

PIPE CULVERTS
NHSN-059-5(54)--2R-24

LETTING DATE
 11-16-2021

CRAWFORD CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
CRAWFORD COUNTY
 PIPE CULVERTS

1.45 mi N of Co Rd E 59 to 1.5 mi N of Co Rd E53

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

14

PROJECT IDENTIFICATION NUMBER

18-24-059-010

PROJECT NUMBER

NHSN-059-5(54)--2R-24

R.O.W. PROJECT NUMBER

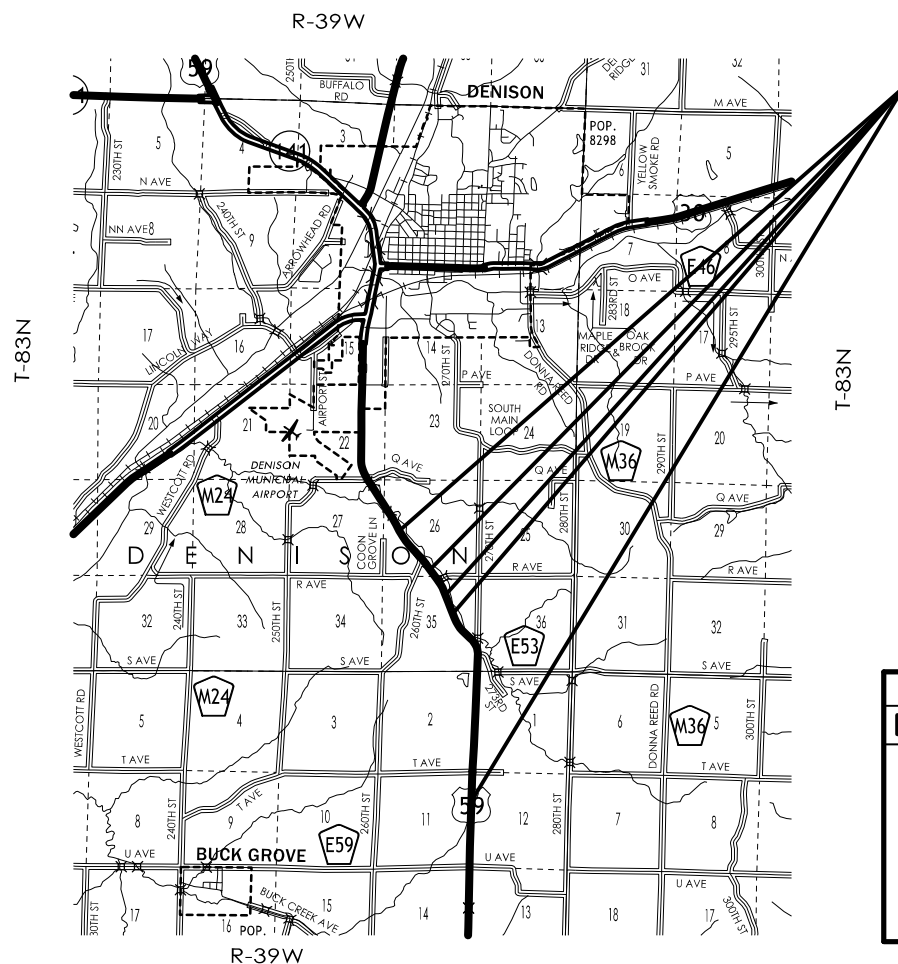
NHSN-059-5(55)--2R-24

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.1	Location Map Sheet
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 6	US 59
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
W Sheets	Mainline Cross Sections
W.1 - 3	Mainline Cross Sections
	* Color Plan Sheets

Project Locations:

Ref. Loc.	Sign	99.33
Ref. Loc.	Sign	98.70
Ref. Loc.	Sign	98.51
Ref. Loc.	Sign	98.30
Ref. Loc.	Sign	96.50



DESIGN DATA RURAL

2019 AADT	4010	V.P.D.
20-- AADT	--	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	--	%
Total Design ESALs	--	

INDEX OF SEALS

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

D9 PLAN - Date: 9-7-21
 DM5 PLAN - Date: 8-3-21
 D5 PLAN - Date: 3-6-20

PRELIMINARY PLANS

Subject to change by final design.

D2 /D3 PLAN - Date: 9-19-19

SURVEY SYMBOLS

- CP Control Point
- WC Wild Card (Misc. Field Shot)
- C Centerline BL of Road (ML or SR)
- SNP Unpaved Shoulder
- EP Edge of Paved Roads (ML or SR)
- BL Topo Breakline
- FW Wire Fence
- BNK Stream Bank
- GR Ground Shot
- CON Concrete or A/C Slab
- TDC Tree Deciduous
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- PRO Profile Shot
- CUL Culvert
- DIK Centerline of Dike or Dam
- PIP Pipe Culvert
- SOP Size of Pipe or Culvert
- DAB Drainage Area Boundary
- PLG Location of General Photo
- FO4 --- FO4D Fiber Optic Co. 4 - Quality D
- FO3 --- FO3D Fiber Optic Co. 3 - Quality D
- FO --- FO1D Fiber Optic Co. 1 - Quality D
- FO2 --- FO2D Fiber Optic Co. 2 - Quality D
- TP TPD Telephone Pedestal
- SWK Sidewalk
- SHR Shrub
- PPA Power Pole Co. 1
- ⊠ WEL Well
- TLNL Tree Line Left
- TLNR Tree Line Right
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- EW Edge of Water
- BLD Building or Foundation
- PR Electric Riser Pole
- OUT Tile Outlet
- TILE --- TIL Tile Line
- TI --- TL1D Telephone Line Co. 1 - Quality D
- ENP Edge Paved Entrance & Park Lot
- TEV Evergreen Tree
- PPB Power Pole Co. 2
- RIP Rip-Rap
- LUM Luminaire
- SEP Septic Tank
- FWD Wood Fence
- HDG Hedge Row
- Default_Point Default Point Feature

UTILITY LEGEND

- FO4 --- ICN - Quality D
Mike Broderick
400 E 14th St.
Des Moines, IA 50319
(515)725-4610
mike.broderick@iowa.gov
- FO3 --- Aureon - Quality D
Jeff Klocko
7760 Office Plaza Drive South
West Des Moines, IA 50266
(515)830-0445
jeff.klocko@aureon.com
- FO --- Frontier - Quality D
Trent Flockhart
600 1st Avenue North
Fort Dodge, IA 50501
(515)573-1268
trent.flockhart@ftr.com
- FO2 --- Monarc Technologies - Quality D
- TI --- Frontier - Quality D
Trent Flockhart
600 1st Avenue North
Fort Dodge, IA 50501
(515)573-1268
trent.flockhart@ftr.com
- PPA Power Pole MidAmerican Electric
Nick Nation
637 S 22nd st.
Fort Dodge, IA 50501
(515)574-5040
njnation@midamerican.com
- PPB Power Pole Private

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

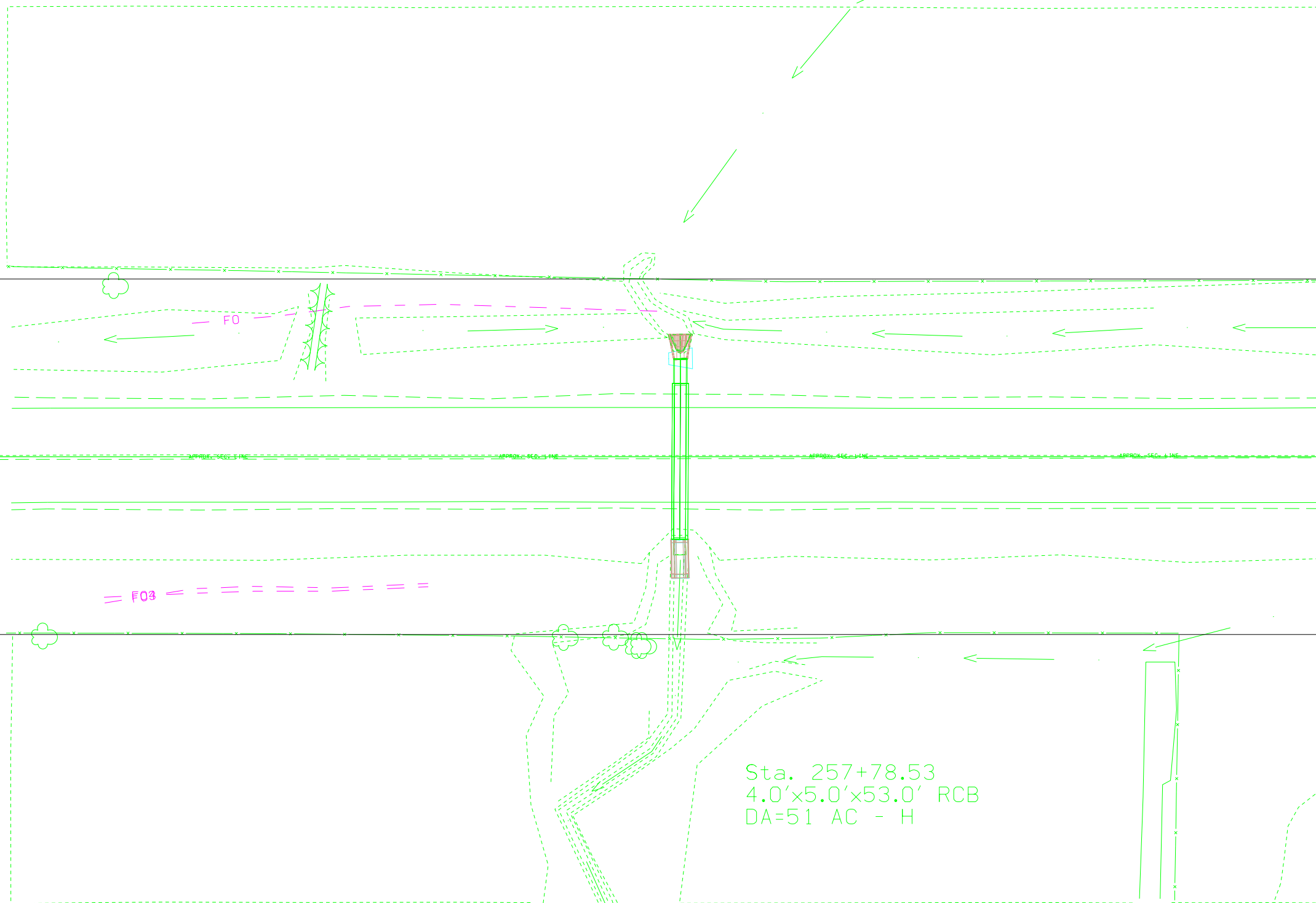
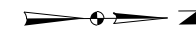
RIGHT-OF-WAY LEGEND

- ▲ 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

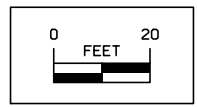
(COVERS SHEET SERIES D, E, F, & K)

Washington TWP.
T-82N R-39W
SEC.11

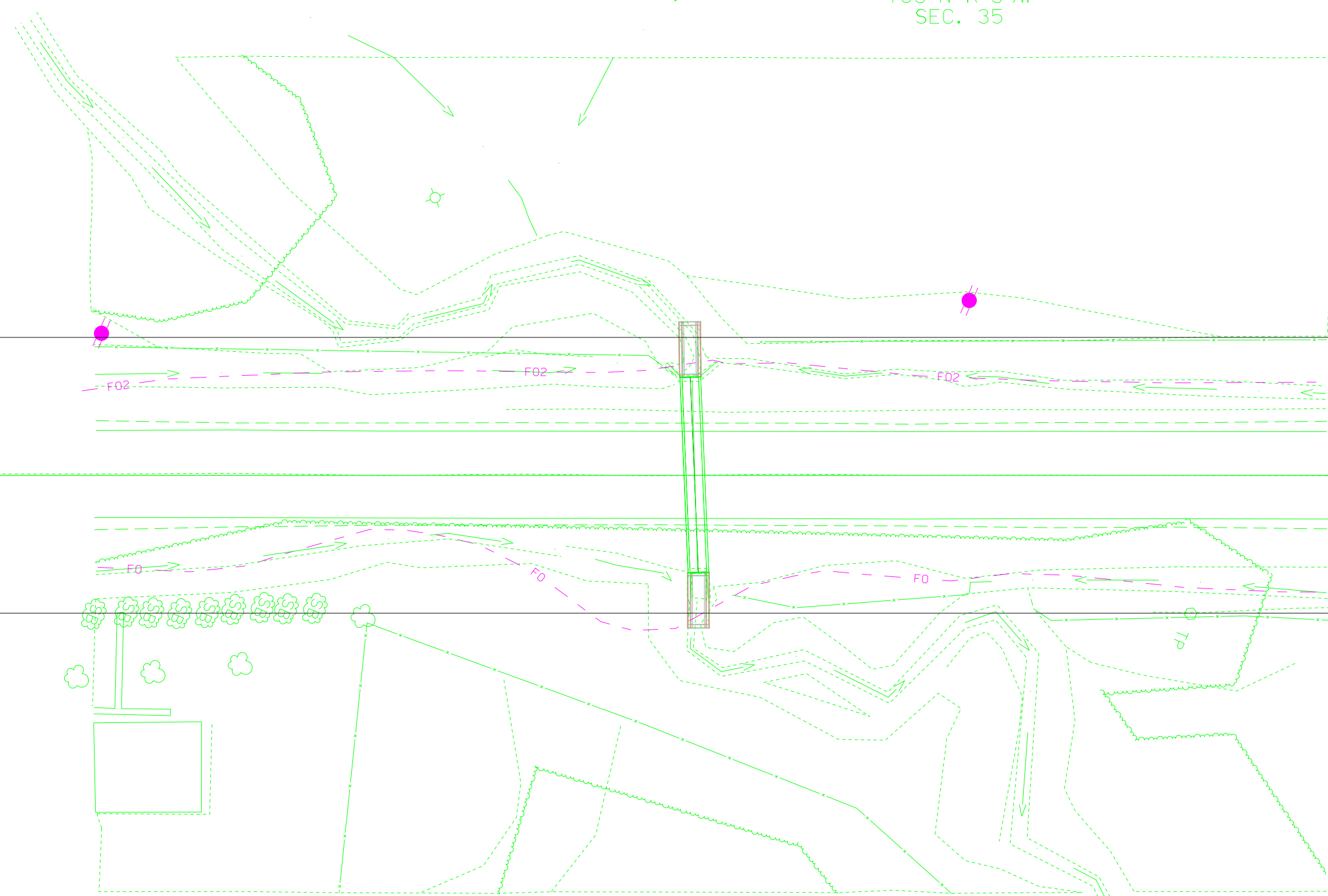
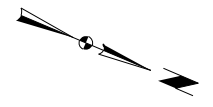


Sta. 257+78.53
4.0'x5.0'x53.0' RCB
DA=51 AC - H

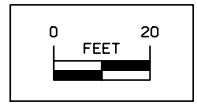
Sect. No. 12



Denison TWP.
T83-N R-39W
SEC. 35



Sta. 356+87.86
6.0'x6.0'x71.0' RCB
DA=262 AC - H

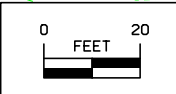
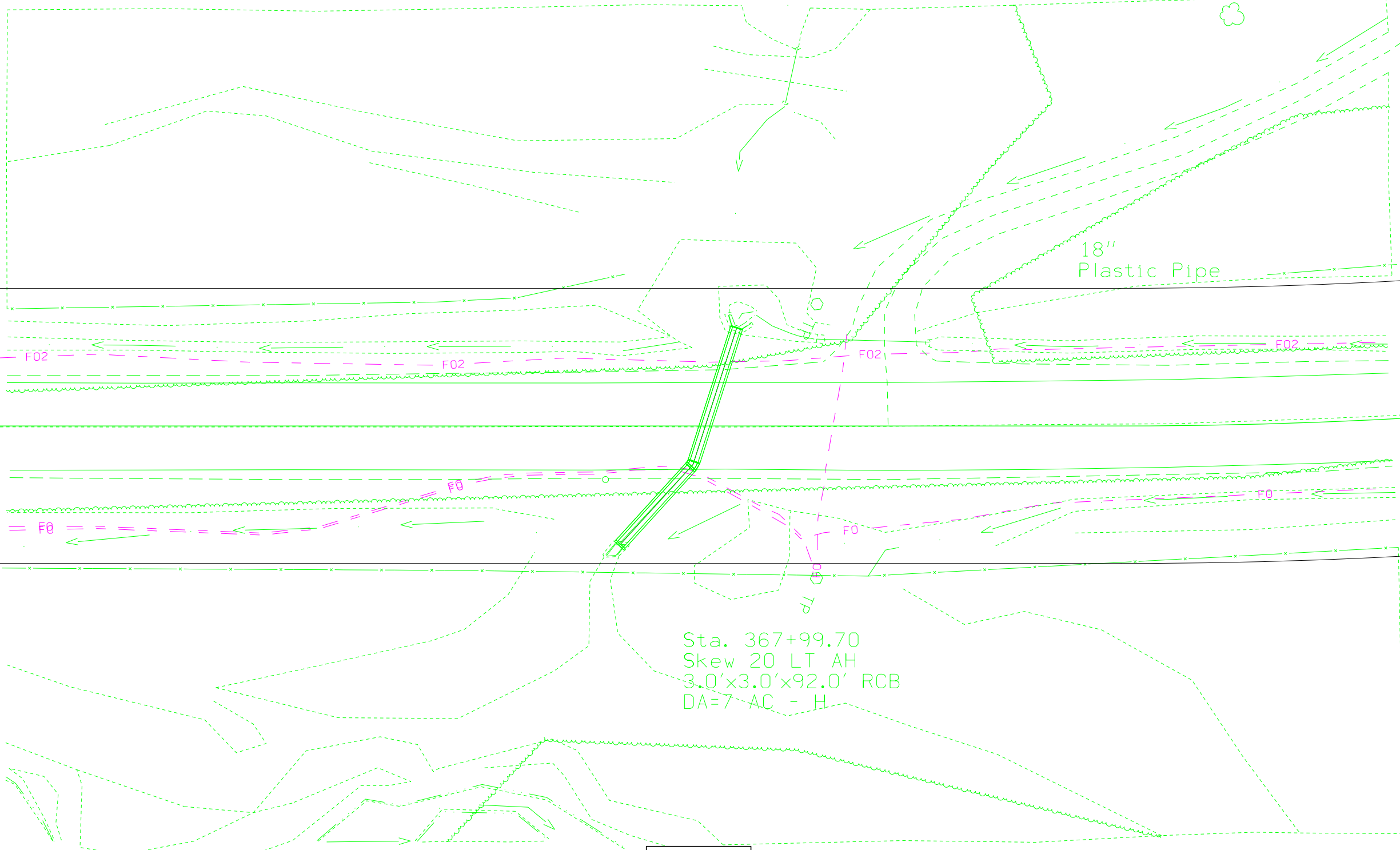


Denison TWP.
T83-N R-39W
SEC. 35

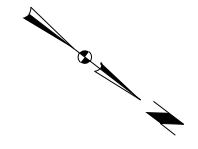


12" V
Plastic Pipe

18" Plastic Pipe



Denison TWP.
T83-N R-39W
SEC. 35

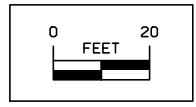


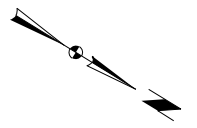
18"
C.M.P.

18"
C.M.P.

Denison TWP.
T83-N R-39W
SEC. 26

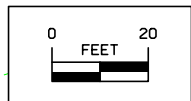
Sta. 378+30.83
Skew 00 RT AH
6.0'x6.0'x90.0' RCB
DA=72 AC - H





Denison TWP.
T83-N R-39W
SEC. 26

Sta. 409+23.69
5.0'x6.0'x67.0' RCB
DA=12 AC - H



Survey Information

County: Crawford
PIN: 18-24-059-010
Project Number: NHSN-059-5(54)--2R-24
Location: 1.45 mi N of Co Rd E59 to 1.5 mi N of Co Rd E53
Type of Work: Pipe Culverts
Project Directory: 2405901018
SAP 627.1

General Information

Measurement units for this survey are US survey feet. These projects involve the repair of roadway culverts in Crawford County under US 59 south of Denison between Mile Posts 96.50 and 99.30. Project datum and control information is provided by Design Survey Office. This is a full field survey.

Vertical Control

Vertical Control was established on 4 monuments on the project designated as points GSVS002, GSVS003, T90_RESET, and X95. These monuments are stable and are expected to hold vertical reasonably well. The vertical datum is NAVD88. Datum was transferred from the Iowa RTN reference station at Denison to the projects monuments mentioned above by using concurrent 6 hour static measurements and post processing connecting vectors. Geoid 12B was used in processing.

This survey observed 4 NGS Control Monuments with published NAVD88 heights to validate the reference station height used in computation of project heights. The county control has a stated vertical accuracy of + or - 0.05 ft. The survey heights determined at the NGS monuments validate the NAVD 88 height used at the Council Bluffs reference station and the positions of the project control monuments within acceptable tolerance.

This survey observed 4 NGS Control Monuments with published NAVD88 heights to compare to local ground control:

NGS 2nd. order class I mark designated GSVS002 has a published Elev. Of 331.538 (m) Survey Elev. = 331.513 (m)

NGS 2nd. order class I mark designated GSVS003 has a published Elev. Of 335.56 (m) Survey Elev. = 335.55 (m)

NGS 3rd. order mark designated T90_RESET has a published Elev. Of 392.814 (m) Survey Elev. = 392.821 (m)

NGS 2nd. order class 0 mark designated X95 has a published Elev. Of 371.978 (m) Survey Elev. = 371.973 (m)

Horizontal Control

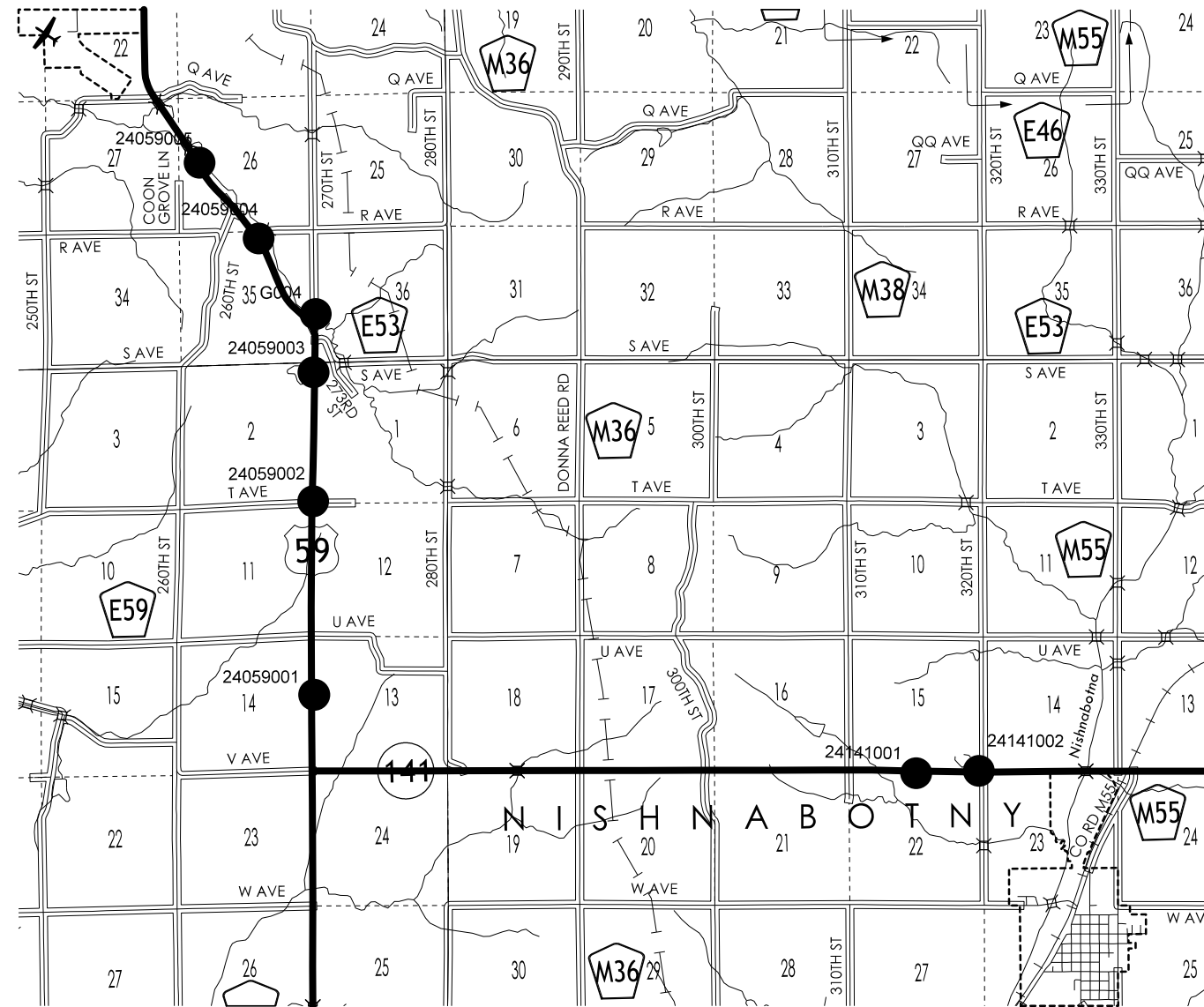
Horizontal Control was established on 5 monuments on the project designated as points DENIPORT, GSVS002, GSVS003, T90_RESET, and X95. These monuments are stable and are expected to hold vertical reasonably well. The horizontal datum is NAD83(2011) (EPOCH 2010.00). Datum was transferred from the Iowa RTN reference station at Denison to the projects monuments mentioned above by using concurrent 6 hour static measurements and post processing connecting vectors. Iowa Regional Coordinate System Zone 6 is used. The Zone 6 coordinates used at the Denison reference station are: N= 7236897.886, E= 16597218.921.

Survey Alignment Information

The horizontal alignment for this survey was provided by District 3 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) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 6

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 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

Point Name	Northing	Easting	Elevation	Feature	Description
24141002	7204252.1	16632116.13	1412.16	CP	24141002 AT INTERSECTION OF IA 141 AND US 59 SOUTH OF DENISON GO 5 MILES EAST TO INTERSECTION OF HWY 141 AND 320TH ST SET FENO IN NW QUAD OF INTERSECTION 20 FEET SOUTH OF WEST GATE POST 44 FEET NORTH OF CL IA 141 74 FEET WEST OF HWY 141 SIGN
G004	7222192.67	16606079.53	1263.01	CP	G004 AT SOUTH INTERSECTION OF US 30 AND US 59 GO 3.8 MI S TO INTERSECTION 270TH ST AND US 59 GO 0.1 MI N ON 270TH ST TO FARM ENT ON EAST SIDE FND REBAR 45 FEET EAST OF 270TH ST CL 10 FEET S OF DRIVE CL 28 FEET NE OF CROSSED NAILS IN NE WINGWALL POLE
GSVS003	7242658.46	16608601.46	1196.95	CP	GSVS003 HTTPS://WWW.NGS.NOAA.GOV/CGI-BIN/DS_MARK.PRL?PIDBOX
24059002	7214836.72	16605981.88	1415.8	CP	24059002 AT SOUTH INTERSECTION OF US 30 AND US 59 GO 5.1 MI S TO INTERSECTION OF US 59 AND T AVE SET FENO IN NE QUAD OF INTERSECTION 43 FEET E OF US 59 CL 30 FEET N OF T AVE AND US 59 SIGN 33 FEET WEST OF SEC REF SIGN
24059004	7225160.31	16603878.78	1254.4	CP	24059004 AT SOUTH INTERSECTION OF US 30 AND US 59 GO 3.0 MI S TO INTERSECTION OF US 59 AND R AVE FND IRON PIN IN CONC MONUMENT IN SE QUAD OF INTERSECTION 37 FEET S OF R AVE CL 52 FEET E OF US 59 CL 1 FOOT EAST OF STA MARKER 375
GSVS002	7242707.03	16605947.65	1183.69	CP	GSV002 HTTPS://WWW.NGS.NOAA.GOV/CGI-BIN/DS_MARK.PRL?PIDBOX
24059001	7207238.61	16606023.27	1384.5	CP	24059001 AT SOUTH INTERSECTION OF US 30 AND US 59 GO 6.6 MI S TO BRIDGE OVER ABANDONED RAILROAD BRIDGE SET FENO ON OLD RAILROAD BED 24 FEET WEST OF MILWAUKEE ROAD PUBLIC HUNTING SIGN 105 FEET SE OF EAST PIER ON N END OF BRIDGE 80 FEET NE OF EAST PIER ON S
24059005	7228135.04	16601521.15	1252.58	CP	24059005 AT SOUTH INTERSECTION OF US 30 AND US 59 GO 2.3 MI S ALONG US 59 FND IRON PIN IN CONC MONUMENT 62 FEET E OF US 59 CL 27 FEET E OF LITTER REMOVAL SIGN 27 FEET S OF P POLE
24141001	7204159.75	16629654.51	1422.62	CP	24141001 FROM INTERSECTION OF IA 141 AND US 59 S OF DENISON GO 4.5 MI EAST ALONG IA 141 TO FIELD ENT ON S SIDE OF 141 CUT X ON ROW RAIL 90 FEET S OF IA 141 CL 5 FEET SW OF TEL PED 13 E OF FIELD ENT CL 4 FEET W OF FIBER OPTIC WARNING SIGN
24059003	7219902.34	16605995.23	1376.38	CP	24059003 AT SOUTH INTERSECTION OF US 30 AND US 59 GO 4.1 MI S ALONG US 59 FND IRON PIN IN CONC MONUMENT ON TOP OF W BACKSLOPE 49 FEET W OF US 59 CL 100 FEET NW OF STA MARKER 315

108-23A
08-01-08

TRAFFIC CONTROL PLAN

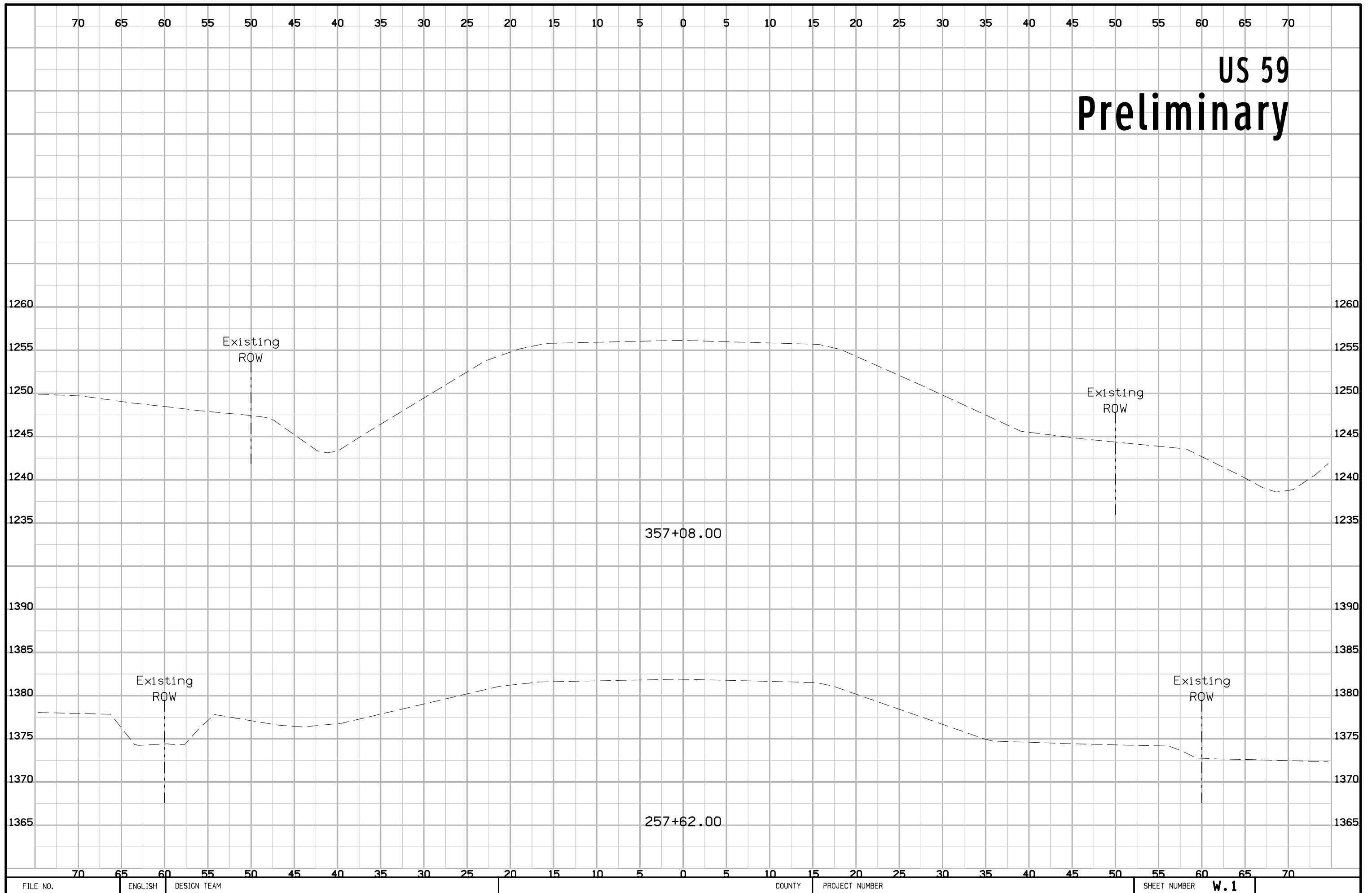
Traffic shall be maintained at all times.

108-25
10-21-14

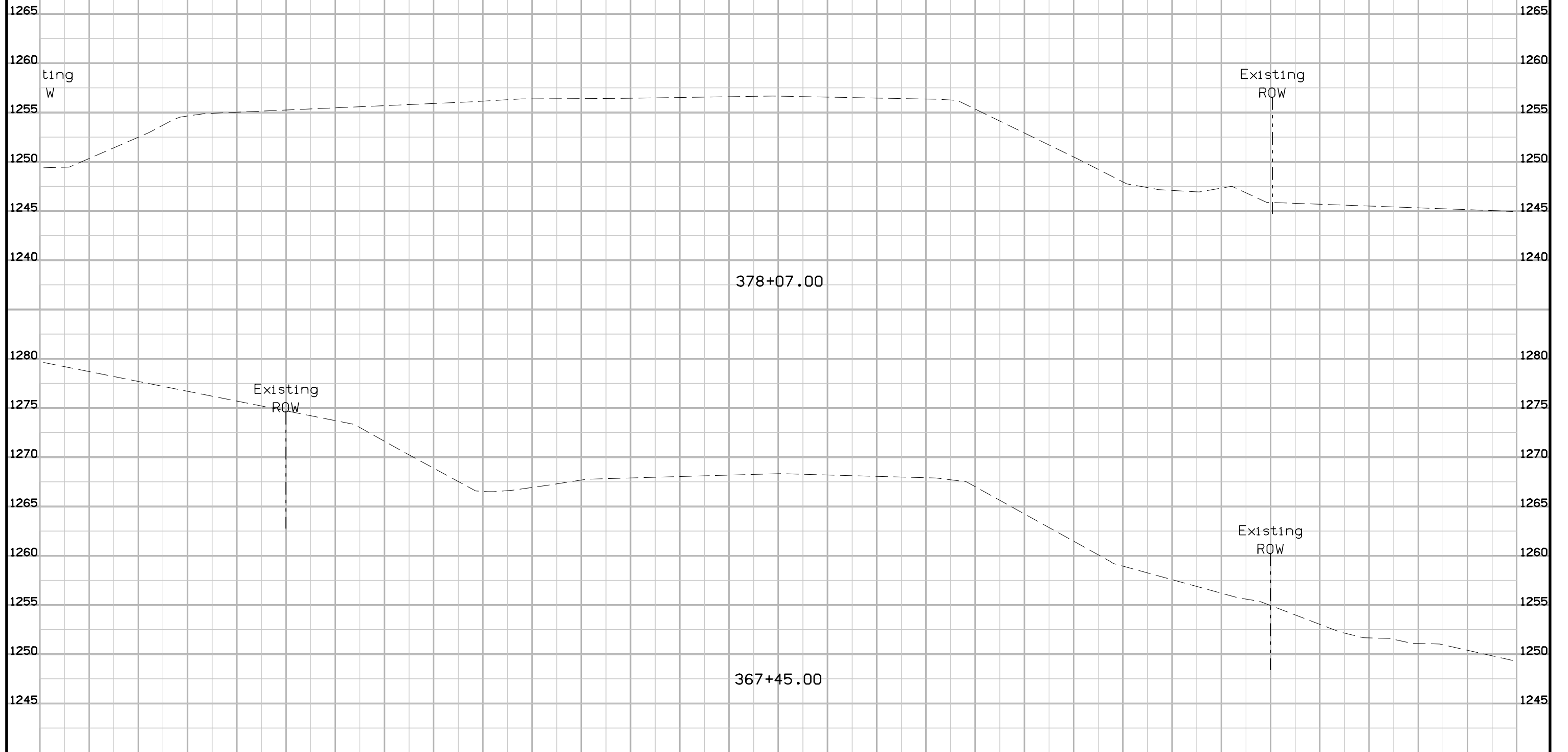
511 TRAVEL RESTRICTIONS

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
			No travel restrictions anticipated.									

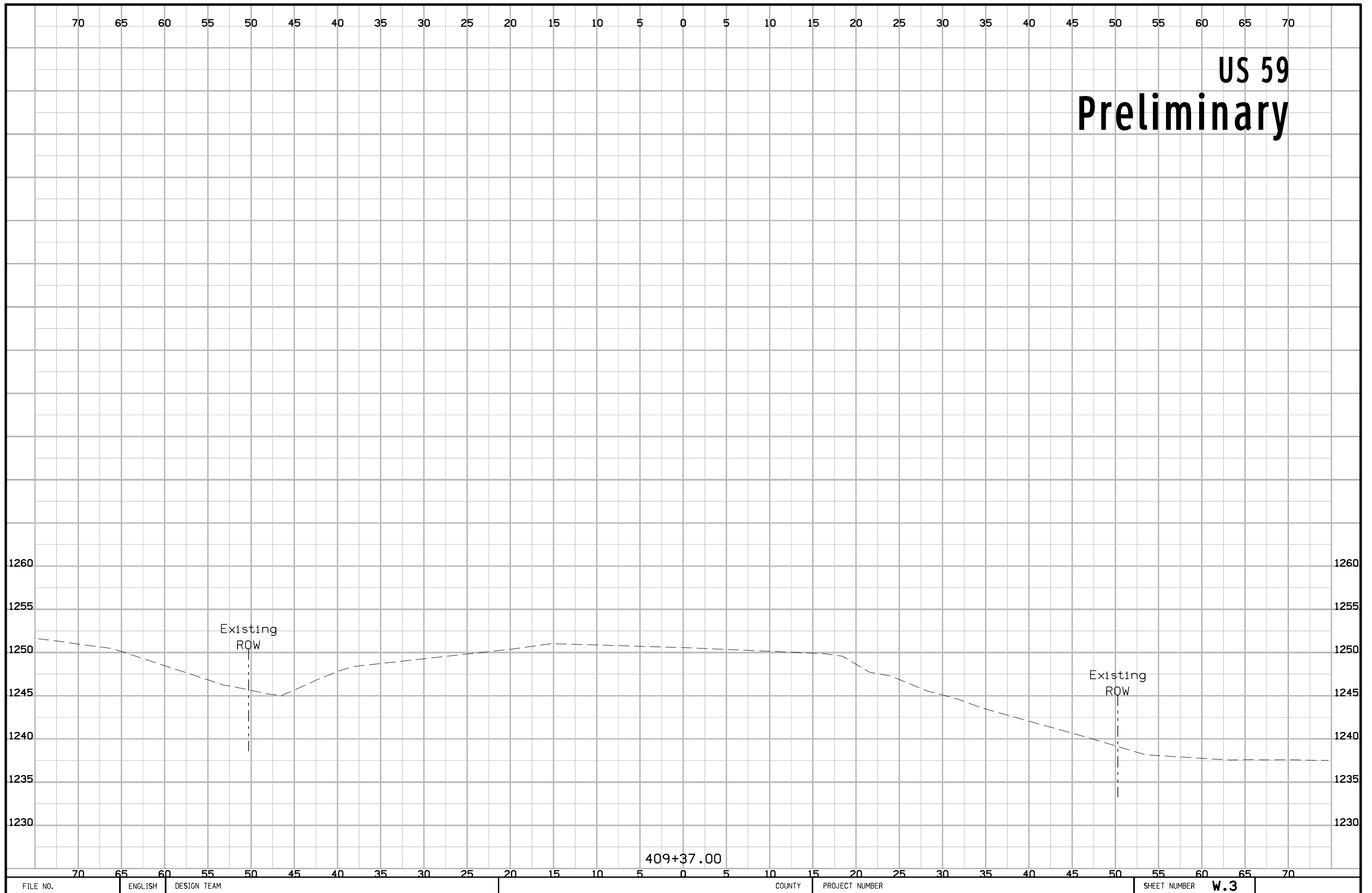
US 59 Preliminary



US 59 Preliminary



US 59 Preliminary



409+37.00