

LETTING DATE
XX-XX-XXXX

BRIDGE REPLACEMENT - PPCB
BRF-014-3(56)--38-63

MARION CO.

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
* A.3 - 4	Design Criteria Worksheets (Temporary)
B Sheets	Typical Cross Sections and Details
B.1 - 2	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Standard Road Plans
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 5	IA 14
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. for all Alignments
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
* J.2 - 3	Staging and Traffic Control
V Sheets	Bridge Situation Plans
* V.1	Bridge Situation Plan
	* Color Plan Sheets



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

MARION COUNTY

BRIDGE REPLACEMENT - PPCB

IA 14 over Brush Creek, 0.2 Miles S. of County Rd G-2

SCALES: As Noted

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

Participants

Invite someone or dial a number

Share invite

In this meeting (13)

- Shuger, Greg
- Beavers, Brandy (Outside your organization)
- Bower, Tony
- Claeys, Mark (Outside your organization)
- Ellis, Jimmy (Outside your organization)
- Kingery, Michael (Outside your organization)
- Mulholland, David (Outside your organization)
- Porter, Robert (Outside your organization)
- Schroder, Steven (Organizer, Outside your organization)
- Stott, Joshua
- Webb, James (Outside your organization)
- Werner, Mark
- Younie, Bob

Jill Garton - DOT

Discussion about cost estimate contingency for roadway items (PSS vs. iPDWeb)???

Virtual Field Exam 5/27/2021

DESIGN ACTIVITIES			
	DUE DATE	EVENT	DATE COMPLETED
D02	5/14/2021	Field Exam	----
D03	6/18/2021	Drainage Submittal	----
B01	9/17/2021	Bridge Submittal	----
D05	10/15/2021	ROW Submittal	----

DESIGN DATA RURAL				
2018	AADT	3530	V.P.D.	
2044	AADT	3870	V.P.D.	
2044	DHV	400	V.P.H.	
	TRUCKS	12	%	
	Total			
	Design ESALs	xx		

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

PRELIMINARY PLANS

Subject to change by final design.

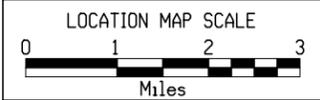
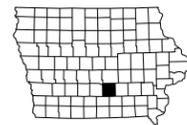
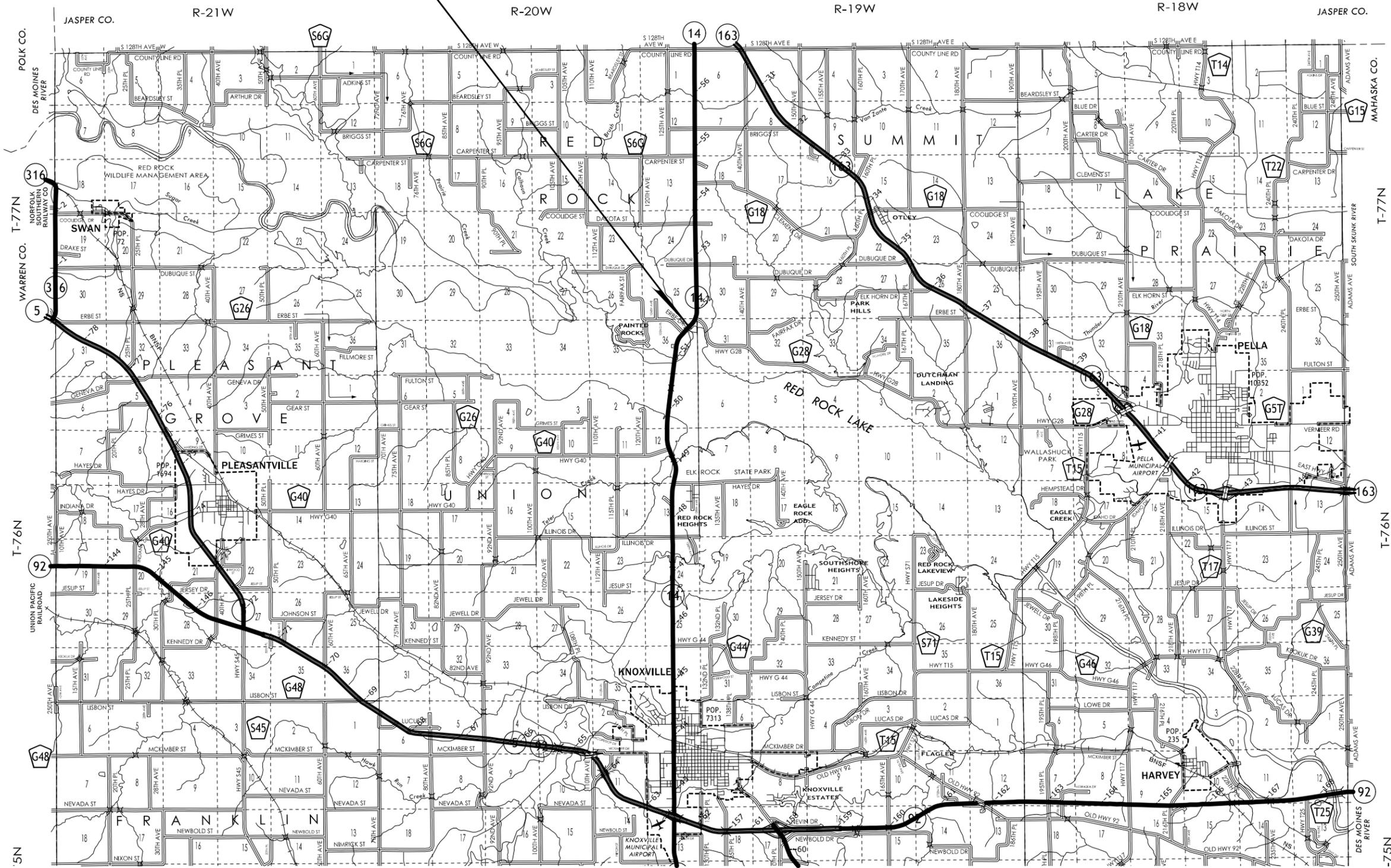
D2 PLAN - Date: May 14, 2021

Discuss with Traffic Bureau

File No. is 32073

Place Holder for File No.

IA 14 BRIDGE REPLACEMENT
FHWA NO. 35210



Roadway	IA 14 (non-NHS)		
PIN Number	19-63-014-030	Submittal Date	5/1/2021
Project Number	BRF-014-3(56)--38-63		Approval Date
District	District 5	Assistant District Engineer	
County	MARION	or	
Route	IA 14	Office Director	
Location	Brush Creek, 0.2 Mi South of County Road G-28		
Work Type	Bridge Replacement - PPCB		
Segment Manager			
Designer	Stanley Consultants, Inc.		

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%	N/A
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	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3% maximum	N/A
	Crown break at centerline	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	N/A
	Design speed ≥ 60 mph	4-inch sloped	4-inch sloped
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	6:1 - 5:1 (discuss at D2)
	Beyond standard ditch depth and design clear zone	3.5:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1
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
Transverse Slopes	w/ drainage structures	8:1	6:1
	w/o drainage structures	10:1	6:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	5 x 10
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14
	Over railroad	23.3	23.3
	Sign trusses and pedestrian bridges	17.5	17
Structural Capacity	Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	----
Level of Service	B	B	----

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

2.5:1

- 2.5:1

44' width.

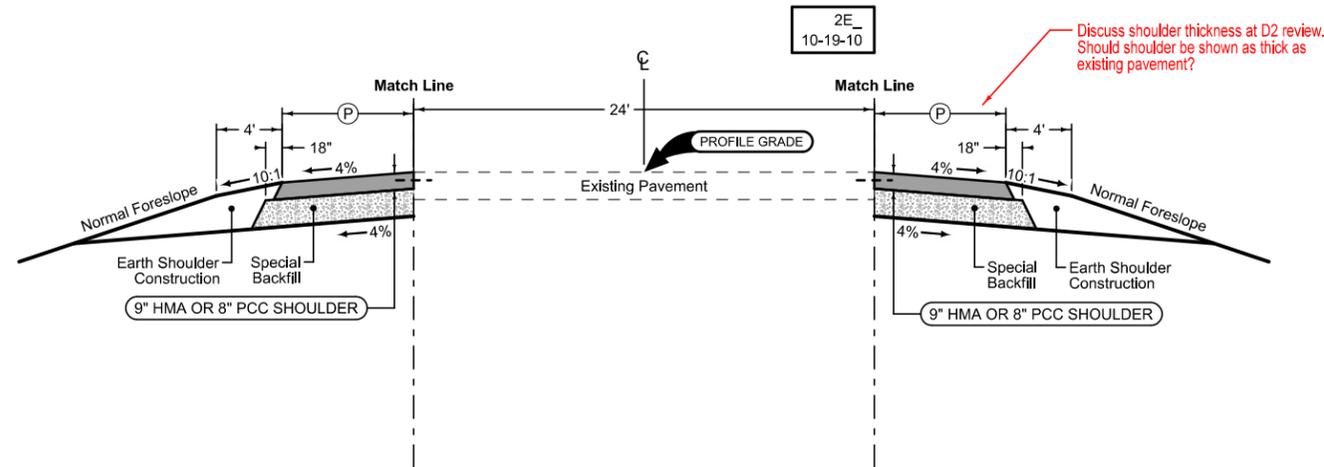
Design year ADT =		3,870 (yr. 2044)				
Design Manual Section 1C-1 Last Updated: 04-29-19		Effective Shoulder Width and Type for Two-Lane Highways				
Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	10' Paved
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				
*Requires safety edge-Refer to Section 3C-6						
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas						
Refer to Section 3C-2 for curb offsets in urban areas						

Roadway Design Speed (mph) =		60													
Design Manual Section 1C-1 Last Updated: 04-29-19		Design Criteria for High Speed Roadways													
Design Element		Preferred Criteria						Acceptable Criteria						Project Values	
		Design Speed, mph						Design Speed, mph							
		50	55	60	65	70	75	50	55	60	65	70	75		
Stopping sight distance (ft) (Refer to Section 6D-1)		425	495	570	645	730	820	425	495	570	645	730	820	570	
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e _{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	N/A
	e _{max} = 8%		--	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)		150	165	180	195	210	225	150	165	180	195	210	225	N/A	
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves	84	114	151	193	247	312	84	114	151	193	247	312	N/A	
	sag vertical curves	96	115	136	157	181	206	96	115	136	157	181	206	N/A	
	roadways without fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	N/A	
	roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	N/A	
Minimum gradient (%) (Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						0.08%	
Maximum gradient (%) (Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	--	--	--	N/A	
	Rural roadways	4		3				5	5	4	4	4	4	0.08%	
	Interstates	4		3				5	5	4	4	4	4	N/A	
Clear zone		See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						30'	

Paved Shoulder at Guardrail

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

2_P_Guard_04-21-20		
STATION TO STATION	(P)	Feet
1178+46.35	1180+75.50	13.5-11.6
1185+82.51	1186+86.51	11.6-15.5



Paved Shoulder at Guardrail

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

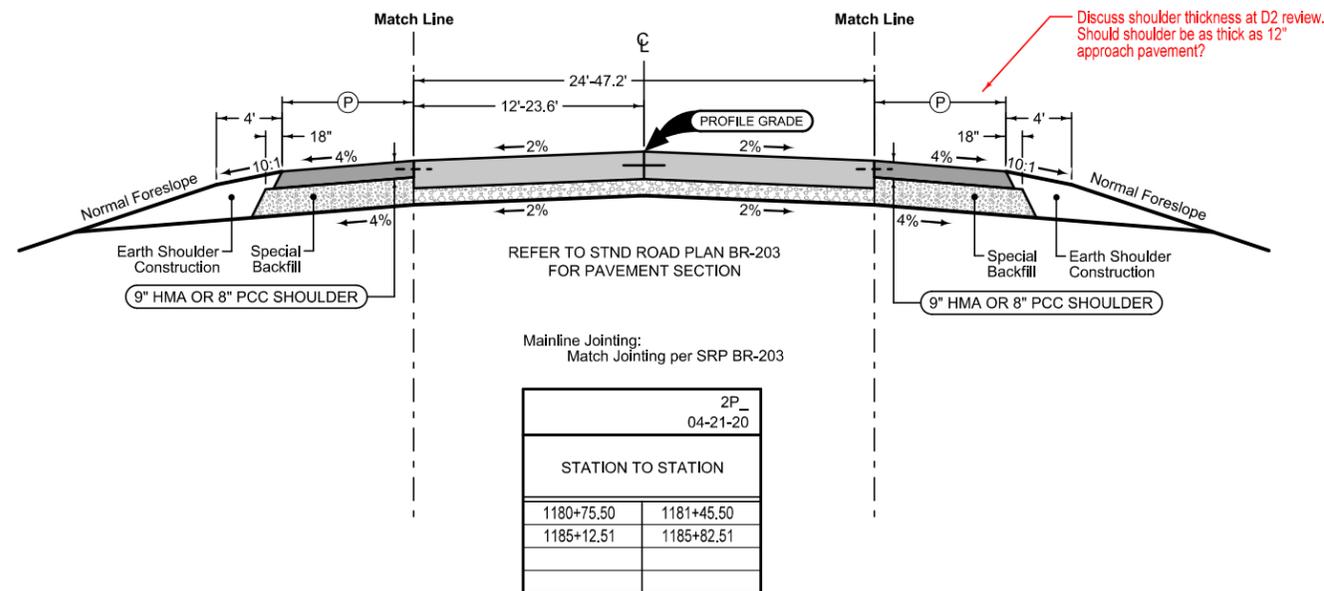
2_P_Guard_04-21-20		
STATION TO STATION	(P)	Feet
1178+46.35	1180+75.50	13.5-11.6
1185+82.51	1186+98.79	11.6-15.5

EXISTING IA 14

Paved Shoulder at Guardrail

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

2_P_Guard_04-21-20		
STATION TO STATION	(P)	Feet
1180+75.50	1180+85.50	11.6
1185+32.50	1185+82.50	11.6



Paved Shoulder at Guardrail

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

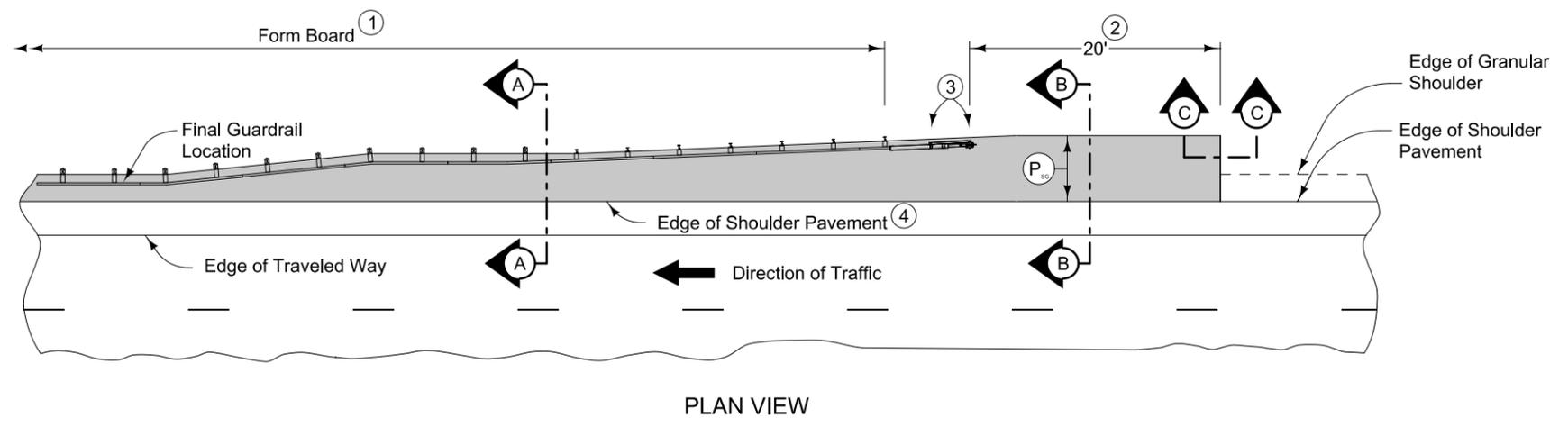
2_P_Guard_04-21-20		
STATION TO STATION	(P)	Feet
1180+75.50	1180+85.50	11.6
1185+32.50	1185+82.50	11.6

For Paved Shldr, PCC For Bridge End Drain, Refer to DR-402
 - Sta. 1180+85.50 to Sta. 1181+25.50

For Paved Shldr, PCC For Bridge End Drain, Refer to DR-402
 - Sta. 1180+85.50 to Sta. 1181+25.50

See Sheet B.2 for "Paved Shoulder at Guardrail" Details

IA 14



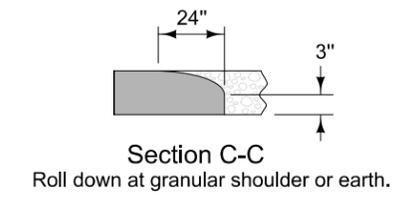
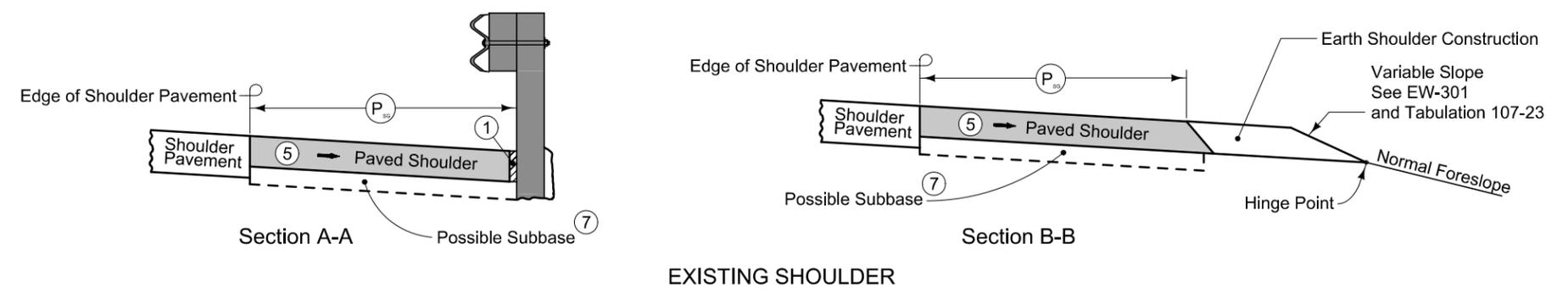
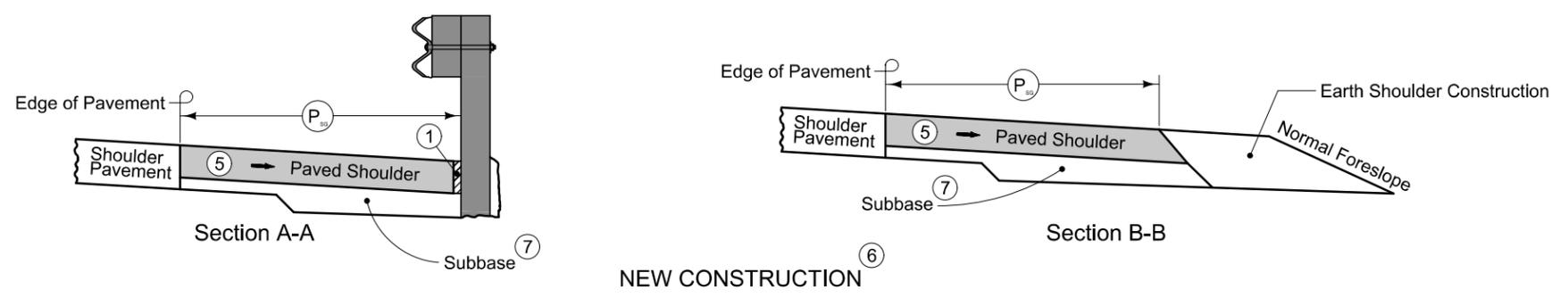
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

- ① PCC option only: 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.
- 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 'KT-1 joint for PCC shoulder. 'B' joint for HMA shoulder.
- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.



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

SURVEY SYMBOLS

- BCL Bridge Centerline
- BD Bridge Deck
- BL Topo Breakline
- BRG Bridge
- C Centerline BL of Road (ML or SR)
- CON Concrete or A/C Slab
- CU Back of Curb
- D Centerline Draw or Stream (Down)
- ← DU Centerline Draw or Stream (Up)
- EP Edge of Paved Roads (ML or SR)
- EW Edge of Water
- |--- GDC Guard Rail Cable
- |--- GDL Guard Rail Steel
- GU Gutter In Front of Curb
- LIN Miscellaneous Line
- △△△△△ RIP Rip-Rap
- SH Paved Shoulder
- TOP Top of Bridge Pier
- ▲ BM Bench Mark
- ▲ PCP Photo Control Point
- CP Control Point
- ▲ PI Tangent Point
- PPA MidAmerican Electric
- TPD Telephone Pedestal
- WC Wild Card (Misc. Field Shot)
- SBR Size of Bridge
- SIGN SI Sign
- DTM Photogrammetry Elv Control Check
- T1 --- TL1D Windstream - Quality D
- W --- WL1D Iowa Regional Utility Association - Quality D
- PLG Location of General Photo
- BLS Bridge Low Steel

SURVEYED UTILITY OWNER SYMBOLS

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

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

- T1 --- TL1D Windstream - Quality D
- W --- WL1D Iowa Regional Utility Association - Quality D
- PPA MidAmerican Electric

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	Design Color No.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

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

RIGHT-OF-WAY LEGEND

- ▲ Proposed Right-of-Way
- △ Existing Right of Way
- ▲ Existing and Proposed Right-of-Way
- ▲ Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- ↔ Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

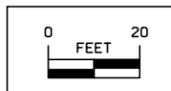
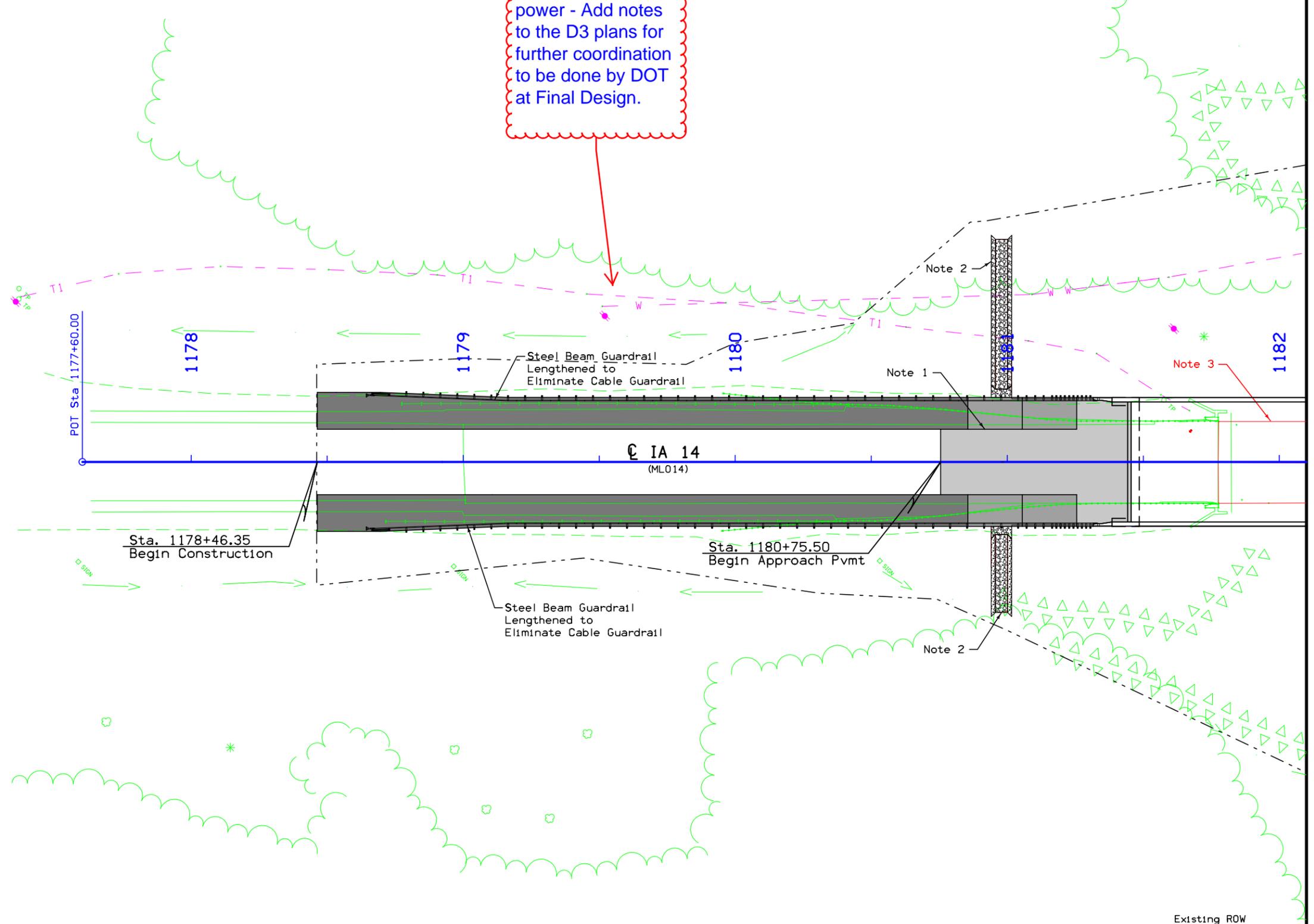
(COVERS SHEET SERIES D)



Rock TWP.
T-77N R-20W
SEC. 36

Temp facilities and possible permanent relocations for telephone and OH power - Add notes to the D3 plans for further coordination to be done by DOT at Final Design.

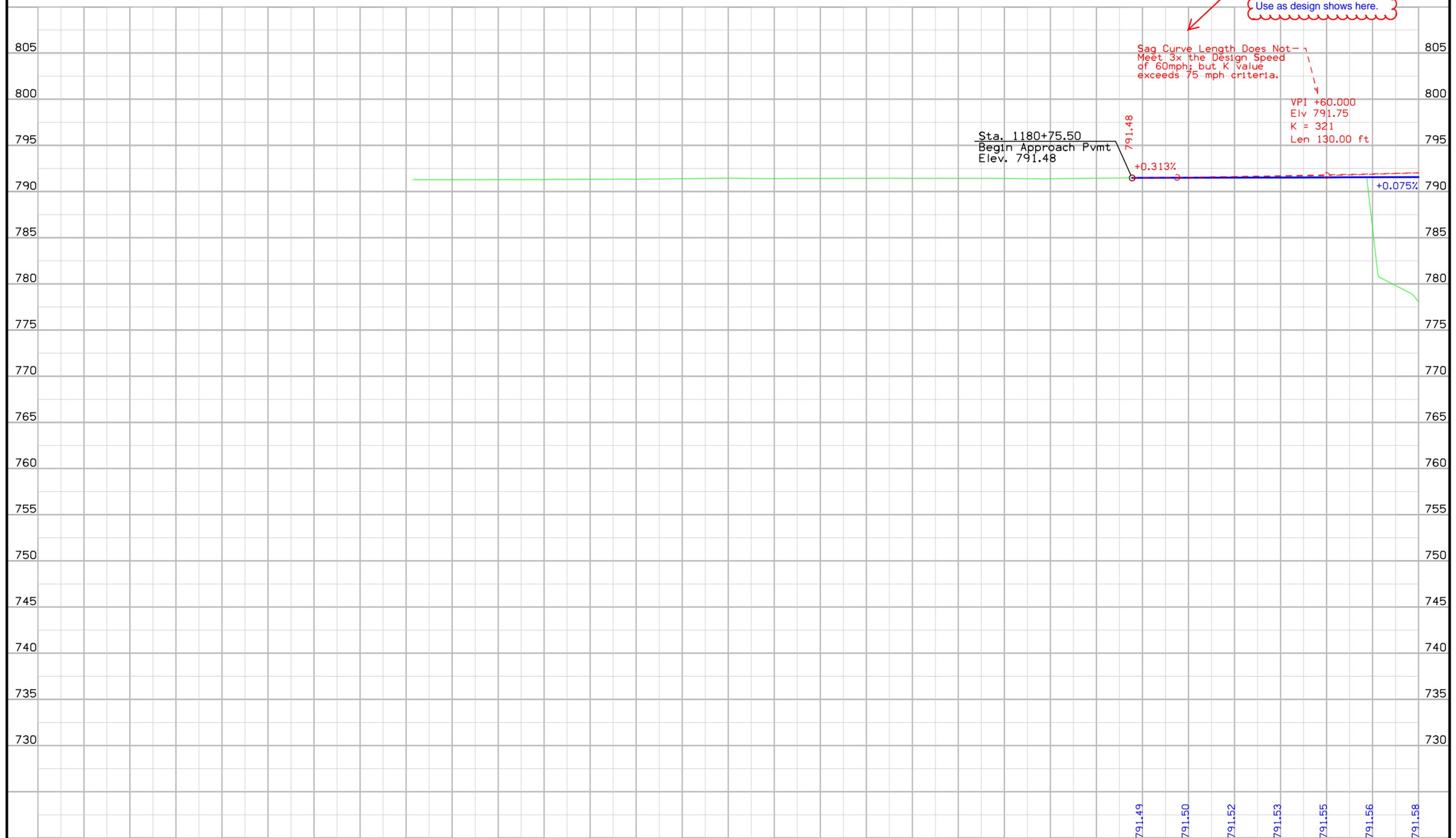
- Notes:
1. BR-203, 70 ft Standard Bridge Approach
 2. DR-402, Rock Flume/Bridge End Drain
 3. Ask DOT Survey to update level/color.



For Profile Details Refer to Sheet No. D.3

IA 14

For Plan Details
Refer to Sheet No. D.2



Proceed to use red profile.
The K value is acceptable.
Use as design shows here.

Sag Curve Length Does Not
Meet 3x the Design Speed
of 60mph; but K value
exceeds 75 mph criteria.

Sta. 1180+75.50
Begin Approach Pgmt
Elev. 791.48

VPI +60.000
Elev 791.75
K = 321
Len 130.00 ft

791.48

+0.313%

+0.075%

791.49

791.50

791.52

791.53

791.55

791.56

791.58

Methods says use bid item and notes as stated on page 5 of 6 in Design Manual Section 8C-3 (Guardrail, Special Anchor Section, EACH).

talk to Methods about tying in old cable g'rail to new steel beam g'rail for any details they may have. we'd like to salvage old cable rail.

- Notes:
1. BR-203, 70 ft Standard Bridge Approach
 2. Cable Guardrail to BA-206 Steel Beam Guardrail Connection. Discuss limits of Cable Guardrail Reconstruction. See Design Manual 8C-3, page 5 of 6.
 3. Alt. Profile - Low Point, Sta. 1186+20. Add PCC Panels with Curb to Sta. 1186+20. Add two DR-402, Rock Flume/Bridge End Drain.
 4. Extend Through Lanes to Sta. 1186+55.

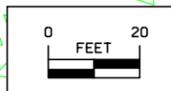
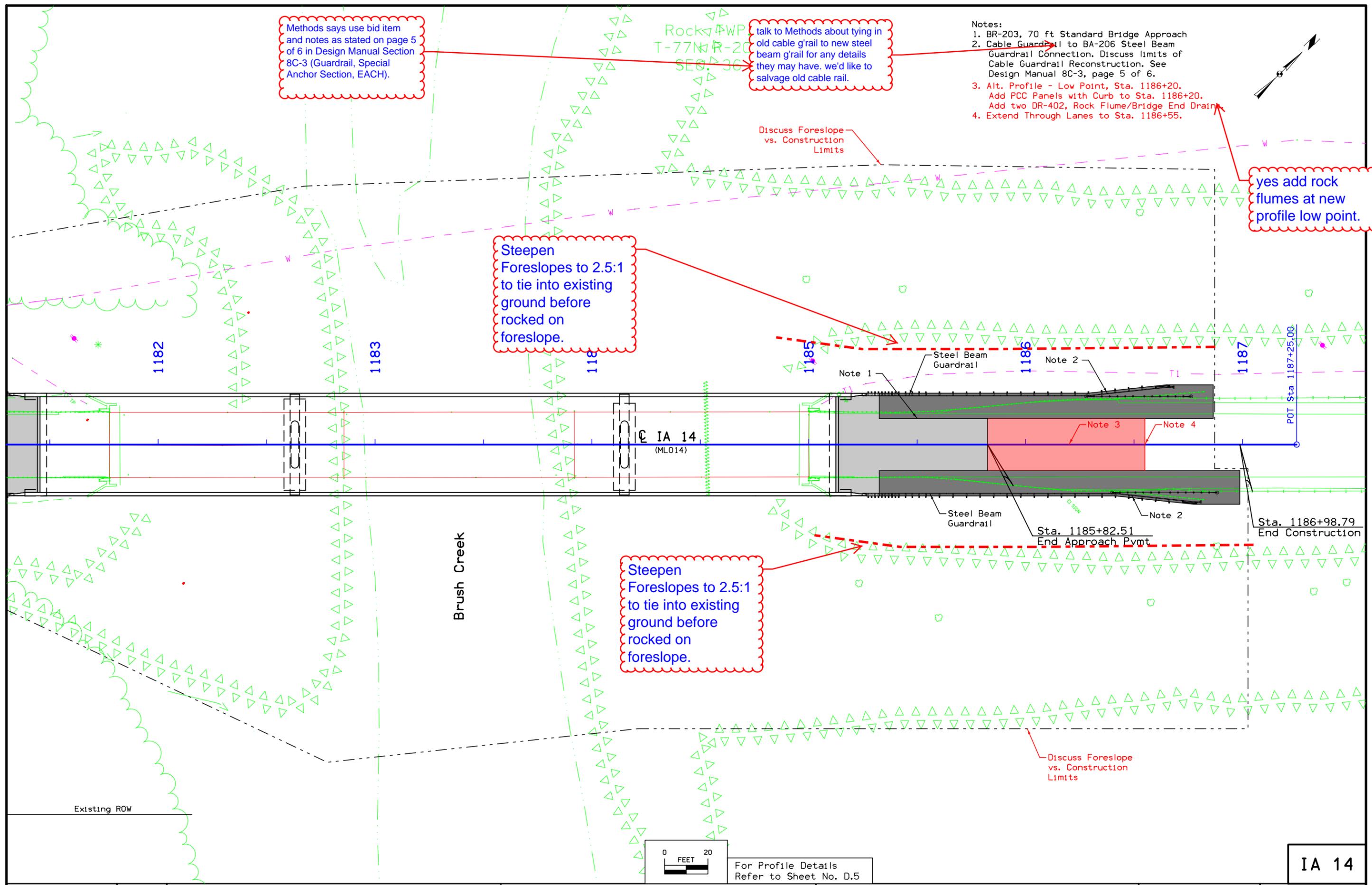
yes add rock flumes at new profile low point.

Steepen Foreslopes to 2.5:1 to tie into existing ground before rocked on foreslope.

Steepen Foreslopes to 2.5:1 to tie into existing ground before rocked on foreslope.

Discuss Foreslope vs. Construction Limits

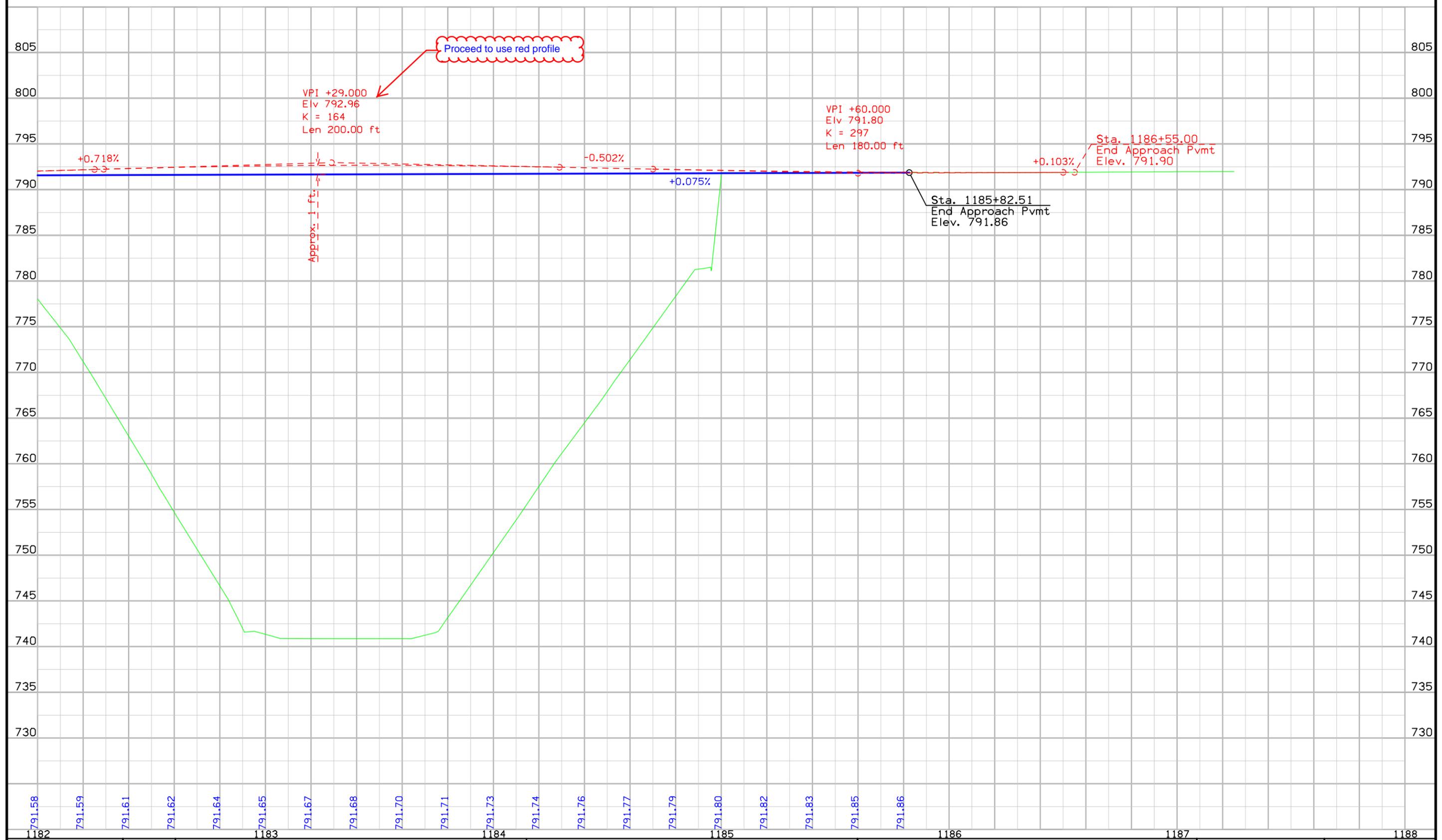
Discuss Foreslope vs. Construction Limits



For Profile Details Refer to Sheet No. D.5

IA 14

For Plan Details
Refer to Sheet No. D.4



Proceed to use red profile

VPI +29.000
Elv 792.96
K = 164
Len 200.00 ft

VPI +60.000
Elv 791.80
K = 297
Len 180.00 ft

Sta. 1186+55.00
End Approach Pvmnt
Elev. 791.90

Sta. 1185+82.51
End Approach Pvmnt
Elev. 791.86

791.58 791.59 791.61 791.62 791.64 791.65 791.67 791.68 791.70 791.71 791.73 791.74 791.76 791.77 791.79 791.80 791.82 791.83 791.85 791.86 1182 1183 1184 1185 1186 1187 1188

Survey Information

Marion County
BRF-014-3(56)--38-63
Location: Brush Creek 0.2 mi S of Co Rd G28
Type of Work: Bridge-Unspecified
Project Directory: 6301403019
PIN: 19-63-014-030
Sap-0619.3

Party Personnel

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

Date(s) of Survey

Begin Date 09/15/2020
End Date 09/24/2020

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction on IA 14 0.2 mile south of county road G28. This is a partial terrain and underground structure field survey with aerial image and lidar acquired terrain added in the Photogrammetry section of the Design Office.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. 63014001, 63014002, and D 5 by doing concurrent 5 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

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

Jasper County mark designated R06 has a published Elev. 905.04
Survey Elev. = 905.087

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 9 (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting concurrent 5 hour static observations on Project Pts. 63014001, 63014002, and R06.

Alignment Information

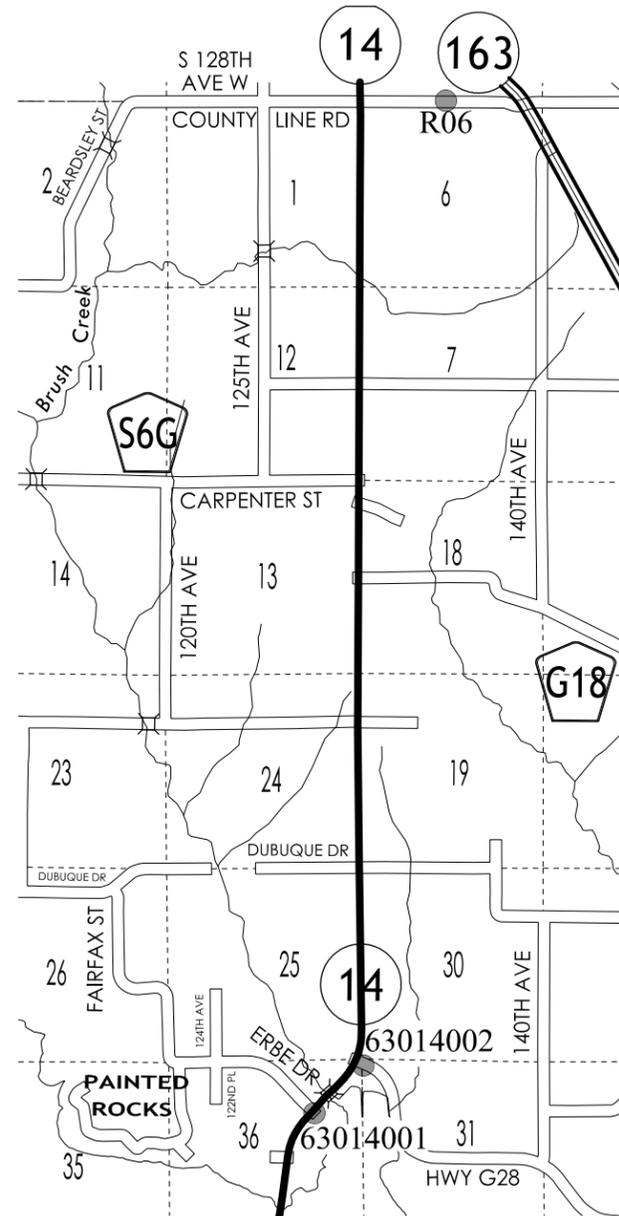
The horizontal alignment for this survey is a retrace of Paving Plans No. P-114(1). Survey stationing was equated to the plan TS at Sta. 1187+31.46 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

TS Sta. 1187+31.46 Paving Plans Project No. P-114(1)
Survey TS Sta. 1187+31.46

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 9

Coordinate listing from next sheet will be used with 1aRTN for monument
 recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 9

Point Name	North Coordinate	East Coordinate	Elevation	Feature Code- Monument Description
63014001	7630985.691	19420852.566	793.602	CP 63014001 FROM THE INTERSECTION OF STATE HWY 163 AND STATE HWY 14 AT MONROE GO SOUTH ALONG HWY 14 5.5 MILES TO INTERSECTION WITH ERBR DR ON EAST SIDE OF THE INTERSECTION A SET FENO MONUMENT 0.3 DEEP 12 FEET SOUTHWEST OF A ARROW SIGN 71 FEET SOUTHEAST OF HWY 14 CENTERLINE 78 FEET SOUTH OF A NO PASSING ZONE SIGN
63014002	7632284.363	19422192.452	792.956	CP 63014002 FROM THE INTERSECTION OF STATE HWY 163 AND STATE HWY 14 AT MONROE GO SOUTH ALONG HWY 14 5.2 MILES TO INTERSECTION WITH CO RD G 28 GO 0.04 MI EAST ALONG G 28 ON SOUTH SIDE OF RD A SET FENO MONUMENT 0.3 DEEP 57 FEET SOUTHEAST OF CO RD G 28 SIGN 46 FEET SOUTH OF G 28 CENTERLINE 78 FEET WEST OF DEAD END ROAD CENTERLINE
R06	7658613.174	19424448.269	905.087	CP R06 FROM THE INTERSECTION OF STATE HWY 163 AND STATE HWY 14 AT MONROE GO SOUTH ALONG HWY 14 0.2 MI GO EAST 0.4 MI ON COUNTY LINE ROAD/S 128TH AVE W FOUND JASPER COUNTY GPS CAST IN-PLACE CONCRETE MONUMENT WITH ALUMINUM DISK 30 FEET NORTH OF S 128TH AVE W CENTERLINE 15 FEET EAST OF S 128 TH AVE W SIGN 61 FEET WEST OF A P POLE

ALIGNMENT COORDINATES

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
1	ML014	1177+60.00	7631086.57	19420850.59															
2	ML014	1187+25.00	7631777.23	19421524.55															

108-23A 08-01-08
TRAFFIC CONTROL PLAN
<p>IA 14 -Both lanes of IA 14 will be closed to traffic for the duration of the project. Offsite detour shall be as shown on J sheets.</p> <p>Erbe Drive -Maintain traffic for the duration of the project.</p> <p>County Rd G28 -Maintain traffic for the duration of the project.</p> <p>Private Entrances -Maintain access to IA 14 for the duration of the project.</p>

DOT or Contractor
to set up/maintain/
remove offsite
detour signage??

108-26A 08-01-08
STAGING NOTES
<p>Stage 1: -Close IA 14 to traffic. Install offsite detour signage. -Remove existing bridge and construct new bridge over Brush Creek. -Install new approach pavement and shoulders. Construct new guardrail.</p> <p>Stage 2: -Install permanent erosion control measures and seeding/fertilizing. -Open IA 14 to traffic.</p>

DOT would like to have
Contractor provide all signs/
PDMS's etc.

MARION X23 TRAFFIC CONTROL

IA 14 over Brush Creek, 0.2 Mi South of County Road G-28, Bridge.

Work includes bridge replacement, replacing bridge approaches, and replacing guardrail.

Traffic Controls

The bridge will be closed to traffic during construction.

Intersections or drives within 1,000 feet of the bridge:

- Erbe Drive, 475 ft south of bridge, west side (to remain open)
- Private Drive, 475 ft south of bridge, east side (to remain open)
- County Rd G28, 1000 ft north of bridge, east side (to remain open)

Traffic control will involve a signed detour route in conjunction with Standard Road Plan TC-252. Use of PDMS's is also assumed. The suggested detour route for SB IA 14 is IA 14 south to IA 163 at Exit 29, then east on IA 163 to Exit 42, then south on County Rd T17 to IA 92, then west on IA 92 to Exit 62. See map on next page. The suggested detour route for NB IA 14 is the same route as previously stated but in reverse order. Part of this route is currently signed as an emergency detour.

B. Detour Analysis

The off-site detour will utilize primary and Marion County routes. The proposed detour route has been evaluated by the Bridges and Structures Rating Engineer and can carry all primary legal loads. The following Marion County structures have been added to the next cycle of bridge inspections:

FHWA #	Structure Type
239611	Steel Girder Bridge
240476	PPCB Bridge
240462	RCB Culvert
240471	Concrete Slab Bridge
240491	RCB Culvert
240410	RCB Culvert

Existing overhead utility lines on the northwest side of bridge will need to be temporarily relocated during construction. Please see the Utilities attachment for a listing of utilities located on the project.

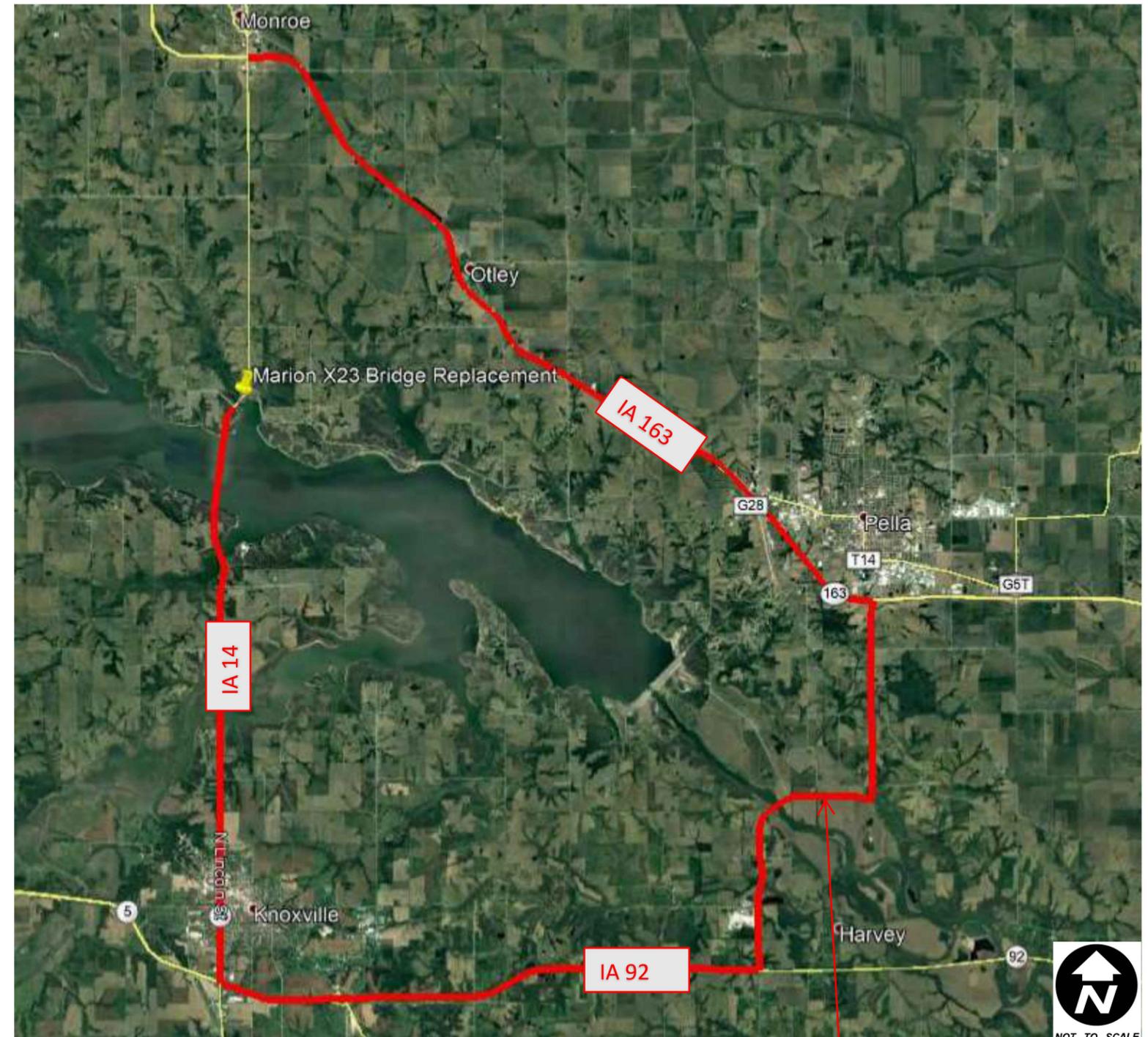
There are two flexible conduits suspended from the northwest curb overhang for the length of the bridge. It is recommended that conduits be included on the proposed bridge for these utilities.

Right of Way does not appear to be required for this project.

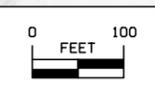
It is anticipated that a Section 404 Permit will be required. It is expected that the work will be covered by Nationwide Permit 14 or Regional Permit 7.

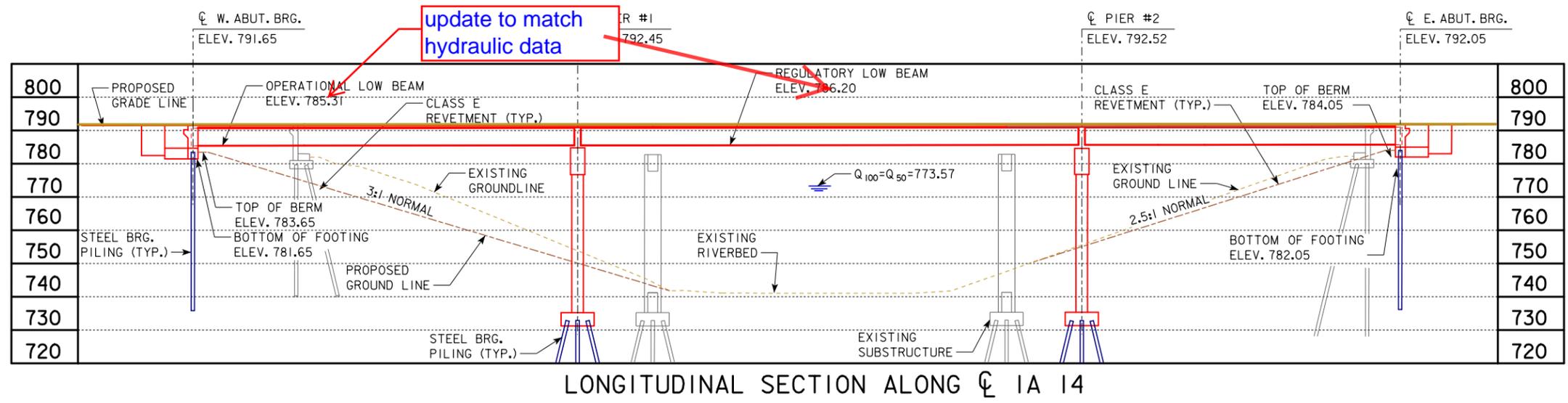
An initial NEPA Section Review for this project identified two resources within a half-mile of the project area. It is recommended to avoid or minimize impacts to these resources based on a desktop review. NEPA review and clearance will be based on further developments in design and the results of additional Location and Environment Bureau desktop and field reviews.

There is an existing conduit



County Route T17. Possible concerns that County may not want to detour state traffic to here. DOT will need to coordinate further to determine if this route is preferred or if another route is going to be used.





VPI STA. = 1183+29
 VPI ELEV. = 792.96
 L = 200'
 +0.718% -0.502%

VPI STA. = 1181+60 VPI ELEV. = 791.75
 VPI STA. = 1185+60 VPI ELEV. = 791.80

PROPOSED PROFILE GRADE IA 14

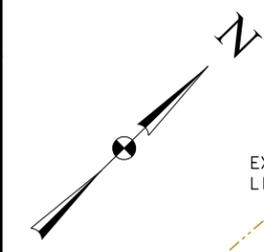
HYDRAULIC DATA
 DRAINAGE AREA = 15.1 SQ. MI.
 STREAM SLOPE = 2.4 FT./MI.

Q₅₀ = 4,222 CFS
 STAGE = 773.57
 REGULATORY LOW BEAM = 785.36
 AVG. BRIDGE VELOCITY = 0.7 FPS

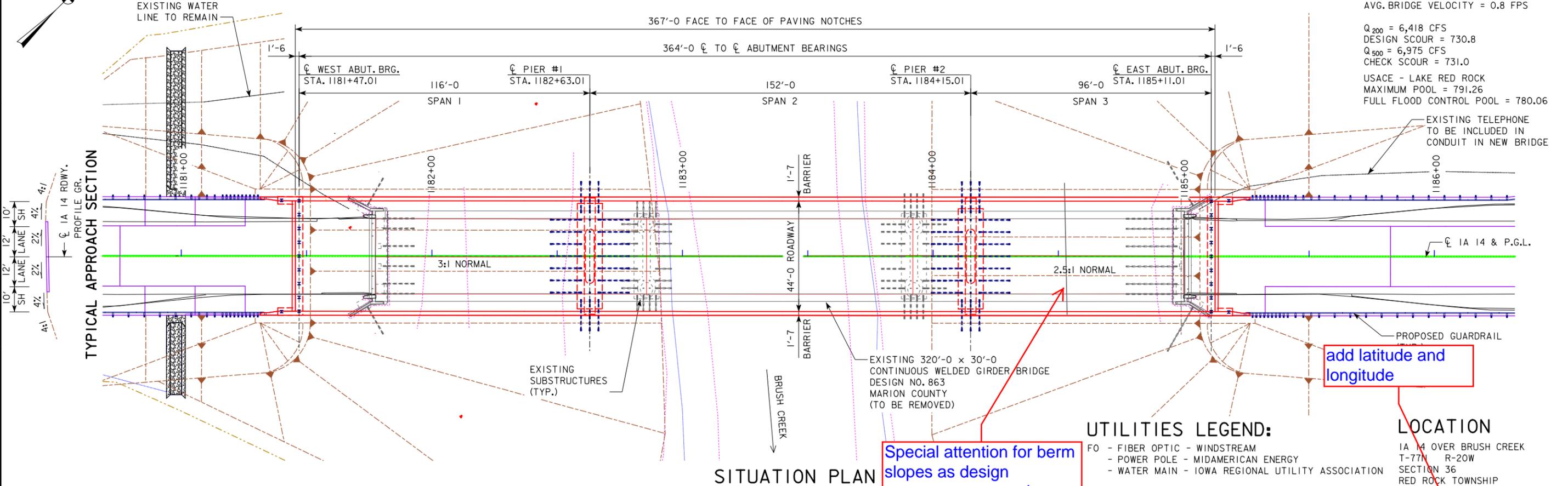
Q₁₀₀ = 4,974 CFS
 STAGE = 773.57
 OPERATIONAL LOW BEAM = 785.09
 BACKWATER = 0.01 FT.
 AVG. BRIDGE VELOCITY = 0.8 FPS

Q₂₀₀ = 6,418 CFS
 DESIGN SCOUR = 730.8
 Q₅₀₀ = 6,975 CFS
 CHECK SCOUR = 731.0

USACE - LAKE RED ROCK
 MAXIMUM POOL = 791.26
 FULL FLOOD CONTROL POOL = 780.06



LONGITUDINAL SECTION ALONG CL IA 14



add latitude and longitude

Special attention for berm slopes as design progresses, geotech recommendations are received

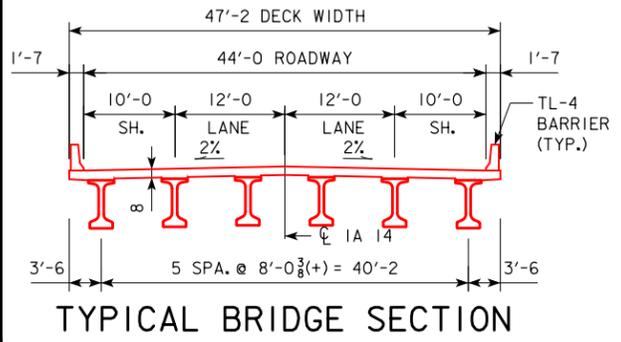
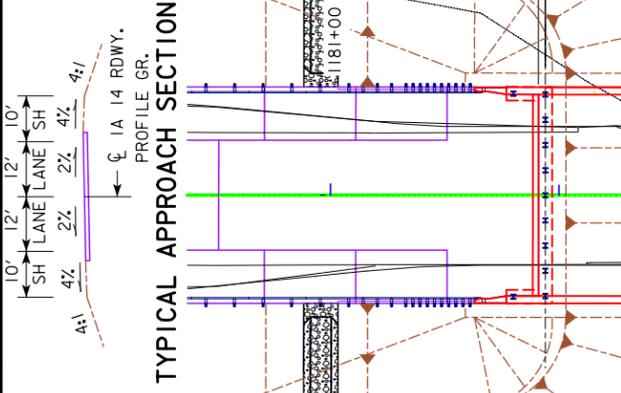
UTILITIES LEGEND:
 FO - FIBER OPTIC - WINDSTREAM
 - POWER POLE - MIDAMERICAN ENERGY
 - WATER MAIN - IOWA REGIONAL UTILITY ASSOCIATION

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION
 IA 14 OVER BRUSH CREEK
 T-77N R-20W
 SECTION 36
 RED ROCK TOWNSHIP
 MARION COUNTY
 FHWA NO. 035210
 BRIDGE MNT. NO. 6351.5S014

NOTES:
 ALL UNITS ARE IN FEET UNLESS NOTED OTHERWISE.
 TL-4 BRIDGE RAILING PROPOSED
 TOP OF BRIDGE DECK AT CL IA 14 IS 0.03' BELOW THE PROFILE GRADE TO ACCOUNT FOR PARABOLIC CROWN.
 PIER TYPE - TEE PIERS
 BEAM TYPE - BTE BEAMS - PROVIDE VENT HOLES IN ALL BEAMS.
 FOUNDATION TYPE TO BE CONFIRMED DURING FINAL DESIGN.
 BERM SLOPES TO BE CONFIRMED DURING FINAL DESIGN.
 POTENTIAL FOR ABC TO BE INVESTIGATED AS DESIGN PROGRESSES.
 AT WEST ABUTMENT, SPECIAL ATTENTION NEEDED AS DESIGN PROGRESSES TO THE SUBSURFACE GEOTECHNICAL INVESTIGATION AND DESIGN MEASURES THAT WILL MITIGATE THE EFFECT OF UNSTABLE/SLOPING BEDROCK AND THE OVERLYING SOILS.
 AN IOWA DNR SOVEREIGN LANDS PERMIT WILL BE REQUIRED.

32073



TRAFFIC ESTIMATE

2018 AADT	3,530	V.P.D.
2044 AADT	3,870	V.P.D.
202_ DHV		V.P.H.
TRUCKS	12	%
TOTAL DESIGN ESALS		

