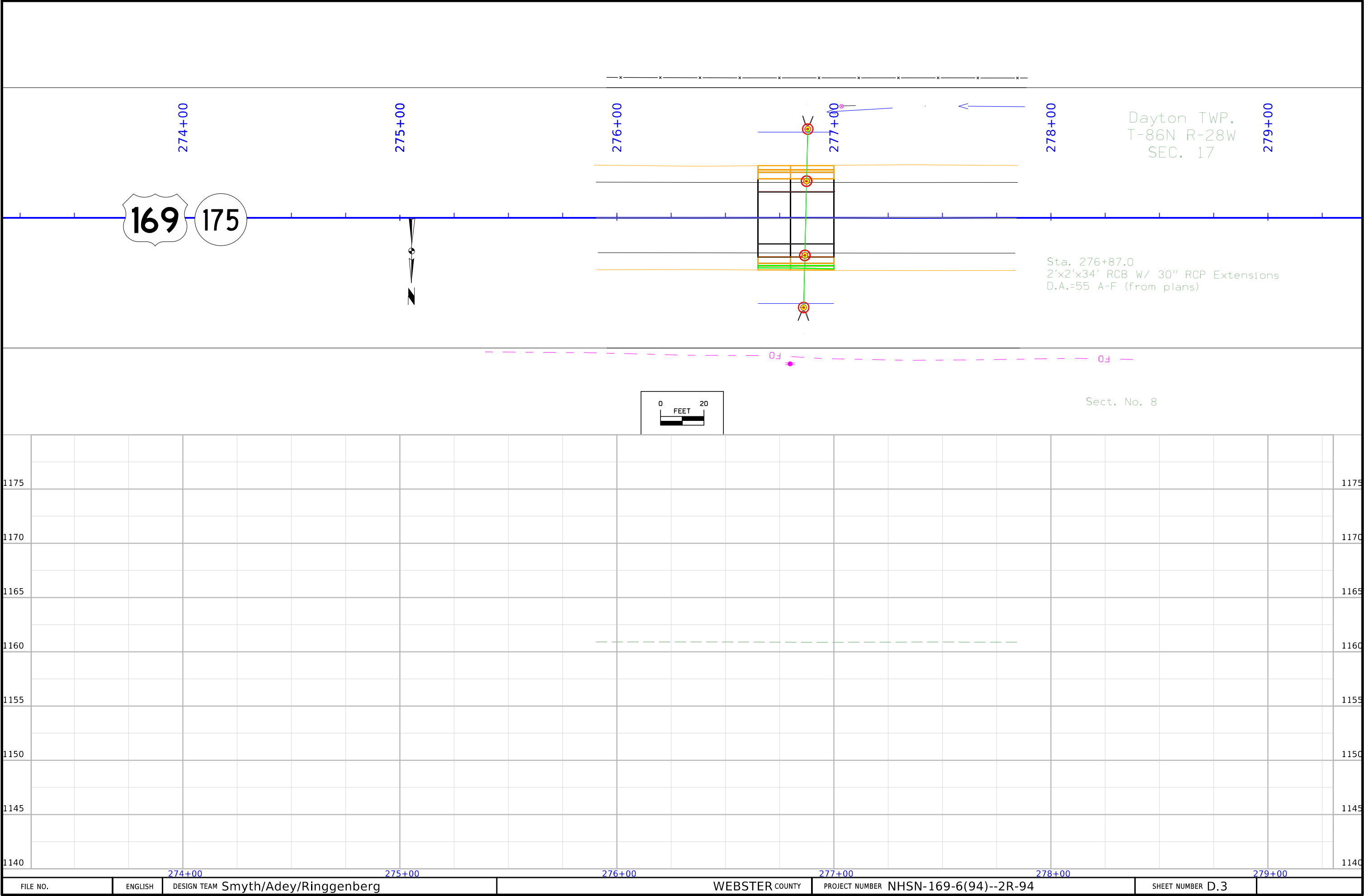
RIGHT-OF-WAY LEGEND	
	Proposed Right-of-Way
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary)
	Easement
	Access Control
	Property Line

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

PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET

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





Survey Information

SURVEY INDEX

County: Webster
PIN: 22-94-169-030
Project Number: NHSN-169-6(094)--2R-94
Location: At Co Rd D68 and 1.3 mi W of E Jct IA 175 (2 Locations)
Type of Work: Culvert
Project Directory: 9416903022

Survey Personnel

Clayton Henningsen – Survey Party Chief
Robert Fredrickson – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 06/30/2022
End Date 08/23/2022

General Information

Project datum and control information is provided by the Design Survey Office. Measurement units for this survey are US survey feet. This survey is for US Hwy 169 culverts at Co Rd D68 and 1.3 mi W of E Jct IA 175 (2 Locations). This survey request was for the US Hwy 169 corridor only. This project is a Full Field 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 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 4
GEOID MODEL: 2012bu3

Alignment Information

ALIGNMENT ROWMLB169
The U.S. 169 alignment in this area was developed using as built plan F-169-6(25)--20-94. Stationing was held at P.I. 259+66.39 (also being the NE corner of Section 17-86N-28W) and ran ahead without equation. The relationship between plan and field measurement data is shown below...

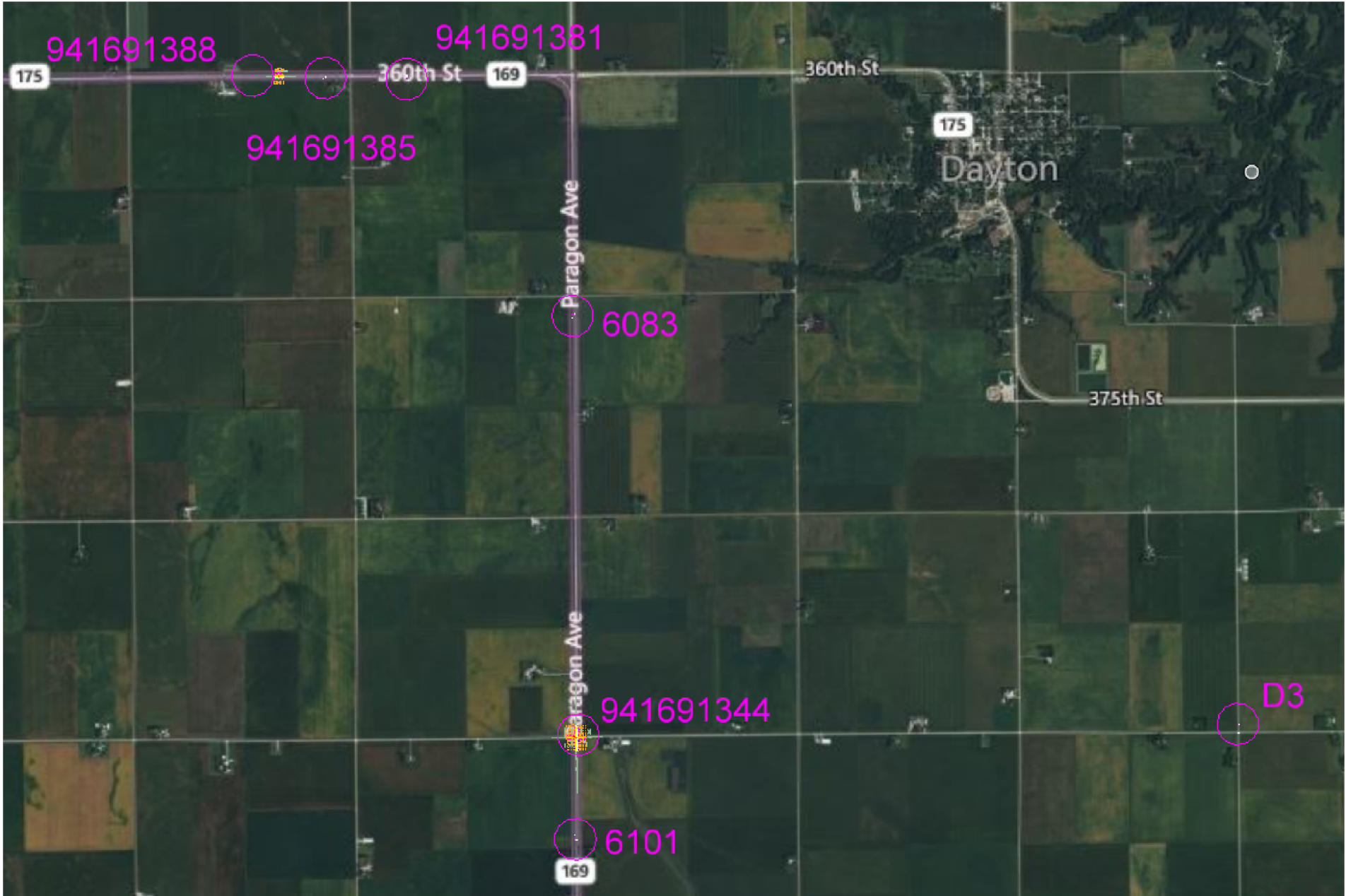
P.I. Sta. 259+66.39 (Proj. F-169-6(25)--20-94) = P.I. Sta. 259+66.39 (this survey)
Found an I.D.O.T. aluminum monument
P.I. Sta. 286+08.99 (Proj. F-169-6(25)--20-94) = P.I. Sta. 286+09.02 (this survey)
Found an I.D.O.T. aluminum monument

ALIGNMENT ROWMLA169
The U.S. 169 alignment in this area was developed using an unlet plan for project F-169-5(13)--20-08 because the latest acquisition documents in this area used this stationing. Stationing was held at P.I. 752+60.35 (also being the NE corner of Section 33-86N-28W) and ran ahead and back without equation. The relationship between plan and field measurement data is shown below...

P.I. Sta. 726+23.44 (Proj. F-169-5(13)--20-08) = P.I. Sta. 726+23.52 (this survey)
Found MAG nail
P.I. Sta. 752+60.35 (Proj. F-169-5(13)--20-08) = P.I. Sta. 752+60.35 (this survey)
Found MAG nail
P.I. Sta. 778+98.81 (Proj. F-169-5(13)--20-08) = P.I. Sta. 778+99.00 (this survey)
Found MAG nail

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 4
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 4

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

Point Number	Northing	Easting	Elevation	Description
D3	8488585.570	14712748.880	1134.202	CP FOUND NGS CONCRETE MONUMENT DISK AS DESCRIBED IN GOOD CONDITION
941691344	8488330.109	14697027.850	1143.889	CP CONC MONUMENT IN NE QUAD INTERSECTION US 169& 390TH ST. 50 FT EAST OF CL US 169. 57 FT NORTH OF CL 390TH ST. 28 FT NORTH OF NORTH END 18 " CMP UNDER 390TH ST.
6101	8485839.568	14696952.110	1157.154	CP WEBSTER CO CONTROL MON 2016-6101 IS NEAR THE NE CORNER OF A SMALL CEMETARY 0.5 MILE SOUTH OF INTERSECTION US 169 & CO RD D68. 47.4 FT WEST OF CL US 169. 90 FT SOUTH OF POWER POLE. 5 FT WEST OF NORTH END CMP ENTRANCE PIPE.
6083	8498386.740	14696897.140	1155.654	CP WEBSTER CO CONTROL MON 6083 FROM THE INTERSECTION US 169 & 379TH ST GO SOUTH 410 FT TO MARK IN WEST ROW OF US 169. 48.6 FT WEST OF CL US 169. 10.8 FT SOUTH OF THE FACE OF DEKALB RESEARCH SIGN. 1.8 FT EAST WITNESS POST IN FENCE.
941691381	8503984.685	14692914.590	1161.972	CP IOWA DOT ROW DISK IN SOUTH ROW 0.5 MI WEST OF US 169 & IA 175 INTERSECTION. AT A FIELD ENTRANCE TO THE SOUTH. THE SOTHERNMOST OF 2 ROW MARKERS. 80 FT SOUTH OF CL US 169. 14 FT SOUTH OF ROW POST.
941691385	8504009.252	14690972.980	1160.471	CP X ON INLET APRON RCP ON SOTH SIDE US 169 BETWEEN THE HIGHWAY AND A FARM ENTRANCE THAT PARALLELS THE HIGHWAY. 0.1 MI WEST OF INTERSECTION US 169 & OAK AVE. 41 FT SOUTH OF CL US 169. 42 FT NE OF A BEEHIVE INTAKE.
941691388	8504070.210	14689237.710	1161.090	CP FENO MONUMENT AT FIELD ENTRANCE ON NORTH SIDE US 168/ IA175 0.5 MILE EAST OF INTERSECTION US 169 & NELSON AVE. 31.5 FT NORTH OF CL HWY. 47 FT SE OF POWER POLE. 16 FT SOUTH OF INLET 24" CMP ENTRANCE PIPE

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.

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on U.S. 169 and IA 175 shall be maintained via detours. Refer to J.2 for detour map.
Contractor shall sign and maintain detour.

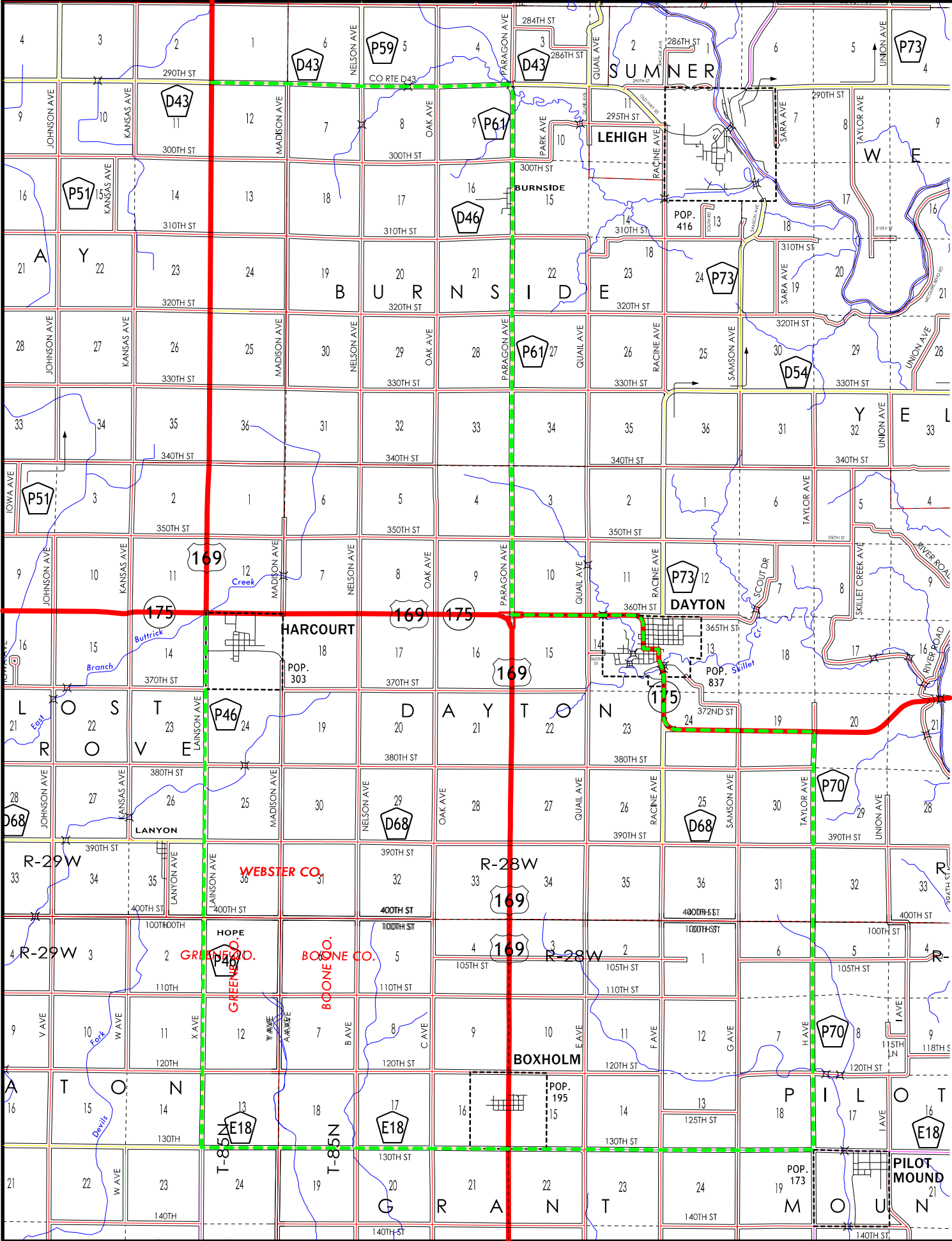
511 TRAVEL RESTRICTIONS												108-25 10-21-14
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US 169	N/S	Webster										
IA 175	E/W	Webster										

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
Provided at final design	



----- Detour Route

Detour Map
Boone and Webster Counties
NHSN-169-6(94)--2R-94

Removals

Installations

- REMOVALS BY ROAD CONTRACTOR
1. REMOVE PAVEMENT, INCLUDING A.C. CONC. APRONS
 2. REMOVE 6"x3"x76.6" RCB
 3. REMOVE 3"x2"x44.6" RCB
 4. REMOVE 38"x7" CONCRETE HEADWALL
 5. REMOVE 44"x22" CONCRETE SLOPE PAVING
 6. REMOVE 30' LONG CONCRETE HEADWALL INCLUDING TIMBER PLANKS, AND CUT OFF SEVEN TIMBER PILES TO ELEV. 1141.5
 7. REMOVE TWO 22" TILE AND 24" CONC. PIPE DRAINS
 8. REMOVE INTAKES
 9. REMOVE 18"x45" CMP
 10. REMOVE 6" CMP SUBDRAIN OUTLET AND PORTION OF 4" PLASTIC SUBDRAINS AS DIRECTED BY THE ENGINEER
 11. REMOVE 68 FT. OF 36" CONCRETE DRAIN TILE
 12. REMOVE EXISTING TILE LINES AS REQUIRED OR AS DIRECTED BY THE ENGINEER
 13. REMOVE SHORT PIECE OF DAMAGED CMP

- CONSTRUCTION BY ROAD CONTRACTOR
23. INSTALL 24" CORR. METAL RDWY. PIPE CULV. AT STA. 8753+35
 24. INSTALL 24" CONC. PIPE SUBDRAIN, 20000, AT 0.20% LINE NO. C-76. REQUIRES:
FOUR 7'30" D-SECTIONS
 25. INSTALL SUBDRAIN LINE NO. C-80 (24"x12", CLASS 20000)
 26. INSTALL LONGITUDINAL SUBDRAIN LINE NOS. C-78 AND C-79
 27. OTHER SUBDRAINS, NOT SHOWN, AS DIRECTED BY THE ENGINEER
 28. PLACE REVETMENT, CLASS E RIPRAP, 18" THICK AS SHOWN
 29. INSTALL CONCRETE PIPE ROADWAY CULVERT, 20000, RIGHT OF STA. 751+75. REQUIRES:
TWO 36"x4 FT. SECTIONS, WITH TIED JOINTS AND DOUBLE BEVEL D-SECTIONS
ONE 42" CONCRETE APRON
ONE 42" TO 36" CONC. PIPE REDUCER, 4 FT. LONG
 30. BACKFILL, SUBGRADE TREATMENT, PAVEMENT AND FINISH THE INTERSECTION
 31. SUBDRAIN OUTLET NO. R-15
 32. EXTEND EXISTING SUBDRAIN OUTLET, LINE NO. E-71

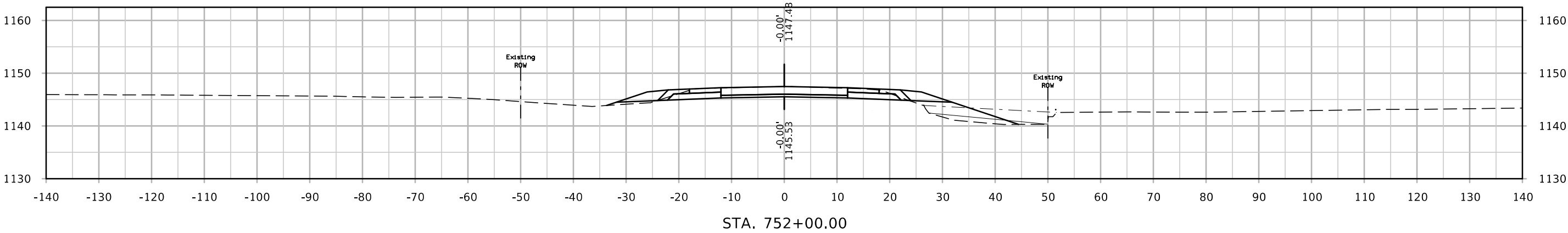
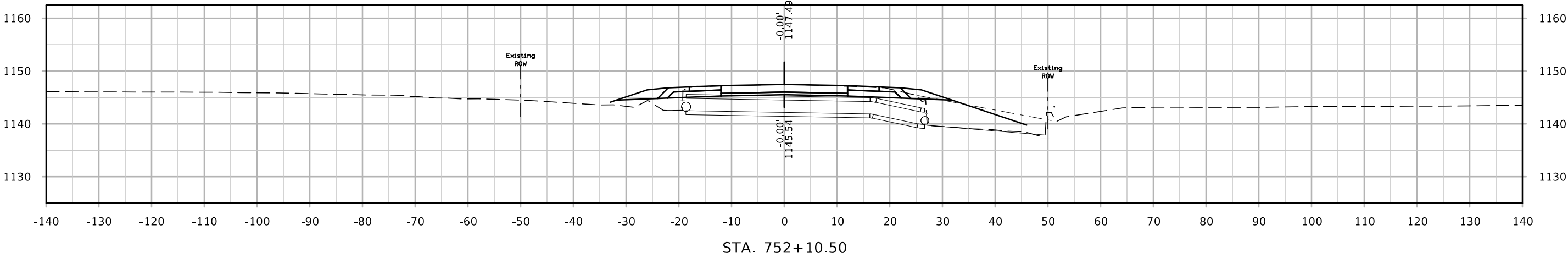
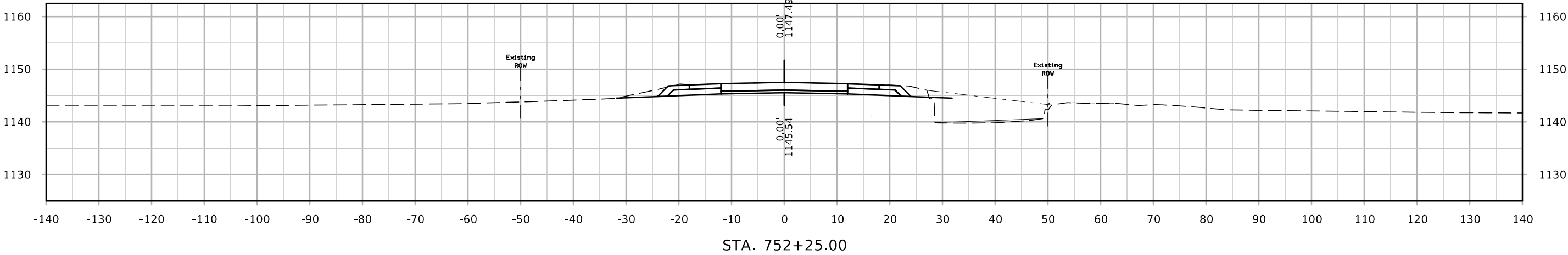
- WORK BY CULVERT CONTRACTOR
20. CONSTRUCT 6"x4"x44" RCB AT STA. 8751+35, INCLUDING: CONCRETE END WALL ON INLET APRON AND ONE 6-FT. SECTION OF 24" CONCRETE PIPE SUBDRAIN, 20000
 21. CONSTRUCT 8"x4"x32" RCB AT STA. 751+75, INCLUDING: ONE 6-FT. SECTION OF 24" CONCRETE PIPE SUBDRAIN, 20000, AND FOUR 6-FT. SECTIONS OF 10" CMP, 14 GAGE

- NOTES:
1. ROAD CONTRACTOR TO VERIFY LOCATION, DEPTH AND SIZE OF ALL EXISTING TILE LINES.
 2. FOR SUBDRAINS REFER TO TABULATIONS 104-SC AND 104-9
 3. GRANULAR BACKFILL MATERIAL IS INCLUDED IN THE PROJECT QUANTITIES AS PER TABULATION 100-21.

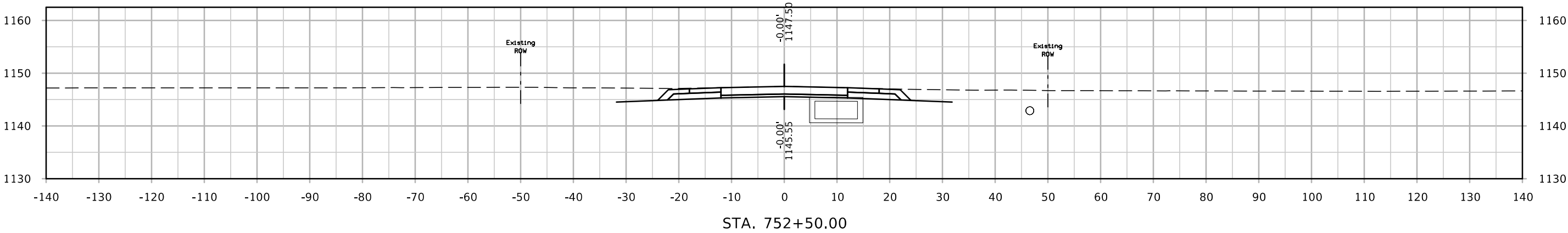
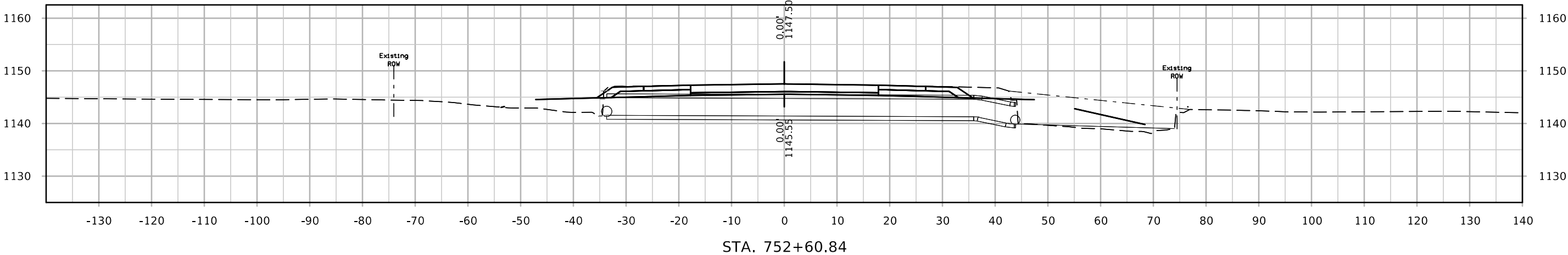
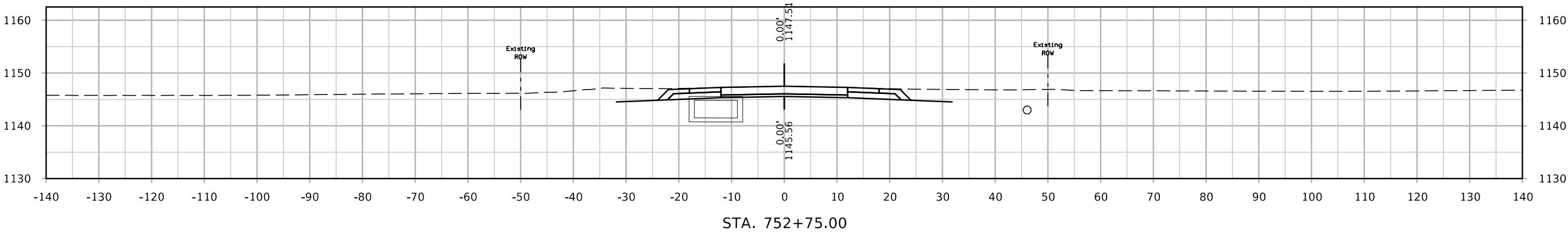
DRAINAGE STRUCTURES
STA. 751+00 TO STA. 753+00
Scale: 1"=20'

PROPOSED CULVERT DESIGN

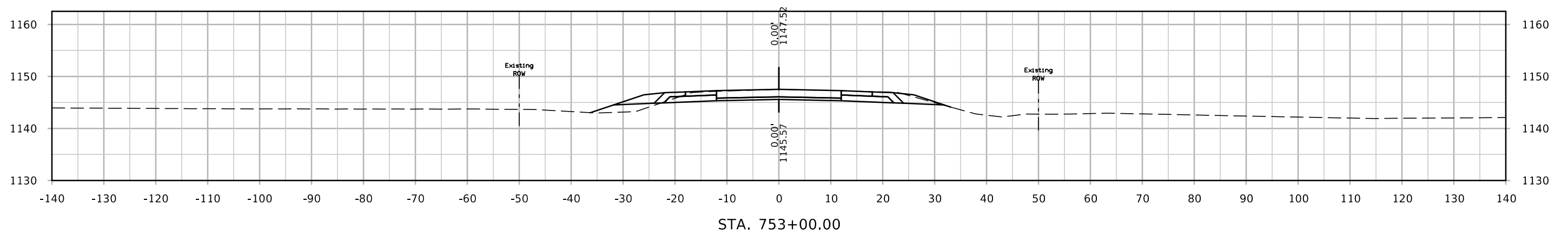
ML - US169



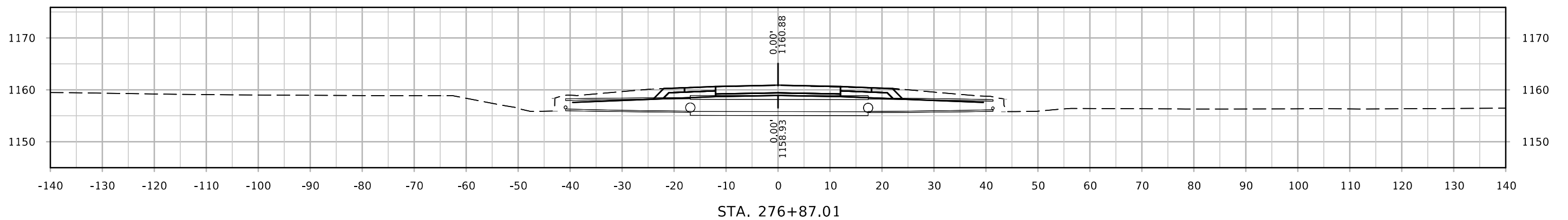
ML - US169



ML - US169



ML - US169



SR-D68
PROPOSED
CULVERT LOCATIONS

