BRIDGE REPLACEMENT-PPCB
BRFN-028-2(45)--39-77

LETTING DATE
12-21-2021

POLK Co.

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

POLK COUNTY

BRIDGE REPLACEMENT-PPCB

Raccoon River 3.7 mi N of IA 5 (SB)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

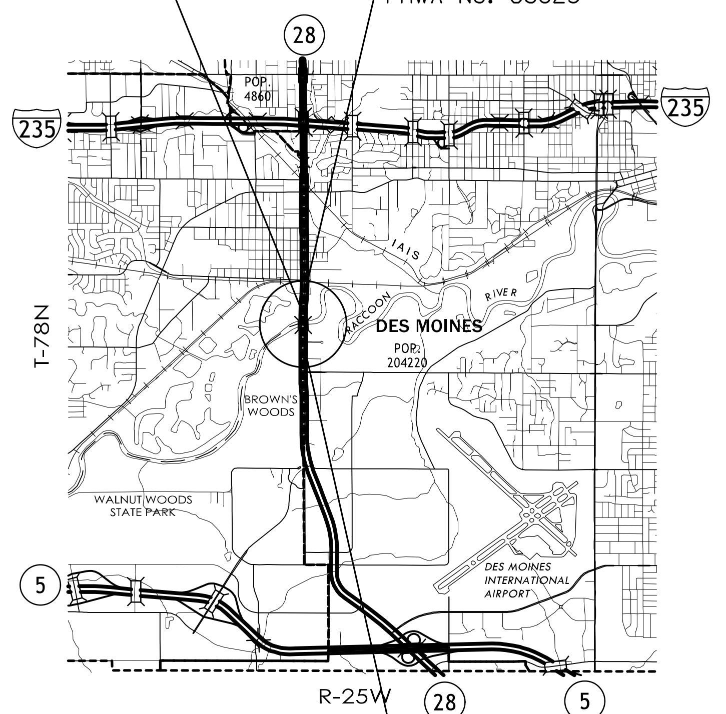
IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

REVISIONS

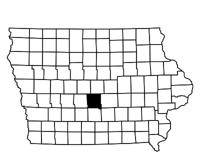
	TOTAL
	30
PROJECT IDENTIFICATION NUMBER	
17-77-028-010	
PROJECT NUMBER	
BRFN-028-2(45)--39-77	
R.O.W. PROJECT NUMBER	
NHSN-028-2(46)--2R-77	

Begin Project
Sta. 43+32.60

Bridge
Maintenance No. 7716.1L028
FHWA No. 03825



End Project
Sta. 60+05.75



LOCATION MAP SCALE
0 1 2 3
Miles

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.1	Location Map Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 5	Typical Cross Sections and Details
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	IA 28
G Sheets	**Survey Sheets**
G.1	Reference Ties and Bench Marks
G.2	Control Point Vicinity Map
G.3	Horizontal Control Tab. & Super for all Alignments
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.1	511 Travel Restrictions
J.1	Coordinated Operations
J.1	Staging Notes
* J.2	Traffic Control and Staging Sheet Legend
* J.3 - 5	Staging and Traffic Control Sheets
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
* U.1 - 7	500 Series, Modified Standards and Detail Sheets
V Sheets	**Bridge and Culvert Situation Plans**
* V.1	Bridge and Culvert Situation Plans
W Sheets	**Mainline Cross Sections**
W.1 - 5	Mainline Cross Sections
	* Color Plan Sheets

D5 PLAN – Date: 03–20–2020

DESIGN DATA RURAL

2022	AADT	27,100	V.P.D.
2042	AADT	34,000	V.P.D.
20--	DHV	--	V.P.H.
TRUCKS		3	%
Total Design ESALs		--	

INDEX OF SEALS

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

PRELIMINARY PLANS

Subject to change by final design.

D3 PLAN – Date: 2–04–2020

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER A.1

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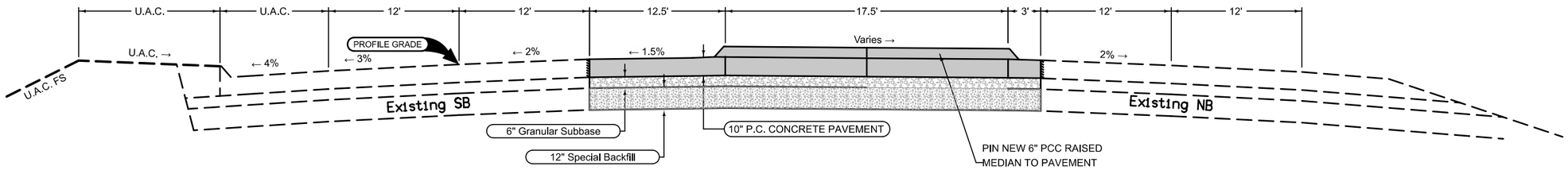


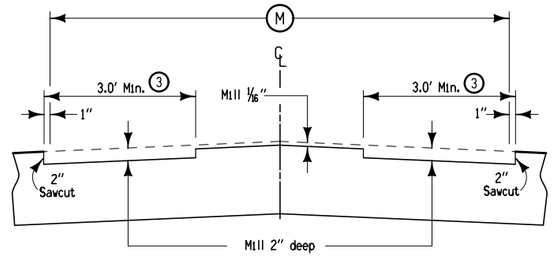
Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

BEGIN STATION	END STATION	Curb Type See PV-102
43+32.60	60+05.75	6" Sloped

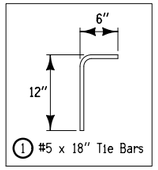
See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

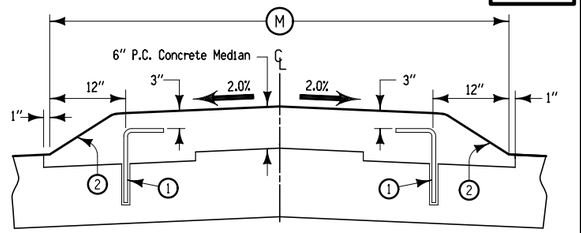
IA 28

6150
06-15-93



Details of Milling





Details of Median Placement

Notes:
This section may be appropriately modified in areas specifically designated by the Engineer.
Use 'C' joints in the doweled median and match the location of all transverse and longitudinal joints to the joints in the existing pavement.
Place tie bars at 24" C-C longitudinal spacing between joints in existing pavement. Drill ¾" holes for tie bars and epoxy to new pavement. See Tabulation 112-5 for additional details. Epoxy material shall be as specified in Materials IM491.11, appendix C.

(2) 6" Sloped Curb
(3) The contractor has the option to mill 2" across the total width of 'M'.

DOWELED MEDIAN WITH SLOPED CURB

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER B.2

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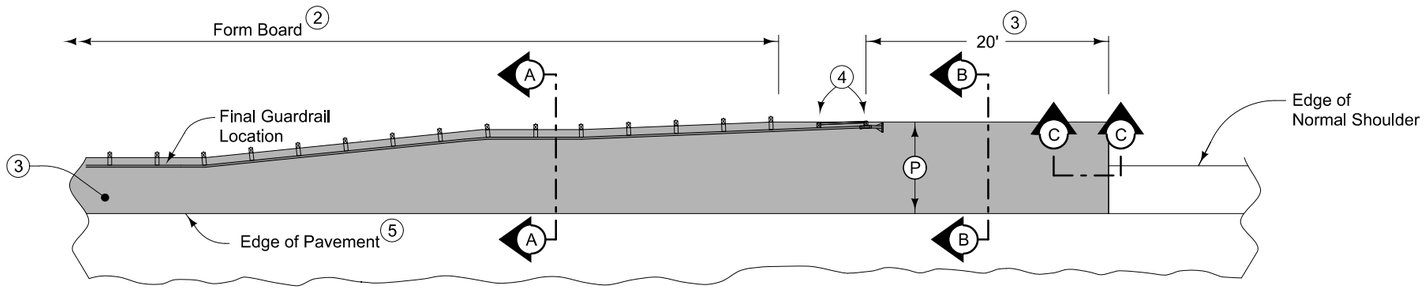
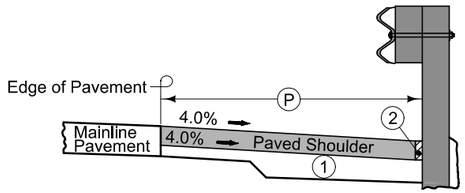
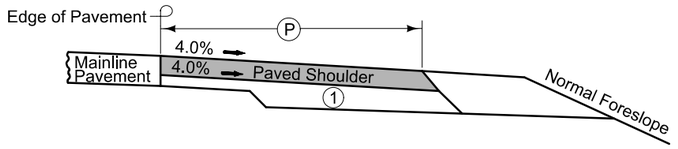


PLAN VIEW

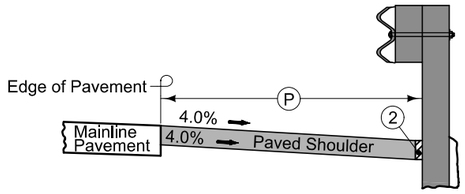


Section A-A

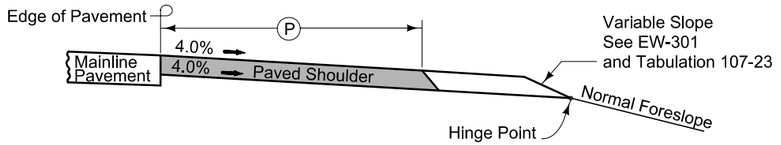


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

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.

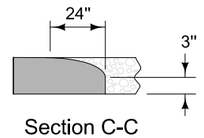
(1) For subgrade treatment, refer to other details in the plan.

(2) 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. Refer to note 4 for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.

(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

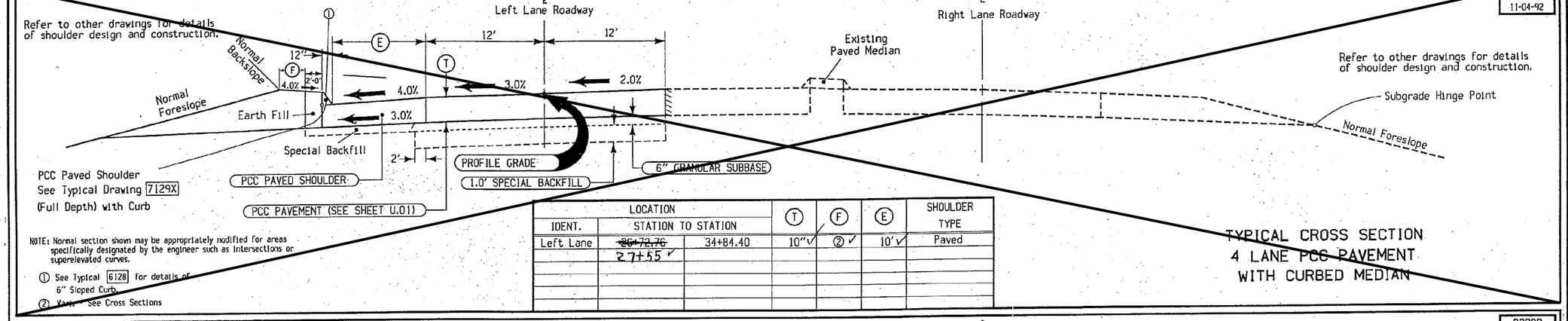
(5) 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.



Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

3208A
11-04-92



LOCATION			Ⓣ	Ⓕ	Ⓔ	SHOULDER TYPE
IDENT.	STATION TO STATION					
Left Lane	~~26+72.76~~ 27+55 ✓	34+84.40	10"✓	②✓	10'✓	Paved

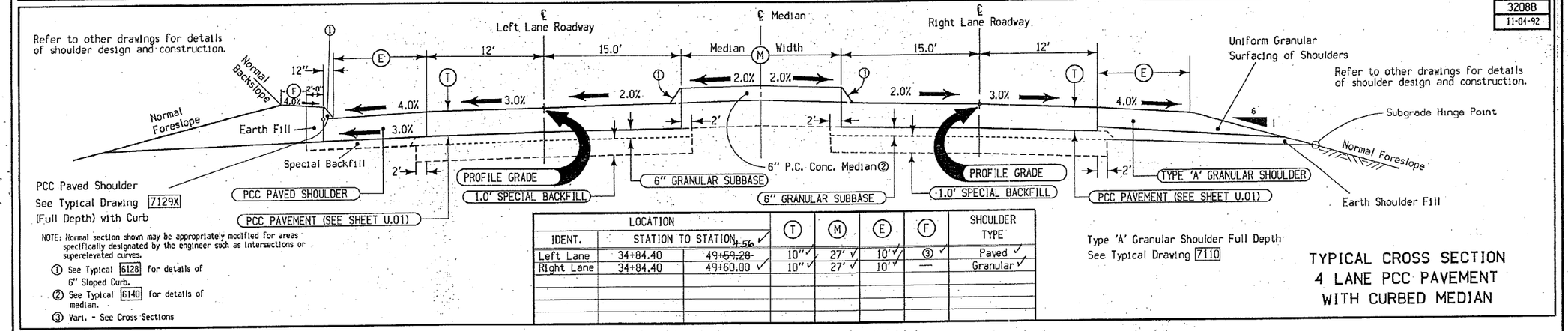
NOTE: Normal section shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

① See Typical 6128 for details of 6" Sloped Curb.

② Vari. - See Cross Sections

TYPICAL CROSS SECTION
4 LANE PCC PAVEMENT
WITH CURBED MEDIAN

3208B
11-04-92



LOCATION			Ⓣ	Ⓜ	Ⓔ	Ⓕ	SHOULDER TYPE
IDENT.	STATION TO STATION						
Left Lane	34+84.40	~~49+59.28~~ 49+56 ✓	10"✓	27'✓	10'✓	③✓	Paved ✓
Right Lane	34+84.40	49+60.00 ✓	10"✓	27'✓	10'✓	—	Granular ✓

NOTE: Normal section shown may be appropriately modified for areas specifically designated by the engineer such as intersections or superelevated curves.

① See Typical 6128 for details of 6" Sloped Curb.

② See Typical 6140 for details of median.

③ Vari. - See Cross Sections

Type 'A' Granular Shoulder Full Depth
See Typical Drawing 7110

TYPICAL CROSS SECTION
4 LANE PCC PAVEMENT
WITH CURBED MEDIAN

For Information Only

TYPICAL CROSS SECTIONS

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	POLK COUNTY	PROJECT NUMBER NHS-28-2(9)--19-77	SHEET NUMBER B.01

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER B.4

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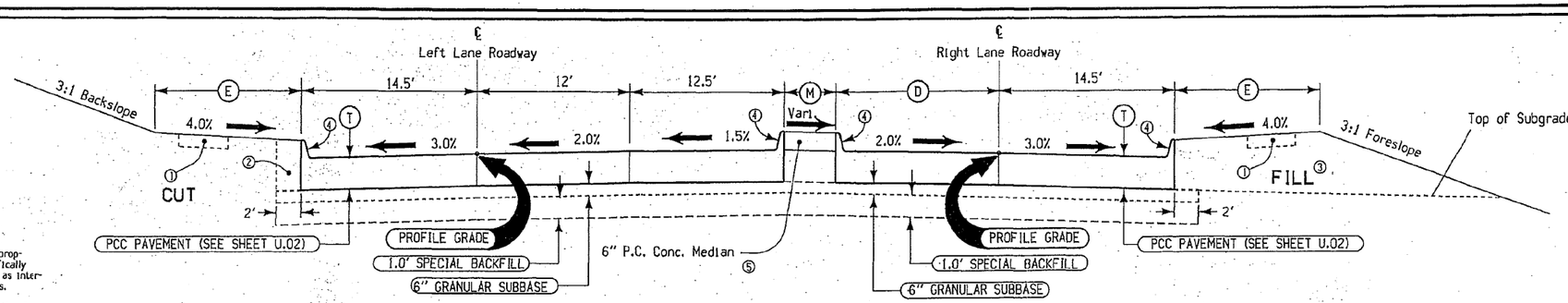
3207D
11-04-92



Notes:

Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or super elevated curves.

Refer to other drawings for details of P.C. Conc. Median.

① Refer to other drawings for details of shoulder and possible sidewalk construction.

② Excavate and backfill 2.0'

③ Backfill

④ 6" Intergral Standard Curb

⑤ See Typical 6139 for details of median.

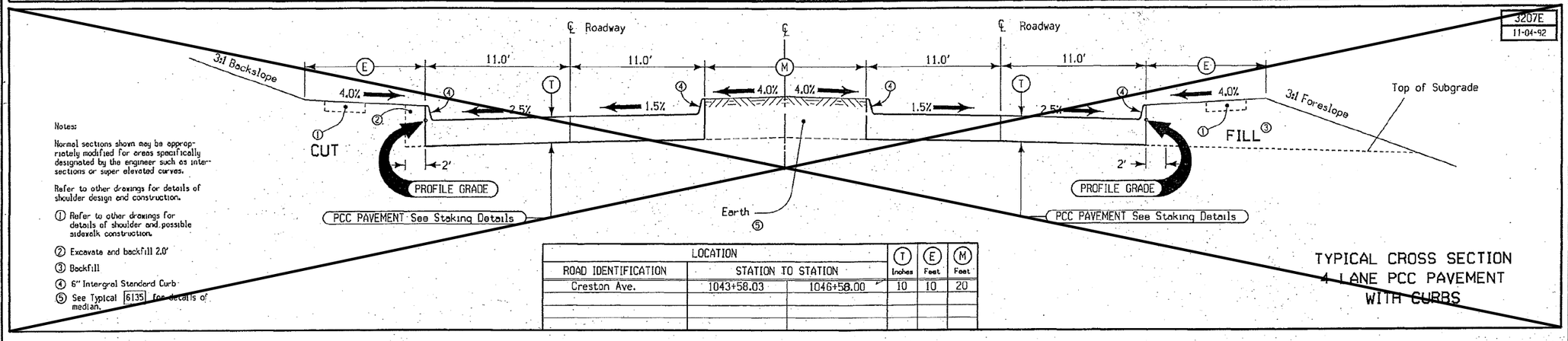
LOCATION			Ⓣ	Ⓓ	Ⓔ	Ⓜ
IDENT.	STATION TO STATION					
Lt. Lane	34+25.00	35+75.00	10"	13.0'	12'	17' *
Lt. Lane	43+49.00	44+99.00	10"	13.0'	12'	17' *
Lt. Lane	61+10.00	62+10.00	10"	13.0'	12'	Vari.*
Lt. Lane	69+95.00	71+20.00	10"	12.5'	12'	Vari.
~~Lt. Lane~~	~~77+55.00~~	~~78+30.00~~	~~10"~~	~~12.5'~~	~~12'~~	~~Vari.~~
Lt. Lane	83+50.00	85+00.00	10"	12.5'	12'	3'
Lt. Lane	92+85.00	94+35.00	10"	12.5'	12'	3'
Lt. Lane	99+57.00	101+07.00	10"	12.5'	12'	3'
Lt. Lane	106+15.00	107+35.00	10"	12.5'	12'	3'
Lt. Lane	109+48.78	110+68.78	10"	12.5'	12'	3'
Lt. Lane	112+74.00	114+24.00	10"	12.5'	12'	3'

* Median Curbs are 6" Sloped Curb (Typical 6128 and 6140).

* See Geometric Sheets for Special Lane Widths.

TYPICAL CROSS SECTION
4 LANE PCC PAVEMENT
WITH CURBS
WITH LEFT TURN LANE

3207E
11-04-92



Notes:

Normal sections shown may be appropriately modified for areas specifically designated by the engineer such as intersections or super elevated curves.

Refer to other drawings for details of shoulder design and construction.

① Refer to other drawings for details of shoulder and possible sidewalk construction.

② Excavate and backfill 2.0'

③ Backfill

④ 6" Intergral Standard Curb

⑤ See Typical 6135 for details of median.

LOCATION			Ⓣ	Ⓔ	Ⓜ
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	Feet
Creston Ave.	1043+58.03	1046+58.00	10	10	20

TYPICAL CROSS SECTION
4 LANE PCC PAVEMENT
WITH CURBS

For Information Only

TYPICAL CROSS SECTIONS

ROAD DESIGN * CADD * PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	POLK COUNTY	PROJECT NUMBER NHS-28-2(9)--19-77	SHEET NUMBER B.04

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER B.5

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SURVEY SYMBOLS

UTILITY LEGEND

Aureon Network Services
Jeff Klocko
7760 Office Plaza Drive South
West Des Moines IA 50266
jeff.klocko@aureon.com
(515) 830-0445

Centurylink
Steve Parker
2103 E. University Ave.
Des Moines IA 50317
steven.parker4@centurylink.com
(515)265-0968

Consolidated Communications
Westen Grow
2859 99th St.
Urbandale IA 50322
weston.grow@eventis.com
(515) 867-4769

City of Des Moines
Pam Cooksey
400 Robert D Ray Dr.
Des Moines IA 50309
pscooksey@dmgov.org
(515) 283-4920

Des Moines Water Works
Danny Klopfer
2201 George Flag Parkway
Des Moines IA 50321
dannyklopfer@dmww.com
(515) 283-8754

Mediacom Communications Corp.
Paul May
2205 Ingersoll Ave.
Des Moines IA 50312
pmay@mediacomcc.com
(515) 246-2252

MidAmerican Electric Dist. & Gas
Tim Davis
3500 104th St.
Urbandale IA 50322
tldavis@midamerican.com
(515) 242-4224

MidAmerican Electric Trans.
William Schierbrock
106 East Second St.
Davenport IA 52801
wjschierbrock@midamerican.com
(563) 333-8155

Unite Private Networks
Clark Lundy
2320 Wakonda View Dr.
Des Moines IA 50321
clark.lundy@upnfiber.com
(515) 321-3336

West Des Moines Water Works
William Mabuce
4200 Mills Civic Parkway, Suite 1D
West Des Moines IA 50265
william.mabuce@wdmww.com
(515) 222-3464

Windstream Communications
Jim Wiand
115 S. 2nd Ave. W.
Newton IA 50208
james.wiand@windstream.com
(641) 787-2270

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO.	ENGLISH	DESIGN TEAM	Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER	BRFN-028-2(45)--39-77	SHEET NUMBER	D.1

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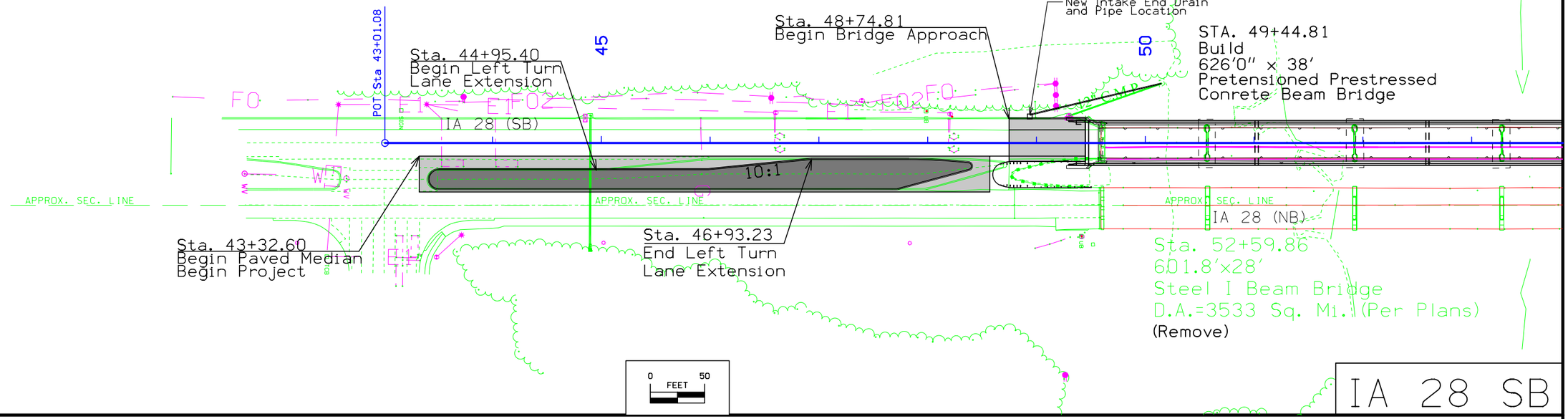
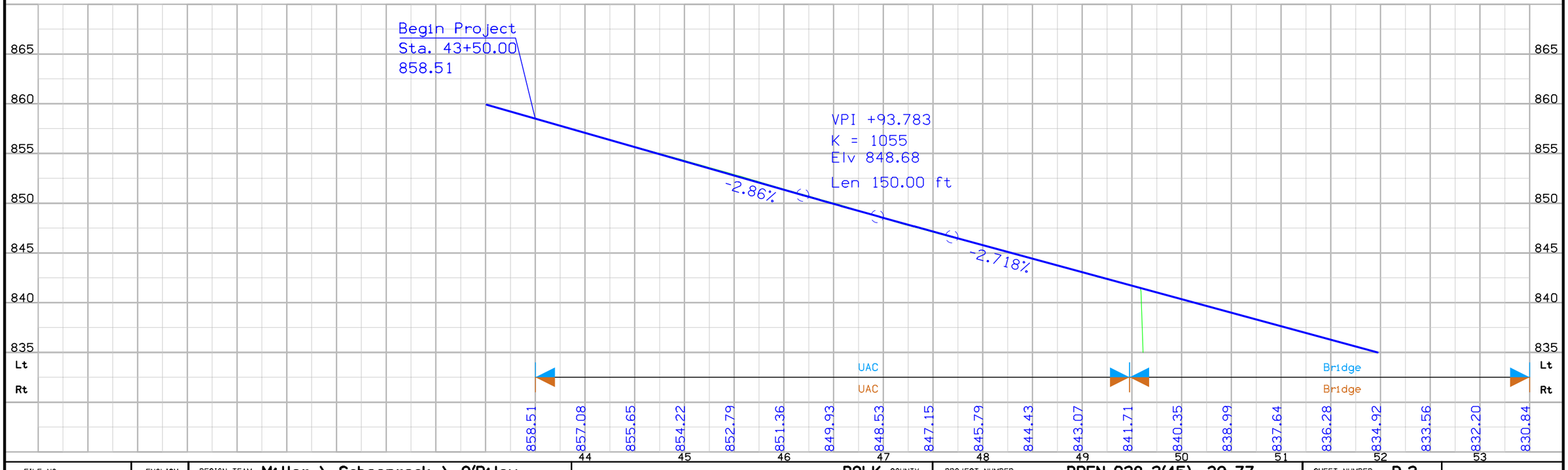
Sta. 44+90
15" X 116' RCP
DA = 1.55 ACRES F-H
(UAC)

Bloomfield TWP.
T-78N R-25W
SEC. 14



IA 28 SB



FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER D.2

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Walnut TWP.
T-78N R-25W
SEC. 14

Sta. 60+05.73
End Paved Median
End Project

Sta. 56+43.81
End Bridge Approach

55 60 59

PI Sta 61+48.50

IA (SB)

(UAC)

PC Sta 58+08.13

PT Sta 64+88.67

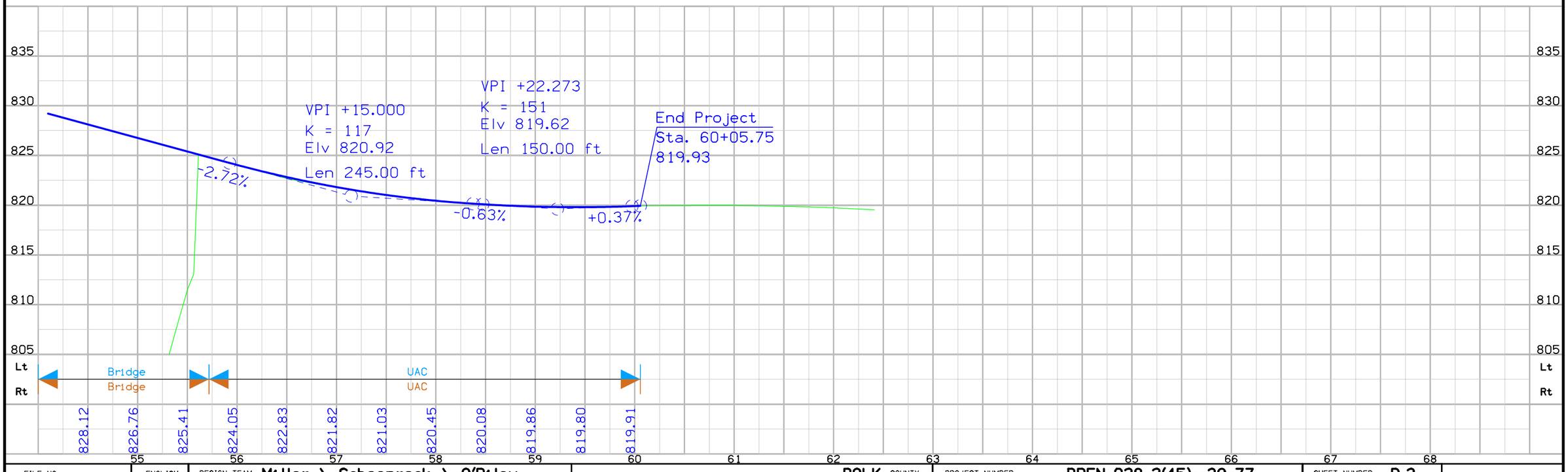
APPROX. SEC. LINE

New Intake End Drain
and Pipe Location

Curve Data
Δ = 3° 24' 09.76" (RT)
T = 340.37
L = 680.54
R = 11,459.16
E = 5.05

0 FEET 50

IA 28 SB



FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER D.3

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Polk County
BRFN-028-2(45)—39-77
SB IA 25 Bridge over Racoon River
PIN 17-77-028-010
Sap-0936

Party Personnel

Jeffrey Duncan- Party Chief
Paul Harry-Assistant Party Chief

Date(s) of Survey

Begin Date	04/15/2019
End Date	05/09/2019

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge replacement along Iowa Highway 28 over the Racoon River. Project datum and control information is provided by Design Survey Office. This project is a Full DTM without Photo control.

Vertical Control

The vertical datum is NAVD88. Vertical Control was established on 3 monuments designated as points B117,WD55, and FENO1. These monuments are expected to hold vertical reasonably well. Datum was transferred from Iowa RTN reference stations to the projects monuments by using concurrent 6-hour static measurements and post processing connecting vectors. Geoid 12 B was used in processing. Additional control points were placed throughout the project using a GNSS Base-Rover setups.

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

NGS 2nd. order class Posted designated B117 has a published Elev. of 836.10
Survey Elev. = 836.211

This survey observed 1 City of West Des Moines Control Monument with published NAVD88 heights to compare to local ground control:

City of West Des Moines mark designated WD455 has a published Elev. Of 813.168
Survey Elev. = 813.168

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 8 (U.S. Survey Feet). This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinate are relative to the National Reference Station network datum NAD83 (2011) for Epoch 2010.00. Coordinates were determined by using concurrent 6-hour static measurements and post processing connecting vectors. Additional control points were placed throughout the project using a GNSS Base-Rover setups.

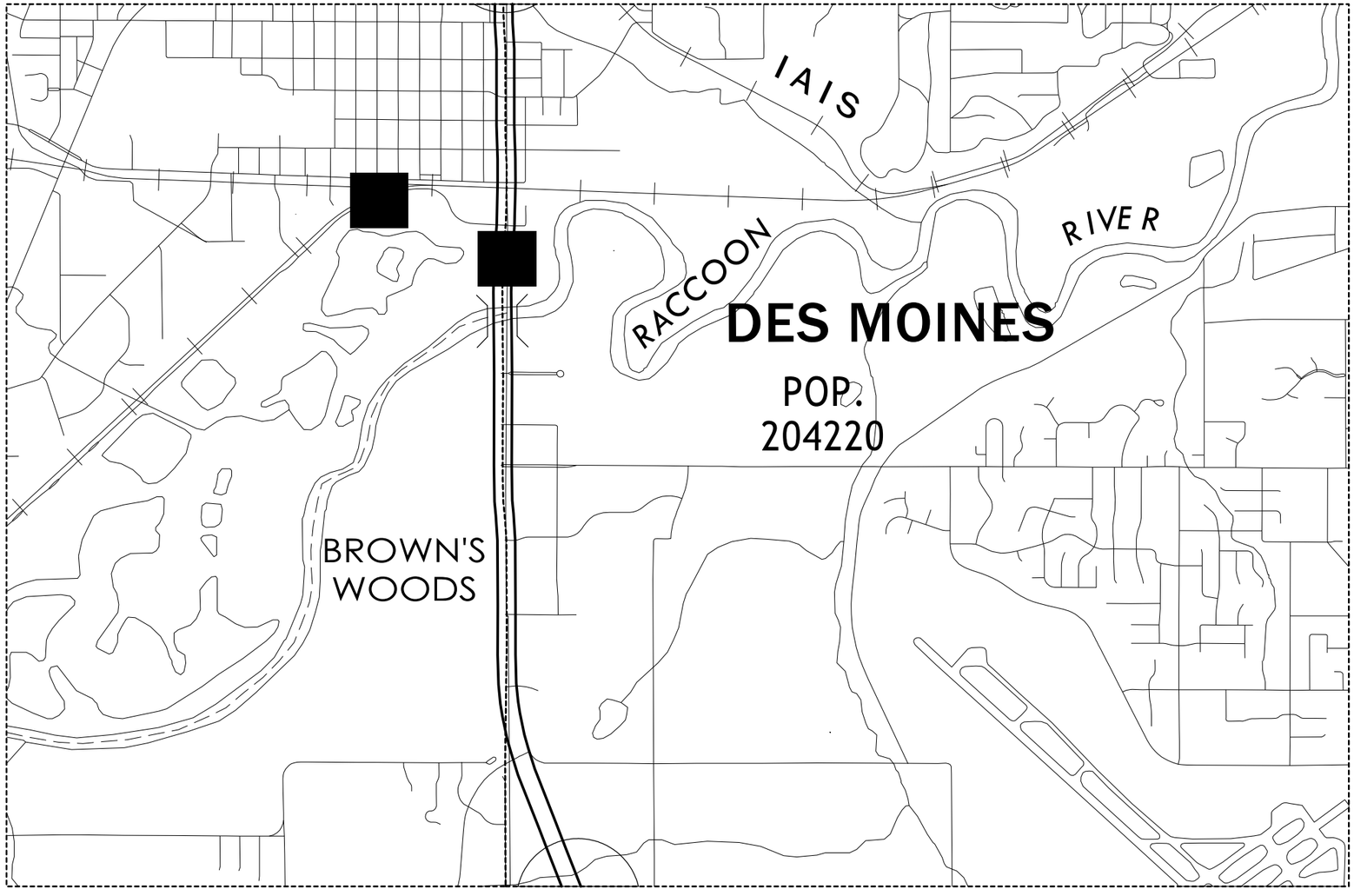
Alignment Information

The horizontal alignment for this survey is provided by District 1 ROW.

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

Ia. Regional Coordinate System Zone 8

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 8

Point Name	North Coordinate	East Coordinate	Elevation	Feature Code-Description
B117	7470386.27	18510611.73	836.21	CP FOUND USGS BENCH MARK DISC SET IN TOP OF CURB AT THE SOUTHEAST CORNER OF BRIDGE ON MCKINLEY AVE. IN DES MOINES_ IA. MONUMENT IS10.5FT SOUTH OF CENTERLINE 110.9FT WEST OF PK NAIL IN CENTER OF GREAT WESTERN TRAIL AT CENTERLINE OF MCKINLEY AVE. 5.2FT NW OF
WDMS5	7480430.723	18501413.56	813.17	CP FOUND WEST DES MOINES ALUMINUM CAP ON IRON PIN ENCASED IN 5FT PIPE WITH LID. 0.5 MILES WEST ALONG LINCOLN AVE. FROM THE INTERSECTION OF LINCOLN AVE. AND HWY 28 (63RD ST.) IN DES MOINES_ IA. AND 45.6FT SOUTH OF CENTERLINE LINCOLN AVE. MONUMENT IS 48.8FT NO
FENO1	7479386.994	18503682.21	815.76	FENO SET FENO MON 0.1 MILES S OF INT OF HWY 28 AND LINCOLN ST 12.8FT E OF PAVED SHOULDER EDGE 67.0FT N OF LUM POLE

108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA 28 SB traffic shall be maintained at all times by use of temporary median crossovers.

111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
None Provided	

108-26A
08-01-08

STAGING NOTES

Stage Construction for PPCB Bridge

Stage 1:
Construction: Remove exisiting paved medians on both sides of the bridge and build median cross overs.
Traffic: On existing outside lanes of both NB and SB directions.

Stage 2:
Construction: New SB PPCB bridge and approaches.
Traffic: On median crossovers

Stage 3
Construction: Left turn lane extension south of the bridge and paved medians.
Traffic: On outside lanes of both NB and SB directions.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			No Restrictions									

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

●	Channelizing Device		Crash Cushion (Temp or Perm)
✕	Drum		Traffic Signal
◘	Temporary Lane Separator		Flagger
◆	Tubular Marker		Temporary Floodlighting
♦	Channelizer Marker		Traffic Sign
△	Concrete Barrier Marker		Type III Barricade
ς	Delineator		Type A Warning Light
———	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout	1	Lane Identification

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

IA 28 SB

Remove Curbed Median

IA 28 NB

Refer to TC-418
For Advanced Signing

Creston Ave

Refer to TC-418
For Advanced Signing

IA 28 SB

Remove Curbed Median

IA 28 NB

Stage 1

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER J.3

9:04:40 AM 10/30/2019 adewolf pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7702801017\Design\CADD_Files\Working Files\TEST_J.dgn

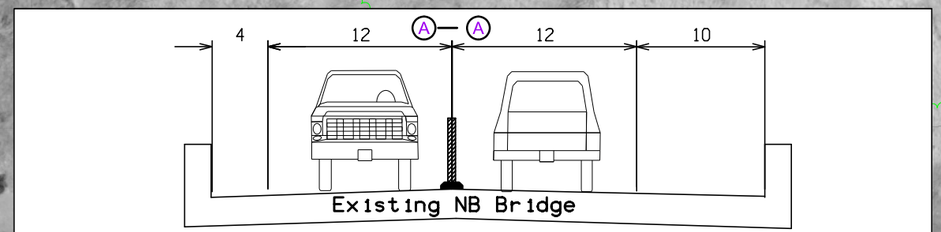
Refer to TC-418
For Advanced Signing
Advisary Speed Limit: 35 mph

IA 28 SB

IA 28 NB

SPEED LIMIT 35
R2-1
48" x 60"

Creston Ave



SPEED LIMIT 35
R2-1
48" x 60"

IA 28 SB

IA 28 NB

Refer to TC-418
For Advanced Signing
Advisary Speed Limit: 35 mph

Stage 2

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER J.4

9:05:53 AM 10/30/2019 adewolf pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7702801017\Design\CADD_Files\Working Files\TEST_J.dgn

IA 28 SB

Place Doweled Curb
Pave Median

IA 28 NB

Refer to TC-418
For Advanced Signing

Creston Ave

Refer to TC-418
For Advanced Signing

IA 28 SB

Place Doweled Curb
Pave Median

IA 28 NB

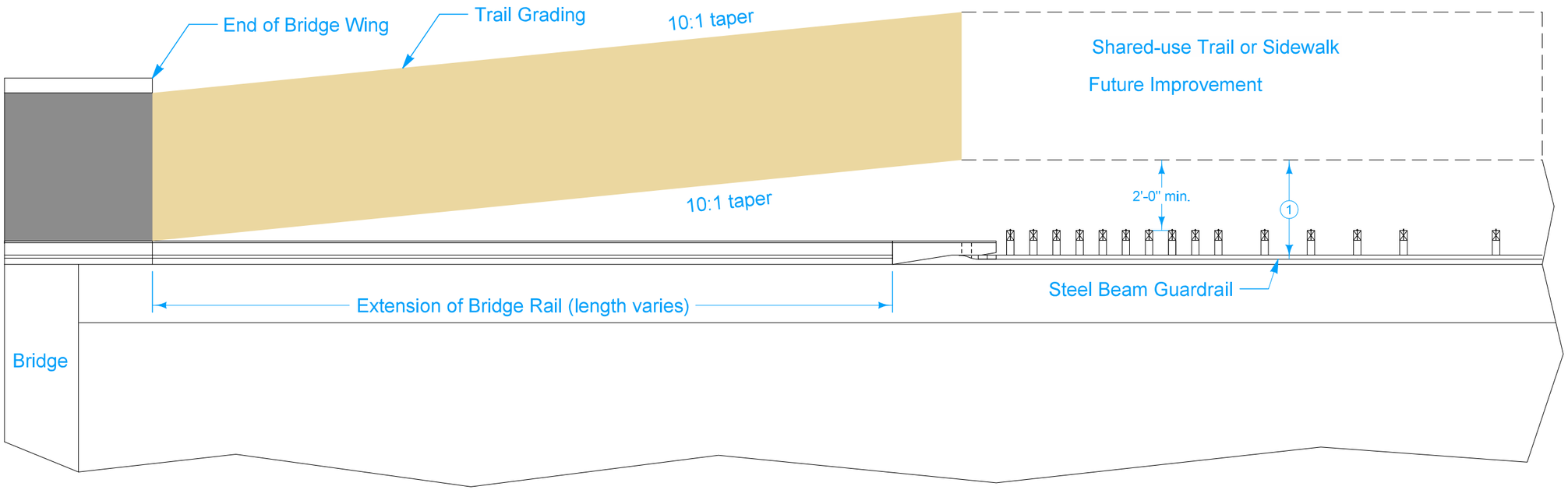
Stage 3

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER J.5

9:07:08 AM 10/30/2019 adewolf pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7702801017\Design\CADD_Files\Working Files\TEST_J.dgn

(1) Refer to table below for minimum distance between face of guardrail and edge of Shared-use Trail or Sidewalk.

Posted Speed Limit (mph)	Minimum Distance (feet)
<45	4
45 or greater	5



IOWA DOT

ROAD DESIGN DETAIL

REVISION	
NEW	10-18-16

560-6

SHEET 1 of 1

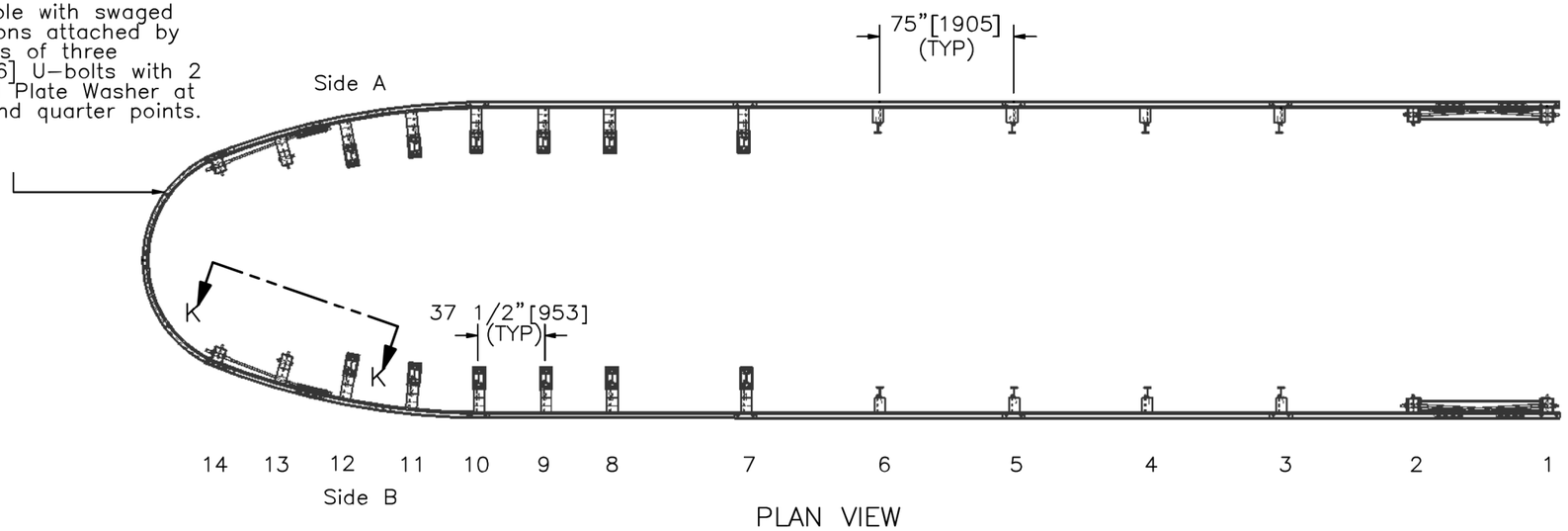
REVISIONS: New.

SHARED-USE TRAIL OR SIDEWALK BEHIND STEEL BEAM GUARDRAIL AT BRIDGE APPROACH

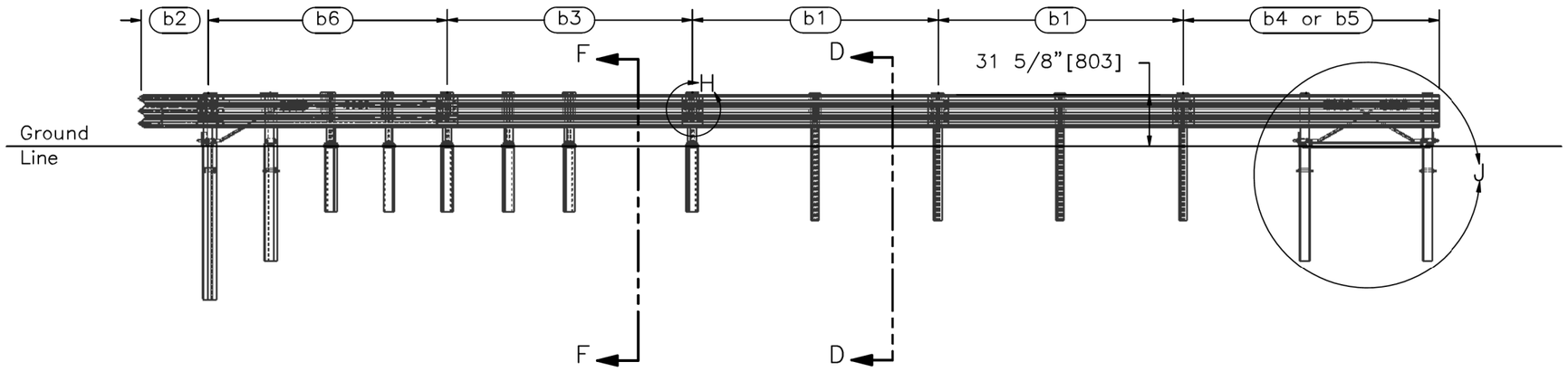
FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER U.1

8:15:55 AM 2/4/2020 tschoen pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7702801017\Design\CADD_Files\Sheet_Files\77028045_U01.dgn

Nose Cable with swaged end buttons attached by three sets of three ϕ1/4" [6] U–bolts with 2 Nuts and Plate Washer at middle and quarter points.



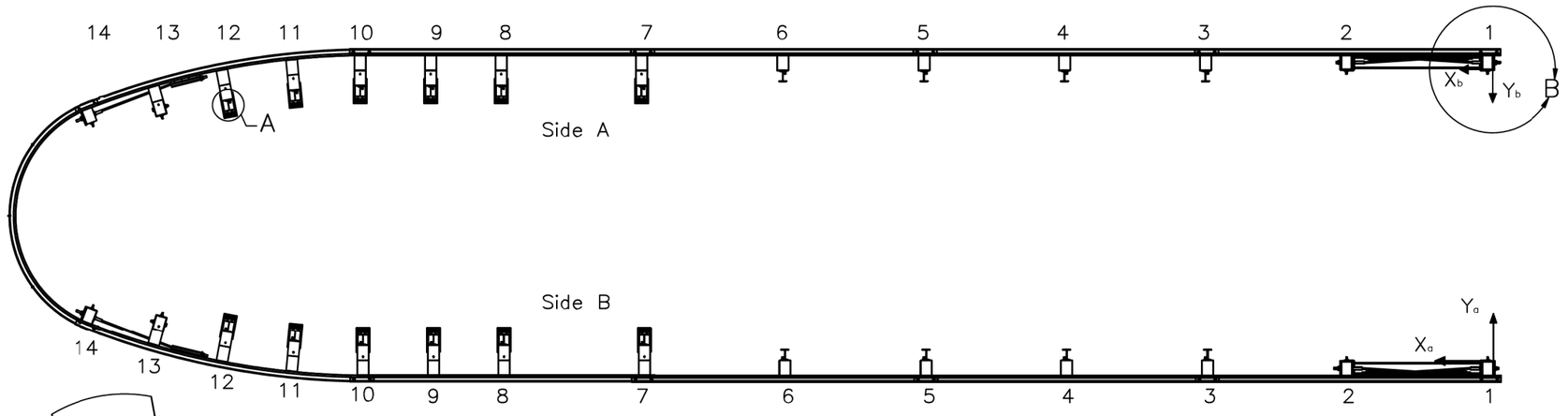
PLAN VIEW

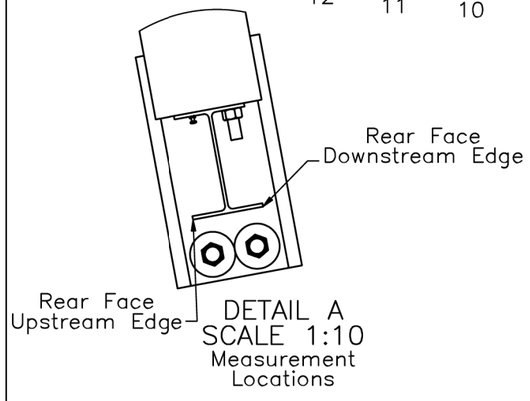


ELEVATION VIEW

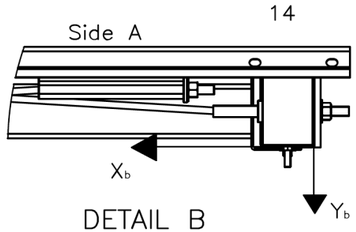
Midwest Roadside Safety Facility	MASH TL–3 Thrie–Beam Bullnose System Layout		SHEET: 1 of 24
			DATE: 10/25/2019
			DRAWN BY: SBW
	DWG. NAME. Bullnose–Final_R0	SCALE: 1:100 UNITS: in.[mm]	REV. BY: –

Post No.	Side A				Side B			
	Rear Face–DS Edge		Rear Face–US Edge		Rear Face–DS Edge		Rear Face–US Edge	
	X	Y	X	Y	X	Y	X	Y
14	61'–10 7/8"	2'–3 1/8"	62'–4"	2'–5 1/8"	61'–10 7/8"	2'–3 1/8"	62'–4"	2'–5 1/8"
13	58'–9 3/4"	1'–11 1/4"	59'–3 1/8"	2'–0 3/4"	58'–9 3/4"	1'–11 1/4"	59'–3 1/8"	2'–0 3/4"
12	55'–10 1/4"	1'–9 3/8"	56'–2 1/8"	1'–10 1/8"	55'–10 1/4"	1'–9 3/8"	56'–2 1/8"	1'–10 1/8"
11	52'–11 1/4"	1'–4 3/8"	53'–3 1/8"	1'–4 3/4"	52'–11 1/4"	1'–4 3/8"	53'–3 1/8"	1'–4 3/4"
10	50'–0 3/4"	1'–2 3/8"	50'–4 3/4"	1'–2 3/8"	50'–0 3/4"	1'–2 3/8"	50'–4 3/4"	1'–2 3/8"
9	46'–11 1/4"	1'–2 3/8"	47'–3 1/4"	1'–2 3/8"	46'–11 1/4"	1'–2 3/8"	47'–3 1/4"	1'–2 3/8"
8	43'–9 3/4"	1'–2 3/8"	44'–1 3/4"	1'–2 3/8"	43'–9 3/4"	1'–2 3/8"	44'–1 3/4"	1'–2 3/8"
7	37'–6 3/4"	1'–2 3/8"	37'–10 3/4"	1'–2 3/8"	37'–6 3/4"	1'–2 3/8"	37'–10 3/4"	1'–2 3/8"
6	31'–3 3/4"	6 3/8"	31'–7 3/4"	6 3/8"	31'–3 3/4"	6 3/8"	31'–7 3/4"	6 3/8"
5	25'–0 3/4"	6 3/8"	25'–4 3/4"	6 3/8"	25'–0 3/4"	6 3/8"	25'–4 3/4"	6 3/8"
4	18'–9 3/4"	6 3/8"	19'–1 3/4"	6 3/8"	18'–9 3/4"	6 3/8"	19'–1 3/4"	6 3/8"
3	12'–6 3/4"	6 3/8"	12'–10 3/4"	6 3/8"	12'–6 3/4"	6 3/8"	12'–10 3/4"	6 3/8"
2	6'–3"	0"	6'–8 1/2"	0"	6'–3"	0"	6'–8 1/2"	0"
1	0"	0"	5 1/2"	0"	0"	0"	5 1/2"	0"





DETAIL A
SCALE 1:10
Measurement
Locations



DETAIL B
SCALE 1:20
Origin Location

Note: All dimensions measured from the intersection of the rear face and downstream edge of post no. 1 on side B and post no. 1 on side A.

Midwest Roadside Safety Facility

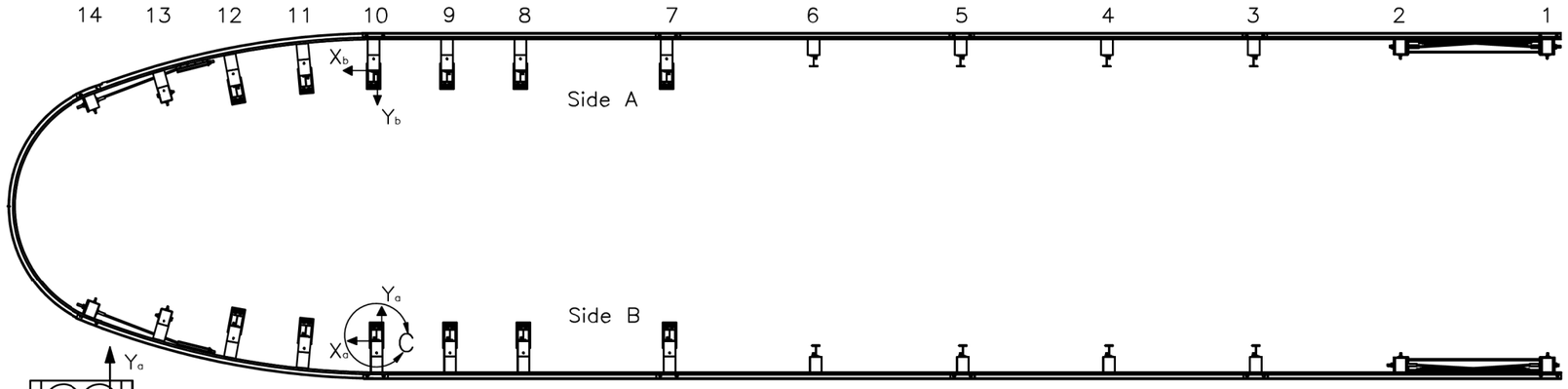
MASH TL–3
Thrie–Beam Bullnose

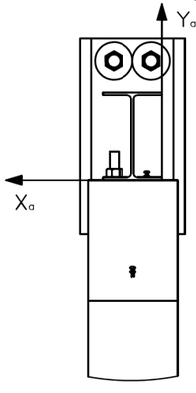
Layout for Post Locations

SHEET: 2 of 24
DATE: 10/25/2019
DRAWN BY: SBW
REV. BY: –

DWG. NAME. Bullnose–Final_R0
SCALE: 1:90
UNITS: in.[mm]

Post No.	Rear Face–DS Edge		Rear Face–US Edge	
	X_a and X_b	Y_a and Y_b	X_a and X_b	Y_a and Y_b
14	11'–10 1/8"	1'–6 5/8"	12'–3 1/4"	1'–8 5/8"
13	8'–9"	1'–2 3/4"	9'–2 3/8"	1'–4 1/4"
12	5'–9 1/2"	1'–0 7/8"	6'–3 3/8"	1'–1 5/8"
11	2'–10 1/2"	7 7/8"	3'–2 3/8"	8 1/4"
10	0"	5 7/8"	4"	5 7/8"





DETAIL C
SCALE 1:12
Origin Location

Note: All dimensions measured from the intersection of the front face and downstream edge of post no. 10 to each respective side.

Midwest Roadside Safety Facility

MASH TL–3
Thrie–Beam Bullnose

Alternate Coordinate System for the Layout of Post Locations

SHEET: 3 of 24
DATE: 10/25/2019
DRAWN BY: SBW
REV. BY: –

DWG. NAME. Bullnose–Final_R0
SCALE: 1:90
UNITS: in.[mm]

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER U.4

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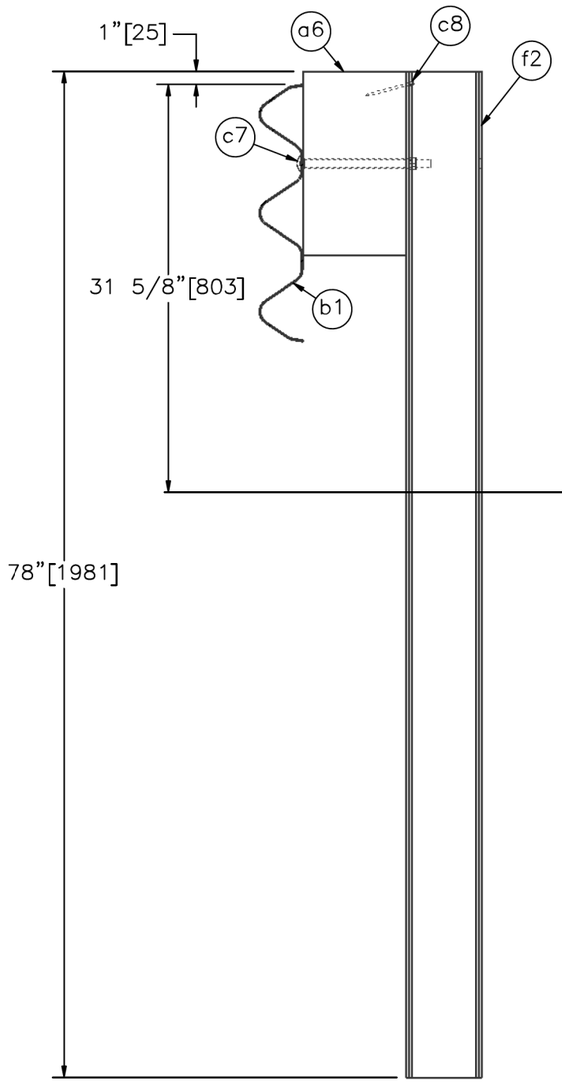
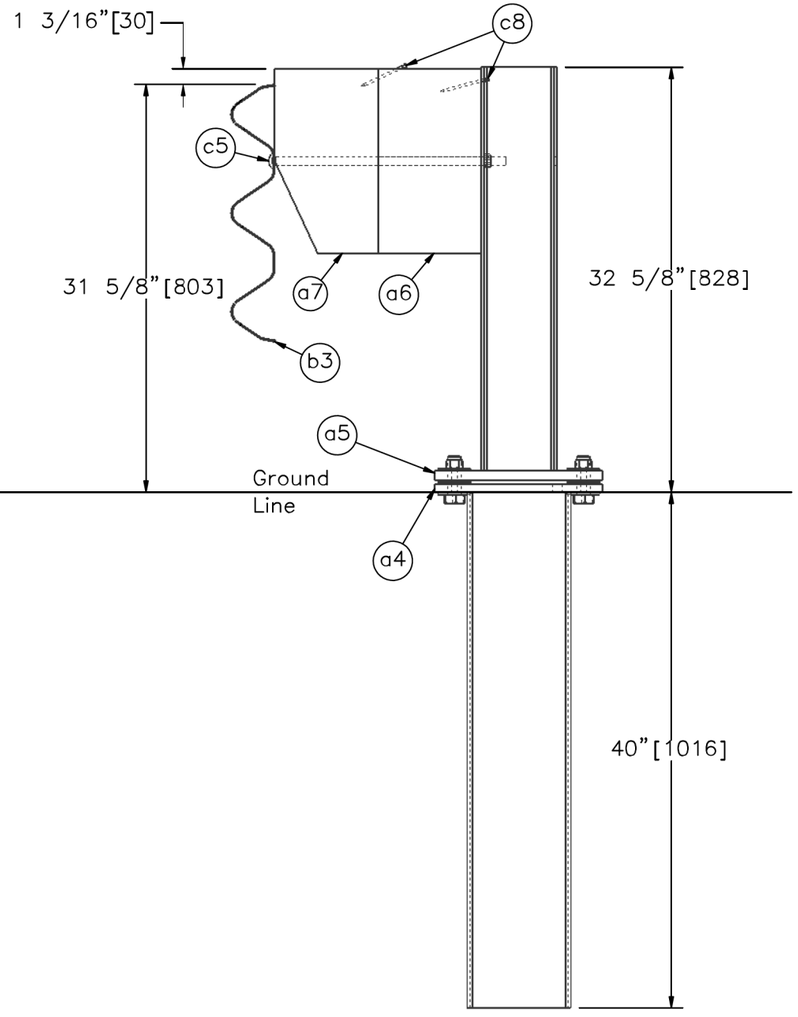


SECTION D–D
Post nos. 3–6



SECTION F–F
Post nos. 7–12

Midwest Roadside Safety Facility

MASH TL–3
Thrie–Beam Bullnose

Post Nos. 3–6, 7–12 Details

DWG. NAME. Bullnose–Final_R0	SCALE: 1:14 UNITS: in.[mm]	REV. BY: –

SHEET: 4 of 24
DATE: 10/25/2019
DRAWN BY: SBW

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER U.5

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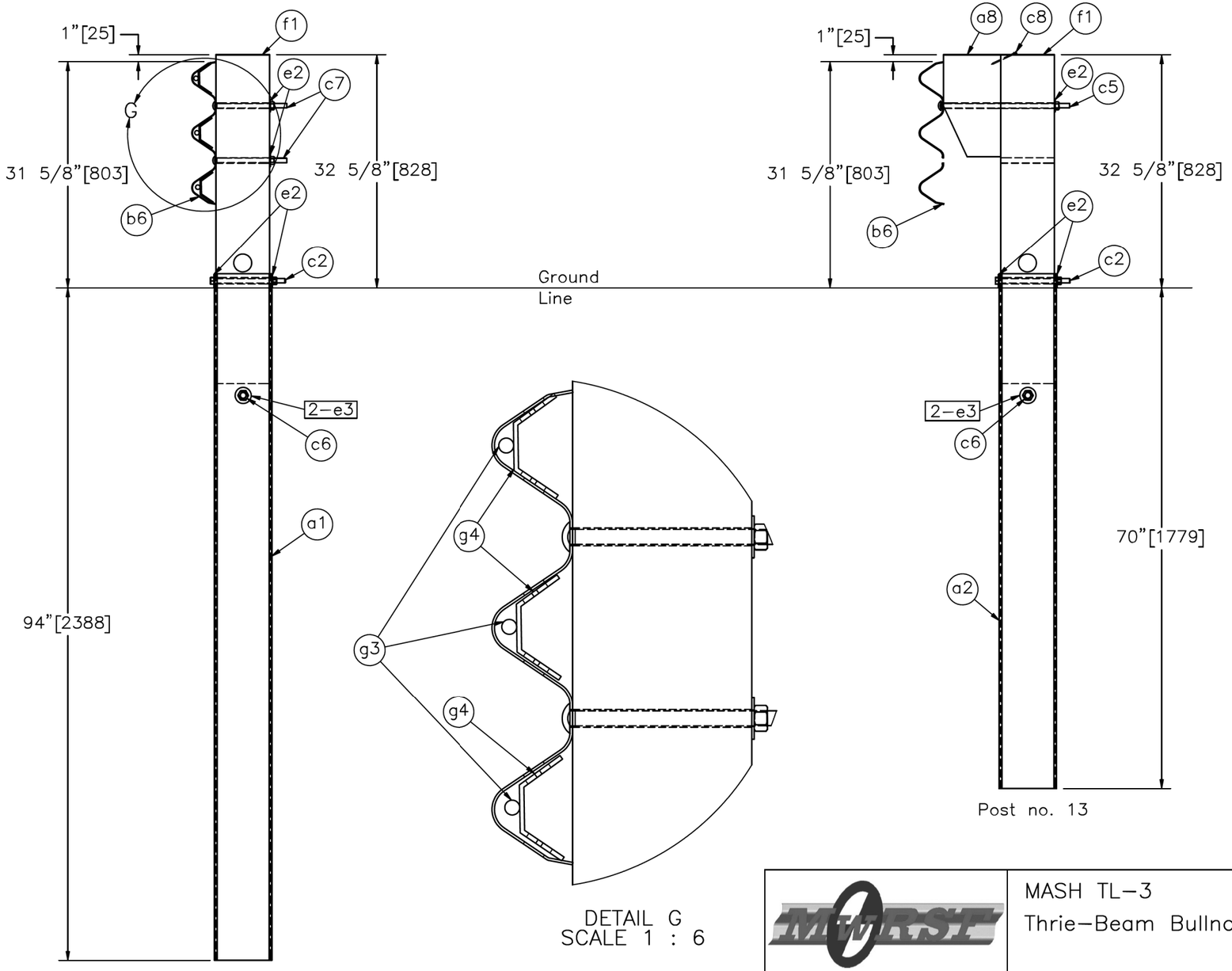

Post no. 14

DETAIL G
SCALE 1 : 6

Post no. 13

Midwest Roadside Safety Facility

MASH TL–3
Thrie–Beam Bullnose

Post Nos. 13 and 14 Details

SHEET: 5 of 24
DATE: 10/25/2019
DRAWN BY: SBW
REV. BY: –

DWG. NAME. Bullnose–Final_R0
SCALE: 1:20
UNITS: in.[mm]

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER U.6

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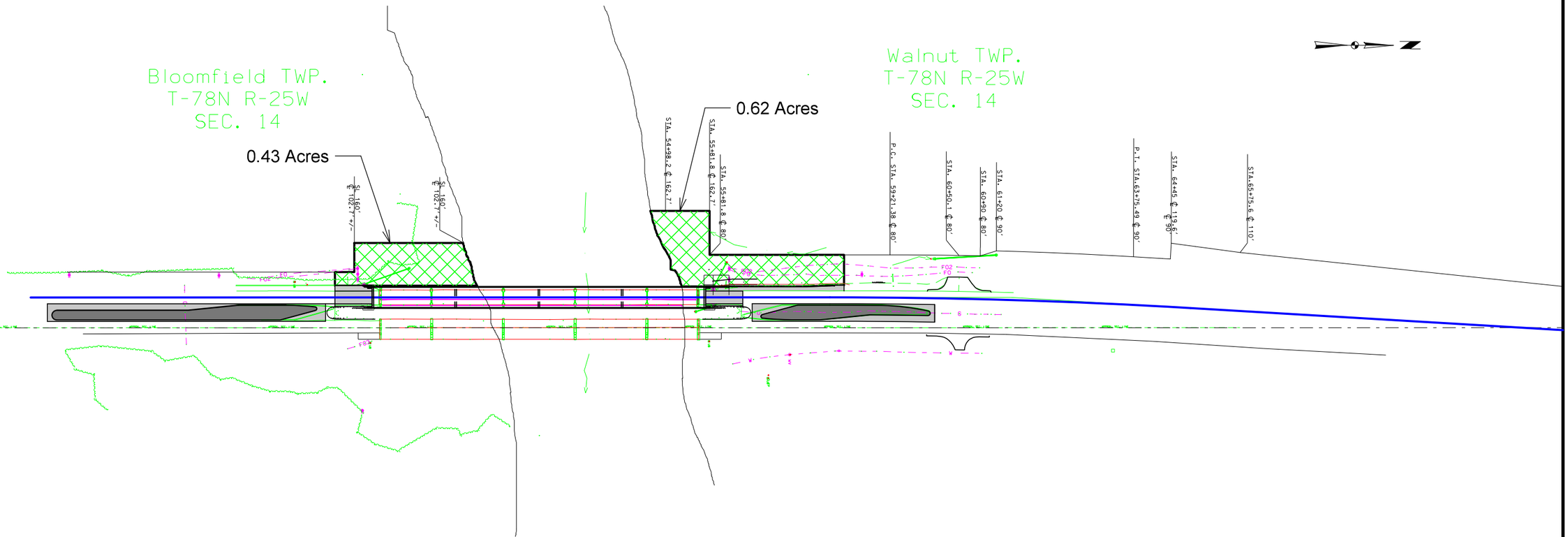
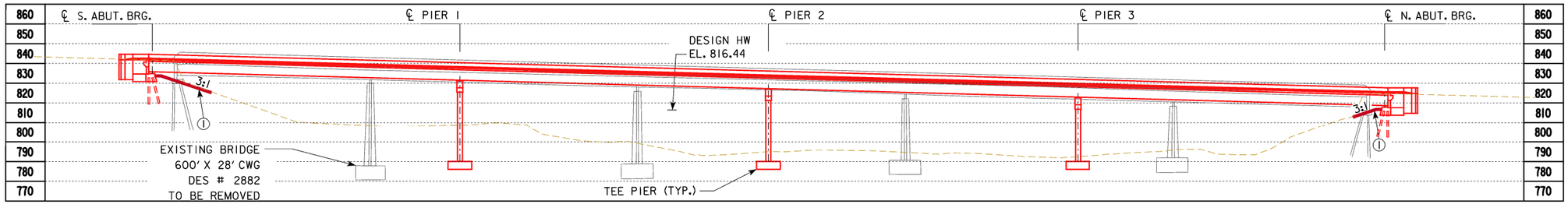


Clearing and Grubbing Detail

FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER U.7

1:04:33 PM 2/3/2020 tschoen pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7702801017\Design\CADD_Files\Sheet_Files\77028045_U01.dgn

BENCH MARK NO.



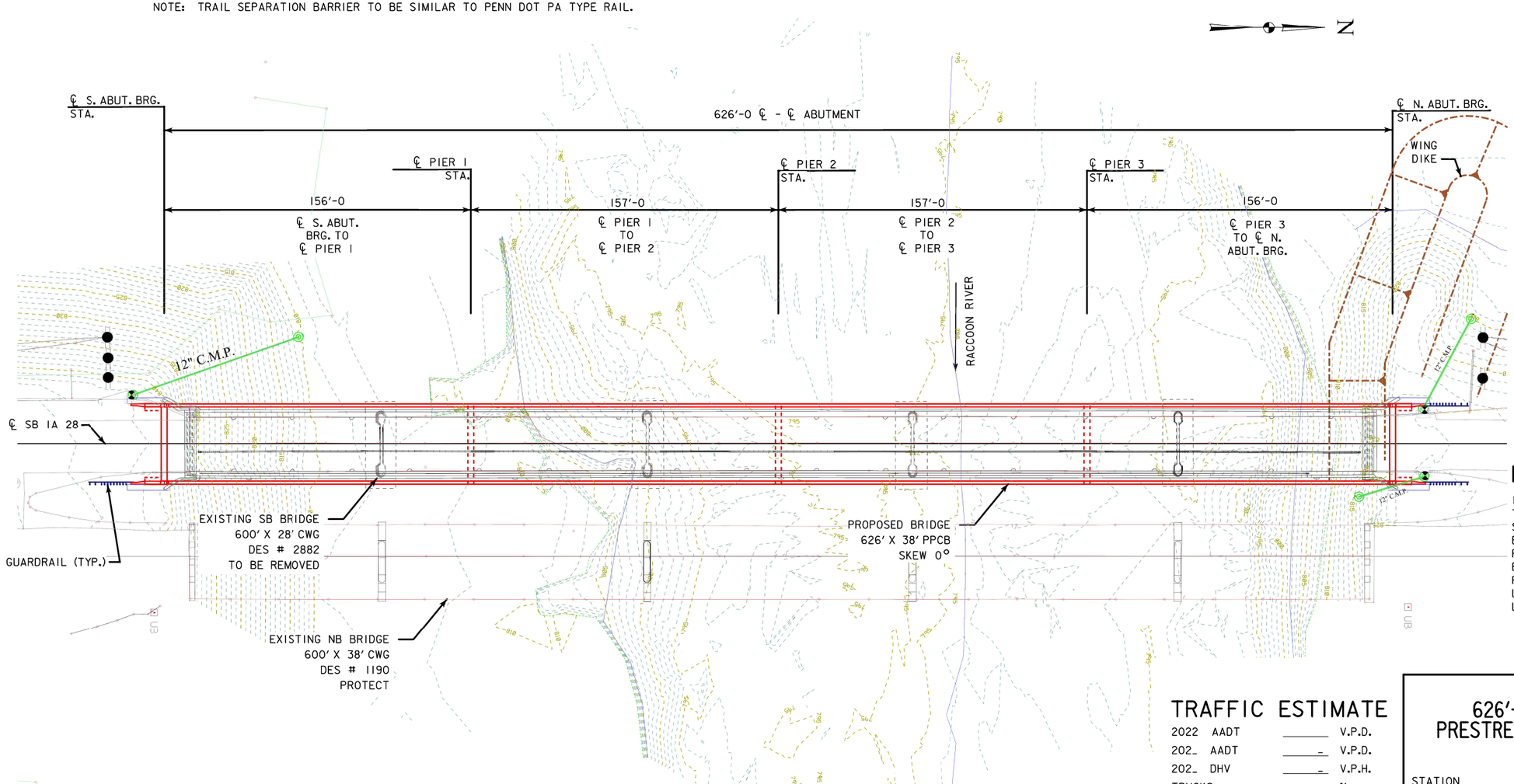
① BERM PROTECTION
EROSION STONE (0-9 THICK. MIN.)
UNDERLAIN W/ ENGR. FABRIC

NOTE: STUB ABUTMENTS SHOWN. FINAL DESIGNER TO INVESTIGATE USE OF SEMI INTEGRAL ABUTMENTS.

LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

NOTE: TRAIL TO BE ADDED ALONG WEST SIDE OF PROPOSED BRIDGE. WIDTH TO BE DETERMINED.

NOTE: TRAIL SEPARATION BARRIER TO BE SIMILAR TO PENN DOT PA TYPE RAIL.



SITUATION PLAN

0 ENGLISH 60
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 3,510 SQ. MI.
STREAM SLOPE = ??.? FT./MI.
AVG. LOW WATER STAGE = ???.?

Q_{25} = 43,000 CFS
STAGE = ???.?

Q_{50} = 50,850 CFS
STAGE =
REGULATORY LOW BEAM = ???.?
BACKWATER = 0.11 FT.
AVG. BRIDGE VELOCITY = ?.? FPS

Q_{100} = 60,100 CFS
STAGE = 816.44
OPERATIONAL LOW BEAM = ???.?
BACKWATER = 0.04 FT.
AVG. BRIDGE VELOCITY = ?.? FPS

Q_{200} = 72,000 CFS
STAGE = ???.?
CALCULATED DESIGN SCOUR = ???.?

Q OVERTOP= ?,??? CFS
AVG. BRIDGE VELOCITY = ?.? FPS
CALCULATED CHECK SCOUR = ???.?
ROADWAY OVERTOP ???.?
STA. ???+??

Q_{500} = 84,200 CFS

EXTREME HW STAGE = ???.?
DATE = ????

50, 100 & 500 YR. STAGES AND DISCHARGES FROM POLK COUNTY F.I.S., DATED 2/1/19. F.I.S. DATUM ?.?? FT. ABOVE/BELOW PROJECT DATUM.

LOCATION

IA 28 OVER THE RACCOON RIVER
T-78N R-25W
SECTION 14
BLOOMFIELD TOWNSHIP
POLK COUNTY
BRIDGE MAINT. NO. 7716.IL028
FHWA NO.
LATITUDE °
LONGITUDE °

TRAFFIC ESTIMATE

2022 AADT	_____	V.P.D.
202_ AADT	_____	V.P.D.
202_ DHV	_____	V.P.H.
TRUCKS	_____	%
TOTAL DESIGN ESALs	_____	

D2

DESIGN FOR 0° SKEW

626'-0 X 38'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

SITUATION PLAN

STATION

SEPTEMBER 2019

POLK COUNTY

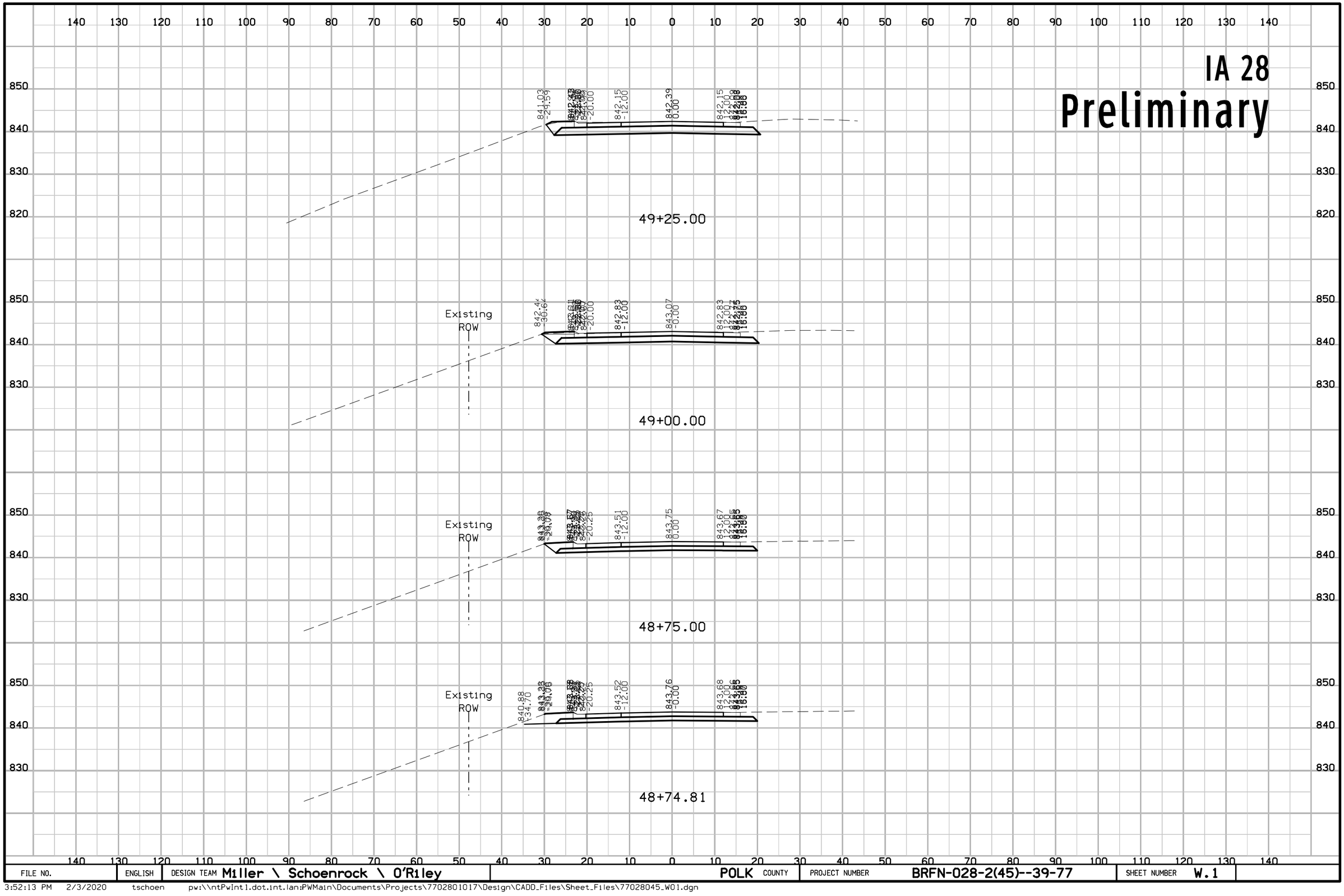
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ? FILE NO. ? DESIGN NO. ?

DESIGN TEAM	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER V.1

11/8/2019 8:12:48 AM dmulhol pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7702801017\BRPrelim\DOT\STR_77028045_DOT_Z08.dgn D2 PLAN 11x17_pdf.pltcfg

IA 28
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER W.1

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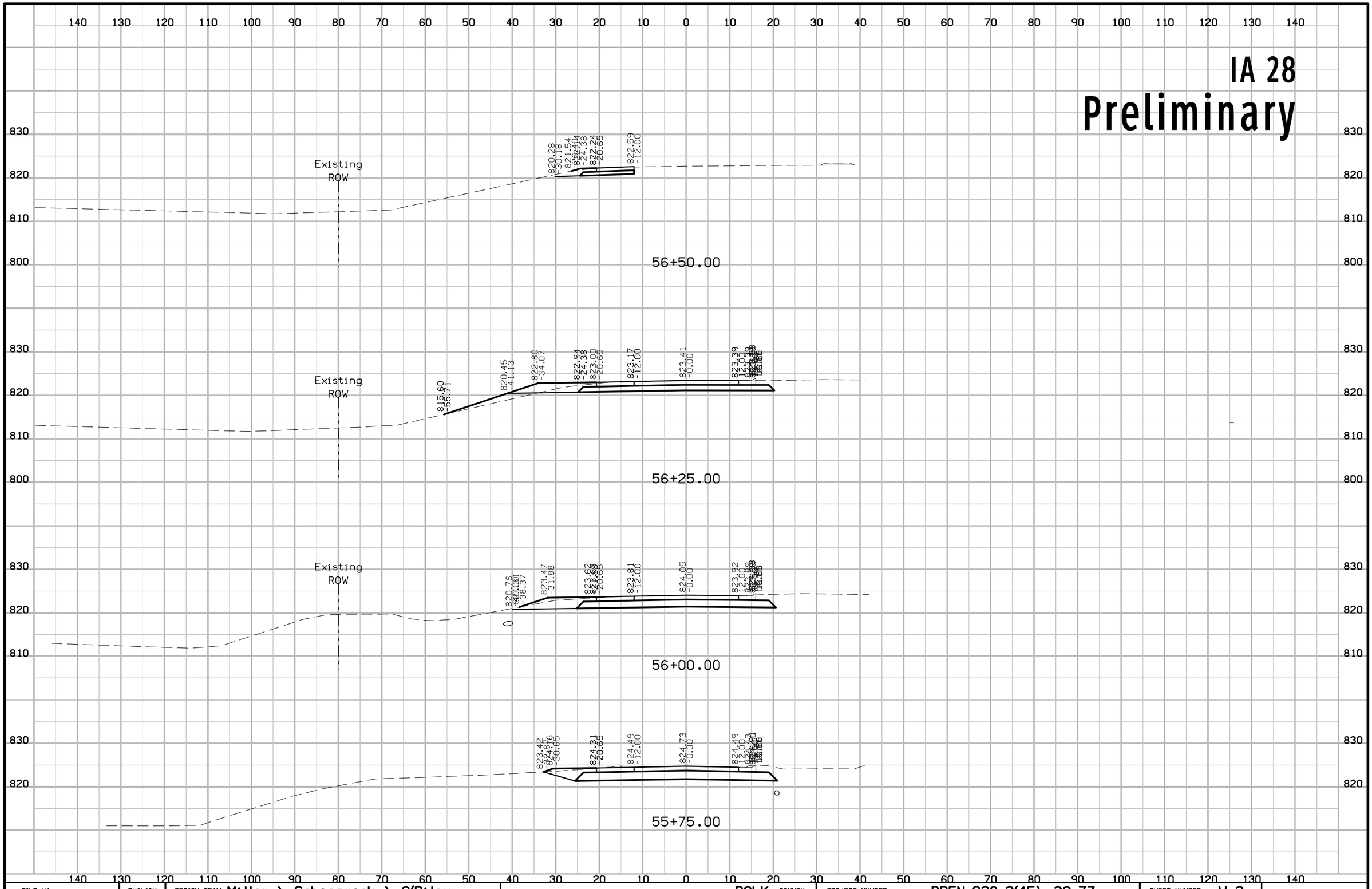
IA 28
Preliminary



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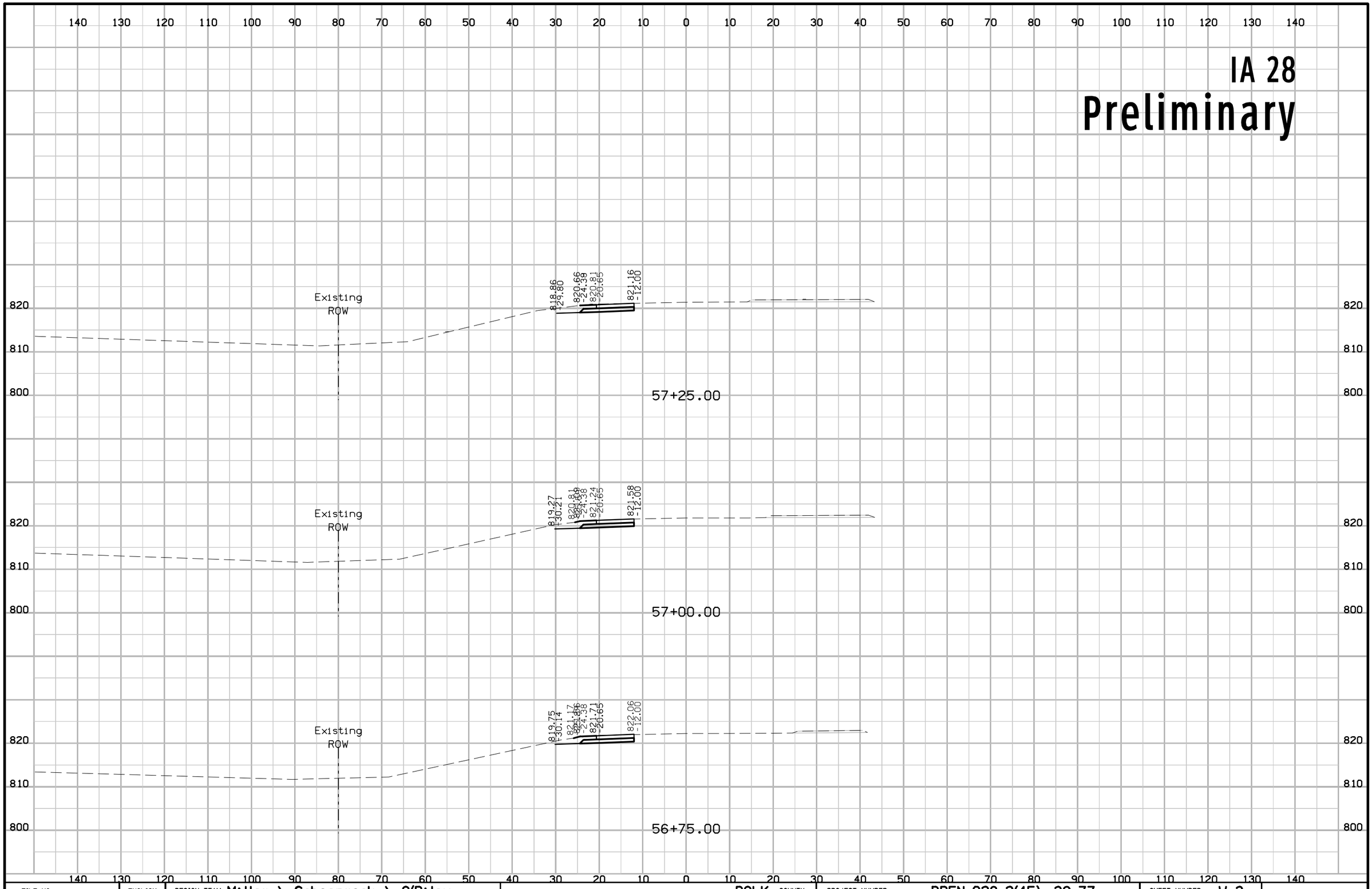
IA 28

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER W.3

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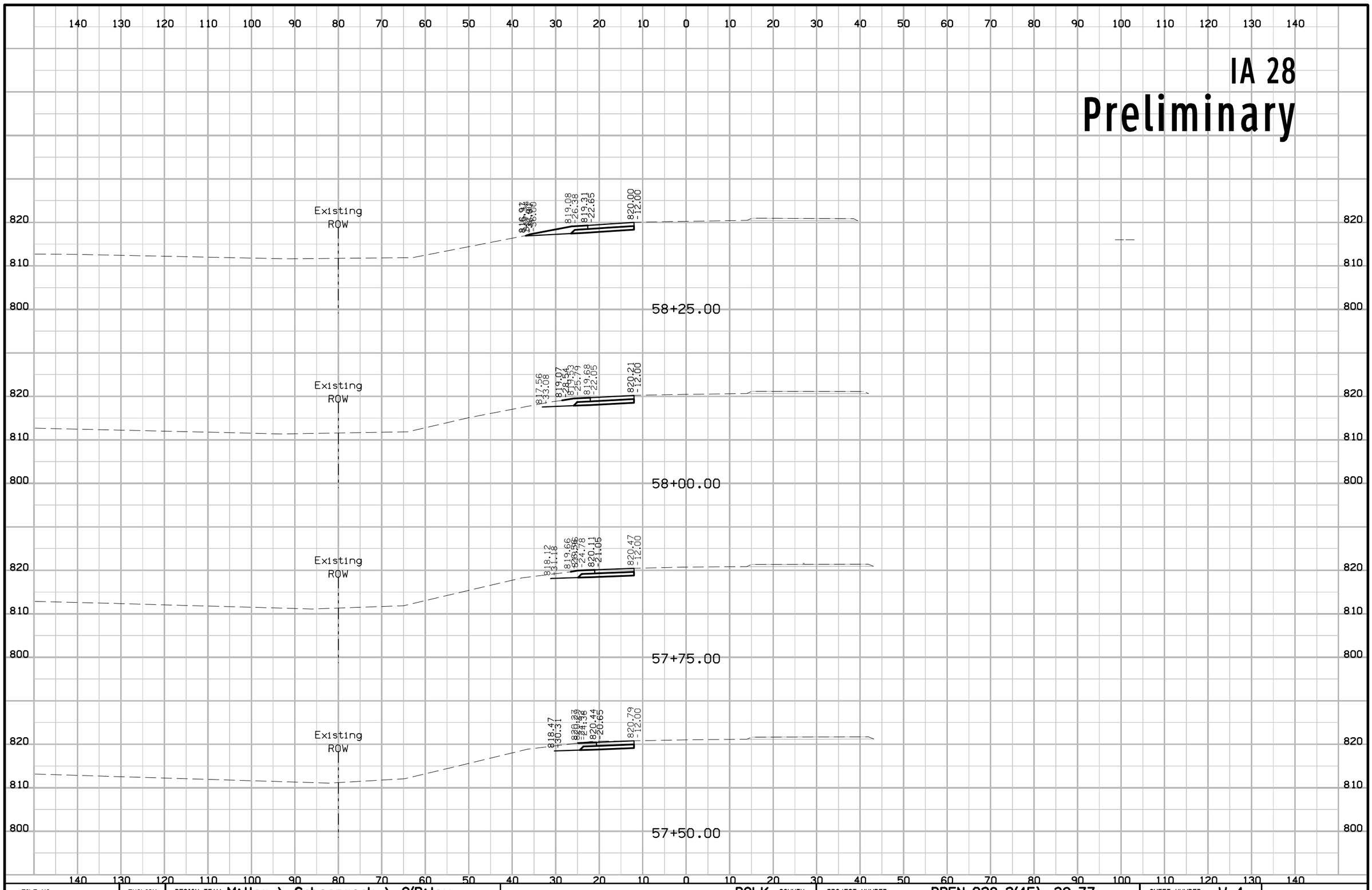
IA 28
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER W.4

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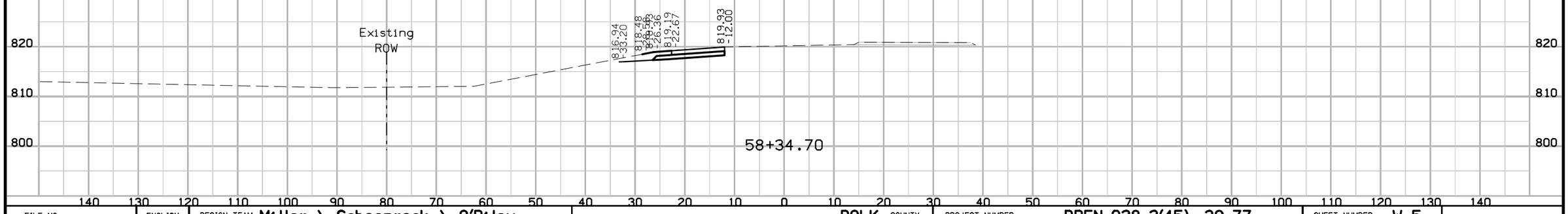
IA 28

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Miller \ Schoenrock \ O'Riley	POLK COUNTY	PROJECT NUMBER BRFN-028-2(45)--39-77	SHEET NUMBER W.5

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