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B Sheets	Typical Cross Sections and Details
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C Sheets	Quantities and General Information
C.1 - 2	Estimated Project Quantities and Reference Notes
D Sheets	Mainline Plan and Profile Sheets
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2	IA 281 Plan / Profile Sheets
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
Black Hawk COUNTY
Bridge Replacement
Wapsie River Overflow
2.7 mi. W of Elk Run Road
Location
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
22-48-080-060
PROJECT NUMBER
BRF-281-1(054)--38-07
R.O.W. PROJECT NUMBER
STPN-281-1(055)--2J-07
N/A
N/A

PROJECT EVENT DATES

D03	–	08–28–2026
D05	–	12–24–2026
D04	–	06–12–2029
B03	–	08–07–2029

BLACK HAWK COUNTY DESIGN DATA RURAL			
2030	AADT	1,325	V.P.D.
2050	AADT	1,500	V.P.D.
2050	DHV	150	V.P.H.
TRUCKS		23	%
Total			
Design ESALs		840,075	

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.

D2 PLAN - Date: 07-24-2026

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INDEX OF SHEETS	
No.	DESCRIPTION

TRANSPORTATION

DATE: November 6, 2025

PROJECT: Black Hawk County
BRF-281-1(054)--38-07
PIN: 25-07-281-010

C. Purcell
M. Dell
M. A. Swenson
S. Majors
D. L. Newell
W. A. Sorenson
A. A. Welch
B. Hofer
D. Lorenzen
J. Holst
T. Lovan
D. Dudley
L. Narigon
M. E. Khoda
J. Ellis
B. Walls
P. Hjelmstad
K. Billhorn
A. Johnson

K. D. Nicholson
J. S. Nelson
A. Knight
A. Poole
D. Breitbach
E. C. Wright
J. Harris
G. Karssen
S. Anderson
R. Harris
M. Solberg
L. Armstrong
J. Hauber
M. Gordy
A. Swisher
R. Gelhaus
M. Kelly
B. Strueker
B. Walter

Y. Jia
M. Nop
C. C. Poole
K. Brink
J. W. Laaser-Webb
M. E. Ross
M. Van Dyke
D. Johnson
D. Stokes
B. Dolan
T. Gustafson
B. Smith
S. Sersland
M. Todsén

J. Bacon
D. Erickson
R. Loecher
T. Quam

This project involves the replacement of the IA 281 bridge (Maint. No. 0719.6S281) over the Wapsie River Overflow 2.7 mi W of Co Rd V62.

A concept review was held on October 1, 2025. Those present included Kip Siems, Kim Siems, Ron Loecher, Dusten Rolando, Joel Monroe, and Tyler Kubik from the District 2 Office; Mohamad Dokmak from the Bridges and Structures Bureau; Brandon Walls from the Location and Environment Bureau; and John Bartholomew, Yuejia Gu, and Jason Holst from the Design Bureau.

- The two alternatives considered were:
1. Replace with a 100’ x 40’ continuous concrete slab (CCS) bridge utilizing offsite detour **(Estimated Cost \$1,317,100)**
 2. Replace with a twin 14’ x 9’ cast in place reinforced concrete box (alternative dismissed)

Alternative 1 is the preferred alternative. Additional right of way may be required. Traffic will be maintained by off-site detour.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Wednesday, November 5, 2025. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2030. The Design Bureau will coordinate plan preparation with assistance from the Bridges and Structures Bureau.

JEB: YG
Attach.
cc:

FINAL PROJECT CONCEPT STATEMENT

IA 281 Bridge over the Wapsie River Overflow 2.7 mi W of Co Rd V62

Black Hawk County
BRF-281-1(054)--38-07
Project Code: 25-07-281-010
Maint. No. 0719.6S281
FHWA No. 76000

Highway Division
Design Bureau

John Bartholomew, P.E.
515-239-1540

November 6, 2025

I. STUDY AREA

A. Project Description

This project involves the replacement of the IA 281 bridge (Maint. No. 0719.6S281) over the Wapsie River Overflow 2.7 mi W of Co Rd V62.

The two alternatives considered were:

1. Replace with a 100' x 40' continuous concrete slab (CCS) bridge utilizing offsite detour **(Estimated Cost \$1,317,100)**
2. Replace with a twin 14' x 9' cast in place reinforced concrete box (alternative dismissed)

Alternative 1 is the preferred alternative due to the Wapsipinicon River to the west having a drainage area (547 square miles) extending east into the project limits, thereby making this projects structure act as an overflow structure. Because of this, a culvert would be undersized for the hydraulic needs. The culvert option was dismissed for this reason.

B. Need for Project

This is a 77' x 28' concrete slab bridge that was built in 1967. The top of the deck has many longitudinal cracks, transverse cracks, and spalled areas. The bottom of the deck has several cracks with leaching, hollow areas, and small areas with exposed rebar. The substructure also has several vertical cracks with leaching and spalled areas. The bridge was designed for live loads below the current standards. Due to the overall condition of the bridge, a replacement is recommended.



Figure 1: With route facing east, 2024



Figure 3: Against route facing west, 2024



Figure 2: Left profile f-n, 2024



Figure 4: Right profile n-f, 2024

C. Present Facility

The existing structure is a 77' x 28', concrete slab bridge constructed in 1967.

IA 281 in the project area was originally 22' wide type "B" asphalt concrete pavement with 3' wide granular shoulders and 2:1 foreslopes, constructed in 1955. HMA overlay 2.5" type "B" asphalt cement concrete was applied in 1959. 6" thick Bituminous seal coat was applied in 1988. HMA pavement widening and resurfacing was accomplished in 2005 with 2" thick intermediate course and 2.5" thick surface course. The roadway was widened 3' on each side with HMA.

D. Traffic Estimates

The 2030 construction year and 2050 design year average daily traffic estimates are 1300 ADT with 23% trucks and 1500 ADT with 23% trucks, respectively.

E. Sufficiency Ratings

IA 281 is classified as an "Access Route" and is a maintenance service level "C" roadway. The Bridge Condition Index is 59.1 and the Bridge Condition Rating is "Fair".

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2020 through December 31, 2024, there were 0 crashes.

The potential for crash reduction (PCR) level for all and severe crashes in this area is negligible. The PCR value for all crashes is 0.003 crash/mile/year and the value for severe crashes is 0.020 crash/mile/year.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Replace with a bridge

The existing 77' x 28' CCS bridge will be replaced with a 100' x 40' CCS bridge.

The typical cross section adjacent to the bridge approach will consist of a 24' roadway with 7' combination paved and granular shoulders and 3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. A 1' grade raise may be required based on future survey. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 20' beyond the ends of the guardrail. Class 10 will be

necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on both ends of the bridge.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

It appears that right of way may be required for this project depending on the need for a grade raise.

Traffic will be maintained by an off-site detour.

Bridge Items	<u>Estimated Costs</u>
New Bridge -4088 sf @ \$145/ft ²	\$592,760
Remove Exist. Bridge 2161 sf @ \$20/ft ²	43,220
Revetment 460 T x 50\$/ton	23,000
Mobilization (10%)	65,900
Contingency and Misc. (20%)	<u>144,900</u>
Total Option B	\$869,000

Roadway Items	<u>Estimated Costs</u>
Bridge Approaches	\$105,300
Removal of Pavement	13,600
PCC Pavement	24,300
Modified Subbase	9,000
Excavation Class 13 Waste	5,400
Guardrail Removal	2,900
New Guadrail	28,800
Paved Shoulders	54,900
Class 10 for Guardrail Blisters	35,100
Bridge End Drains	14,000
Clearing and Grubbing	4,300
Seeding and Fertilizing	700
Erosion Control	10,500
Right of Way	5,000
Traffic Control - 5%	22,400
Mobilization - 5%	22,400
M & C - 20%	<u>89,500</u>
Roadway costs	\$448,100

Project Total	\$1,317,100
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Alternative #2: Replace with a culvert

This alternative was dismissed due to the Wapsipinicon River to the west having a drainage area (547 square miles) extending east into the project limits, thereby making this projects structure act as an overflow structure. Because of this, a culvert would be undersized for the hydraulic need.

Bridge Items	<u>Estimated Costs</u>
Twin RCB 14'x9' - 1026 sf @ 900/yd ³	923,000
Remove Exist. Bridge 2161 sf @ \$20/ft ²	43,220
Revetment	23,000
Mobilization (10%)	98,900
Contingency and Misc. (20%)	<u>217,600</u>
Total Bridge Cost	\$1,305,700

Roadway Items	<u>Estimated Costs</u>
Removal of Pavement	7,100
PCC Pavement	17,200
Modified Subbase	6,800
Paved Shoulder	5,300
Granular Shoulder	1,600
Flooded Backfill	17,300
Clearing and Grubbing	5,500
Seeding and Fertilizing	800
Erosion Control	5,500
Right of Way	10,000
Traffic Control - 5%	5,500
Mobilization - 5%	5,500
M & C - 20%	<u>22,000</u>
Roadway Costs	\$110,100

Project Total **\$1,415,800**

B. Detour Analysis

IA 281 will be closed and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 180 days. The detour would follow IA 281 south, then Co Rd C57/E Cedar Wapsi Rd east, then north on Co Rd V62/ Baxter Ave back to IA 281. Out of distance travel is approximately 5 miles. The total distance user cost is anticipated to be \$320,300. The cost for county road maintenance will be \$21,500 as calculated by the Gas Tax Method. Detour signing costs will be \$10,000.

C. Recommendations

It is recommended that the present structure be replaced with a bridge utilizing off-site detour, as described in Alternative No. 1.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Bridges and Structures Bureau will coordinate the plan preparation with assistance from the Design Bureau.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 281; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The ABC Rating Score of 21 is less than the first stage filter threshold of 50, therefore this bridge will be replaced utilizing traditional construction methods.

No bike path or sidewalk will be required as part of this project.

The waterway is not on a state water trail or paddling route.

It is anticipated that special survey for the bridge over the Wapsipinicon River will be needed for the 2D hydraulic model. This may demonstrate a need for a grade raise.

Right of Way may be required for this project.

The Location and Environment Bureau has not reviewed this project at this time.

An Environmental Research Study Area (ERSA) has been developed for this project and can be viewed in the concept attachments.

G. Program Status

Site data has been developed by the Design Bureau. This project is listed in the 2026-2030 Iowa Transportation Improvement Program, with \$5,000 programmed for right of way and \$3,061,000 for replacement in FY 2030. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

JEB:YG

Utilities

(WINIA) Windstream Communications
Design contact: LOCATE DESK
800-289-1901
LOCATE.DESK@WINDSTREAM.COM

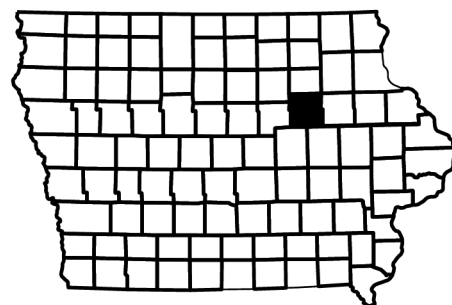
BLACK HAWK COUNTY

STA 285+71.6

FHWA 76000

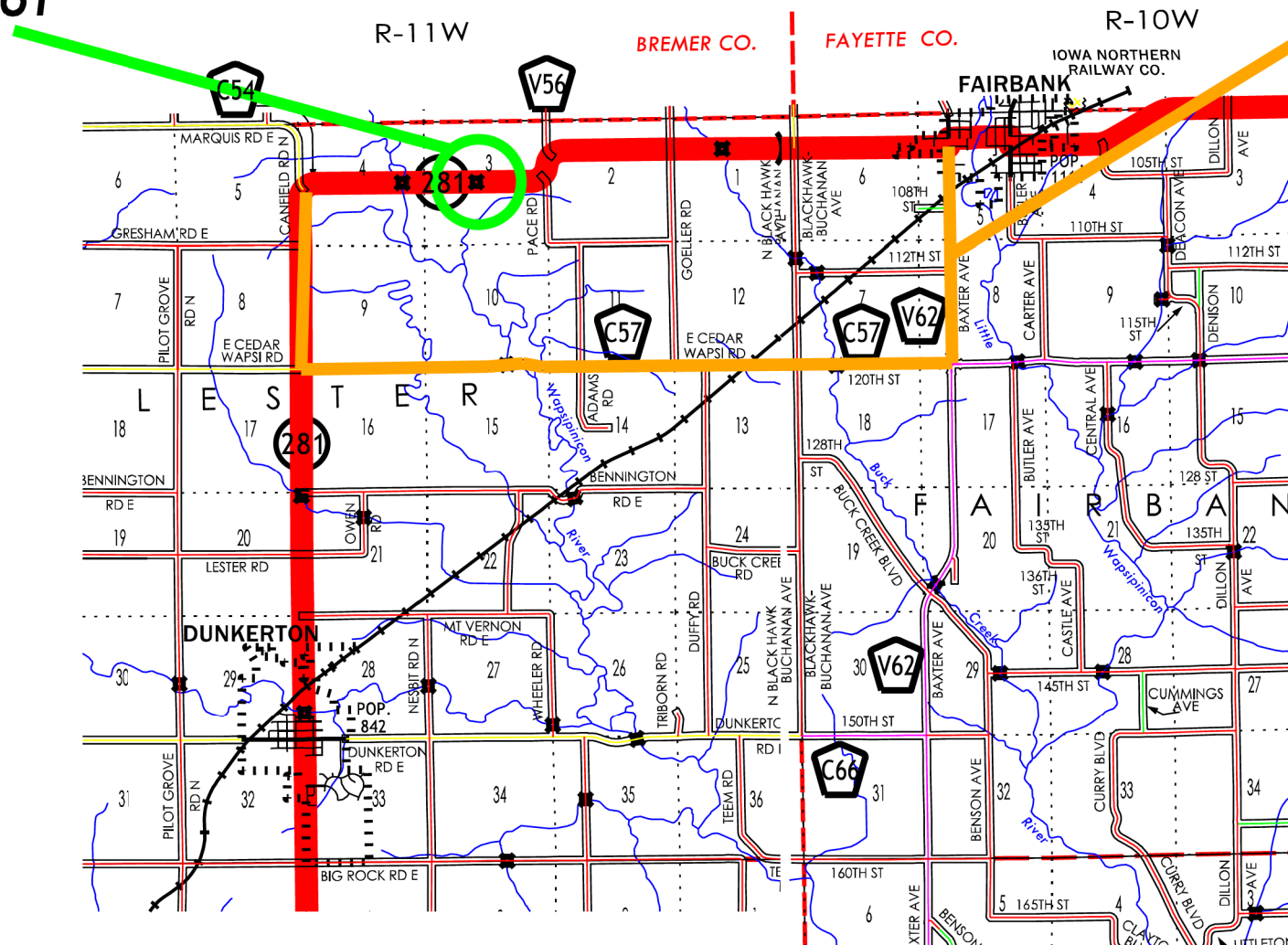
MAINT. NO. 0719.6S281

DESIGN 105



ON IA 281, OVER WAPSIE RIVER OVERFLOW
2.7 MILES WEST OF CO RD V62
BRF-281-1(054)—38-07
PROJECT CODE: 25-07-281-010

DETOUR



7



Bridge Bureau Attachment for Concept Statement

Date: <09,05, 2025>
By: <M.Dokmak>
Location: IA 281 bridge over the Wapsie River Overflow 2.7mi W of Co Rd V62

County: Black Hawk County
Phase No.: < BRF-281-1(054)--38-07 >
Project Code: < 25-07-281-010 >

1. Regulatory/Coordination
- a. Iowa DNR Flood Plain permit = No . D.A < 100 S.M

b. Iowa DNR Sovereign Lands permit = NO

c. Local Record of Coordination = YES

d. Flood Insurance Study =Yes <if Yes Zone A /Panel 19013C0095 G/ effective on 5/8/2024

e. Drainage District = NO

f. Corps of Engineers Section 408 = YES

g. State Water Trail or Paddling Route = NO

h. Historic Structure = NO

i. Federally owned land in vicinity = No

j. USGS or Iowa Flood Center (IFC) gage or sensor impacted? No

k. Obstruction Evaluation/Airport Airspace Analysis per FAA website = No
1.
2. Hydrologic/Hydraulic Analysis/RIDB Dataset
- a. Design discharge methodology = Yes, Iowa runoff Chart. D.A< 2 S.M

b. Hydraulic analysis done = Yes. pre-survey Hydraulic analysis was completed using the Iowa Bridge Backwater Program (IABB) and the Iowa Culvert Program (ICH). A detailed 2D hydraulic model is recommended, including the bridge over the Wapsipinicon River on the west side of the project

c. If DA < 10 sq. mi. Riverine Infrastructure Database (RIDB) dataset is required with B1 submittal = No

d. <If RIDB required = Yes > Project development hydraulic analysis will comply with the RIDB Guidelines at a minimum.
3. Structure/Roadway Layout Considerations
- No grade raise is anticipated.
4. Special construction issues
5. Special survey = Yes
6. Aesthetic enhancements = No
7. Other
- a. Maintenance of Traffic - Off site detour

Special Survey:

Concept Statement - Bridge Bureau Attachment

A special survey for the bridge over the Wapsipinicon River might be needed for the 2D hydraulic model.

Roadway

IA 281

PIN Number

25-07-281-010

Submittal Date

07/22/26

Project Number

BRF-281-1(054)--38-07

Approval Date

District

District 2

Assistant District Engineer

Mary Kelly

County

BLACK HAWK

or

Route

IA 281

Office Director

Location

Wapsie River Overflow 2.7 mi W of Co Rd V62

Work Type

Bridge Replacement

Segment Manager

Designer

Jonathan Bahr

Design Manual Section 1C-1

Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values	
Design speed (mph)		60	50	60	
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	See Note 1	
Design lane width (ft)		12	12	12	
Full depth paved width (ft)		12	12	12	
Right turn lane (ft)		12	10	n/a	
Climbing Lane (ft)		12	12	n/a	
Left turn lane (ft)		12	10	n/a	
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2	
	Auxiliary and turn lanes	3%	3% maximum	n/a	
	Crown break at centerline	4%	4% maximum	4	
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4	
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	n/a	
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	n/a	
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 for 4', then 3:1	
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3:1 (see Note 2)	
	Curbed roadways	2%	not steeper than 3:1	n/a	
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1 (see Note 2)	
Transverse Slopes	w/ drainage structures	8:1	6:1	8:1	
	w/o drainage structures	10:1	6:1	n/a	
Ditches (Refer to Section 3G-1)		Outside ditch (depth x width) (ft)	5 x 10	--	(see Note 3)
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	12' lanes + 8' shldrs	
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	n/a	
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	(see Note 4)	
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	n/a	
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	n/a	
	Over railroad	23.3	23.3	n/a	
	Sign trusses and pedestrian bridges	17.5	17	n/a	
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures		
Level of Service		B	B	C	

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Note 1: This project is not within or near a section of road with a horizontal curve.

Note 2: Record Drawings (1961 C-614(61) Grading) show existing 2:1 foreslopes and backslopes.

Note 3: Standard Ditch Dimension is 5' deep (from edge of lane) x 10' wide.

Note 4: Existing Bridge is being replaced. The existing Bridge is 75' x 28' (11' lanes + 3' shoulders) Continuous Concrete Slab Bridge.

FILE NO. 98765

ENGLISH

DESIGN TEAM Bahr/Gunderson

Black Hawk COUNTY

PROJECT NUMBER BRF-281-1(054)--38-07

SHEET NUMBER A.11

11:58:20 AM

7/30/2026

jbahr1

pw:\NTPwint1.dot.int.lan:PWMain\Documents\Projects\0728101025\Design\BRF-281-1(054)--38-07\CADD_Files\Sheet_Files\SHT_A01_07281054Z05.dgn

D2 Questions for District 2 – with 7/22/2026 D2 Field Exam Responses in GREET TEXT. Responses include Post-D2 Follow-Up E-Mail Correspondence (dated 7/24/2026) between Road Design (Jonathan



Re: BRF-281-1(054)--38-07
Bahr) and District 2 (Ashton Johnson):
FYI, MEETING MINUTES from prior Design Meetings are referenced, but not included in the D2 Field Exam Markup set.

Date: 7/22/2026
Time: 11:00am to 11:40am via Microsoft Teams.
Description: D2 Field Exam
Location: Microsoft Teams

Attendees:
Ames Road Design: Jonathan Bahr (Transportation Engineer Specialist), Brandon Gunderson (Design Technician), Kyle Schrock (Road Design Section Manager), Yan Jia (Transportation Engineer Administrator).
District 2: Dusten Rolando (Transportation Engineer Specialist), Kip Siems (Waterloo Highway Maintenance Supervisor), Kim Siems (District 2 Bridge Group).
Bridge Bureau: Jimmy Ellis (Preliminary Bridge Manager), Mohamad Dokmak (Preliminary Bridge Engineer).
Location and Environment Bureau: Brandon Walls (Water Resources, Environmental Specialist Senior), Brock Struecker (Protected Species, Environmental Specialist Senior), Jeff Bacon (Cultural Resources, Transportation Planner 2), Blake Walter (NEPA Manager Partner).
Pre-Design: John Bartholomew (Transportation Engineer Specialist), Hollie Richey (Design Technician Specialist).
Right of Way Bureau: Nikki Cuva (Right of Way Agent 4)
Project Management Bureau: Luka Arroyo (Transportation Engineer Associate)

County : Black Hawk
Project Code : 25-07-281-010
Phase Number : BRF-281-1(054)--38-07
Location : Wapsie River Overflow 2.7 mi W of Co Rd V62
Work Code : 2001-Bridge-Unspecified
Project Directory : 0728101025
Project Manager : Luka Arroyo

1. PROJECT LIMITS
- a. Beginning of Project: Beginning of Project depends on proposed guardrail.
 - i. 2026-07-22 Field Exam Response: No comments.
 - b. End of Project: End of Project depends on proposed guardrail (and profile to a very small degrees).
 - i. 2026-07-22 Field Exam Response: No comments.

2. WORK CODE
- a. The Current Work Code is ‘2001-Bridge-Unspecified’. Should the Work Code be changed to ‘2022-Bridge Replacement-CCS’?
 - i. 2026-07-22 Field Exam Response: Jimmy Ellis (Bridge Bureau) said that the Work Code will be changed to ‘2022-Bridge Replacement-CCS’ before the B01 Event is completed.

3. DETOUR
- a. The official Detour Map and Signage should be provided by the District for inclusion in the plan set. It is recommended that the Detour Plans begin on sheet J.100 to avoid cross-over with other J sheets developed by Road Design. Please provide the District Contact who will be developing the Detour Plans.
 - i. 2026-07-22 Field Exam Response: Dusten Rolando (District 2) said the Detour Route is still functional. Dusten Rolando will follow-up with Ashton Johnson and District 2 will provide the Detour Plans to Road Design as requested.
 - ii. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):
 - 1. Road Design (Jonathan Bahr): The official Detour Map and Signage should be provided by the District for inclusion in the plan set. It is recommended that the Detour Plans begin on sheet J.100 to avoid cross-over with other J sheets developed by Road Design. Please provide the Detour Plans to Road Design.
 - 2. District 2 (Ashton Johnson): We can get this to you. It will likely be sometime this fall. Typically, what we will do is send over the DGN file for you to place and sheet them as you'd like. It is generally 2 sheets.
 - iii. 2026-07-28 Field Exam Follow-up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson): Ashton Johnson provided a link to the Detour for the IA 281 (054) Project: [07281054_Detour.dgn](#).

4. POSTED SPEED AND DESIGN SPEED UPDATES
- a. The Posted Speed along IA 281 as of 7/22/2026 is 55 MPH. The Design Speed used to develop the D2 Plan Set was 60 MPH (55 MPH posted + 5 MPH). Is this corridor of IA 281 expected to increase the posted speed to 60 MPH (Design Speed 65 MPH)? If so, then the Guardrail and other design components will need to be updated to accommodate the faster design speed.
 - i. 2026-07-22 Field Exam Response: Dusten Rolando Transportation Engineer Specialist, District 2) said that maps illustrating the Posted Speed increase are being developed. Kip Siems (Waterloo Highway Maintenance Supervisor) said that IA 281 wasn’t on the list of roadways currently scheduled to have their speeds increased, but that does not mean that the IA 281 speed will not be increased prior to the Construction of this project (Letting is October 16, 2029). Dusten Rolando said that he would follow-up with District 2 and forward any follow-up information to Jonathan Bahr. Road Design will update the design accordingly, if necessary.
 - ii. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):

1. Road Design (Jonathan Bahr): The Posted Speed along IA 281 as of 7/22/2026 is 55 MPH. The Design Speed used to develop the D2 Plan Set was 60 MPH (55 MPH posted + 5 MPH). Is this corridor of IA 281 expected to increase the posted speed to 60 MPH (Design Speed 65 MPH)? If so, then the Guardrail and other design components will need to be updated to accommodate the faster design speed?
2. District 2 (Ashton Johnson): The speed limit here has already increased to 60 MPH, so the updated design speed will be needed. I believe there may be additional guidance on the new design speed coming.

5. ROADWAY PROFILE

- a. The Project Concept (Page 3) stated “This bridge will be constructed on the existing vertical and horizontal alignment. A 1’ grade raise may be required based on future survey.” The proposed profile on the D2 Plan Set effectively matches the existing profile. The beginning and end of the project is currently controlled by the proposed guardrail and requires 131 feet of Roadway reconstruction beyond the west approach and 179 feet of Roadway reconstruction beyond the east approach. Please confirm that the existing profile is sufficient.
 - i. 2026-07-22 Field Exam Response: Mohamad Dokmak (Bridge Bureau) said that he analyzed hydraulics with respect to the Bridge Superstructure and verified that a profile grade raise was NOT needed. The proposed roadway profile is OK to mimic the existing roadway profile.

6. TYPICAL SECTIONS and CROSS-SECTIONS

- a. Typical Sections of the ‘normal’ roadway were discussed between Road Design (Jonathan Bahr) and Pre-Design (John Bartholomew) on 4/16/2026 over e-mail. There was an error in the Project Concept regarding the proposed shoulders. The ‘normal’ section of the project will consist of 2x12’ lanes + 2x2’ wide paved shoulders to match the existing 28’ wide roadway (existing roadway consists of 2x11’ lanes +2x3’ paved shoulders) instead of the proposed 7’ wide combination shoulders specified in the



BRF-281-1(054)--38-07 Black Hawk - IA 2



RE_

Project Concept.

- i. 2026-07-22 Field Exam Response: Yan Jia (Road Design) questioned whether the Traveled Way beyond the Approaches needed to be removed and replaced if the proposed profile mimicked the existing profile. There is the possibility of cost savings if only the proposed paved shoulders were installed beyond the Approaches. Yan Jia said that this has come up on other Bridge Replacement projects. The Project Concept only included Existing Pavement History and did not include a Pavement Condition Analysis. Dusten Rolando (District 2) said he would follow-up with the District about whether the Traveled Way beyond the Approaches should be removed and replaced along with the shoulders.
- ii. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):

1. Road Design (Jonathan Bahr): The proposed profile will follow the existing profile very closely. This means that there may be an opportunity to UAC the 24’ wide Travel Lanes located beyond the Approaches and save some cost. I was able to match the profile on the west side of the bridge very closely (within an inch), so the west side travel lanes may be a candidate for UAC. However, there is some slight profile adjustment (up to 0.3’) on the roadway to the east side of the bridge to get a proper vertical curve, so I don’t think it is possible to UAC the travel lanes on the east side of the bridge. Please review the situation and let me know what you’d like to do. The Geometry file is here: [GEO_ML281_07281054Z05.dgn](#).
 2. District 2 (Ashton Johnson): If it is necessary to reconstruct a portion of the roadway to get the profile to work, then I think that would be fine. I'd rather see a little extra \$ spent to make a smooth transition than try to make it work and end up with a lip or a dip.
- b. Review Typical Sections and Cross-Sections developed for the D2 Field Exam. The cross-sections were designed to illustrate maximum impacts. Determine where and what components should be constricted (if any) to reduce the impacts (ie. foreslope design [10:1 x 4’ wide shelf to 3:1 foreslope] or Ditch design [10’ wide ditch bottom], etc.) or backslope design [3:1]). FYI, the existing foreslope is 2:1 from the edge of existing pavement according to the Record Drawings and Survey and the ditch is approximately 10’ wide according to Record Drawings and the Survey. FYI, the proposed 3:1 foreslope was recommended on the Project Concept.
 - i. 2026-07-22 Field Exam Response: The Field Exam Team reviewed the Typical Sections. John Bartholomew (Pre-Design) questioned whether there should be the 10:1 x 4’ wide shelf prior to the 3:1 foreslope. Jonathan Bahr said that the large majority of the proposed shoulder consisted of Paved Shoulder for Guardrail, which requires the 10:1 x 4’ wide shelf prior to the 3:1 foreslope and that it would be good for construction consistency to maintain the 10:1 x 4’ wide shelf prior to the 3:1 foreslope for the remainder of the project. If the project consisted of more normal 4’ wide shoulders then the decision to remove the 10:1 x 4’ wide shelf would be more justifiable. The Field Exam Team was okay with keeping the 10:1 x 4’ wide shelf prior to the 3:1 foreslope across the Project.

7. BRIDGE APPROACH

- a. According to Section 5.8.6.1.2 of the Bridge Design Manual: Double reinforced bridge approaches (BR-200s) are used for interstate and primary bridges. A 12-inch approach should be used for new construction.
 - i. 2026-07-22 Field Exam Response: No comments.
- b. It has not yet been determined whether the abutment is a ‘movable’ abutment or a ‘fixed’ abutment: The body of the Project Concept did not indicate whether the Bridge will have Stub/Fixed/Battered Abutments or Integral/Movable/Normal Abutments. The Project Concept did not include a Preliminary Bridge Drawings. The ‘Bridge Bureau Attachment for Concept Statement’ did not have any information regarding the proposed abutments. Please verify the abutment type so that the appropriate Bridge

Approach Pavement Standard Road Plan is selected. The Note on the Bridge Approach Typical Section on the B Sheets will be updated as needed.

- i. 2026-07-22 Field Exam Response: Bridge Bureau will provide information regarding the abutment type once it is determined.
- c. The double reinforced section will NOT be longer than 20' (as measured along the centerline of the road) because the proposed Bridge does NOT have a skew. The Designer Information for Bridge Approach Pavement section of the Standard Road Plans say "If the need arises for the double reinforced section to be longer than the 20 foot minimum shown on BR-201, BR-202, BR-203, and BR-204, contact the Bridges and Structures Bureau to verify location of the lug for movable abutments." FYI, if the Abutment for this Bridge is Fixed (not Movable), then the location of the lug for Movable Abutments in such circumstances (double reinforced section is longer than the 20 foot minimum) is not applicable.
 - i. 2026-07-22 Field Exam Response: No comments.
- d. Extended Wings: Please confirm whether the wings of the proposed bridge will be extended. Extended wings may have an impact to the design of the Bridge Approach (potential impact to be researched by Road Design if applicable).
 - i. 2026-07-22 Field Exam Response: Bridge Bureau will provide information regarding the wings of the proposed bridge once they are determined.
- e. Skewed Bridge Deck: The Bridge Deck of the Proposed Bridge will NOT be skewed.
 - i. 2026-07-22 Field Exam Response: No comments.

8. SLIDE REPAIR / EROSION / SINKHOLES / ROADWAY SUBGRADE DETERIORIZATION

- a. Slide Repair was NOT mentioned within the Project Concept and is assumed NOT to be necessary. Please confirm there are no locations within the Project Limits that require Slide Repair.
 - i. 2026-07-22 Field Exam Response: Kip Siems (Waterloo Highway Maintenance Supervisor) mentioned there are erosion issues off of the sides of the existing guardrails. Kip Siems suggested that the erosion issues should be addressed within the normal scope of the proposed improvements, but Jonathan Bahr offered to consult with Soils Bureau to confirm whether any special mitigation treatments need to be implemented.

9. ENTRANCE TREATMENT

- a. The 287+40 LT Field Entrance (Type D) is being relocated to STA. 289+35 LT per Preliminary discussions between Road Design and District 2 (Ashton Johnson). There were outstanding questions about permitting. Have there been any follow-up discussions between the District and the Property Owner?
 - i. 2026-07-22 Field Exam Response: Dusten Rolando said that he was not aware of any follow-up conversations with the entrance Property Owner as of the 7/22/2026 Field Exam Date. Dusten Rolando said that he would follow-up with Ashton Johnson (District 2) and forward any follow-up information to Jonathan Bahr.
- b. There is a 96" CMP that is underneath the existing entrance at STA. 287+40 LT. Preliminary discussions between Road Design (Jonathan Bahr), District 2 (Ashton Johnson), and Bridge Bureau (Christian Kennell) determined that the 96" CMP was

oversized with respect to its capacity requirements and likely was placed in its current location to act like fill for the entrance. Christian Kennell ran capacity calculations on 5/20/2026 and determined that a 30" Entrance Pipe would be enough to satisfy the capacity requirements. Which Bureau will complete the design of the entrance culvert?

- i. 2026-07-22 Field Exam Response: Bridge Bureau and Road Design agreed that the design of the entrance culvert can be covered merely by Tabulation 102-3 (Access Points and Safety Ramps) and that the entrance culvert did not need to be modeled or signed for by Bridge Bureau (tabulation 102-3 can be filled out and signed for by the Road Design team). The 5/20/2026 capacity check by Christian Kennell (Bridge Bureau) was sufficient. The Field Exam Team agreed with this approach.

10. DIKE TREATMENT

- a. There are two drainage dikes on the eastbound side of IA 281 with CMP culverts running through them (STA 284+41 RT has a 24" CMP and STA 286+94 RT has a 18" CMP). Preliminary discussions between Road Design and District 2 resolved that the drainage dikes and associated culverts could be removed and replaced with continuous proposed ditches unless Preliminary Bridge had any exceptions (ie. did the ditch dike serve a critical function?). Please verify that the drainage dikes can be removed and replaced with continuous proposed ditches.
 - i. 2026-07-22 Field Exam Response: Mohamad Dokmak (Bridge Bureau) confirmed that the drainage dikes on the eastbound side of IA 281 with CMP culverts running through them (STA 284+41 RT and STA 286+94 RT) could be removed and replaced with continuous proposed ditches.

11. RIGHT OF WAY

- a. ROW appears to be necessary for this Project. Refer to Grade Intercept Lines and ROW lines on the D Sheets.
 - i. 2026-07-22 Field Exam Response: No comments.

12. UTILITY IMPACTS

- a. Gas Main:
 - i. The Survey does NOT show Gas main within the project corridor.
 - 1. 2026-07-22 Field Exam Response: No comments.
- b. Telephone (T1 Line):
 - i. The Survey does NOT show Telephone (underground or elevated) within the project corridor. The Utility Company (Dunkerton Telephone) confirmed the utility was CLEAR of the area according to the One-Call Design Information Request (DIR).
 - 1. 2026-07-22 Field Exam Response: No comments.
- c. Power Lines:
 - i. There are overhead power lines along the south side (eastbound side) of IA 281. The power lines are attached to power poles. The power poles and overhead power lines are within (or extremely close) to DOT ROW. The preliminary

corridor modeling indicates that there will be grading impacts to the poles (one at the SWC of the bridge and one at the SEC of the bridge).

1. 2026-07-22 Field Exam Response: Dusten Rolando (Transportation Engineer Specialist, District 2) said that he would follow-up with Daryl Erickson (District 2 Utility Coordinator) and forward any follow-up information to Jonathan Bahr.
 2. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):
 - a. Road Design (Jonathan Bahr): There are overhead power lines along the south side (eastbound side) of IA 281 The power lines are attached to power poles. The power poles and overhead power lines are within (or extremely close) to DOT ROW. The preliminary corridor modeling indicates that there will be grading impacts to the poles (one at the SWC of the bridge and one at the SEC of the bridge). Please forward to Daryl Erickson for his information.
 - b. District 2 (Ashton Johnson): We will get this covered in our utility submittals.
- d. Drainage Utility Structures:
- i. No Drainage Utility Structures (ie. intakes or manholes) were observed within the project limits.
 1. 2026-07-22 Field Exam Response: No comments.
- e. Utility Contacts:
- i. Road Design has added the Utility Information to the ‘Utility Legend’ on Sheet D.1 of the Plan Set per Iowa One-Call information and linework provided Survey Bureau. Contact information for East-Central Iowa Rural Electrical Coop was retrieved from the Electric Coops’ website (<https://www.ecirec.coop/contact-us>).
 1. 2026-07-22 Field Exam Response: No comments.
- f. Road Design will let the respective District Utility Coordinator (District 2’s Daryl Erickson) know that private utilities are impacted as a part of separate correspondence related to the D5 Event Submittal.
- i. 2026-07-22 Field Exam Response: No comments.

13. UTILITIES (POINT 25 OR NOT A POINT 25 PROJECT)

- a. Is this project a Point 25 Project or Not a Point 25 Project? “Utility Process (formerly “Utility Status”) is found in Masterworks in the following path: Project/Project Phases/Project #/Utility Coordination/Utility Process. According to Masterworks, this Project (IA 281 (054)) is a Non-Point 25 Project. Should this be revisited because it appears as though utility services may be impacted?
 - i. 2026-07-22 Field Exam Response: Dusten Rolando (Transportation Engineer Specialist, District 2) said that he would follow-up with Daryl Erickson (District 2 Utility Coordinator) and forward any follow-up information to Jonathan Bahr.
 - ii. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):
 1. Road Design (Jonathan Bahr): 1. Is this project a Point 25 Project or Not a Point 25 Project? “Utility Process (formerly “Utility Status”) is found in

- Masterworks in the following path: Project/Project Phases/Project #/Utility Coordination/Utility Process. According to Masterworks, this Project (IA 281 (054)) is a Non-Point 25 Project. Should this be revisited because it appears as though utility services may be impacted?
2. District 2 (Ashton Johnson): I will verify with Daryl and see what we need.

14. STOCKPILED MATERIALS (TAB 110-13 DELIVERY AND STOCKPILING) 2026-07-22 Field Exam Response: Kip Siems (Waterloo Highway Maintenance Supervisor) declined to stockpile any of the materials listed below.

- a. Confirm that Maintenance would like the following Stockpiled Materials:
 - i. Existing Pavement
 1. 2026-07-22 Field Exam Response: NO.
 - ii. Class 10 Excavation (if necessary, earthwork balance has not been evaluated yet)
 1. 2026-07-22 Field Exam Response: NO.
 - iii. Class 13 Excavation (not applicable)
 1. 2026-07-22 Field Exam Response: Not applicable.
 - iv. Steel Beam Guardrail W-Beam
 1. 2026-07-22 Field Exam Response: NO.
 - v. Steel Beam Guardrail Posts
 1. 2026-07-22 Field Exam Response: NO.
 - vi. Cable Guardrail (not applicable)
 1. 2026-07-22 Field Exam Response: Not applicable.
 - vii. Cable Guardrail Posts (not applicable)
 1. 2026-07-22 Field Exam Response: Not applicable.
- b. Verify the location of Stockpiled Materials (Primary Location? Secondary location? Is there a preferred distribution of materials across the sites?)
 - i. 2026-07-22 Field Exam Response: Not applicable.
- c. Maintenance Contact Person and Phone Number:
 - i. 2026-04-17 Road Design Note: Kip Siems would be the Contact Person if Stockpiling was applicable to this project. Kip Siems is the Maintenance Supervisor and the Waterloo phone number (319-233-3055, per DOT Contacts Website) was previously confirmed by Kip Siems.

15. SHOULDER RUMBLES

- a. Review the need for Shoulder Rumble Strips / STRIPES on this project (Rumble STRIPES are placed under the traffic edge line and increase the functional width of the shoulder). Minimum functional width for a paved shoulder used by bicyclists is 4 feet (Bicyclist Operating Space, Section 3.2 – Figure 3-1 of the [AASHTO Bike Guide 2012](#) and Section 4.9 [Bicycling in Rural Context] of [the Iowa DOT Bicycle and Pedestrian Long-Range Plan](#)). This project is technically within unincorporated Black Hawk County and therefore is considered ‘Rural’. Shoulder Rumbles are typically included in ‘Rural’ Areas. The Roadway does NOT currently have shoulder rumbles (according to Google Earth Streetview Imagery dated August 2024). Perhaps it is worth waiting for corridor improvement project to install Shoulder Rumbles or including Shoulder Rumble StripEs

(Shoulder Rumble Stripes are located are located at the edge of traffic line instead of the shoulder). FYI, PV-12 (Milled Shoulder Rumble Strips): Shoulder Rumbles stop 60’ from the Bridge Deck. FYI, District 2 had an HSIP Project ([HSIPX-000-T\(358\)--3L-00](#)) in the Spring of 2025 as part of the District’s Safety Initiative that installed Centerline Rumbles on portions of IA 281. It is not clear whether that HSIP project reached this section of IA 281. The District confirmed that Shoulder Rumbles should be installed where applicable because of the HSIP Project for Project BRF-281-1(052)--38-07 [Bridge Replacement over Elk Run Creek].

- i. 2026-07-22 Field Exam Response: Dusten Rolando (District 2) said that he looked at a map and this corridor of IA 281 may have had centerline rumbles recently installed as a part of a FY 2025 project (or they are scheduled to be installed). Dusten Rolando said that he would follow-up with information regarding whether this project (IA 281 (54)) needed proposed shoulder Rumble Strips or whether the shoulder rumbles could be handled as part of a future corridor project.
- ii. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):
 - 1. Road Design (Jonathan Bahr): Please confirm whether Shoulder Rumbles would need to be installed on this project.
 - 2. District 2 (Ashton Johnson): No - there isn't enough space currently.

16. CENTERLINE RUMBLES

- a. Review the need for Centerline Rumbles on this Project. Centerline Rumbles are typically installed on Roadway Projects per Design Manual Section 3C-5 (Centerline rumble strips must be placed on all new or existing two lane Primary rural roads with at least 11 foot lane widths). This project is technically within unincorporated Black Hawk County and therefore is considered ‘Rural’. Centerline rumbles are typically included in ‘Rural’ Areas. The Roadway does NOT currently have shoulder rumbles (according to Google Earth Streetview Imagery dated August 2024). Perhaps it is worth waiting for corridor improvement project to install Centerline Rumbles. FYI, PV-13 (Milled Centerline Rumble Strips): Centerline Rumbles stop 60’ from the Bridge Deck. FYI, District 2 had an HSIP Project ([HSIPX-000-T\(358\)--3L-00](#)) in the Spring of 2025 as part of the District’s Safety Initiative that installed Centerline Rumbles on portions of IA 281. It is not clear whether that HSIP project reached this section of IA 281.
 - i. 2026-07-22 Field Exam Response: Dusten Rolando (District 2) said that he looked at a map and this corridor of IA 281 and saw that IA 281 may have had centerline rumbles recently installed as a part of the FY 2025 project (or the centerline rumbles are scheduled to be installed). Regardless, Dusten Rolando said that he would follow-up with the District to confirm whether this project (IA 281 (54)) needed proposed Centerline Rumble Strips or not.
 - ii. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):
 - 1. Road Design (Jonathan Bahr): Please confirm whether Centerline Rumbles would need to be installed on this project.
 - 2. District 2 (Ashton Johnson): Yes - we placed them recently on an HSIP project and want to ensure we have enough coverage on the reconstructed pieces.

- iii. 2026-07-29 Road Design Note: Jonathan Bahr spoke with Kyle Schrock in-person about the Centerline Rumble Strips. Kyle Schrock said that he had a separate conversation with Elijah Gansen about Centerline Rumbles for Bridge Replacement projects and Elijah recommended that the Centerline Rumbles be the standard ‘Milled Centerline Rumble Strips’ and NOT the ‘Sinusoidal Diamond Ground Rumble Strips’ because it’s way to expensive to bring out the Diamond Grinder Roller out for such relatively short projects, which Bridge Replacement projects inherently are. Kyle also mentioned that fog sealing does NOT need to be done on Centerline Rumbles on PCC Pavements (fog seal DOES need to be done on Centerline Rumbles on HMA Pavements per recent discussions). Jonathan and Kyle agreed that the Bridge Detail on Standard Road Plan PV-13 was incorrect for Bridge Replacement Projects, the Centerline Rumbles should stop at the Approaches (ie. the Approaches should not receive Rumbles). Also, for what it’s worth; the 2025 District Centerline Project [HSIPX-000-T\(358\)--3L-00](#) specified normal Milled Centerline Rumble Strips (HMA Surface). Project [HSIPX-000-T\(358\)--3L-00](#) did not specify the fog seal for the Centerline Rumble Strips (HMA), but it would have if the project was designed at a later date.

17. WATER RESOURCES (LEB) / STREAMS, W0/W04 WETLAND PERMITTING

- a. Road Design shall review the W0 and/or W04 Wetland Permitting Memorandums. Roadside Bureau shall implement the Memos in the Roadside Sheets.
 - i. 2026-04-17 Road Design Note: The W00 Event Date was Closed by Brandon Walls on 11/20/2025 with a Note: “NWP expected with potential wetland mitigation”. Road Design will review follow-up Water Resource Analysis as the Project develops.
 - ii. 2026-07-22 Field Exam Response: No comments.
- b. Stream Impacts Due to Bridge Construction:
 - i. Review Stream Impacts Due to Bridge Construction. FYI, the Wapsie River Overflow is NOT considered a water trail or paddling route according to the Project Concept and Iowa DNR Maps.
 - 1. 2026-07-22 Field Exam Response: No comments.

18. THREATENED AND ENDANGERED SPECIES REVIEW (LEB) / SUITABLE BAT HABITAT / TREE CLEARING

- a. Verify the language needed in the Clearing and Grubbing Estimate Reference Note (ie. review the need for Iowa DOT Spec 2101.01A regarding tree clearing dates per direction from Threatened and Endangered Species).
 - i. 2026-07-22 Field Exam Response: Brock Struecker (Protected Species, Environmental Specialist Senior) said that Iowa DOT Spec 2101.01A will apply to this project. Road Design will implement the appropriate Clearing and Grubbing Estimate Reference Note according to the final T&E Memorandum.
- b. Winter Tree Clearing and Letting Date:
 - i. Tree Clearing may need a separate Letting if the Bridge Replacement Letting moves to a later date (ie. such as March 2030).
 - 1. 2026-07-22 Field Exam Response: No comments.
- c. Tree Impacts Due to proposed Roadway Foreslopes:

- i. Review the proposed Grade Intercept Lines with respect to the impacts to the trees around the Project. The maximum offsets of the Grade Intercept Lines as measured from the outside edge of the 12’ wide Travel Lane are:
 - 1. 68’ at the SW corner of the bridge.
 - 2. 70’ at the SE corner of the bridge.
 - 3. There aren’t any trees on the westbound side of the bridge.
 - 4. 2026-07-22 Field Exam Response: No comments.

19. CULTURAL RESOURCES (OLE) (NEPA and/or NHPA/SHPO)

- a. Road Design shall review the Memorandums developed by Cultural Resources and implement recommendations, if applicable. Vibration Monitoring of Historical Buildings is an occasional topic that is addressed in these Memorandums.
 - i. 2026-07-22 Field Exam Response: Jeff Bacon (Cultural Resources, Transportation Planner 2) confirmed that Cultural Resources will need a Phase 1 Study because of the proposed Right of Way acquisition. Jeff Bacon will reach out to Mark Swenson (Contracts) to schedule the appropriate H01 Event. The Phase 1 Study / H01 Event will take 9 months.

20. PAVEMENT DESIGN

- a. Road Design has been working with Danny Zeimen in Materials to determine the appropriate Pavement Specifications. Road Design sent a coordination e-mail to Danny Zeimen on 4/16/2026. Road Design recommended that both the Mainline and Shoulder Pavement should be 9” PCC over 12” Modified Subbase per similar Project BRF-281-1(054)--38-07 (the Project Concept did NOT include Pavement recommendations).



BRF-281-1(054)--38-07 IA 281 Black Haw

- b. 2026-04-24 Road Design Note: Danny Zeimen responded to Road Design’s 4/16/2026 Pavement Design Request via e-mail: “It looks like there is minimal mainline paving of a few hundred square yards. If that is correct, I would match the thickness of the new approaches at 12.0” PCC with 12.0” Modified for ease of construction. For the shoulder, you can use the thicknesses shown in the design detail for paved shoulder in front of guardrail. Otherwise, 8.5” thick PCC on 12.0” Modified would be sufficient to handle the traffic loading.” Verify the thicknesses of the proposed mainline and shoulders with the District during the D2 Field Exam Meeting and then confirm the bid items with Danny



FW_ BRF-281-1(054)--38-07 Zeimen.

- i. 2026-05-07 Road Design Note: Jonathan Bahr spoke with Ashton Johnson (District 2) over Microsoft Teams on 5/7/2026 at 11:45am. Jonathan and Ashton agreed that the Mainline should consist of 12” PCC over 12” Modified Subbase per the suggestion from Danny Zeimen (the total amount of 24’ wide mainline pavement outside of the approaches is approximately 825 SY). The 12” PCC Pavement also will align better with the surrounding existing HMA pavement which varies in thickness between 11” and 14.5”. Jonathan and Ashton also

agreed that all of the proposed paved shoulders will be 8” thick to correlate with the 8” Specified on Detail 7158 (Paved Shoulder at Guardrail – adjacent to full-width paved shoulder).

- ii. 2026-05-07 Road Design Note: Jonathan Bahr reviewed the Pavement Design after the 5/7/2026 11:45 Microsoft Teams call with Ashton Johnson and sent the following Message to Ashton Johnson via Microsoft Teams at 12:10pm (5/7/2026). Jonathan and Ashton agreed that the proposed mainline and shoulders outside of the Approach Pavement should be 8.5” PCC with 12” Modified Subbase:

- 1. Jonathan: I'm going to go with the 8.5" PCC for both the mainline and the shoulders for IA 281 (54). This will mimic what we discussed with the D2 Team for IA 281 (52), BRF-281-1(52)--38-07. I think this project exceeds 'a few hundred square yards' and we should get a good price on 8.5" PCC since both the mainline and shoulder is the same thickness - total is 1,418 SY (12’ lanes + 4’ shoulders).
- 2. Ashton: I'm good with that. Thanks!

- c. 2026-07-22 Field Exam Response: John Bartholomew (Pre-Design) recommended that the Traveled Way AND Paved Shoulders beyond the Approaches should match the thickness of the Approaches (12”) for ease of construction purposes. This decision was justified by the fact that there is a relatively small amount of Roadway reconstruction beyond the Approaches. John Bartholomew said it was previously determined by the Design group that projects that only have around 150’ of proposed roadway beyond the Approaches should go ahead and have the Traveled Way and Paved Shoulders match the Approach thickness for ease of construction purposes. The Field Exam Team was OK with this decision.

- i. 2026-07-24 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and District 2 (Ashton Johnson):

- 1. Road Design (Jonathan Bahr): John Bartholomew mentioned that it has been DOT policy to specify the thickness of the Travel Lane and Shoulder Pavement as the same thickness as the Approach Pavement (12”) on projects where we are only reconstructing ‘around 150 feet of roadway beyond the Approaches’ for ease of construction purposes. The D2 set currently shows 131 feet of Roadway reconstruction beyond the west approach and 179 feet of Roadway reconstruction beyond the east approach. The alternative (previously discussed with Pavement Design and Ashton Johnson back on 5/7/2026) was to specify 8.5” PCC on the Travel Lane and Shoulders beyond the Approaches (as shown on the D2 Set: 07-2811-054_C-Pre-D2 Field Exam.pdf). Please verify the pavement thickness that the District would like to specify beyond the Approach Pavement.
- 2. District 2 (Ashton Johnson): I would leave it at the 8.5" PCC beyond the approaches. Depending on what is UAC'd, the contractor will likely split the approach and the mainline into separate operations due to the reinforcing. Due to the surrounding surface likely being full-depth asphalt, I suppose it won't make a huge difference either way.

- d. 2026-07-22 Field Exam Response: John Bartholomew asked Jonathan Bahr to reach out to Danny Zeimen (Pavement Design) to ask if the 12” Modified Subbase could be changed to 12” Granular Subbase. John Bartholomew said he thought the DOT is trying

to move away from the installation of Modified Subbase on projects where we’re not going to have Traffic driving on it for Construction Staging. John Bartholomew said that Danny Zeimen may still want the Modified Subbase beyond the Approaches because the Approaches already are specified to have Modified Subbase per the Standard Road Plans and the Roadway beyond the Approaches is such a small area that we may as well specify Modified Subbase everywhere.

- i. 2026-07-27 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and Pavement Design (Danny Zeimen): Jonathan Bahr reached out to Danny Zeimen (Pavement Design) via e-mail with respect to whether the 12” Modified Subbase under the normal Roadway should be changed to 12”



RE_
BRF-281-1(054)--38-(
Granular Subbase.

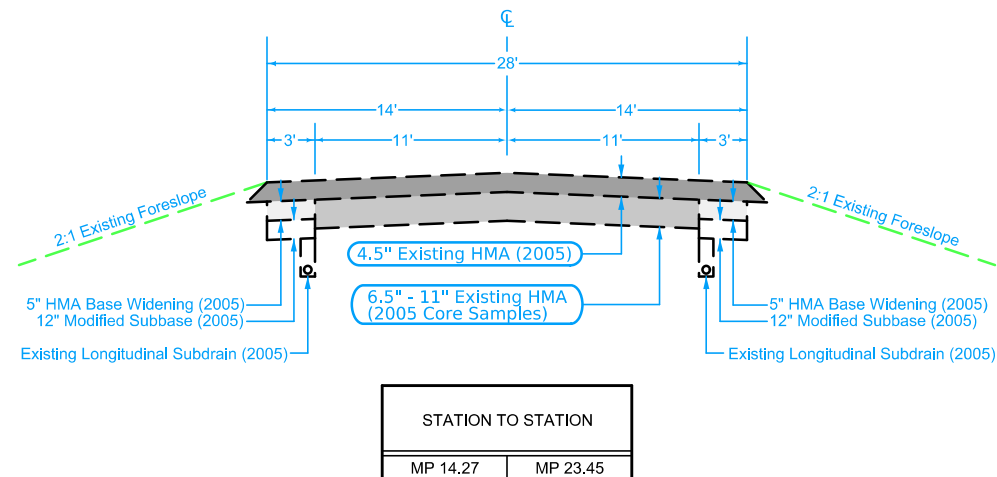
- ii. 2026-07-27 Field Exam Follow-Up Correspondence between Road Design (Jonathan Bahr) and Pavement Design (Danny Zeimen): Danny Zeimen responded to Jonathan Bahr’s 7/27/2026 e-mail about Modified Subbase: “I would keep the 12.0” Modified for this case with the small amount of paving and constructability. Granular subbase does not provide the structural support needed for the PCC pavement so we would need to have 12.0” of Special Backfill under 6.0” of Granular Subbase. The Modified Subbase serves as a dual-purpose structural layer and drainage layer that would be appropriate for this



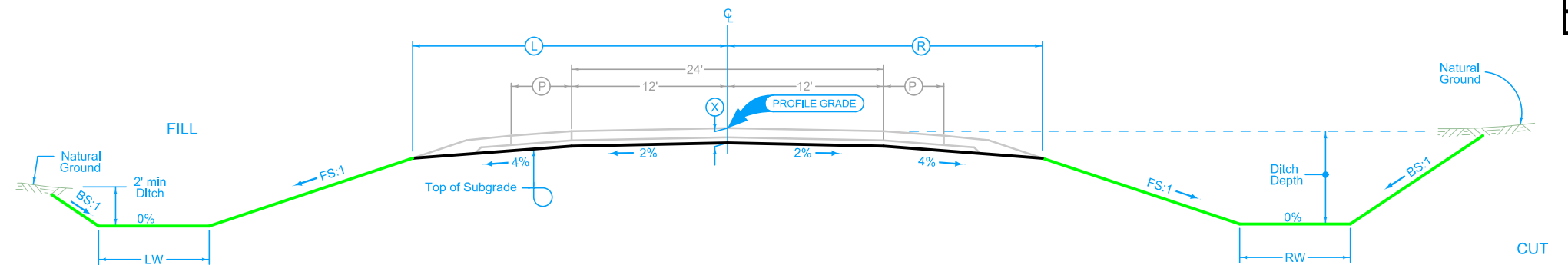
RE_
BRF-281-1(054)--38-(
project.”

21. SURVEY

- a. 2026-04-17 Road Design Note: Survey was completed for this Project. Road Design reviewed the survey drawings and currently do not see a need for Supplemental Survey.
 - i. 2026-07-22 Field Exam Response: No comments.
- b. Are additional soil borings needed for this project? FYI, the ‘Bridge Bureau Attachment for Concept Statement’ within the Project Concept did not reference a soil analysis or soil profile (existing Soil Profiles can typically be found in Record Drawings, whereupon a preliminary soil analysis can be made). Typically Soil Borings are needed at each pier and the abutments. The normal process is that once the TS&L is completed with the B01 Event then the TS&L gets distributed to Soils Bureau and then Soils Bureau would come up with a plan for Soil Borings at the proposed Bridge. Additional soils testing is usually needed at Bridges where Bridge Bureau specifies the use of proposed Drilled Shaft Pier Foundations.
 - i. 2026-07-22 Field Exam Response: No comments.



IA 281
Existing Pavement

[illegible]

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.

G_2_Grade
MODIFIED

IA 281
2 LANE GRADING

Paved Shoulder

2_G_SR_ 04-21-20			
STATION TO STATION		(P) Feet	(X) Feet
283+35	283+72	4	4
288+38	288+85	4	4

Paved Shoulder

2_G_SR_ 04-21-20			
STATION TO STATION		(P) Feet	(X) Feet
288+00	288+85	4	4

Paved Shoulder at Guardrail

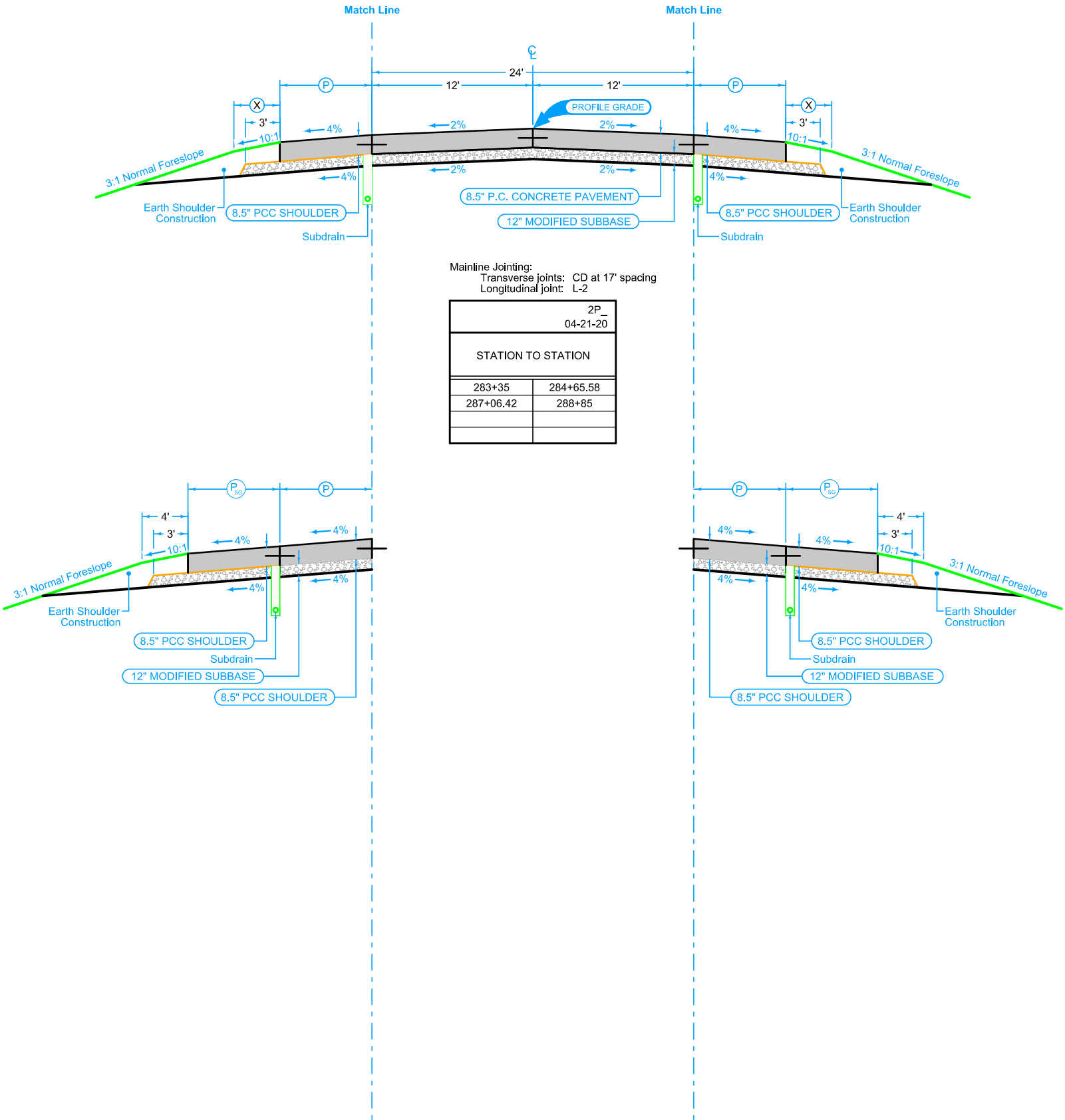
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing

2_P_Guard_ 04-21-20			
STATION TO STATION		(P) Feet	(P _{sg}) Feet
283+72	284+65.58	8	See Detail 7158-M for Details
287+06.42	288+38	8	See Detail 7158-M for Details

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing

2_P_Guard_ 04-21-20			
STATION TO STATION		(P) Feet	(P _{sg}) Feet
283+35	284+65.58	8	See Detail 7158-M for Details
287+06.42	288+00	8	See Detail 7158-M for Details



See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

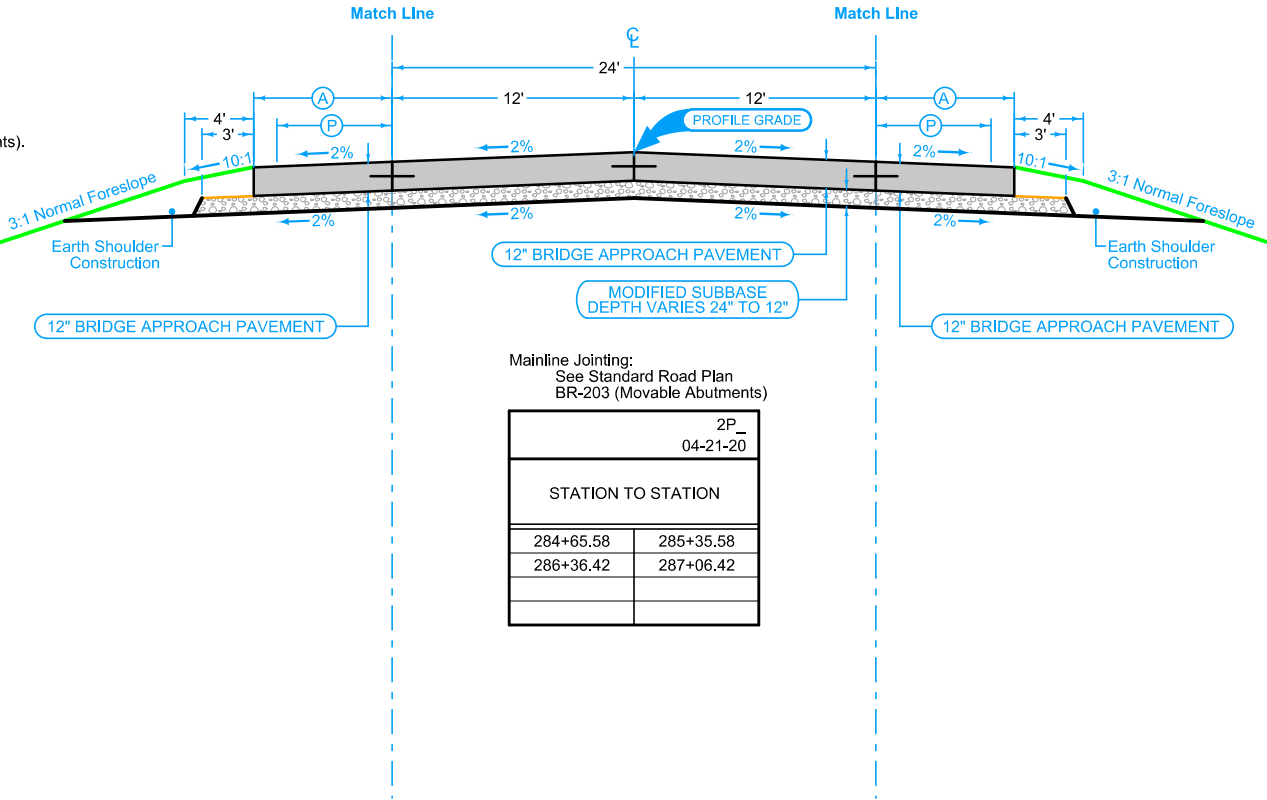
IA 281

Mainline, Paved Shoulder,
and Paved Shoulder at Guardrail

Shoulder at Bridge Approach

Mainline Jointing:
See Standard Road Plan BR-203 (Movable Abutments).

2_P_FullIPCC_04-20-21			
STATION TO STATION		P Feet	A Feet
284+65.58	285+35.58	8	9.58
286+36.42	287+06.42	8	9.58



Mainline Jointing:
See Standard Road Plan
BR-203 (Movable Abutments)

2P_04-21-20	
STATION TO STATION	
284+65.58	285+35.58
286+36.42	287+06.42

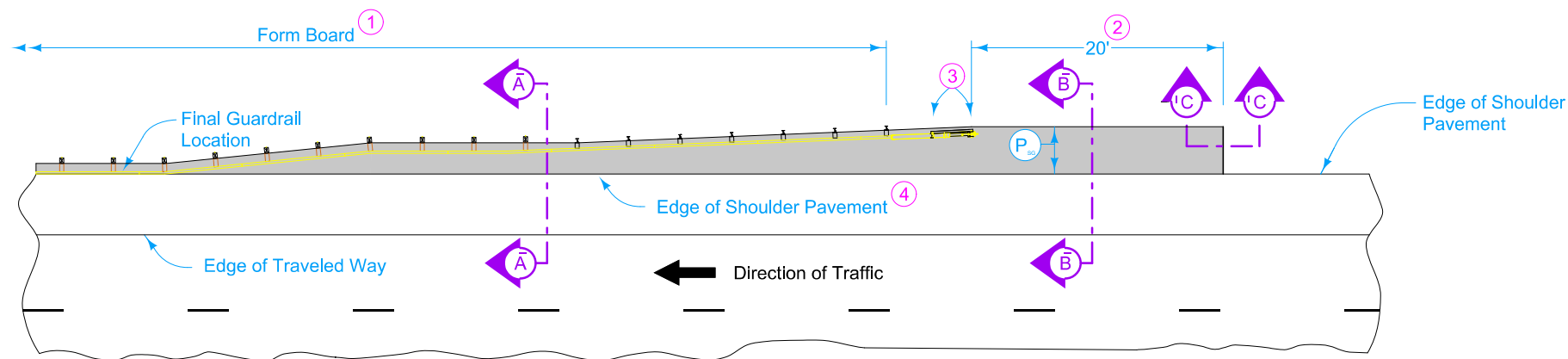
Shoulder at Bridge Approach

Mainline Jointing:
See Standard Road Plan BR-203 (Movable Abutments).

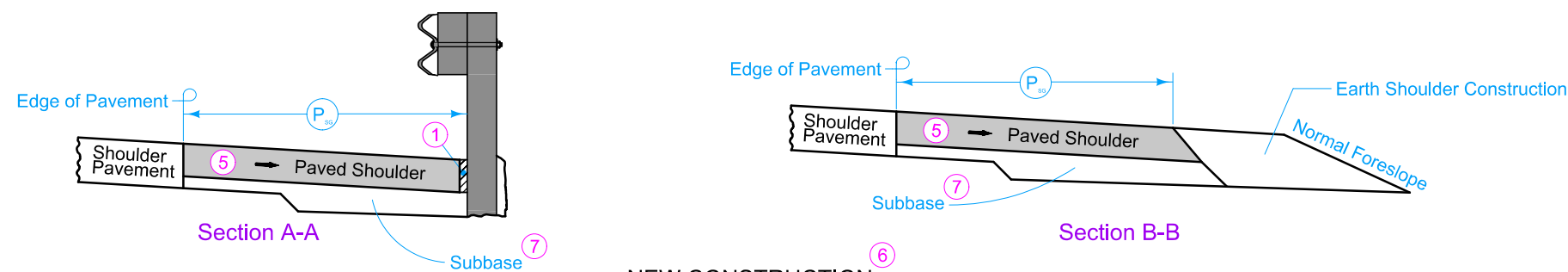
2_P_FullIPCC_04-20-21			
STATION TO STATION		P Feet	A Feet
284+65.58	285+35.58	8	9.58
286+36.42	287+06.42	8	9.58

See Tab 112-6 for Bridge Approach Pavement quantities.
See Standard Road Plan BR-203 (Movable Abutment) for details.

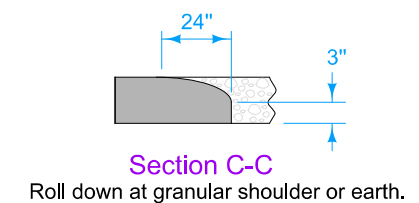
IA 281
Bridge Approach Pavement



PLAN VIEW



NEW CONSTRUCTION

PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO FULL WIDTH PAVED SHOULDER)

7158-M
MODIFIED

8.5" PCC Paved Shoulder at Guardrail. See below for 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.

Refer to Tabulation 112-9 for shoulder quantities.

- ① 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. Removal and installation of guardrail will be allowed with no additional payment if disrupted during pavement installation.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'BT' (per PV-101) joint for PCC shoulder.
- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the full width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway - DIVISION 1 : Iowa DOT and Federal Participation

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway - DIVISION 1	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0	Refer to Tab. 110-17 on C Sheets.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	0	Refer to T Sheets.
3	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	0	Refer to T Sheets.
4	2102-4560000	LOCATING TILE LINES	STA	11	Estimated at twice the project length. Locate tile lines in accordance with Section 2102.03,H,3. The engineer may adjust locations to fit field conditions. This task shall be performed before grading. Excavation areas outside the grading limits shall be compacted and restored to natural grades
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	0	Refer to T Sheets.
6	2115-0100000	MODIFIED SUBBASE	CY	611.3	Includes 343.5 CY from Tab. 100-24 on C Sheets. Includes 267.8 CY from Tab. 112-9 on C Sheets.
7	2122-5190009	PAVED SHOULDER, P.C. CONCRETE, 9 IN.	SY	553.6	Refer to Tab. 112-9 on C Sheets.
8	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	7.5	Refer to Tab. 112-9 on C Sheets.
9	2301-0690203	BRIDGE APPROACH, BR-203	SY	671.5	Refer to Tab. 112-6 on C Sheets.
10	2301-1033090	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9 IN.	SY	824.4	Refer to Tab. 100-24 on C Sheets.
11	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	750	Refer to Tab. 104-9 on CS Sheets.
12	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	4	
13	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	4	Refer to Tab. 104-8A on C Sheets.
14	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	303	Refer to Tab. 110-7A on C Sheets.
15	2505-4008300	STEEL BEAM GUARDRAIL	LF	0	Refer to Tab. 108-8A on C Sheets.
16	2505-4008415	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-209	EACH	4	
17	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4	
18	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4	
19	2510-6745850	REMOVAL OF PAVEMENT	SY	1,471.6	Refer to Tab. 110-1 on C Sheets.
20	2526-8285010	CONSTRUCTION SURVEY, MONUMENT PRESERVATION	LS	1	

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway - DIVISION 1	
21	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	12.38	Refer to Tab. 108-22 on C Sheets.
22	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	12.38	
23	2528-2518000	SAFETY CLOSURE	EACH	2	Refer to Tab. 108-13A on C Sheets.
24	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on J Sheets.
25	2533-4980005	MOBILIZATION	LS	1	
26	2548-0000250	DIAMOND GROUND SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	6.18	Refer to Tab. 112-10 on C Sheets.
27	2548-0000365	DIAMOND GROUND CENTERLINE SINUSOIDAL RUMBLE STRIPS, PCC SURFACE	STA	3.09	
28	2557-0000100	LONGITUDINAL GROOVING IN CONCRETE, PAVEMENT	SY	671.5	Refer to Tab. 100-28 on C Sheets.

	Interstate Highway Symbol
	U.S. Highway Symbol
	Iowa Highway Symbol
	County Road Highway Symbol
	Evergreen Tree
	Deciduous Tree
	Fruit Tree
	Shrub (Bushes)
	Timber
	Hedge
	Stump
	Swamp
	Rock Outcrop
	Broken Concrete
	Revetment (Rip Rap)
	Cemetery
	Grave
	Cave
	Sink Hole
	Board Fence
	Chain Link or Security Fence
	Wire Fence
	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)

	Septic Tank
	Cistern
	L.P. Gas Tank (No Footing)
	Underground Storage Tank
	Latrine
	Satellite TV Dish
	WHU Water Hook Up
	RT Radio Tower
	TA Tower Anchor
	Guardrail (Beam or Cable)
	GP Guard Post (one or two)
	Guard Post (over two)
	FP Filler Pipe
	GV Gas Valve
	WV Water Valve
	SL Speed Limit Sign
	MM Mile Marker Post
	SIGN Sign
	TCB Traffic Signal Control Box
	RRB Rail Road Signal Control Box
	TSB Telephone Switch Box
	EB Electric Box

PPA, East-Central Iowa Rural Electric Coop
Phone: (319) 443-4343
Toll Free: (877) 850-4343
ecirec@ecirec.coop

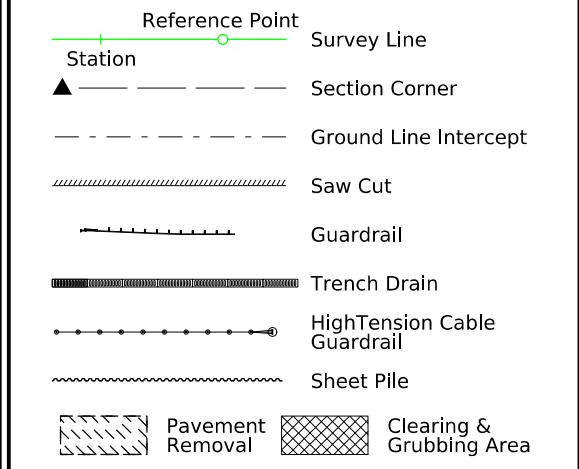
Dunkerton Telephone

Brett Delagardelle
(319) 822-4512
brett@dunkerton.com

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

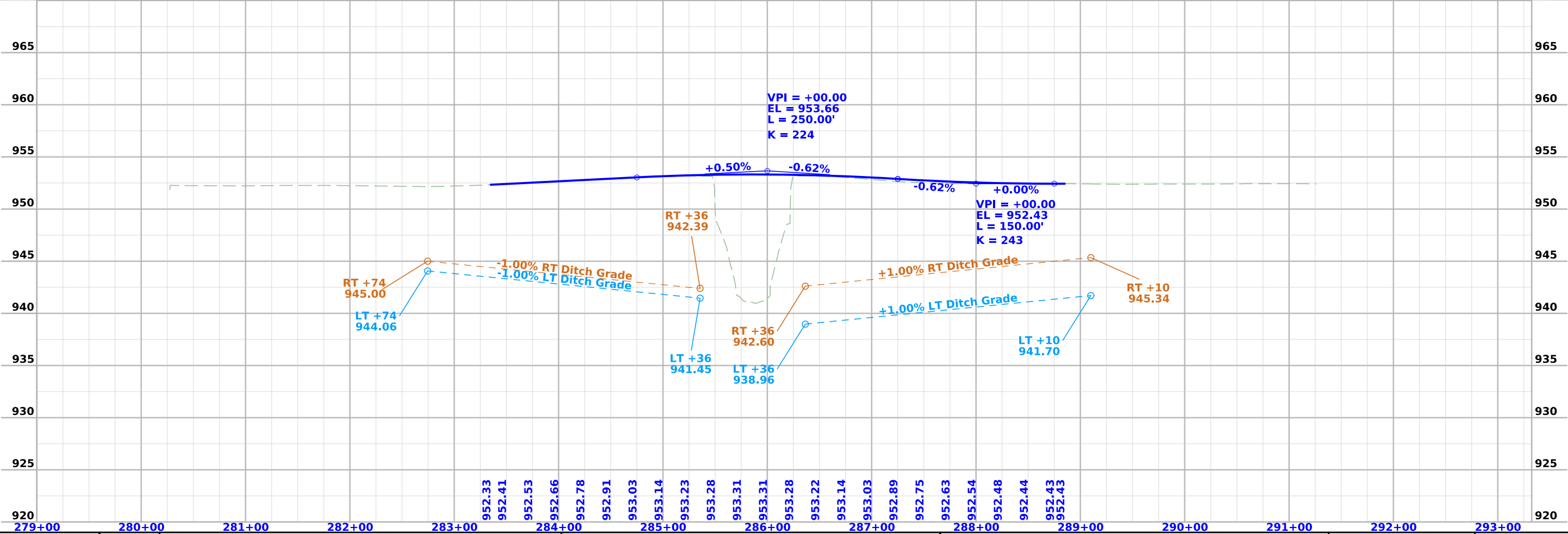
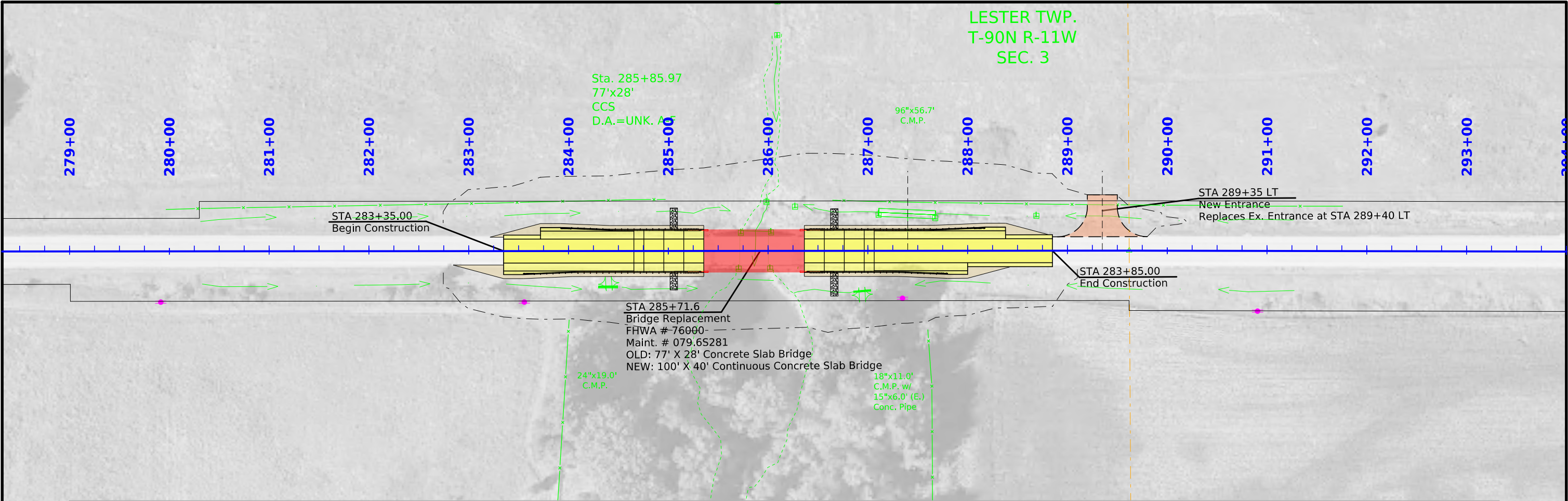
SHADING		Design Color No.		Transparency
Pink, Dark	(13)		Temporary Pavement Shading	50%
Yellow	(4)		Proposed Pavement Shading	50%
Orange	(6)		Proposed Granular Shading	50%
Orange	(70)		Proposed Shoulder Granular Shading	50%
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading	50%
Brown, Light	(236)		Grading Shading	50%
Orange, Light	(134)		Proposed Granular Entrance Shading	50%
Yellow	(220)		Proposed Paved Entrance Shading	50%
Tan	(8)		Proposed Sidewalk Shading	50%
Blue, Light	(230)		Proposed Sidewalk Landing Shading	50%
Pink	(11)		Proposed Sidewalk Ramp Shading	50%
Red	(3)		Proposed Structure Shading	50%
Red	(3)		Delineates Restricted Areas	0%

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



- Proposed Right-of-Way Symbol
- Proposed Right-of-Way Line
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary) Symbol
- Easement (Temporary) Line
- Easement
- Access Control
- Property Line Symbol
- Property Line

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



Survey Information

SURVEY INDEX

County: Black Hawk
PIN: 25-07-281-010
Project Number: BRF-281-1(054)--38-07
Location: Wapsie River Overflow 2.7 mi W of Co Rd V62
Type of Work: Bridge Unspecified
Project Directory: 0728101025

Survey Personnel

Geoff Tinker – Survey Party Chief (Sr. Land Surveyor)

Date(s) of Survey

Begin Date 10/06/2025
End Date 11/06/2025

General Information

This project is a Full DTM Field Survey along IA 281 for Wapsipinicon River Overflow Bridge at 0.6mi. East of Wapsipinicon River Bridge crossing, and 2.7mi. West of County Road V62 in Black Hawk County.

Utility Information

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

Project Control

Coordinates were determined for primary project control points by conducting concurrent six-hour static observations, comprised of Two (2) separate Static Sessions. Post processing is constrained to surrounding Iowa Real Time Network reference stations and checked upon station “Marion” (IAMR). For additional details of the control survey, contact the Preliminary Survey department.

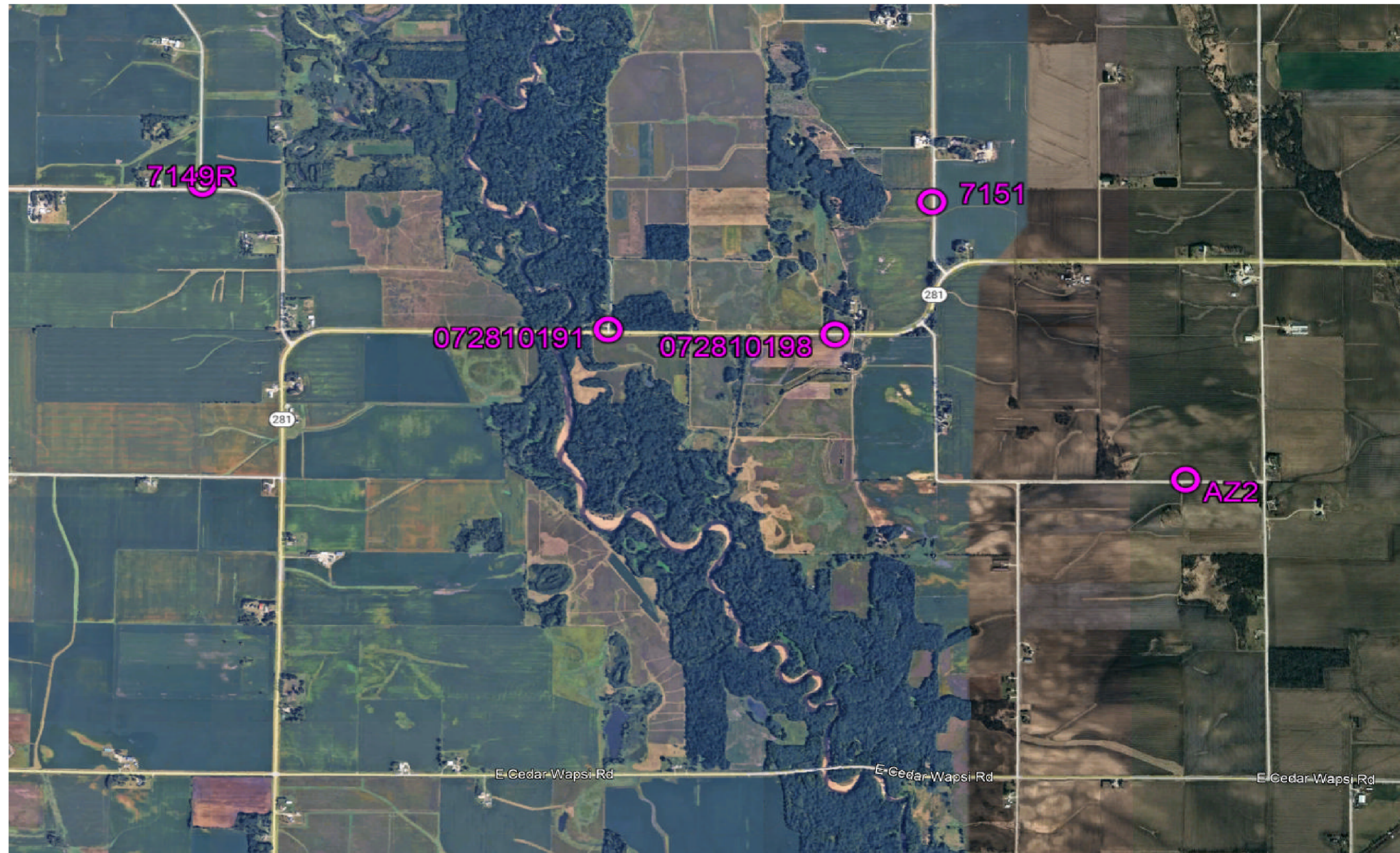
PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 5
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for this project was created by District 2 Land Survey 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) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 5 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

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) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 5 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

PointName	Northing	Easting	Elevation	Code-Description
072810191	8894606.98	15529429.02	948.43	FENO SET 1m. L. FENO Monument w/ 2in. Bronze Cap - 6in. Dp. located Northerly of East Quarter Corner Section 4- T90N-R11W along West side of Siggelkow Park Entrance to North at 43.4ft. North of CL Road (IA Hwy. 281); and 7.4ft, West of West Edge Gravel Park Entrance; and 7.1ft. Southeast (SE) of Blue 911 Address #9905 Sign Post; and 5.9ft. Southwest (SW.) of Center
072810198	8894521.79	15533101.42	950.05	FENO SET 1m. L. FENO Monument w/ 2in. Bronze Cap - 6in. Dp. located in South Foreslope of IA Hwy. 281 at 20.3ft. South of CL Road; and 29.8ft. North of Station 300+00 Marker Post (and Aligned with) to South (near South ROW); and 5.9ft. South of South Edge ACC/HMA Pavement; and 48.5ft. West of Curve Ahead Sign Post (Center)
7149R	8897209.39	15522840.01	996.64	CP Fnd. CCP Berntsen 6ft. L. Rod Mon. w/ Cap under Access Cover flush w/ Ground at Black Hawk County GPS Network CP #2006-149_RESET per County Tie Sheet details.
7151	8896913.81	15534673.66	965.13	CP Fnd. CCP Berntsen 6ft. L. Rod Mon. w/ Cap under Access Cover flush w/ Ground at Black Hawk County GPS Network CP #94-151 per County Tie Sheet details.
AZ2	8891922.96	15538741.79	1004.99	CP Fnd. NGS FAIRBANK Azimuth Mark No.2 Monument (PID CI6300) located along North side of E. Gresham Rd. (Gravel) at 30.9ft. North of CL Road; and 104.9ft. East of CL Power Pole (PP) w/ Transformer and O/H Line to South; and 166.0ft. Northeast (NE) of NGS FAIRBANK Azimuth Mark No.3 Monument (PID CI6301) located along South side of E. Gresham Rd.; and 1.1ft. Northeast (NE) of T-Post; and 2.9ft. South of Field Edge; and 2.1ft. North of Top of Backslope (TBKS)