



REVISIONS

TOTAL

18

PROJECT IDENTIFICATION NUMBER

20-43-030-020

PROJECT NUMBER

BRF-030-1(191)--38-43

R.O.W. PROJECT NUMBER

No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
* A.1	Title Sheet
* A.2	Location Map Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 2	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 30
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1 - 3	Reference Ties and Bench Marks
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
* J.2	Stage 1
* J.3	Stage 2
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
* V.1	Bridge and Culvert Situation Plans
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 5	Mainline Cross Sections
	* Color Plan Sheets

H Sheets

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM  
**HARRISON COUNTY**  
BRIDGE REPLACEMENT

Stream 3.4 mi E of IA 44

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



DESIGN DATA RURAL

2025	AADT	4,600	V.P.D.
2045	AADT	5,000	V.P.D.
2045	DHV	510	V.P.H.
	TRUCKS	15	%
	Total Design ESALs	--	

INDEX OF SEALS

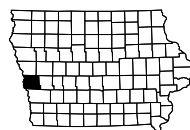
SHEET NO.	NAME	TYPE
A.1	Michael J. Janecek	Primary Signature Block
V.1	Phillipe M. Harpole	Hydraulic Design

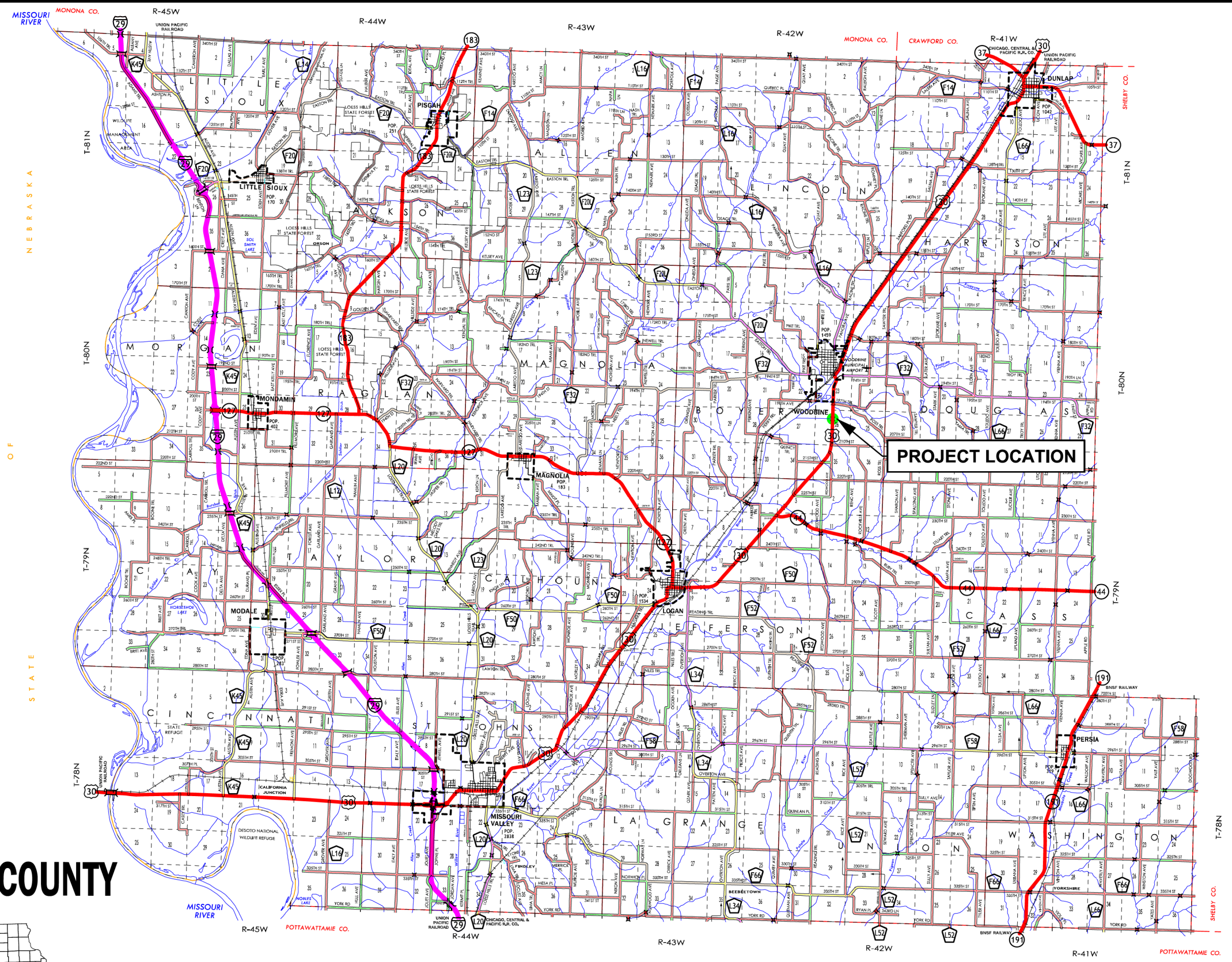
D4 PLAN - JULY 23, 2024

PRELIMINARY PLANS

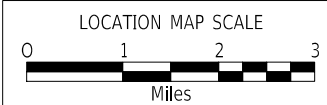
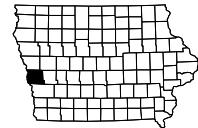
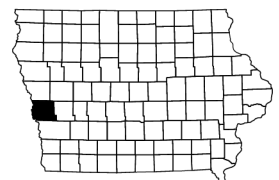
Subject to change by final design.

D5 PLAN - OCT 14, 2022



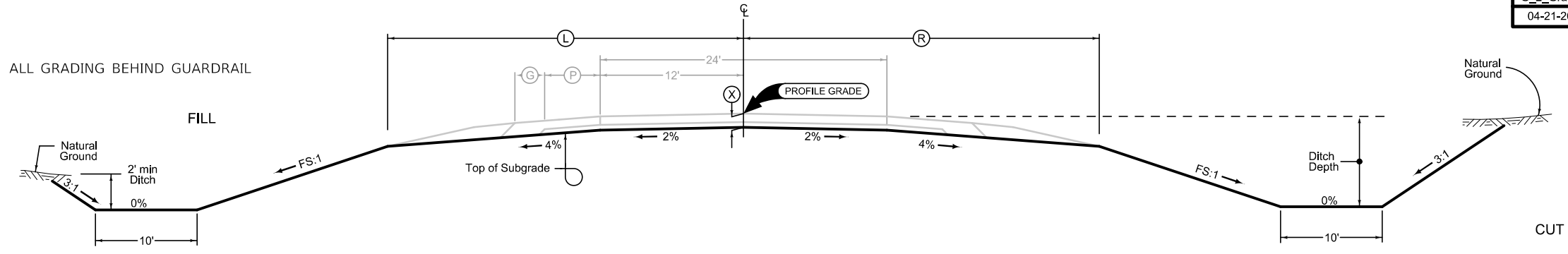


# HARRISON COUNTY



LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	FS
US 30	842+75.00	845+50.00			16	3.5:1

G\_2\_Grade  
04-21-20



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

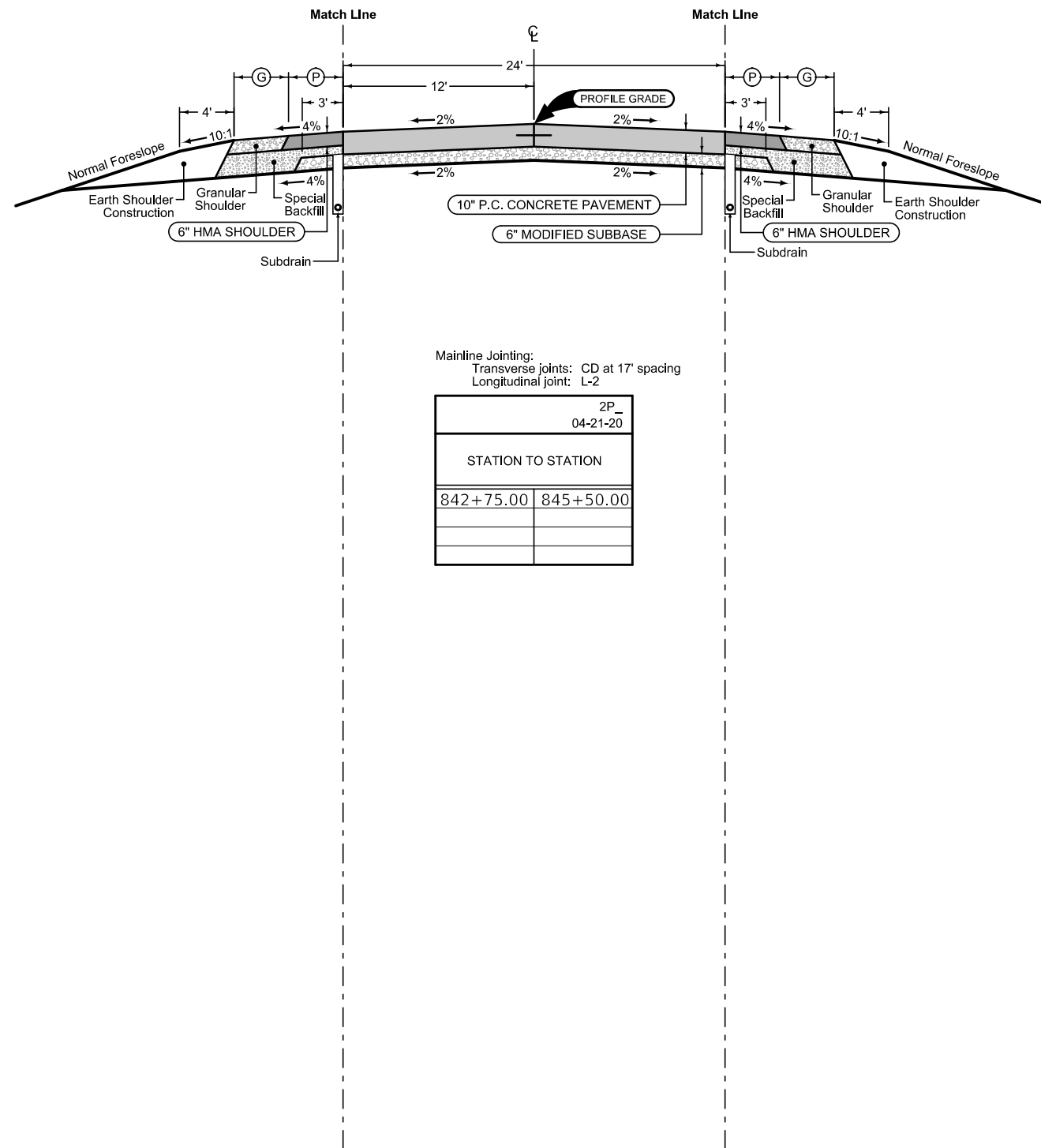
See plan & profile sheets and cross sections for additional details of ditches and backslopes.

**2 LANE GRADING**

**Combination Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
841+87.00	846+37.00	6	4



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

STATION TO STATION	
842+75.00	845+50.00

**Combination Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
842+75.00	845+50.00	6	4

### SURVEY SYMBOLS

- |  |                                   |  |                              |
|--|-----------------------------------|--|------------------------------|
|  | Interstate Highway Symbol         |  | Septic Tank                  |
|  | U.S. Highway Symbol               |  | Cistern                      |
|  | Iowa Highway Symbol               |  | L.P. Gas Tank (No Footing)   |
|  | County Road Highway Symbol        |  | Underground Storage Tank     |
|  | Evergreen Tree                    |  | Latrine                      |
|  | Deciduous Tree                    |  | Satellite TV Dish            |
|  | Fruit Tree                        |  | Water Hook Up                |
|  | Shrub (Bushes)                    |  | Radio Tower                  |
|  | Timber                            |  | Tower Anchor                 |
|  | Hedge                             |  | Guardrail (Beam or Cable)    |
|  | Stump                             |  | Guard Post (one or two)      |
|  | Swamp                             |  | Guard Post (over two)        |
|  | Rock Outcrop                      |  | Filler Pipe                  |
|  | Broken Concrete                   |  | Gas Valve                    |
|  | Revetment (Rip Rap)               |  | Water Valve                  |
|  | Cemetery                          |  | Speed Limit Sign             |
|  | Grave                             |  | Mile Marker Post             |
|  | Cave                              |  | Sign                         |
|  | Sink Hole                         |  | Traffic Signal Control Box   |
|  | Board Fence                       |  | Rail Road Signal Control Box |
|  | Chain Link or Security Fence      |  | Telephone Switch Box         |
|  | Wire Fence                        |  | Electric Box                 |
|  | Terrace                           |  |                              |
|  | Earth Dam or Dike (Existing)      |  |                              |
|  | Tile Outlet                       |  |                              |
|  | Edge of Water                     |  |                              |
|  | Existing Drainage                 |  |                              |
|  | Right of Way Rail or Lot Corner   |  |                              |
|  | Concrete Monument                 |  |                              |
|  | Well                              |  |                              |
|  | Windmill                          |  |                              |
|  | Beehive Intake                    |  |                              |
|  | Existing Intake                   |  |                              |
|  | Existing Utility Access (Manhole) |  |                              |
|  | Fire Hydrant                      |  |                              |
|  | Water Hydrant (Rural)             |  |                              |

### UTILITY LEGEND

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

### 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

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

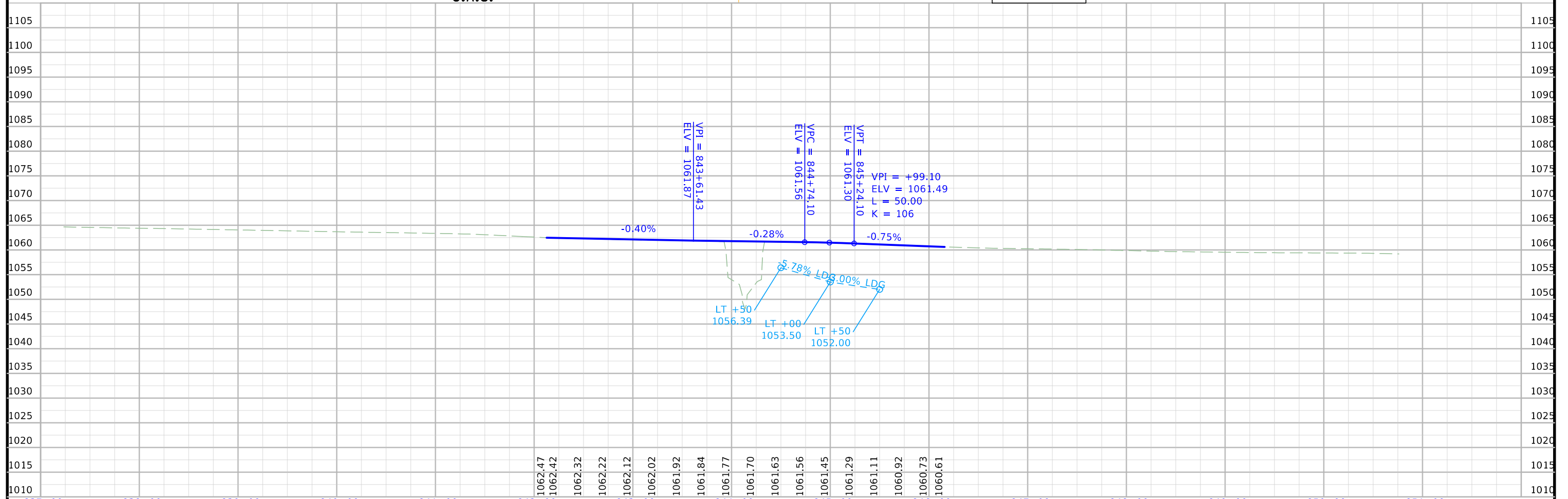
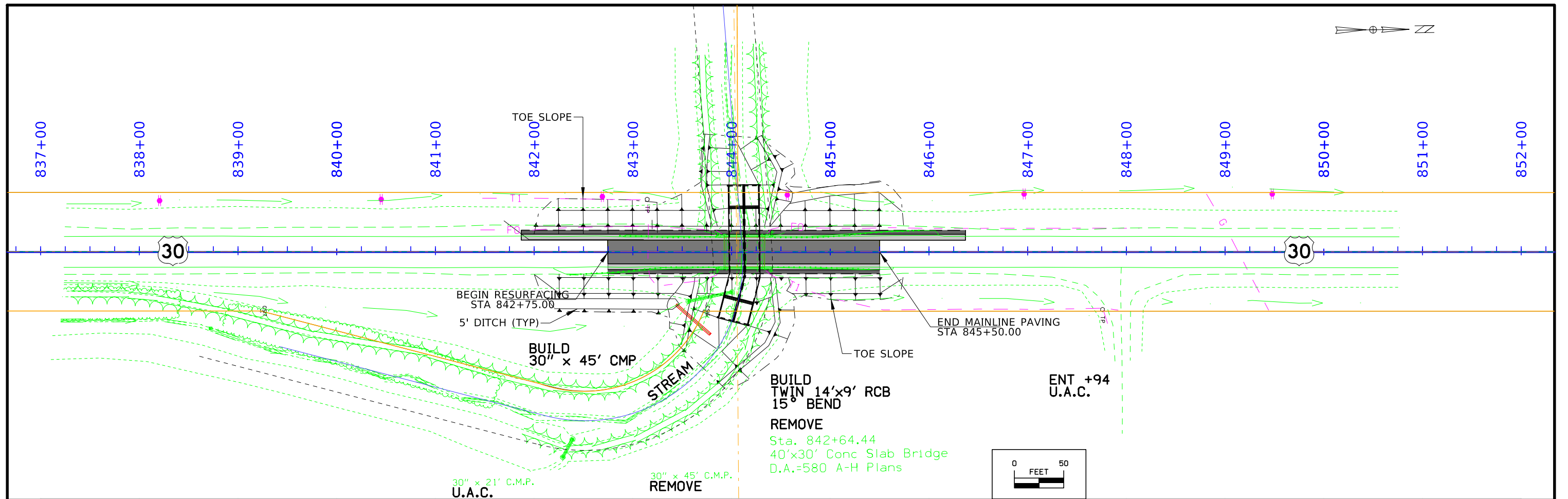
LINEWORK		Design Color No.
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- |  |                             |  |                          |
|--|-----------------------------|--|--------------------------|
|  | Reference Point             |  | Survey Line              |
|  | Station                     |  | Section Corner           |
|  | Ground Line Intercept       |  | Saw Cut                  |
|  | Guardrail                   |  | 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
  - Access Control
  - Property Line

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



837+00	838+00	839+00	840+00	841+00	842+00	843+00	844+00	845+00	846+00	847+00	848+00	849+00	850+00	851+00
1062.47	1062.42	1062.32	1062.22	1062.12	1062.02	1061.92	1061.84	1061.77	1061.70	1061.63	1061.56	1061.45	1061.29	1061.11
1060.92	1060.73	1060.61												

## Survey Information

**Harrison County**  
**BRF-030-1(191)--38-43**  
**Location: Stream 3.4 mi E of IA 44**  
**Type of Work: Bridge-Unspecified**  
**Project Directory: 4303002020**  
**PIN: 20-43-030-020**  
**Sap-0867.3**

### Party Personnel

Clayton Henningsen- Survey Party Chief  
Jason Arn- Survey Party Chief  
Paul Harry- Asst. Party Chief

### Date(s) of Survey

Begin Date 12/07/2020  
End Date 01/08/2021

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction on US 30 3.4 miles east of IA 44. This is a full field survey.

### Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. 24030007, 43030020, 43030021, and T 150 by completing concurrent 6 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 1 NGS GPS control with published NAVD88 heights to compare to local ground control:

NGS mark designated T 150 (PID MJ0955) has a published Elev. of 1186.12  
Survey Elev. = 1185.896

### Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 6 Council Bluffs (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) for Epoch 2010.00. Coordinates were determined by conducting concurrent 6 hour static observations on Project Pts. 43030020, 43030021, and T 150.

### Alignment Information

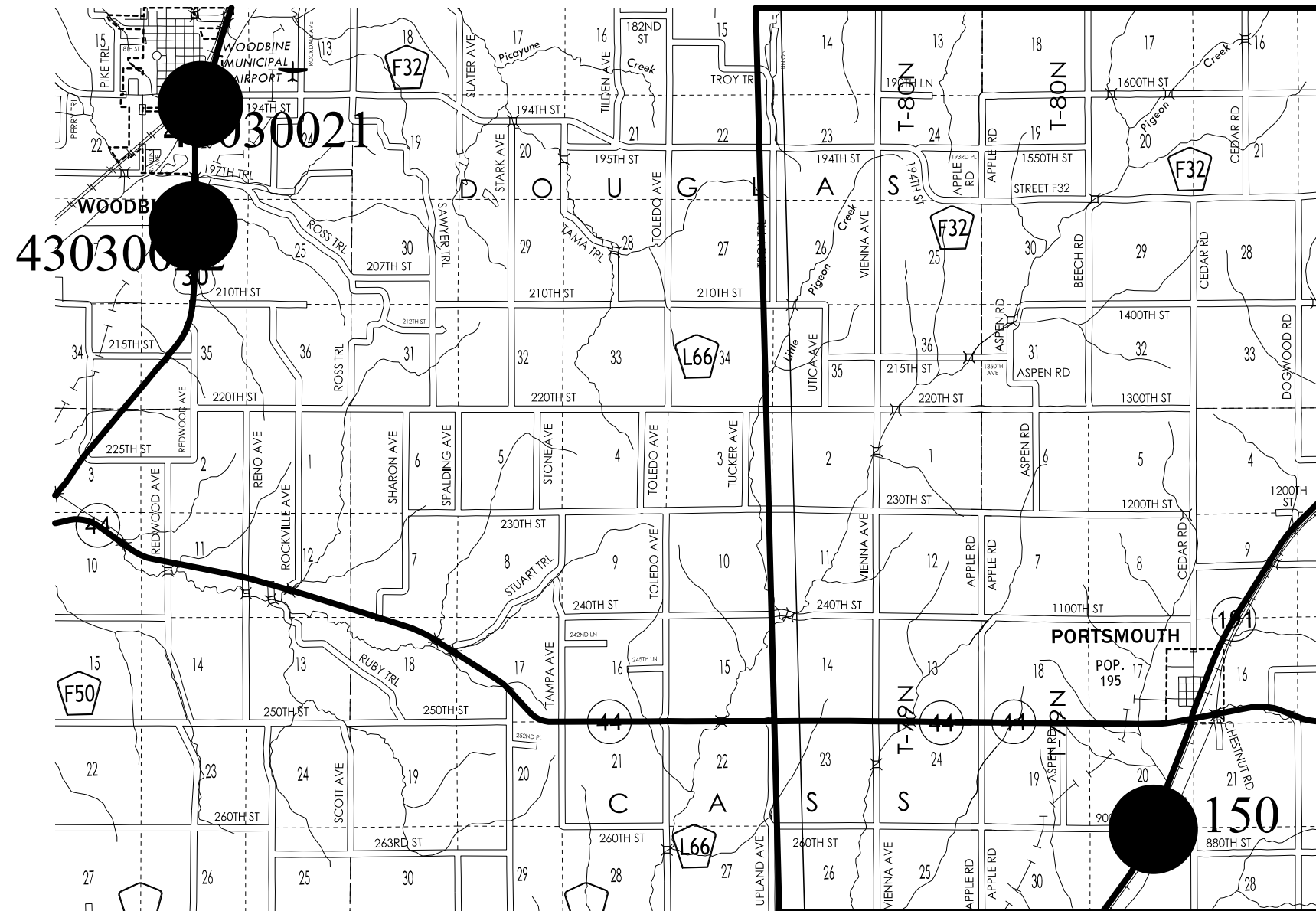
The horizontal alignment for this survey is a retrace of PCC Paving Plans No.NHS-30-1(100)- -19-43. Survey stationing was equated to the plan PT at Sta. 814+90.65 and run ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PT Sta. 814+90.65 Paving Plans Project No. NHS-30-1(100)- -19-43  
Survey PT Sta. 814+90.65

## 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

1a. Regional Coordinate System Zone 6

Project Control Marks are Bench Marks

Point Name	North Coordinate	East Coordinate	Elevation	Feature Code- Monument Description
43030021	7133650.856	16508222.170	1060.180	CP 43030021 FENO MONUMENT FROM THE INTERSECTION OF HWY 30 AND CO RD L16 AT WOODBINE GO 1.2 MILES SOUTH ALONG HWY 30 A FENO TYPE MONUMENT 0.3 DEEP ON TOP OF DIKE 92 FEET WEST OF HWY 30 CENTERLINE 51 FEET NW OF ORANGE AND WHITE FIBER OPTIC POST 73 FEET NW OF TELEPHONE PEDESTAL
43030022	7139803.209	16508591.140	1061.036	CP 43030022 FENO MONUMENT FROM THE INTERSECTION OF HWY 30 AND CO RD L16 AT WOODBINE GO 350 FEET SOUTH ALONG HWY 30 ACROSS BOYER RIVER BRIDGE A FENO TYPE MONUMENT 0.3 DEEP 104 FEET WEST OF HWY 30 CENTERLINE 65 FEET WEST OF THE SW CORNER CONC HANDRAIL 41 FEET NORTH OF A TELEPHONE PEDESTAL 66 FEET NW OF HWY 30 AND 94TH ST SIGN
T 150	7103240.412	16556613.990	1185.896	CP T 150 NGS DISK TO REACH THE STATION FROM THE INTERSECTION OF STATE HIGHWAY 44 AND STATE HIGHWAY 191 IN THE TOWN OF PORTSMOUTH GO SOUTHWESTERLY ON STATE HIGHWAY 191 FOR 1.1 MI TO A CROSSROAD 900TH ST IT IS EAST OF STATE HWY 191 AND EAST OF THE RAILROAD AND SOUTH OF THE CROSSROAD THE STATION IS 46.1 FT SE OF THE SE RAIL OF THE TRACK 1.1 FT NW OF A FENCE 36.2 FT SW OF A CORNER FENCEPOST AND SET IN THE TOP OF A CONC POST PROJECTING 0.4 FT ABOVE THE GROUND A PINK STATE HARN SURVEY SIGN WAS SET 3.3 FT NE OF THE STATION

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

ACCESS CONTROL PREVIOUSLY ACQUIRED.



1

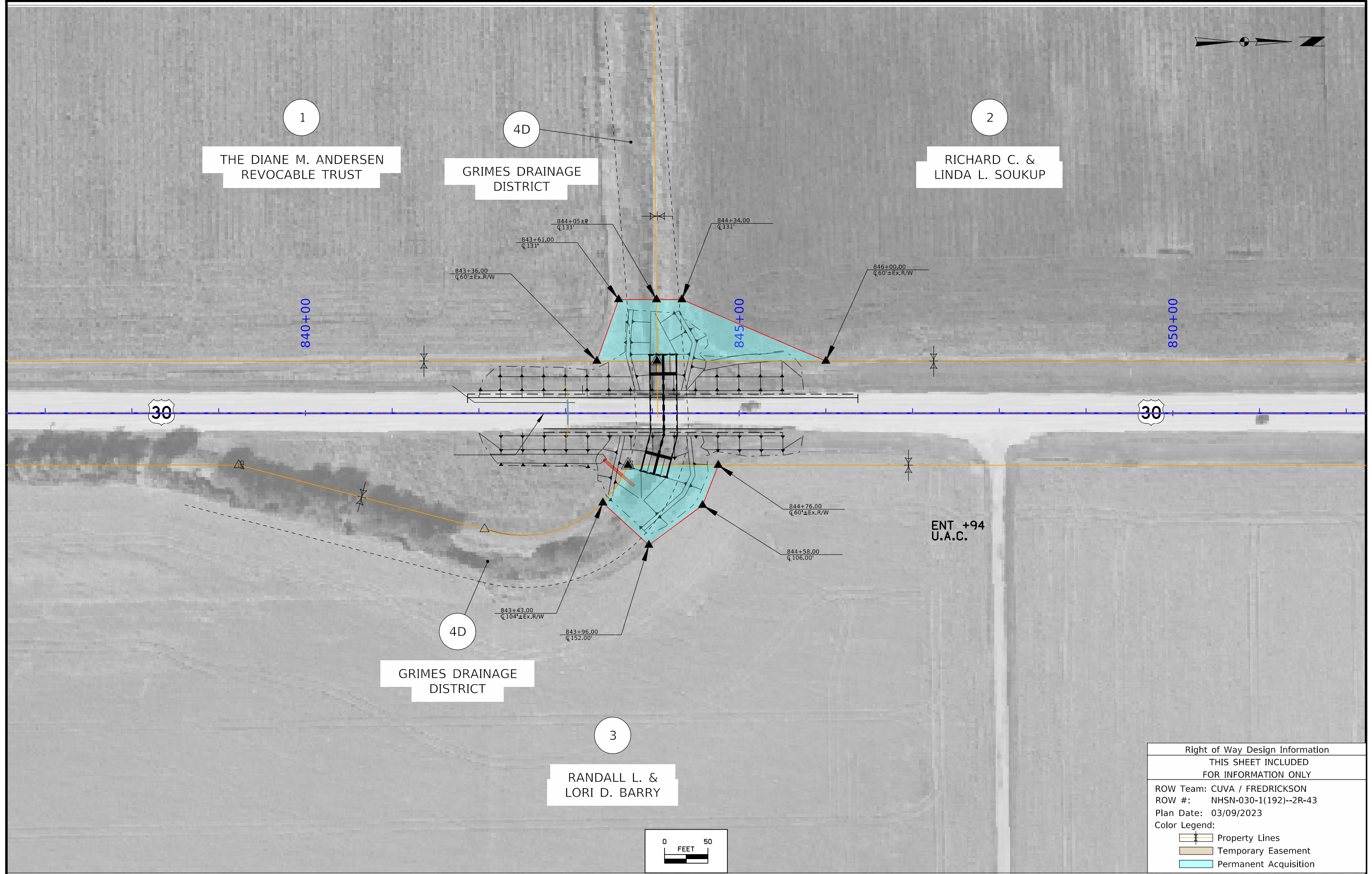
THE DIANE M. ANDERSEN  
REVOCABLE TRUST

4D

GRIMES DRAINAGE  
DISTRICT

2

RICHARD C. &  
LINDA L. SOUKUP

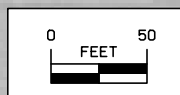


4D

GRIMES DRAINAGE  
DISTRICT

3

RANDALL L. &  
LORI D. BARRY



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team:	CUVA / FREDRICKSON
ROW #:	NHSN-030-1(192)--2R-43
Plan Date:	03/09/2023
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

**108-23A**  
08-01-08

### TRAFFIC CONTROL PLAN

1) While bridge and approaches are being removed and replaced, traffic shall be maintained on US 30 at all times by staged construction with temporary signals allowing one lane of traffic.

2) Signage and devices shall be furnished, installed, maintained, and removed by Contractor.

**108-26A**  
08-01-08

### STAGING NOTES

Stage 1:  
Remove and replace north portion of US 30 roadway, approaches and bridge with traffic shifted to EB lane using temporary signals.

Stage 2:  
Remove and replace south half of roadway, approaches and complete bridge structure with traffic shifted to WB temporary pavement lane using temporary signals.

Stage 3:  
Remove temporary paving on north half of roadway and complete approach and roadway to re-establish centerline with US 30 traffic shifted to EB lane using temporary signals.

**108-25**  
10-21-14

### 511 TRAVEL RESTRICTIONS

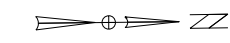
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US 30	Both	HARRISON	Bridge over Stream	STREAM	Bridge		Width		12			

**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
None Provided	



Boyer TWP.  
T-80N R-42W  
SEC. 26

TEMPORARY PAVEMENT FOR PHASE 2 TRAFFIC  
(TO REMAIN IN PLACE)

TEMPORARY PAVEMENT FOR PHASE 2 TRAFFIC  
(TO REMAIN IN PLACE)

837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00 846+00 847+00 848+00 849+00 850+00 851+00 852+00

30

30

STREAM

BUILD  
TWIN 14'x9' RCB  
15° BEND

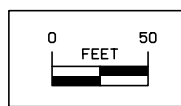
ENT +94  
U.A.C.

BUILD  
30"x45' C.M.P.

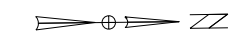
REMOVE  
Sta. 842+64.44  
40'x30' Conc Slab Bridge  
D.A.=580 A-H Plans

REMOVE  
30" x 45' C.M.P.

30" x 21' C.M.P.  
U.A.C.



STAGE 1 (12'-0 CLEAR TRAFFIC WIDTH)



Boyer TWP.  
T-80N R-42W  
SEC. 26

837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00 846+00 847+00 848+00 849+00 850+00 851+00 852+00



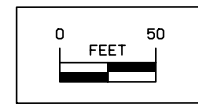
STREAM

30" x 21' C.M.P.  
U.A.C.

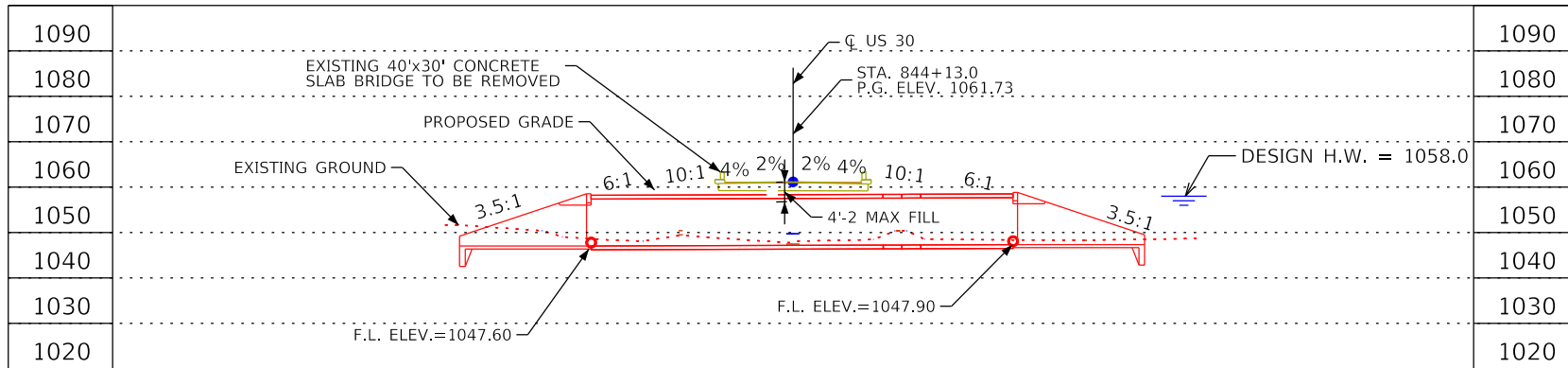
BUILD  
30"x45' C.M.P.  
REMOVE  
30" x 45' C.M.P.

BUILD  
TWIN 14'x9' RCB  
15° BEND  
REMOVE  
Sta. 842+64.44  
40'x30' Conc Slab Bridge  
D.A.=580 A-H Plans

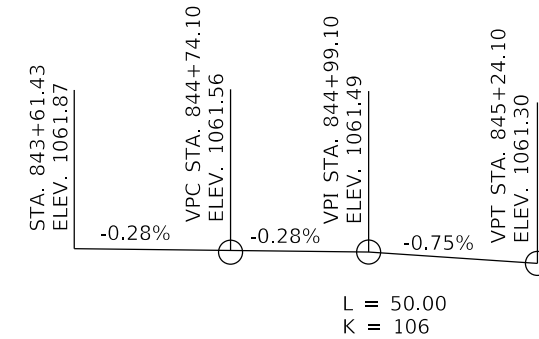
ENT +94  
U.A.C.



STAGE 2 (12'-0 CLEAR TRAFFIC WIDTH)



LONGITUDINAL SECTION ALONG CL CULVERT



Proposed Profile Grade

**NOTES:**

**GENERAL NOTES**

1. THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 40'x30' CONCRETE SLAB BRIDGE DESIGN NO. 655, HARRISON FHWA NO. 27470, MAINT. NO. 4326.4s030.

**DESIGNER NOTES**

1. UTILITY ATTACHED TO EAST AND WEST SIDE OF STRUCTURE.
2. CULVERT WILL BE CONSTRUCTED UNDER THE EXISTING BRIDGE, THEN STAGE CONSTRUCTION WILL BE USED TO REMOVE THE EXISTING SUPERSTRUCTURE, BACKFILL AND CONSTRUCT PAVEMENT. THERE IS NOT ENOUGH VERTICAL CLEARANCE BELOW EXISTING BRIDGE FOR A CAST-IN-PLACE CULVERT.
3. BURIED AND OVERHEAD UTILITIES TO BE RELOCATED TEMPORARILY OR PERMANENTLY AS REQUIRED FOR CONSTRUCTION.

**PLAN NOTES**

1. DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
2. FOLLOW LINE OF CULVERT HAS BEEN SET 1 FOOT BELOW STREAMBED.

**Hydraulic Data**

Drainage Area = 1.91 Sq. Mi.  
 Q<sub>50</sub> = 1,840 CFS  
 HW Elev. = 1,058.0  
 Stream Slope = 64.1 Ft./Mi.

Q<sub>100</sub> = 2,240 CFS  
 HW Elev. = 1,059.5

Q<sub>500</sub> = 3,200 CFS  
 HW Elev. = 1,061.1

**Utilities Legend:**

Symbol - Type

- PPA Power Pole
- Telephone Pole
- Fiber Optic
- Telephone

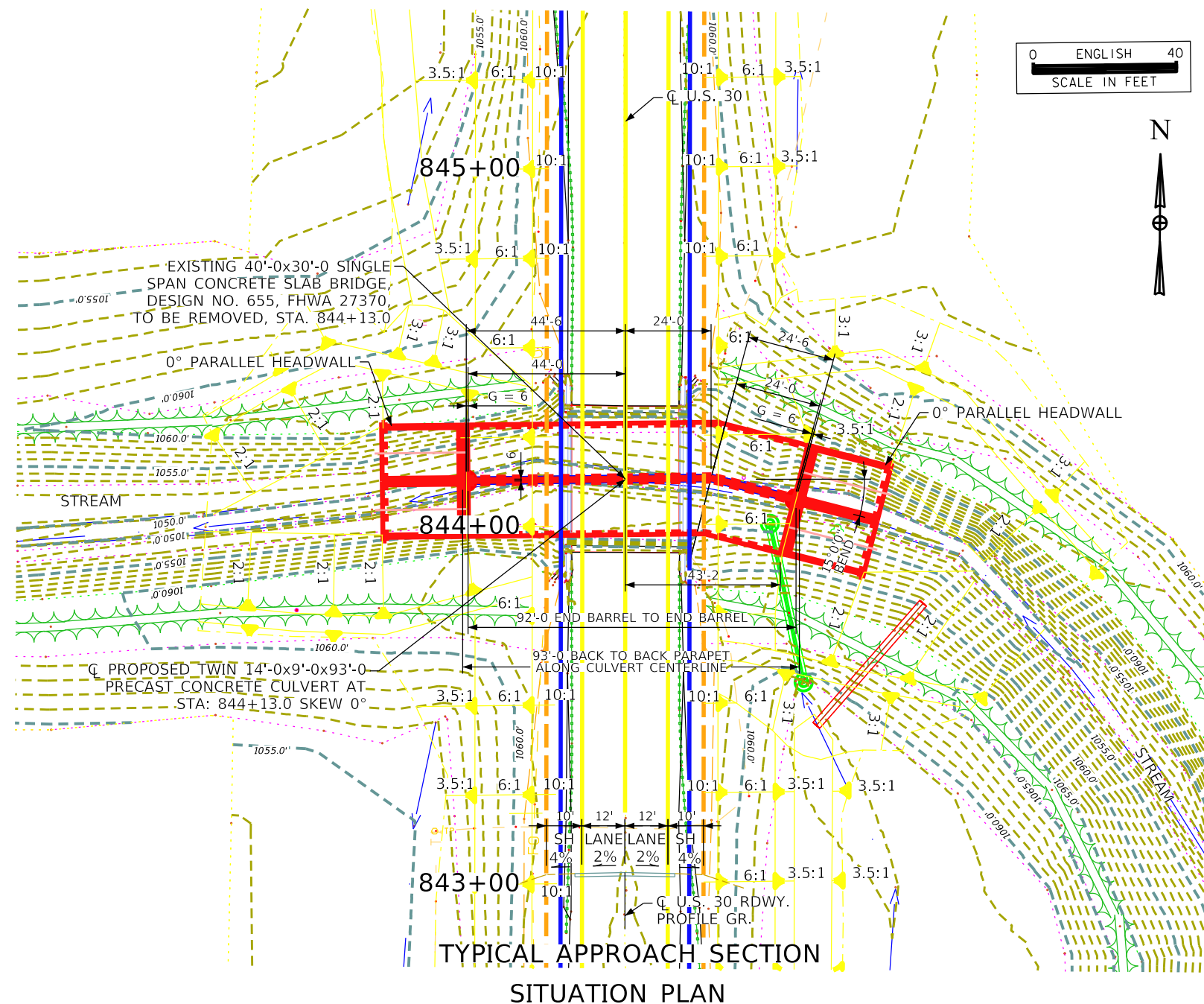
Utilities shown on this sheet are for information only, see road design sheets for final utility information.

**Location**

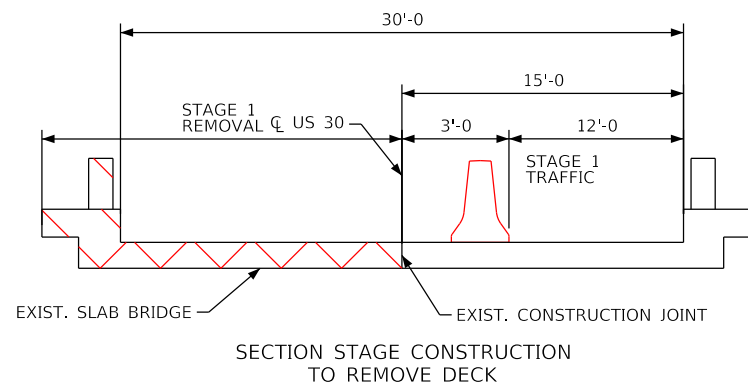
U.S. 30 over stream  
 T-80N R-42W  
 Section 26  
 Boyer Township  
 Harrison County  
 FHWA No. 27471  
 Bridge Maint. No. 4326.4s030  
 Latitude 41.714722°  
 Longitude -95.702889°

**Traffic Estimate**

2025 AADT	4,600	V.P.D.
2045 AADT	5,000	V.P.D.
2045 DHV	510	V.P.H.
Trucks	15	%
Total		
Design ESALs	22,222	



TYPICAL APPROACH SECTION SITUATION PLAN



SECTION STAGE CONSTRUCTION TO REMOVE DECK

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.

Signature: Philip M. Harpole Date: \_\_\_\_\_  
 Printed or Typed Name: Philip M. Harpole  
 My license renewal date is December 31, 2023

Pages or sheets covered by this seal: 1.1

Design For 0° Skew

**TWIN 14'-0x9'-0x93'-0 PRECAST CONCRETE CULVERT SITUATION PLAN**

STA. 844+13.0 (US 30) SEPTEMBER 2022

**HARRISON COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 001 of 001 FHWA No. 27471

### CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature	Design Color No.	Feature
<b>Aggregate</b>			
(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		
(188)	Revetment Class D	<b>Grading</b>	
(28)	Revetment Class E	(8)	Behind Curb Cut
(12)	Shoulder Special Backfill	(6)	Granular
(12)	Special Backfill	(13)	Granular Back Fill
(20)	Subbase	(48)	Rock Undercut
(20)	Subbase Lower	(8)	Shoulder Earth Fill
(20)	Subbase Upper	(2)	Side Slopes
(118)	Subgrade Treatment	(226)	Side Slopes Dressing
<b>Asphalt</b>			
(207)	HMA Base Course	<b>Substrata</b>	
(207)	HMA Interim Course	(128)	Boulder Substrata
(207)	HMA Surface Course	(48)	Broken Weathered Substrata
<b>Concrete</b>			
(0)	Barrier Concrete	(3)	Core Out Substrata
(0)	Barrier Concrete Footing	(203)	Existing Pavement Substrata
(0)	Curb Gutter	(6)	Loam Substrata
(48)	Flowable Mortar	(80)	Rock Substrata
(0)	Median Concrete	(4)	Select Sand Substrata
(0)	PCC Pavement	(3)	Shale Substrata
(0)	Sidewalk	(10)	Topsoil Substrata
<b>Shoulder</b>			
(209)	Shoulder HMA	<b>Unsuitable / Waste</b>	
(0)	Shoulder PCC	(3)	Unsuitable Type A
(6)	Shoulder Granular	(13)	Unsuitable Type B
		(11)	Unsuitable Type C
		(3)	Waste
<b>Existing</b>			
(0)	Existing Pavement		

**NOTES:**

Text

**NOTES:**

Text

## CROSS SECTIONS LEGEND AND INFORMATION SHEET

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



