LETTING DATE 11/17/2026

Bridge Replacement - CCS
BRF-065-3(087)--38-91

WARREN COUNTY

Index of Sheets

No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1 - V.2	Estimated Quantities - Design No. 0127
V.3 - V.23	Design No. 0127
SPS Sheets	Bridge Plan Soils Sheet
SPS.1 - SPS.2	Bridge Plan Soils Sheet
Road Sheets	Road Plan
A.3 - W.15	Road Plans
C.1 - C.2	Estimated Quantities - Road
C.4	Standard Plans - Road
CS.1 - CS.2	Soils Tabulations
RC.1 - RC.11	Estimated Quantities - Erosion Control

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
WARREN COUNTY
Bridge Replacement - CCS
US 65 Bridge over Middle River Tributary
0.2 Mi. N of Co Rd G24 (NB)

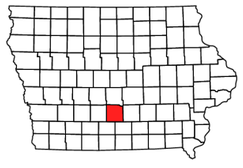
Refer to the Plan Sheets for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.

IOWA ONE CALL
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www.iowaonecall.com
811 Know what's below. Call before you dig.

Revisions

	TOTAL
	25
PROJECT IDENTIFICATION NUMBER	
22-91-065-010	
CONTRACT ID NUMBER	
PROJECT NUMBER	
BRF-065-3(087)--38-91	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
9106501022	



Standard Road Plans

Standard Road Plans are listed in the Roadway Plans in Sheet C.4.

Design Data Rural

2027 AADT	19,200	V.P.D.
2047 AADT	23,100	V.P.D.
2047 DHV	2,390	V.P.H.
TRUCKS	6	%
Total Design ESALs		

Iowa DOT Bridges and Structures Consultant Coordinator Contact: Bryant Thelen

Revisions to this Design Plan and/or Project Specifications should be submitted by _____

Index of Seals

Sheet No.	Name	Type
A.1	Binu Shrestha*	Structural Design
	Spencer Kelly**	Hydraulic Design
SPS.1	Matthew Cushman***	Geotechnical Design
	Trevor Schroenrock****	Roadway Design

* Provided by AECOM
** Provided by Jacobs
*** Provided by Terracon
**** Provided by IowaDOT

Structural Design

LICENSED PROFESSIONAL ENGINEER
Binu Shrestha 26685
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — Date: 8-20-2026
Binu Shrestha
Printed or Typed Name

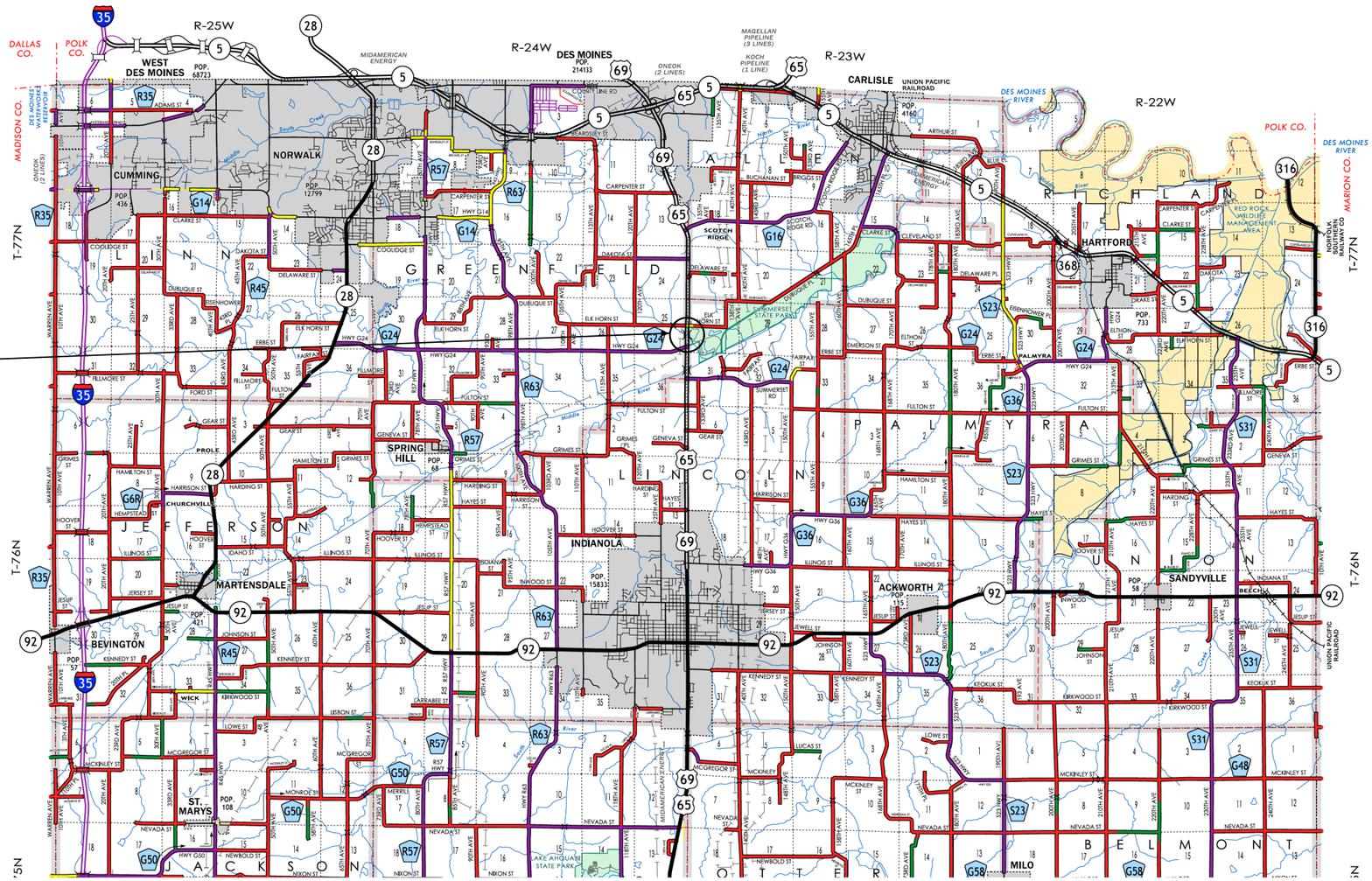
My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1, A.2, V.1 - V.23

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER A.1

1:34:10 PM 8/20/2026 SkjeieB pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\9106501022\Bridge\(087)_Bridge Replacement-CCS\SHT_91065087_AECOM_0127_050931_Z08.dgn

Design No. 0127
FHWA No. 050931



N

Warren County Location Map

Not To Scale



LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD
- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES — ABBEY ROAD
- UNINCORPORATED PLACE — ELWOOD
- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND

FILE NO. **32605**	ENGLISH	DESIGN TEAM **AECOM**	**WARREN** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER A.2	

1:34:24 PM 8/20/2026 SkjeieB pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\9106501022\Bridge\(087)_Bridge Replacement-CCS\SHT_91065087_AECOM_0127_050931_Z08.dgn

Estimated Bridge Quantities - Design #0127

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2104-2710020	Excavation, Class 10, Channel	CY	686.5
2	2401-6745625	Removal of Existing Bridge	LS	1
3	2402-2720000	Excavation, Class 20	CY	103.2
4	2403-0100010	Structural Concrete (Bridge)	CY	38.5
5	2403-1000005	Fiber Reinforcement for Structural Concrete	CY	452.1
6	2403-1000010	Trial Batch and Test Placement (Fiber Reinforced Concrete)	LS	1
7	2403-7000210	High Performance Structural Concrete	CY	452.1
8	2404-7775005	Reinforcing Steel, Epoxy Coated	LB	104978
9	2404-7775009	Reinforcing Steel, Stainless Steel	LB	3320
10	2414-6424110	Concrete Barrier Railing	LF	302.9
11	2501-0201042	Piles, Steel, HP 10 x 42	LF	1080
12	2501-0201253	Piles, Steel, HP 12 x 53	LF	1560
13	2501-5478053	Concrete Encasement of Steel H Piles HP 12 x 53 (P10L Type 3)	LF	468
14	2501-6335010	Prebored Holes	LF	180
15	2501-8400172	Temporary Shoring	LS	1
16	2507-3250005	Engineering Fabric	SY	722.0
17	2507-6800061	Revetment, Class E	TON	1077.8
18	2507-8029000	Erosion Stone	TON	20.4
19	2526-8285040	Construction Survey, Location Survey	LS	1
20	2533-4980005	Mobilization	LS	1

Estimate Reference Information

ITEM NO.	ITEM CODE	Description
1	2104-2710020	Excavation, Class 10, Channel For excavation for revetment for berm lining near both abutments, ditch let downs and along the stream bank. Refer to Situation Plan. Quantity based on 2' thick revetment layer as shown in plans. This may be reduced based on field scour conditions. All waste must be removed from project site.
2	2401-6745625	Removal of Exisiting Bridge Removal of exisiting 85'-0" x 28'-0" continuous concrete slab bridge (Design No. 0251) as detailed in these plans. Includes all work for removal and off-site disposal of the exisitng bridge by stages in these plans. Removal of scheduled items shall be in accordance with Section 2401 of the Standard Specifications. Any damage to material not to be removed shall be the responsibility of the contractor and shall be repaired at no extra cost to the state. Contractor to add the following information when submitting the Iowa DNR "Notification of Demolition" Form: Name of asbestos inspector: Brad Azeltine Date Inspected: 6/28/2022 IA License number: IowaDOT Inspector Phone: 515-290-2687 Procedure used to detect the presence of asbestos materials: Polarized Light Microscopy (PLM)
3	2402-2720000	Excavation, Class 20 Includes excavation for bridge abutments and wings.
4	2403-0100010	Structural Concrete (Bridge) Includes the concrete for the abutment pile cap footings, pier caps, and pier columns. Includes furnishing and placing subdrain (including excavation), floodable backfill, porous backfill, geotextile fabric, water flooding, and subdrain outlets at abutments and toe of berm. Includes furnishing and placing 3 inch diameter PVC plastic pipe and expanding foam in the abutment wings. Includes cost of 4 drains.
5	2403-1000005	Fiber Reinforcement for Structural Concrete Includes the cost of fiber reinforcement for 443.1 CY of concrete. The concrete is to be paid for in the bid item "High Performance Structural Concrete". Refer to the Developmental Specifications for Fiber Reinforcement for Structural Concrete for additional information.

Estimate Reference Information

ITEM NO.	ITEM CODE	Description
6	2403-1000010	Trial Batch and Test Placement (Fiber Reinforced Concrete) Refer to the Developmental Specifications for Fiber Reinforcement for Structural Concrete for additional information.
7	2403-7000210	High Performance Structural Concrete Includes 443.1 CY of concrete that is to have fiber reinforcement. The fiber reinforcement is to be paid for in the bid item "Fiber Reinforcement for Structural Concrete". This bid item includes the concrete for the slab, abutment diaphragms, pier caps, and wingwalls. Refer to the Developmental Specifications for High Performance Concrete for Structures for additional information.
8	2404-7775005	Reinforcing Steel, Epoxy Coated Include cost to furnish and install 30 mechanical splicers.
9	2404-7775009	Reinforcing Steel, Stainless Steel -
10	2414-6424110	Concrete Barrier Railing If placement of concrete is done by the slipforming method, Class BR concrete is required. Cast-in-place barrier rails shall use Class C mix. Price bid for this item shall include the cost of cast-in-place forms if required for placement of concrete.
11	2501-0201042	Piles, Steel, HP 10 x 42 Includes furnishing and installing steel pile points. Piling shall be Grade 50. Splices between individual lengths of pile shall consist of full penetration welds in accordance with Section 2501.03,P,2 of the Standard Specifications. Nominal bearing resistance shall be determined using Wave Equation Analysis per Section 2501.03.M.1 of the Standard Specifications.
12	2501-0201253	Piles, Steel, HP 12 x 53 Includes furnishing and installing steel pile points. Piling shall be Grade 50. Splices between individual lengths of pile shall consist of full penetration welds in accordance with Section 2501.03,P,2 of the Standard Specifications. Nominal bearing resistance shall be determined using Wave Equation Analysis per Section 2501.03.M.1 of the Standard Specifications.
13	2501-5478053	Concrete Encasement of Steel H Piles HP 12 x 53 (P10L Type 3) Includes furnishing and placing all material and any necessary excavation.
14	2501-6335010	Prebored Holes -
15	2501-8400172	Temporary Shoring The Contractor will be paid a lump sum contract price for temporary shoring. This payment shall be full compensation for all costs associated with designing, furnishing, installing and removing temporary shoring.
16	2507-3250005	Engineering Fabric Engineering fabric shall be material as specified for revetment, Article 4196.01,B,3 of the Standard Specifications
17	2507-6800061	Revetment, Class E Estimated at 1.6 ton/cu yd. Revetment shall meet the requirements of article 4130. Broken concrete and granite is not allowed. Refer to the site plan.
18	2507-8029000	Erosion Stone Estimated at 1.6 ton/cu yd. Erosion Stone shall meet the requirements of Article 4130. Broken concrete and granite is not allowed.
19	2526-8285040	Construction Survey. Location Survey -
20	2533-4980005	Mobilization -

Roadway Quantities shown elsewhere in these plans

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Estimated Quantities

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 1 of 23 FHWA No. 050931

Summary of Concrete Quantities

Location	Structural Concrete (Bridge)	Fiber Reinf. Struct. Conc. (Bridge)
South Abutment Footing - Stage 1	7.5	
South Abutment Footing - Stage 2	9.5	
North Abutment Footing - Stage 1	7.5	
North Abutment Footing - Stage 2	9.5	
Superstructure - Stage 1		199.7 (F)
Superstructure - Stage 2		252.4 (F)
Wings - Stage 1	2.23	
Wings - Stage 2	2.23	
Total (Cu. Yds.)	38.46	452.1

(F) Note:
Concrete for Fiber Reinforced High Performance (HPC) Structural Concrete is included in the quantity for "High Performance Structural Concrete" on the Bridge Quantities sheet. The fiber reinforcement for Fiber Reinforced HPC Structural Concrete is paid for separately in the bid item "Fiber Reinforcement for Structural Concrete" on the Bridge Quantities sheet.

Summary of Reinforcing Steel

Location	Non-Coated Reinforcing Steel	Stainless Steel Reinforcing Steel	Epoxy Coated Reinforcing Steel
Superstructure - Stage 1		101	43337
Superstructure - Stage 2		123	51304
Barrier Rail - East Rail (Stage 1)		1110	2327
Barrier Rail - West Rail (Stage 2)		1110	2327
Barrier Rail - End Sections (Stage 1)		2 @ 219	2 @ 293.25
Barrier Rail - End Sections (Stage 2)		2 @ 219	2 @ 293.25
South Abutment Footing - Stage 1			1035
South Abutment Footing - Stage 2			1220
North Abutment Footing - Stage 1			1035
North Abutment Footing - Stage 2			1220
Total (Lbs.)		3320	104978

Summary of Excavation

Location	Class 20 Excavation
South Abutment - Stage 1	22.8
South Abutment - Stage 2	28.8
North Abutment - Stage 1	22.8
North Abutment - Stage 2	28.8
See Des. Sheet V.5 for Class 10 Excavation	
Total (Cu. Yds.)	103.2

Summary of Foundations

Location	Substructure Type	Foundation Type	Number	Length (Lin. Ft.)	Total (Lin. Ft.)
South Abutment - Stage 1	Integral Abutment	HP 10x42	4	60	240
South Abutment - Stage 2	Integral Abutment	HP 10x42	5	60	300
North Abutment - Stage 1	Integral Abutment	HP 10x42	4	60	240
North Abutment - Stage 2	Integral Abutment	HP 10x42	5	60	300
Pier 1 - Stage 1	Encased Pile Bent Pier	HP 12x53	6	60	360
Pier 1 - Stage 2	Encased Pile Bent Pier	HP 12x53	7	60	420
Pier 2 - Stage 1	Encased Pile Bent Pier	HP 12x53	6	60	360
Pier 2 - Stage 2	Encased Pile Bent Pier	HP 12x53	7	60	420

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Summary Quantities Sheet

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 2 of 23 FHWA No. 050931

General Notes:

This design is for the replacement of the existing 85'-0" x 28'-0" continuous concrete slab bridge, Design No. 0251 with a year of construction of 1951, with a 140'-0" x 40'-0" continuous concrete slab bridge on US65 over Middle River Tributary. Electronic plans of the existing structure are available to the Contractor as part of the e-files supplied with the contract documents.

The lump sum bid for "Removal of Existing Bridge" shall include the staged removal of abutment, piers and superstructure of the existing 85'-0" x 28'-0" Continuous Concrete Slab Bridge. The Contractor shall carefully and accurately remove the portions of the existing bridge to the lines indicated for Stage 1 construction without damaging portions of the bridge which must remain in service during Stage 1.

Removals shall be in accordance with Section 2401, of the Standard Specifications.

The Bridge Contractor is to provide a method of removal that will prevent feather edging at the bottom of the existing slab. Care shall be taken when exposing existing reinforcing so the bond to existing concrete is not broken at the concrete break lines.

This bridge is designed for HL-93 loading, plus 20 lbs. per square foot of roadway for future wearing surface.

Utility companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the bridge contractor of the starting date.

Class 20 excavation material unsuitable for backfilling shall be disposed of in a manner that will leave the site in a neat condition. It shall be the Bridge Contractor's responsibility to provide sites for excess excavated material. No payment for overhaul will be allowed for material hauled to these sites.

Minimum clear distance from face to face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

Concrete barrier rails placed using the slipform method will require the use of a Class BR concrete in accordance with Article 2513.03, A, 2, of the Standard Specifications. Cast-in-place barrier rails shall use Class C mix. Class D concrete is not permitted for concrete barrier rails (cast-in-place or slipformed method).

Faint lines on plans indicate the existing structure.

The Bridge Contractor shall prebore holes for abutment piles to the elevations shown on the "longitudinal section along centerline roadway" on design sheet V.4. Piles shall be driven through the holes to at least the specified design bearing.

Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.

Class 20 excavation quantities are based on the assumption that the channel excavation is completed prior to starting construction of the abutments and piers.

Use Class M mix concrete for Pier encasement. Concrete placement and minimum age for concrete curing shall be in accordance with Section 2403.

Cast in-one-piece steel pile points are required for the abutment and pier piles in accordance with Article 4167.02 of the current Standard Specifications and Materials I.M. 468.

Construction shall be done in stages with at least one lane traffic maintained at all times in accordance with "Traffic Control Plan" note.

The bridge will be built in stages and the falsework for stage 1 construction shall remain in place until stage 2 is complete. The stage 1 falsework shall be removed with stage 2 falsework.

Temporary shoring (sheet pile or other) shall be required as necessary to prevent the earth under the traffic lane from sloughing in during construction.

The Contractor shall submit a Temporary Shoring Plan for review. The Temporary Shoring Plan shall be designed and certified by a Professional Engineer licensed in the State of Iowa. The Contractor shall not proceed with installation of the temporary shoring without notice to proceed from the Engineer.

The temporary shoring submittal shall include:
- Design calculations (including a global stability analysis)
- Soil properties
- Shoring material properties
- Shoring plan layout (showing location of traffic)
- Shoring details

Temporary shoring shall be paid for as a lump sum including all cost for designing, furnishing, installing and removal. All material used for shoring shall remain the property of the Contractor. Shoring is to be removed only after backfilling has been completed. In addition to the requirements noted above, Article 1107.07 of the Standard Specifications, still applies.

These bridge plans label all reinforcing steel with English notation (5a1 is $\frac{5}{8}$" diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	3	4	5	6	7	8	9	10	11
Bar Designation	10	13	16	19	22	25	29	32	36

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

The Bridge Contractor is to retain earth and/or granular material behind the portion of abutments subjected to traffic during stage construction by methods approved by the Engineer. All costs for retaining the earth and/or granular material shall be included in the price bid for "Class 20 Excavation".

Specifications:

Design: AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024.

Construction: Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Developmental Specification for High Performance Concrete for Structures
Developmental Specification for Fiber Reinforced Structural Concrete

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024.
Reinforcing steel in accordance with LRFD AASHTO Section 5, Grade 60, for epoxy and non-coated bars, and Grade 60 or 75 for stainless steel reinforcing
Concrete in accordance with LRFD AASHTO Section 5, f'c = 4,000 psi,
Structural steel in accordance with LRFD AASHTO Section 6. ASTM A709 Grade 36 or Grade 50 (AASHTO M270 Grade 36 or Grade 50).
n = 8 for tension steel
2n = 16 for compression steel
HL-93 live load plus 20 lbs. per sq. ft. for future wearing surface.
End span length is used to calculate equivalent width in live load distribution.
Six foot of approach slab dead & live load included in abutment loads.
Control of cracking by distribution of reinforcement for slab design based on the AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024.

Working Drawing and Calculation Submittals

Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)

Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.

Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.

No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	False Work	(087)_Warren_Design127_FalseworkPlan.pdf	Yes
2	Deck Drains	(087)_Warren_Design127_DeckDrains.pdf	No
3	Temporary Shoring Plan	(087)_Warren_Design127_TemporaryShoringPlan.pdf	Yes
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Falsework Calculations	(087)_Warren_Design127_FalseworkCalculations.pdf	Yes
2	Temporary Shoring Calculations	(087)_Warren_Design127_TemporaryShoringCalculations.pdf	Yes

Bridge Slab Dimension Table

NO.	ITEM	UNIT	QUANTITY
1	Slab length	L.F.	141.0
2	Minimum slab width	L.F.	43.2
3	Maximum slab width	L.F.	43.2
4	Slab area	S.F.	6084.7

1. Slab length is measured from face-to-face of paving notches along the centerline of the roadway.
2, 3. Slab widths are measured from out-to-out of slab perpendicular to the centerline of roadway.
4. Slab area is to be based on the face-to-face paving notch distance and out-to-out slab dimensions.

Design History at this Site

(Includes this Design)

Des. No.	Type of Work
251	Original Design
1589	Cast In Place Barrier Rail
192	Deck Overlay
205	Retrofit Rail
127	Bridge Replacement

Traffic Control Plan

The roadway will be open to thru traffic. Refer to the traffic control plan on Design Sheet J.1.

Pollution Prevention Plan shown elsewhere in these plans.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

General Notes

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

Warren County

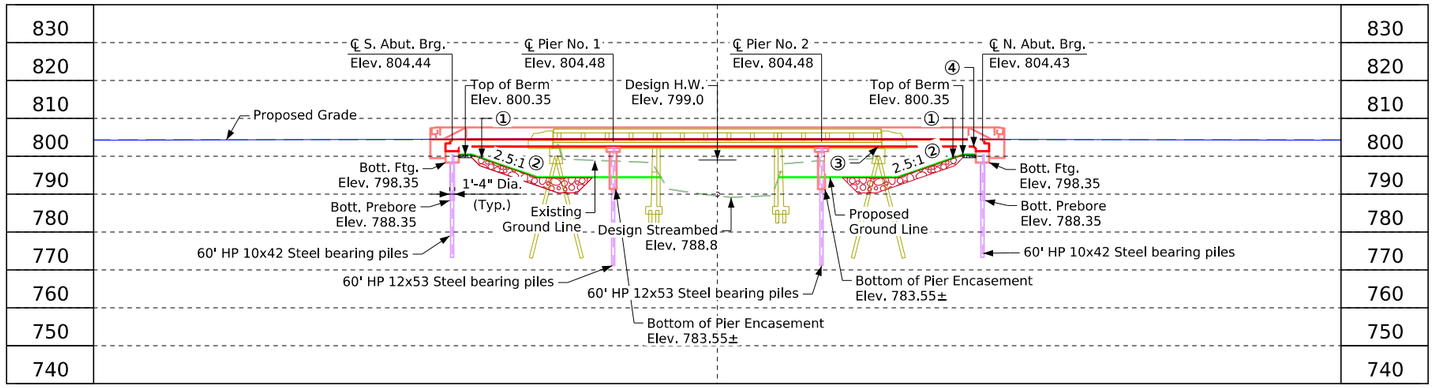
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 3 of 23 — FHWA No. 050931

Control Point: CP2, N 7435569.86, E 18543242.04 ,CP Cut X on Row Rail in SW Quad US 65 & Elk Horn St, Elev. = 800.61

General Notes:

Top of Bridge Slab at Centerline Roadway is 0.03' Below the Profile Grade to Account for Slab Cross Slope and Parabolic Crown.

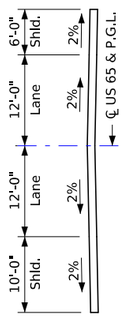


① Class E Revetment (Embedded)
② Berm Slope Normal to ℄ Abutment
③ Channel Low Chord
④ Operational Low Chord

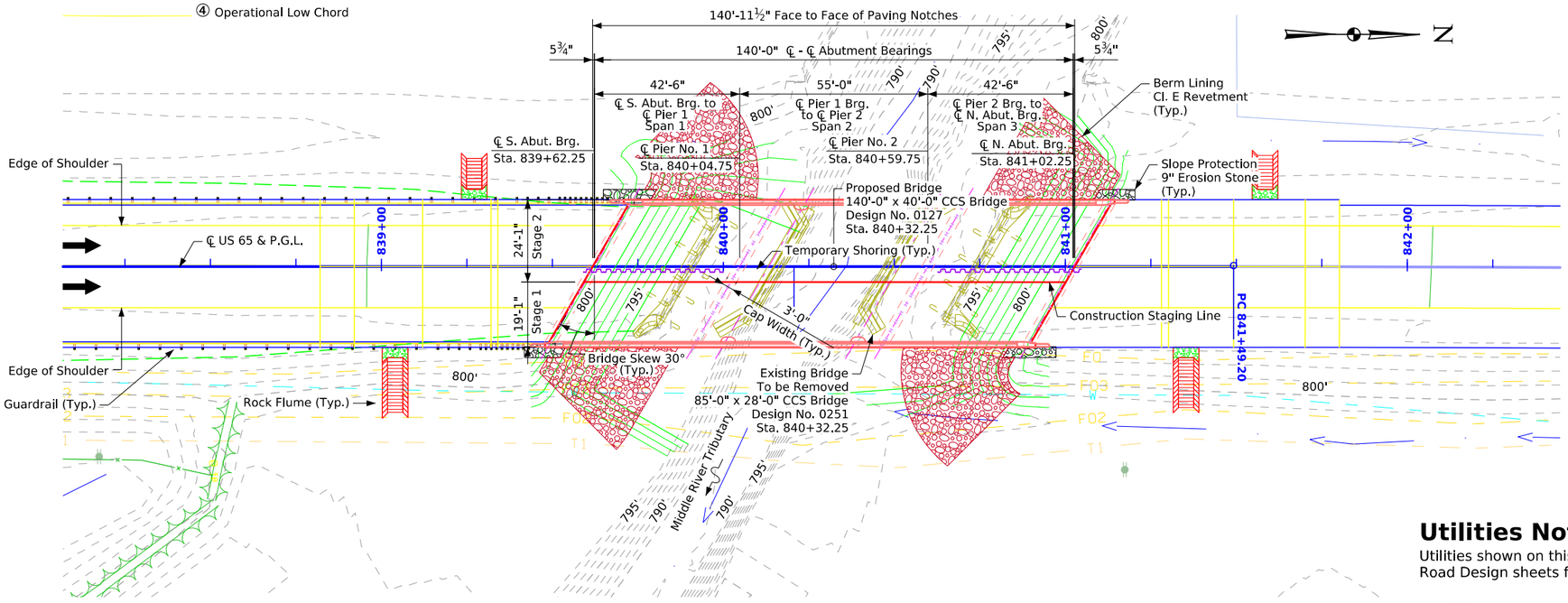
Longitudinal Section Along ℄ US 65

VPI Sta. = 840+27.87
VPI Elev. = 804.65
VC = 210.00'
+0.25%
-0.24%
VPC Sta. = 839+22.87
VPC Elev. = 804.39
VPT Sta. = 841+32.87
VPT Elev. = 804.39

Profile Grade on ℄ US 65 & P.G.L.



Typical Approach Section



Situation Plan

Hydraulic Data

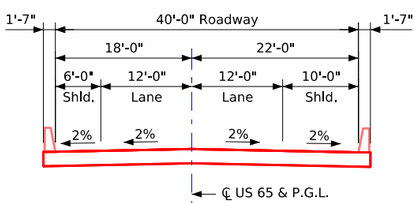
RIDB: "MiddleR_Trib13_0.71"
Drainage Area = 2.1 Sq. Mi.
Stream Slope (HGL) = 13.2 Ft./Mi.
Avg. Low Water Stage = Elev. 790.0

Q_{50} = 1,680 cfs
Stage = Elev. 799.0
Channel Low Chord = Elev. 802.1
Avg. Bridge Velocity = 6.05 fps

Q_{100} = 2,000 cfs
Stage = Elev. 799.4
Operational Low Chord= Elev. 802.1
Backwater = 0.2 Ft.
Avg. Bridge Velocity = 6.17 fps

Q_{200} = 2,620 cfs
Stage = Elev. 799.9
Calculated Design Scour = Elev. 780.7

Q_{500} = 2,900 cfs
Stage = Elev. 800.2
Avg. Bridge Velocity = 6.91 fps
Calculated Check Scour = Elev. 778.4



Typical Bridge Section

(Looking North)

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

Utility Legend:

FO - Buried Fiber Optic, Century Link
FO2 - Buried Fiber Optic, Aeron
FO3 - Buried Fiber Optic, Windstream
T1 - Buried Tele. Cable, Century Link
W - Water Main, Warren Water District

Location

US 65 Over Middle River Tributary
T-77N R-23/24W
Sections 25/30
Greenfield/Lincoln Townships
Warren County
FHWA No. 050931
Bridge Maint. No. 9164.6R065
Latitude 41.443149°
Longitude -93.558441°

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Situation Plan

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 4 of 23 — FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	Warren COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.4

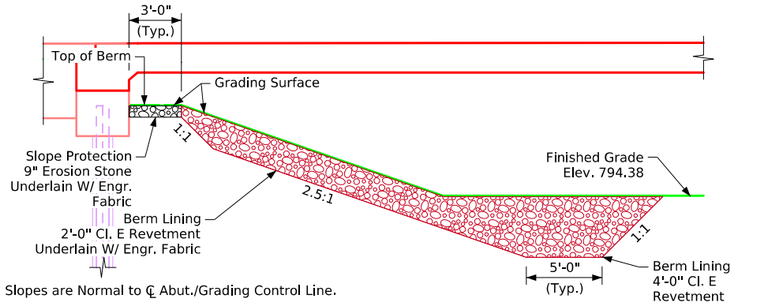
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Control Point: CP2, N 7435569.86, E 18543242.04 ,CP Cut X on Row Rail in SW Quad US 65 & Elk Horn St, Elev. = 800.61

Berm Slope Location Table

Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	839+96.26	22.58' Lt.	794.38	840+92.86	22.58' Lt.	794.38
A2	839+69.33	26.58' Rt.	794.38	840+65.92	26.58' Rt.	794.38
B1	839+80.48	22.58' Lt.	800.35	841+10.09	22.58' Lt.	800.35
B2	839+52.10	26.58' Rt.	800.35	840+81.71	26.58' Rt.	800.35
W1	839+66.91	22.58' Lt.	803.96	841+18.37	22.58' Lt.	803.92
W2	839+43.82	26.58' Rt.	803.84	840+95.28	26.58' Rt.	803.88

Berm slope elevations reflect the grading surface.



Note: Slopes are Normal to ℄ Abut./Grading Control Line.

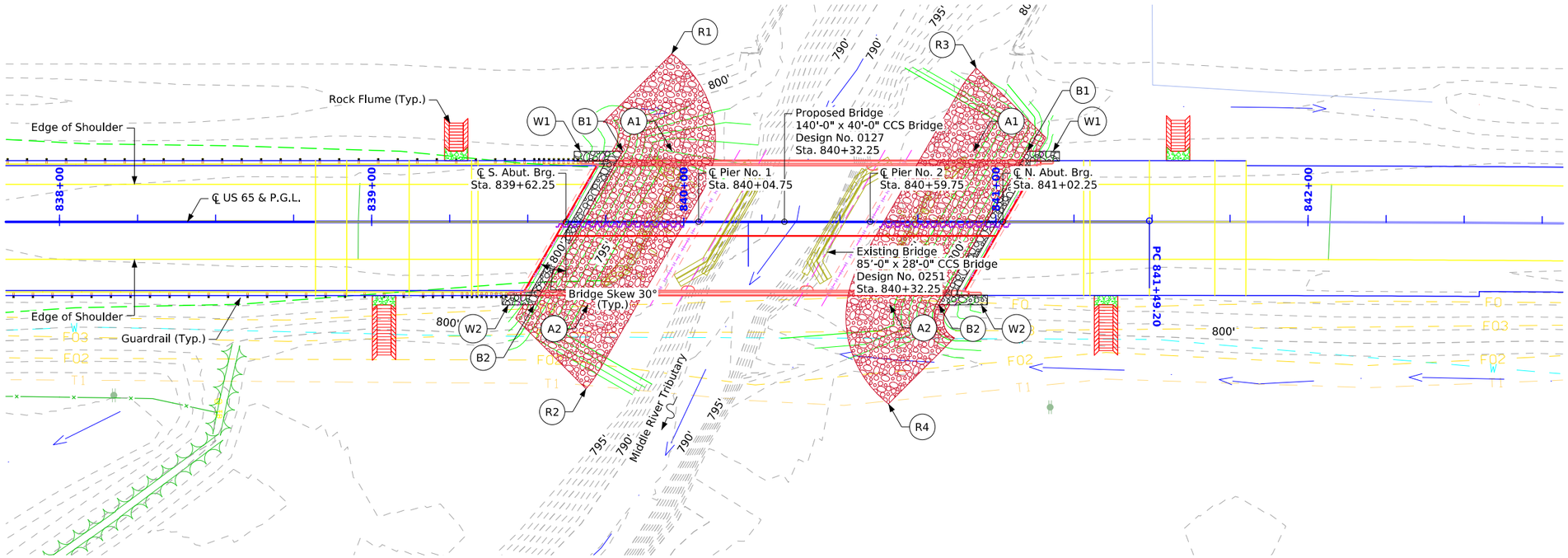
Section Through Berm Lining (Embedded)

Revetment Quantities

Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - South	538.5	-	335.3	336.6
Berm Lining - North	539.3	-	335.7	337.1
Stone Protection - South	-	10.2	25.5	6.4
Stone Protection - North	-	10.2	25.5	6.4
Totals	1077.8	20.4	722.0	686.5

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans.

Revetment and erosion stone estimated at 1.6 Ton/CY.



Site Plan

Revetment Layout:

R1 - Sta. 839+96.16, 53.83' Lt., West End Berm Lining

R2 - Sta. 839+68.70, 53.47' Rt., East End Berm Lining

R3 - Sta. 840+93.73, 49.23' Lt., West End Berm Lining

R4 - Sta. 840+65.57, 58.30' Rt., East End Berm Lining

N

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

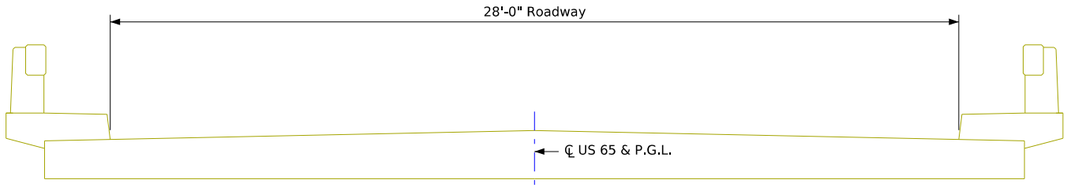
Site Plan

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

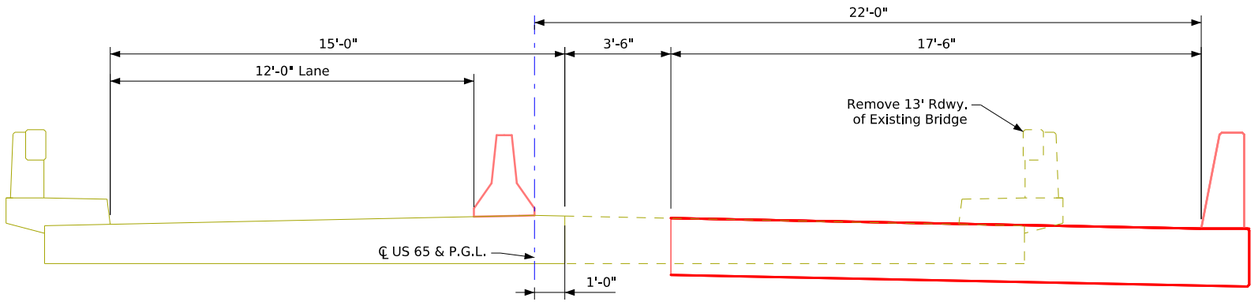
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Design No. 0127 Design Sheet No. 5 of 23 FHWA No. 050931

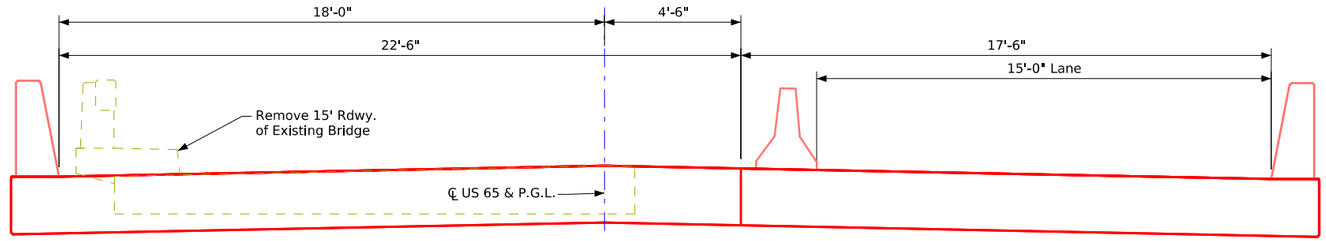


Typical Section - Existing



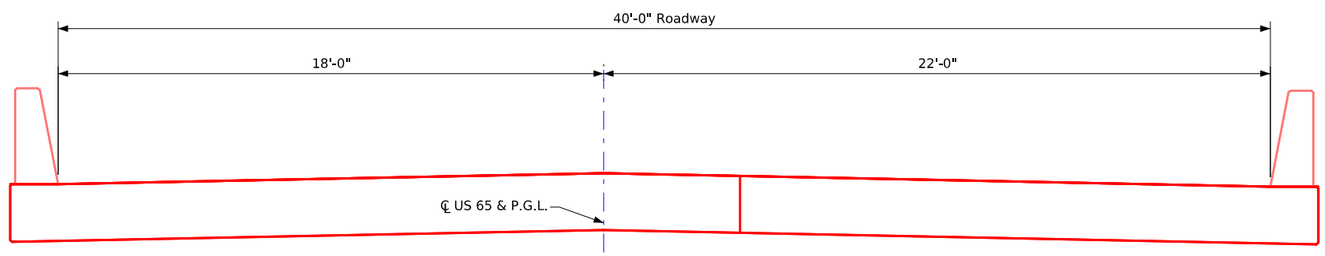
Typical Section - Stage 1

Stage 1:
- Set up traffic control for Stage 1 construction and place traffic on east lane.
- Remove approach pavement for Stage 1 construction and install temporary shoring.
- Complete Stage 1 removals.
- Partial Abutments Removal
- One existing beam line
- Construct Stage 1 berm.
- Construct piers to the limits shown above.
- Construct Stage 1 of new bridge.
- Backfill Stage 1 abutments.
- Place Stage 1 permanent approach pavement.
- Install Stage 1 shoulders and guardrail.



Typical Section - Stage 2

Stage 2:
- Set up traffic control for Stage 2 construction and place traffic on new west lane.
- Reset temporary shoring as needed.
- Complete Stage 2 approach and bridge removal and construct Stage 2 berm.
- Construct Stage 2 of new bridge.
- Construct closure pour area.
- Backfill abutments.
- Remove temporary shoring.
- Place Stage 2 permanent approach pavement.
- Install Stage 2 shoulders and guardrail.



Typical Section - Final

Completion:
Refer to roadway sheets for details pertaining to traffic control, approach pavement and guardrail
Work is to be completed in stages with one lane traffic maintained at all times.
- Open US 65 to normal traffic.

Notes:

Typical sections are looking North.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Bridge Staging

STA. 840+32.25 (US 65) — Turn -in Date: Sept. 2026

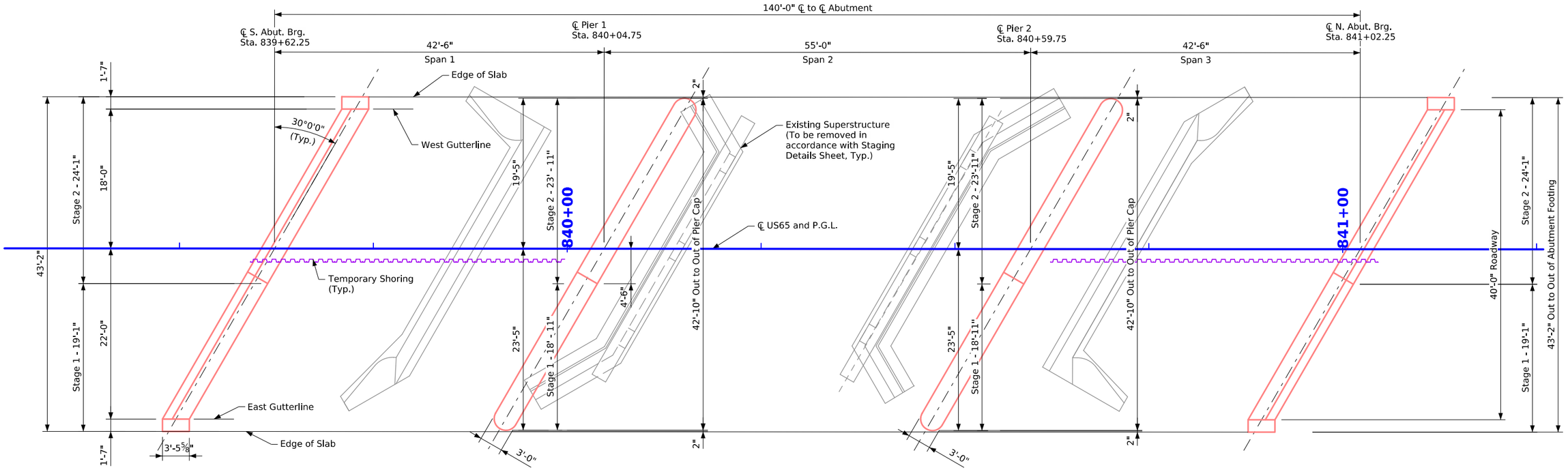
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 6 of 23 — FHWA No. 050931

FILE NO. **32605**	ENGLISH	DESIGN TEAM **AECOM**	**Warren** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER **V.6**

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N

Bridge Coordinates

Location	℄ S. Abut. Brg.	℄ Pier 1	℄ Pier 2	℄ N. Abut. Brg.
West Edge of Slab	E=18543365.14 N=7434765.95	E=18543365.17 N=7434808.45	E=18543365.20 N=7434863.45	E=18543365.23 N=7434905.95
℄ Approach Roadway	E=18543384.72 N=7434754.63	E=18543384.78 N=7434852.13	E=18543384.74 N=7434797.13	E=18543384.81 N=7434894.63
East Edge of Slab	E=18543408.29 N=7434741.00	E=18543408.32 N=7434783.50	E=18543408.35 N=7434838.50	E=18543408.38 N=7434881.00

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

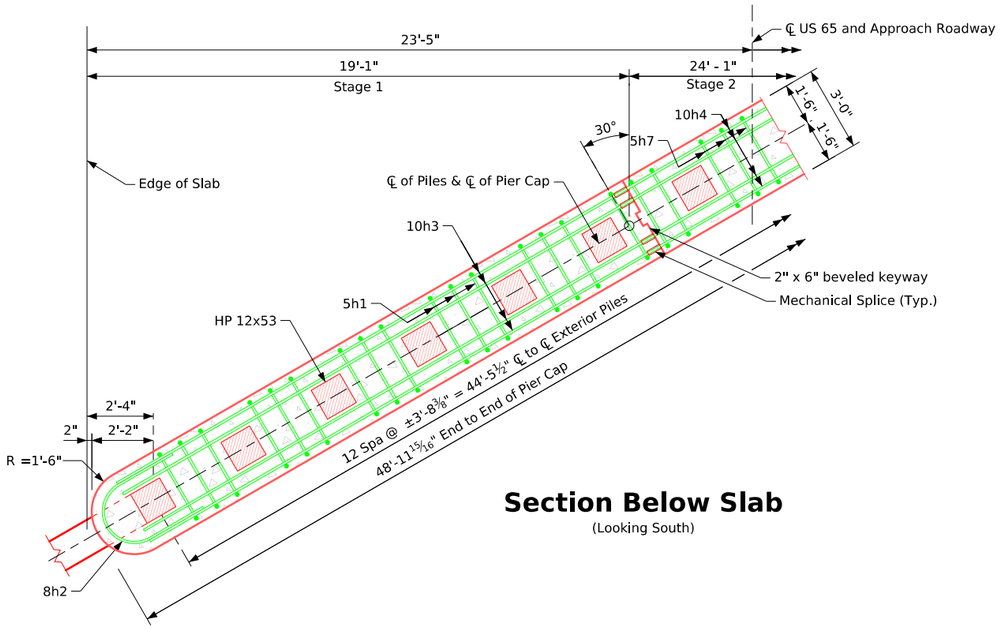
Staking Diagram

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

Warren County

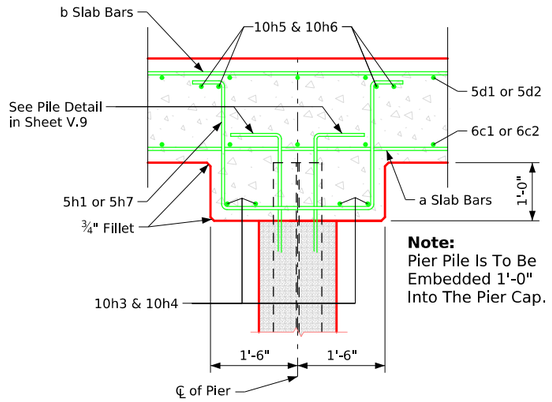
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Design No. 0127 — Design Sheet No. 7 of 23 — FHWA No. 050931



Section Below Slab

(Looking South)



TYPICAL CAP SECTION

Note:
Pier Pile Is To Be Embedded 1'-0" Into The Pier Cap.

Pier Notes:

All monolithic pier cap reinforcing and concrete is included in superstructure estimate of quantities.

The minimum clear distance from the face of the concrete to the nearest reinforcing bar is to be 2 inches unless otherwise noted or shown.

Cap steel as detailed in this sheet is required for monolithic pier caps.

Concrete quantities are based on the use of Type 3 piling. If Type 1 or Type 2 is used, concrete quantities may be adjusted to account for the displacement caused by the piling.

All reinforcing steel is to be Grade 60.

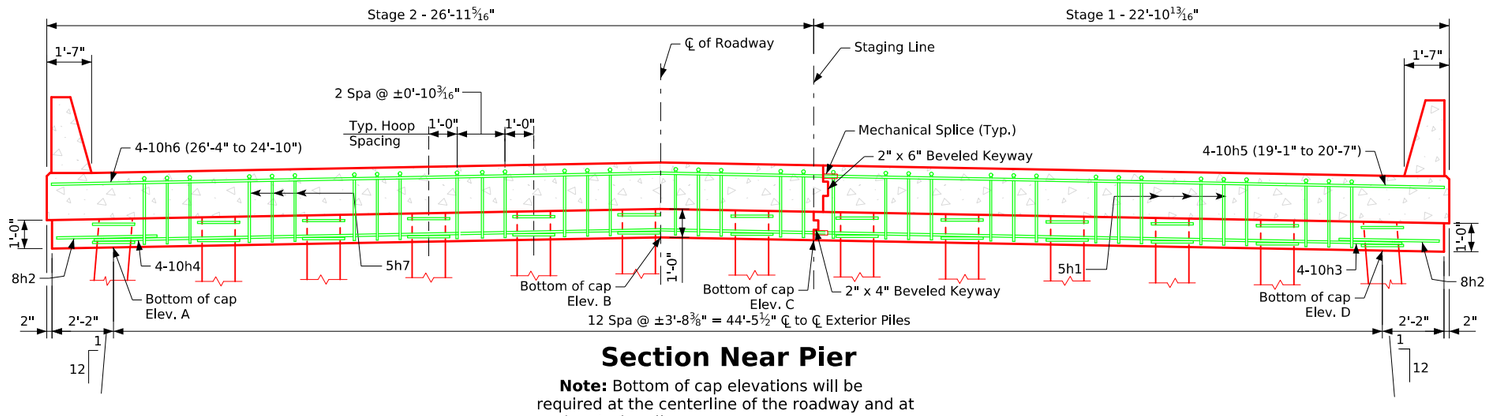
Pier piling was designed for HL-93 loading with an allowance for a 20 lbs. per sq. ft. future wearing surface.

Pier 1 and 2 Pile Driving Notes:

The contract length of 60 feet for the Pier 1 and 2 piles is based on a mixed soil classification, a total factored axial load per pile (pu) of 132 kips, and a geotechnical resistance factor (phi) of 0.70 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a geotechnical resistance factor (phi) of 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of encasement.

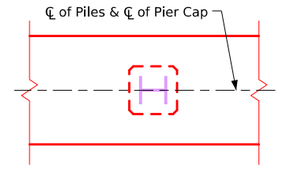
The required nominal axial bearing resistance for Pier 1 and 2 piles is 95 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. In no case shall a pile be embedded less than 12 feet. Construction control requires a WEAP analysis with bearing graph.



Section Near Pier

Note: Bottom of cap elevations will be required at the centerline of the roadway and at each exterior pile.

Deck bars not shown for clarity.



Pile Orientation

Type 3 Trestle Bent Piles.

Table of Pier Elevations

Point	Pier No. 1	Pier No. 2
Elev. A	801.30	801.28
Elev. B	801.61	801.61
Elev. C	801.55	801.55
Elev. D	801.20	801.22

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Pier Details - 1

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

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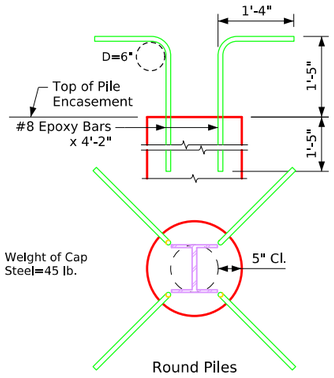
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Design No. 0127 — Design Sheet No. 8 of 23 — FHWA No. 050931

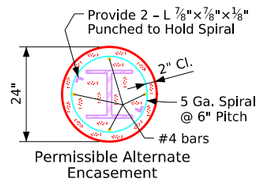
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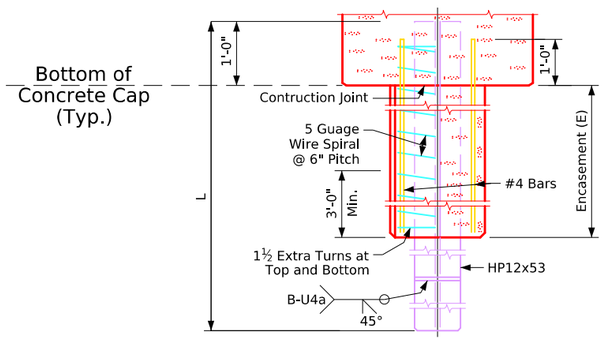
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Concrete Encased Steel H Pile

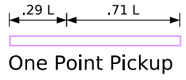


Cap Steel Details

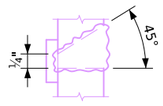




Type 3



Pile Handling Diagram



B-U4a for Web and Flange Weld

General Notes:

Except as noted elsewhere, material, construction, driving and extensions or build ups when necessary shall be in accordance with Standard Specifications of the Iowa D.O.T. and current Supplemental Specifications and Special Provisions applicable.

Cap steel shall be as detailed on this sheet (D=Pin Diameter). It shall be used if pile embedment is less than 1'-6".

Cost of all driving points and cap steel is to be included in the price bid per linear foot for piling.

Wire spiral shall conform to ASTM A1064 Grade 70.

Bidding Notes:

The plans designate the size of pile to be used. They also specify Type 3.

Piles shall be bid designating the size, type and length.

Type 3 piling will be bid per linear foot of pile and linear foot of encasement. Price bid for encasement shall be full payment for necessary excavation and for furnishing and placing all material.

Steel H Pile			HP12×53
Round	Concrete (E=18')	cy	2.02
	Concrete 1' Change	cy	0.112
	④ Reinforcing (E=18')	lb	102
	④ Reinforcing 1' Change	lb	5.26
⑤ Nominal Resistance Pn		kips	192
f'c = 4.0 ksi			

④ Includes Weight of Punched L ⅞"×⅞"×⅛"
⑤ See Bridge Design Manual 6.6.4.2 for Additional Information

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Pier Details - 2

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 9 of 23 — FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.9

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ABUTMENT NOTES:

All piling are HP 10x42.

The concrete and reinforcing steel for the wings is included with the superstructure.

Details on this sheet are to be used only when abutments are placed on steel piles. If rock is encountered closer than 12'-0" below the abutment footing, special analysis may be required.

The minimum clear distance from the face of the concrete to the nearest reinforcing bar is to be 2 inches unless otherwise noted or shown.

Steel abutment piles shall be driven to full penetration if practicable, but in no case to a bearing value less than shown in the design plans.

All reinforcing steel is to be Grade 60.

Abutment piling was designed for HL-93 loading with an allowance for 20 lbs. per sq. ft. future wearing surface.

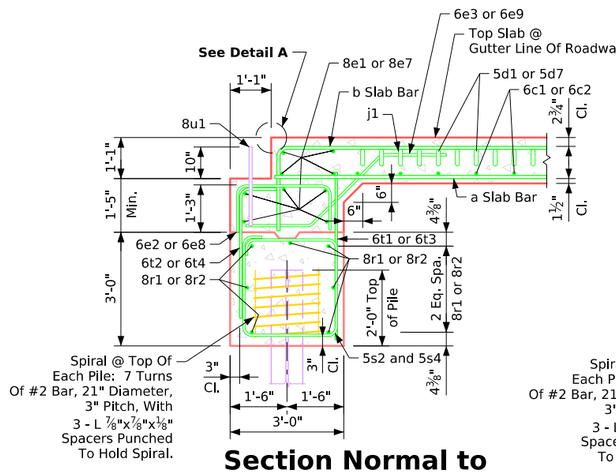
NOTES:

Barrier rails and reinforcement not shown.

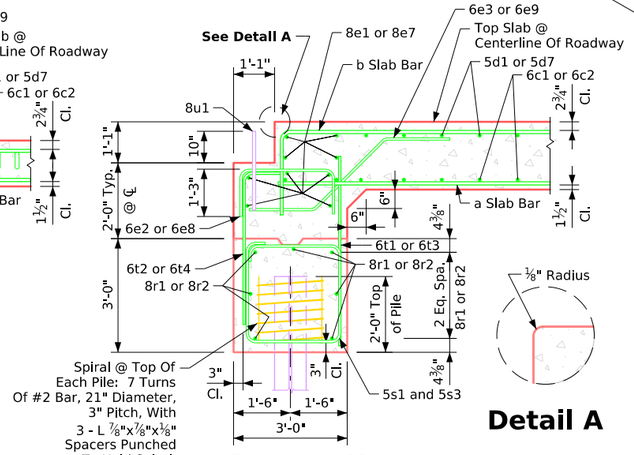
Wing reinforcing not shown.

5n1 and 5n2 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet V.15.

6e and 8e bars are included in the **Superstructure Quantities** V.15.



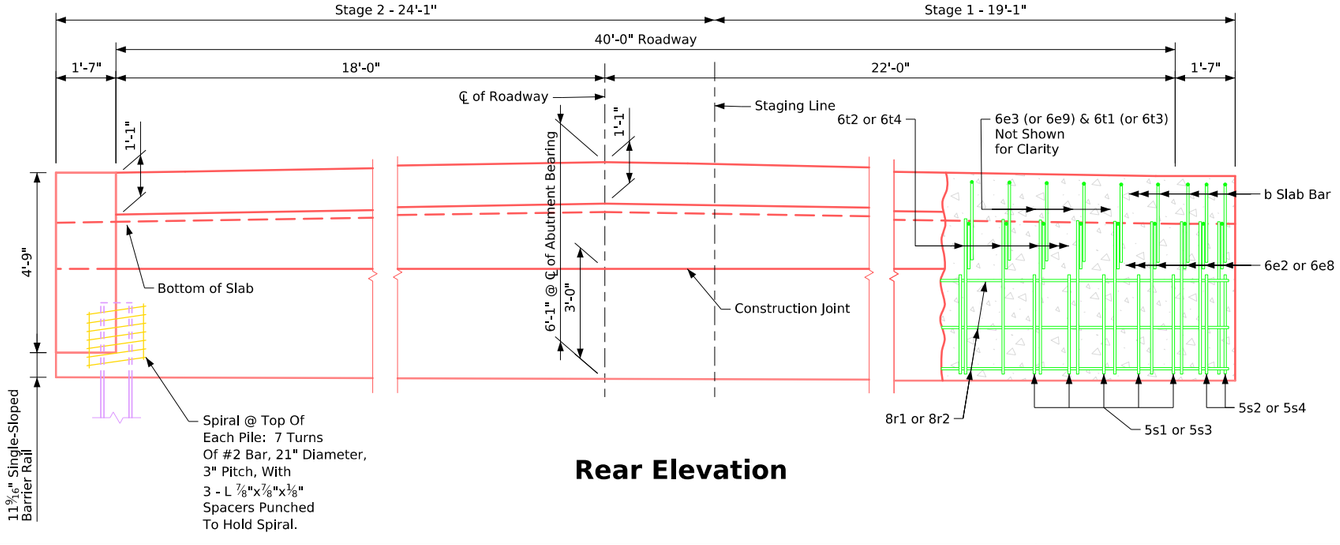
Section Normal to Abutment @ Gutter Line



Section Normal to Abutment @ ℄

Detail A

Plan View



Rear Elevation

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Integral Abut. Details - 1

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

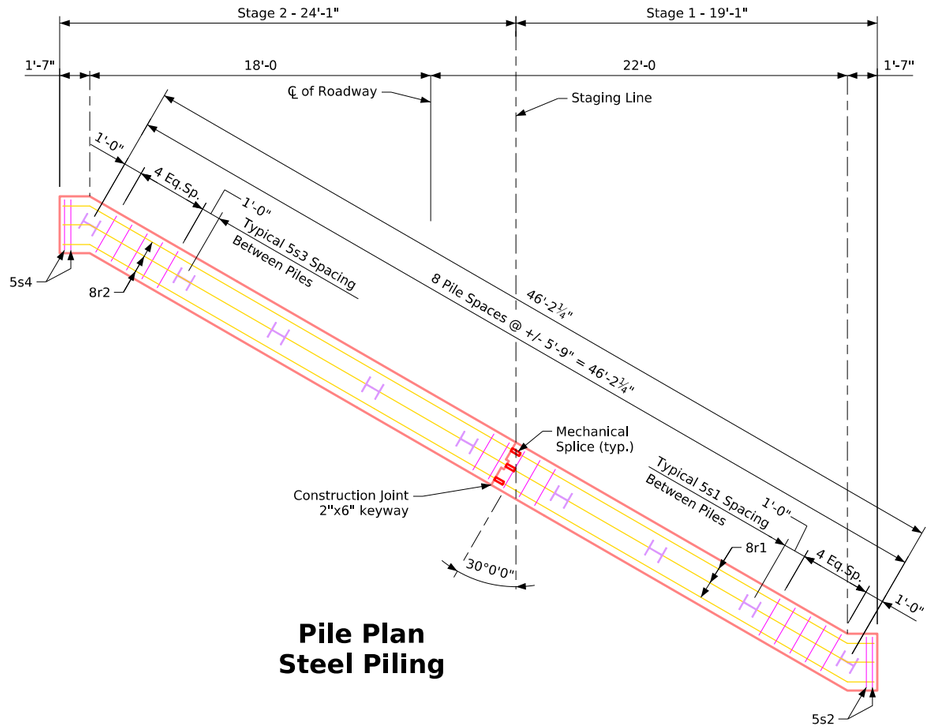
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FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.10

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Pile Plan
Steel Piling

Number of Piles and Abutment Design Loads

Bridge Length	140'-0
Piling - Number	9
Pu, Strength 1 Design Load - kips	Δ852
Δ Includes dynamic load allowance	
Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.	

BILL OF REINFORCING STEEL - ONE ABUTMENT

Mark	Location	Shape	Length	No.	Weight
8r1	Abutment Footing Longitudinal - Stage 1		Varies	7	415
8r2	Abutment Footing Longitudinal - Stage 2		Varies	7	491
5s1	Abutment Footing Hoops - Stage 1		11'-0"	19	218
5s2	Abutment Footing Hoops- Stage 1		11'-11"	2	25
5s3	Abutment Footing Hoops- Stage 2		11'-0"	22	253
5s4	Abutment Footing Hoops- Stage 2		11'-11"	2	25
6t1	Footing To Slab Bars - Stage 1		5'-0"	21	158
6t2	Footing To Slab Bars - Stage 1		5'-7"	21	177
6t3	Footing To Slab Bars - Stage 2		5'-0"	25	188
6t4	Footing To Slab Bars - Stage 2		5'-7"	25	210
#2	Pile Spiral - Stage 1		38'-6"	4	26
	Spiral Spacers - L⅞x⅞x⅛x 0.70 - Stage 1		1'-10"	12	16
#2	Pile Spiral - Stage 2		38'-6"	5	33
	Spiral Spacers - L⅞x⅞x⅛x 0.70 - Stage 2		1'-10"	15	20
	Reinforcing steel epoxy coated - total (lbs.)				2255

ESTIMATED QUANTITIES - ONE ABUT.

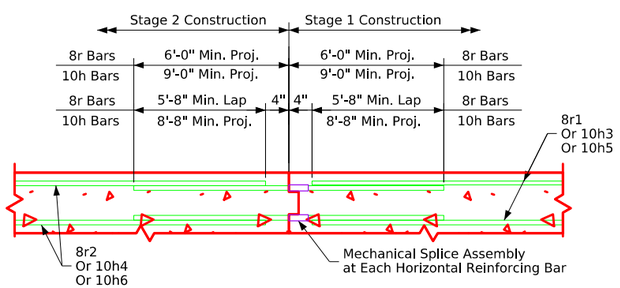
Location	Unit	Stage 1	Stage 2
Structural Concrete (Bridge)	c.y.	7.5	9.5
Reinforcing Steel, Epoxy-Coated	lbs.	1035	1220
Steel Piling HP 10x42	no.	4	5
Prebored Holes	ft.	40	50

Mechanical Splice Assemblies

The 8r1-8r2 and 10h3-10h6 bars in the abutment footing and pier caps, respectively, shall be spliced at the locations shown using mechanical splice assemblies. Mechanical splice assemblies consist of mechanical splicers and reinforcing splice bars as required to facilitate the use of the mechanical splicer. The mechanical splice assembly used shall meet the requirements of Materials I.M. 451 Appendix E. Reinforcing splice bars shall be a minimum of 1 inch diameter.

All mechanical splice assemblies to be used shall be epoxy coated.

The cost of all splice assemblies is to be included in the price bid for "Reinforcing Steel Epoxy Coated" and no separate payment will be made. The weight of mechanical splice assemblies is not included in the quantity shown for "Reinforcing Steel Epoxy Coated".
A total of 7 epoxy coated splice assemblies will be required for each abutment.
A total of 8 epoxy coated splice assemblies will be required for each monolithic pier cap.



Mechanical Splice Detail

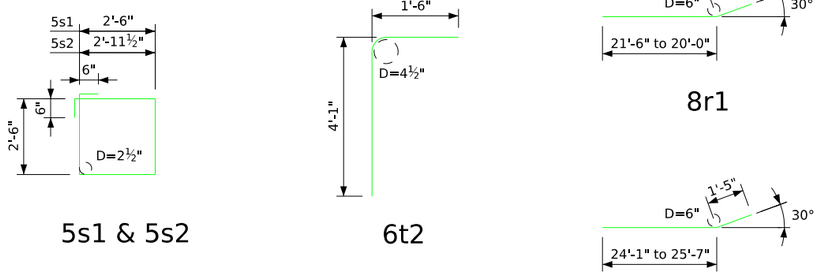
Abutment Pile Driving Notes:

The contract length of 60 feet for both Abutments piles is based on a mixed soil classification, a total factored axial load per pile (pu) of 95 kips, and a geotechnical resistance factor (phi) of 0.70 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a geotechnical resistance factor (phi) of 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing.

The required nominal axial bearing resistance for both abutment piles is 70 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

BENT BAR DETAILS



Note: All Dimensions Are Out To Out. D=pin Diameter.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Integral Abut. Details - 2

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

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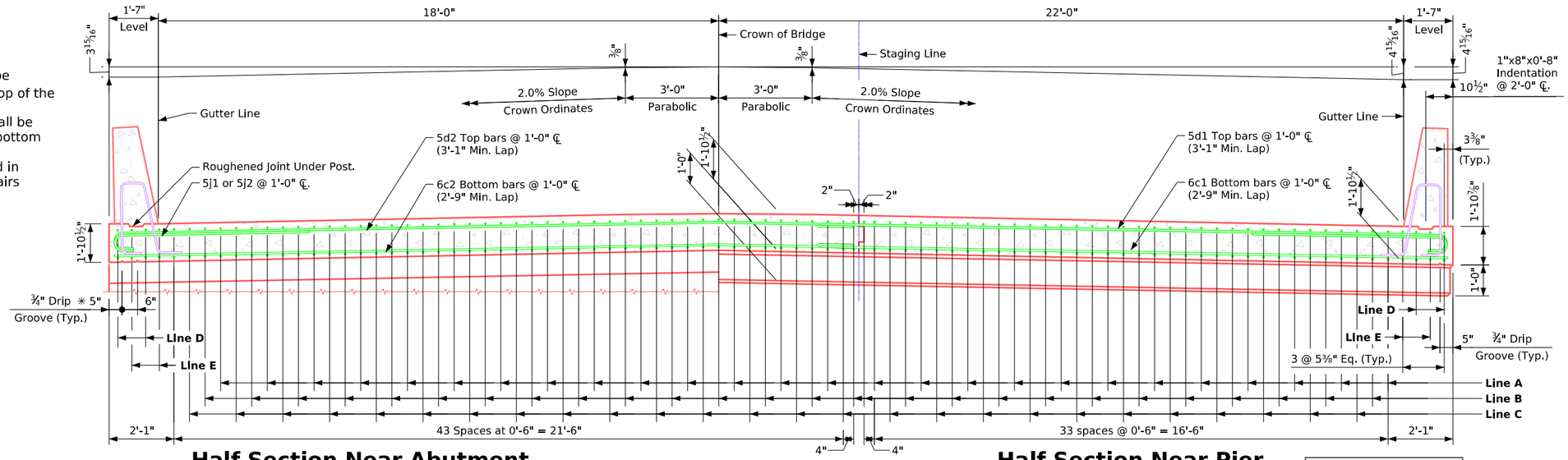
Design No. 0127 Design Sheet No. 11 of 23 FHWA No. 050931

Note:

Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the slab.

Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the slab.

Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

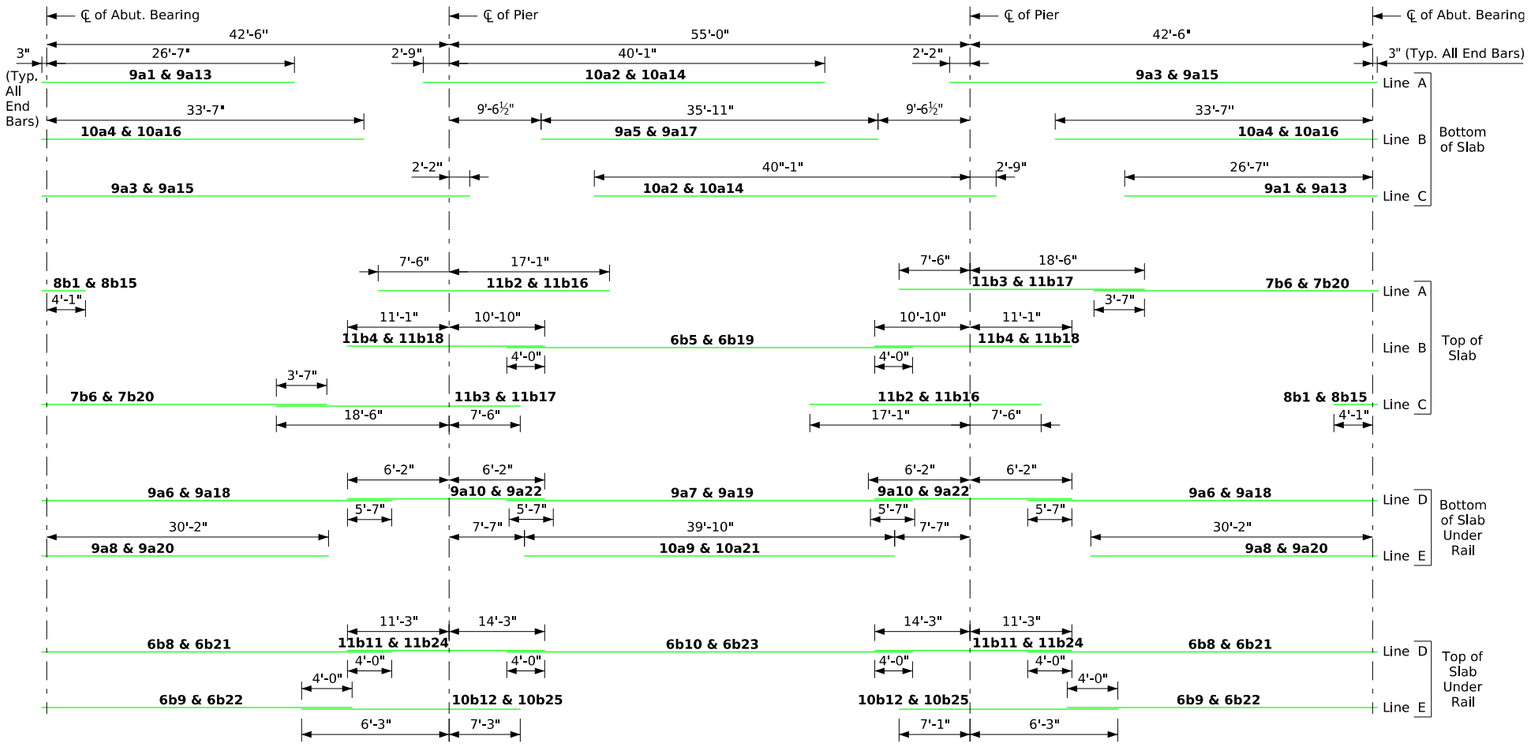


Half Section Near Abutment

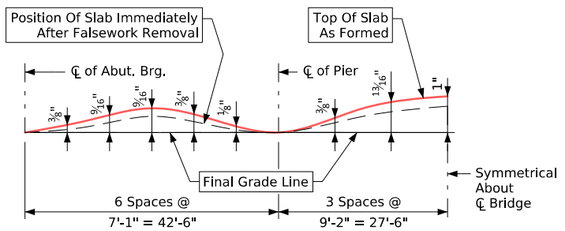
Half Section Near Pier

Slab Cross-Section Area For Single-Slope Barrier Rail = 80.99 sq. ft.

I.M. 451.01 Requirements Shall Apply For Bar Chairs.



Placement for Longitudinal Reinforcement



Form Camber Diagram

This diagram illustrates the form camber required to compensate for the anticipated ultimate dead load deflection. The dimensions shown do not account for form deflection or falsework settlement.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Transverse Section

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

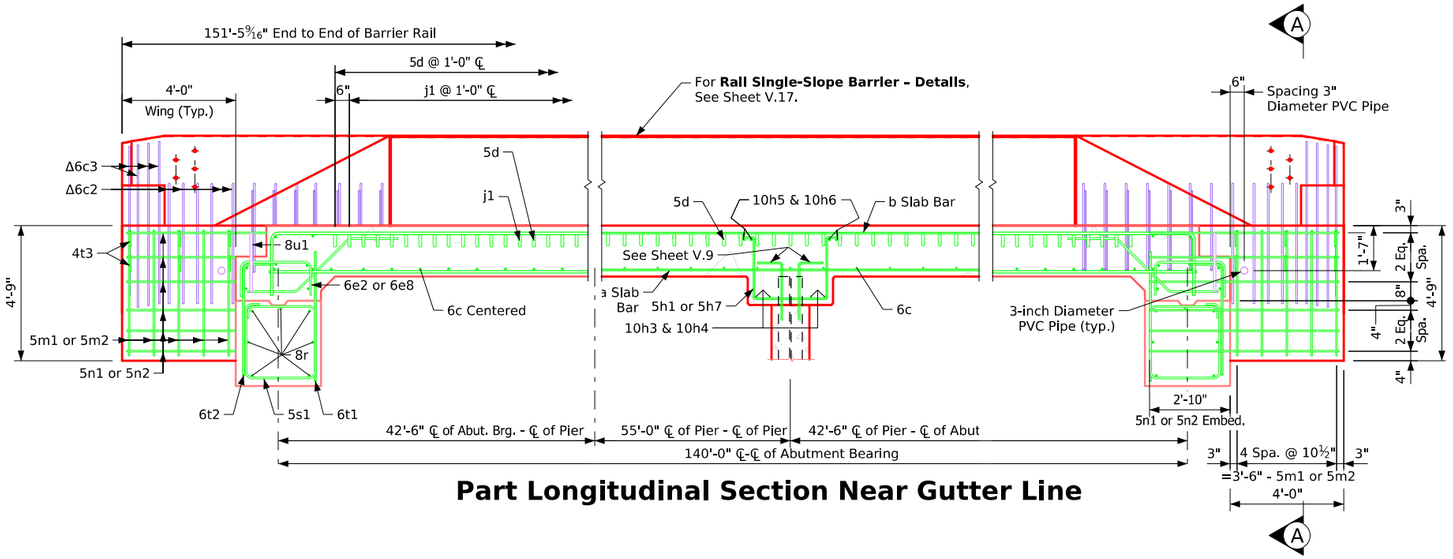
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

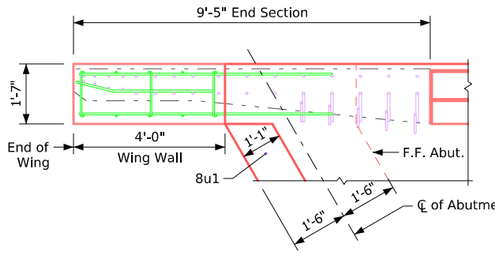
Design No. 0127 — Design Sheet No. 12 of 23 — FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.12

12:09:24 PM 9/15/2026 Mira.Luke pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\9106501022\Bridge\(087)_Bridge Replacement-CCS\SHT_91065087_AECOM_0127_050931_Z08.dgn

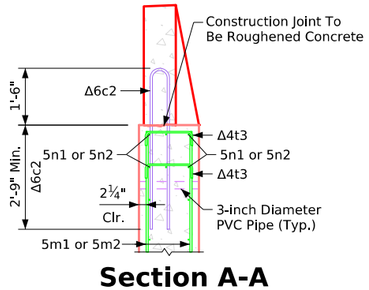


Part Longitudinal Section Near Gutter Line



Part Plan 30° Skew

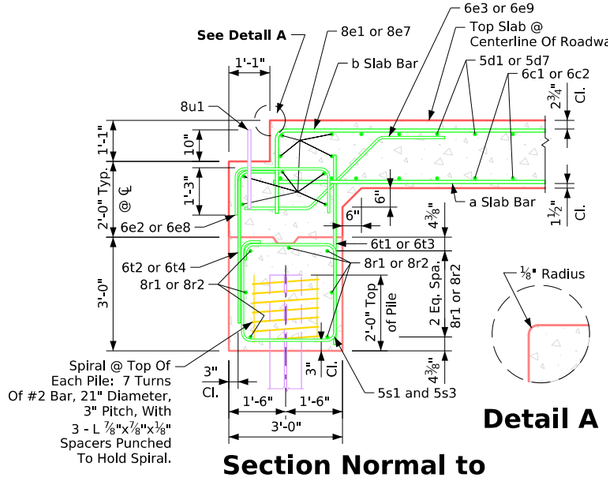
(End Section Not Shown)



Section A-A

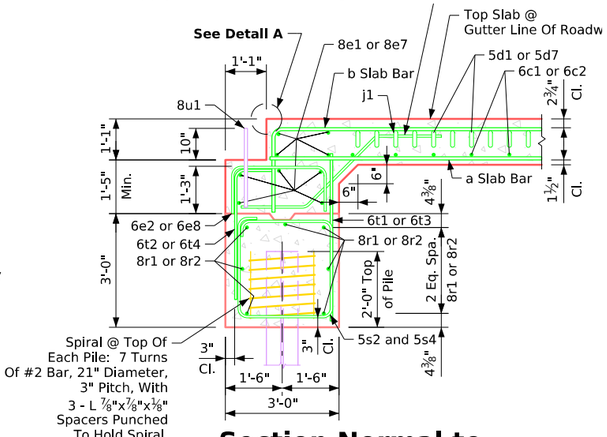
Δ Note: Refer to **Rail Single-Slope Barrier – End Section Details (1 of 2)** sheet on **V.19** for details of the barrier rail end section. Reinforcing 6c2, 5c4, and 4t3 are included in the **Rail Single-Slope Barrier – End Section Details (2 of 2)** sheet on **V.20.**

Note: 5m1, 5m2. 5n1, and 5n2 are included in the **Superstructure Quantities** sheet.



Section Normal to Abutment @ ℄

Detail A



Section Normal to Abutment @ Gutter Line

Superstructure Notes:

This bridge is designed for HL-93 loading plus an allowance of 20 pounds per square foot of roadway for a future wearing surface.

The slab, as shown, includes a 3/4-inch integral wearing surface.

The minimum clear distance from the face of concrete to the nearest reinforcing bar shall be 2 inches unless otherwise noted or shown. All reinforcing steel is to be securely wired in place. See **Bar Chair Note**.

All reinforcing shall be Grade 60.

The concrete slab is to be placed with a minimum of construction joints. Procedures for placing slab concrete shall be submitted for approval, together with a statement of the proposed method and evidence that the Contractor possesses the necessary equipment and facilities to accomplish the required result. Slab falsework shall be removed prior to the construction of the barrier rails unless slab construction is staged.

Note that when Portland cement approach pavement is placed, compressible joint material must be used between the pavement and the end of the bridge. If necessary to prevent damage to the end of the bridge deck or backwall from construction equipment, an appropriate method of protection approved by the Engineer shall be provided by the Bridge Contractor at no extra cost to the State.

The cost of furnishing and placing a 3-inch diameter PVC pipe in each wing is included in the price bid for "Structural Concrete (Bridge)".

Bar Chair Note:

The top mat of reinforcing steel is to be supported by individual bar chairs spaced at no more than 3'-0" centers longitudinally and transversely. The bottom mat of reinforcing steel is to be supported by individual bar chairs spaced at no more than 3'-0" centers longitudinally and transversely, or by continuous rows of bar high chairs or slab bolsters spaced 4'-0" apart. **I.M. 451.01** requirements shall apply for bar chairs, bar high chairs, and slab bolsters.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Superstructure Details - 1

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

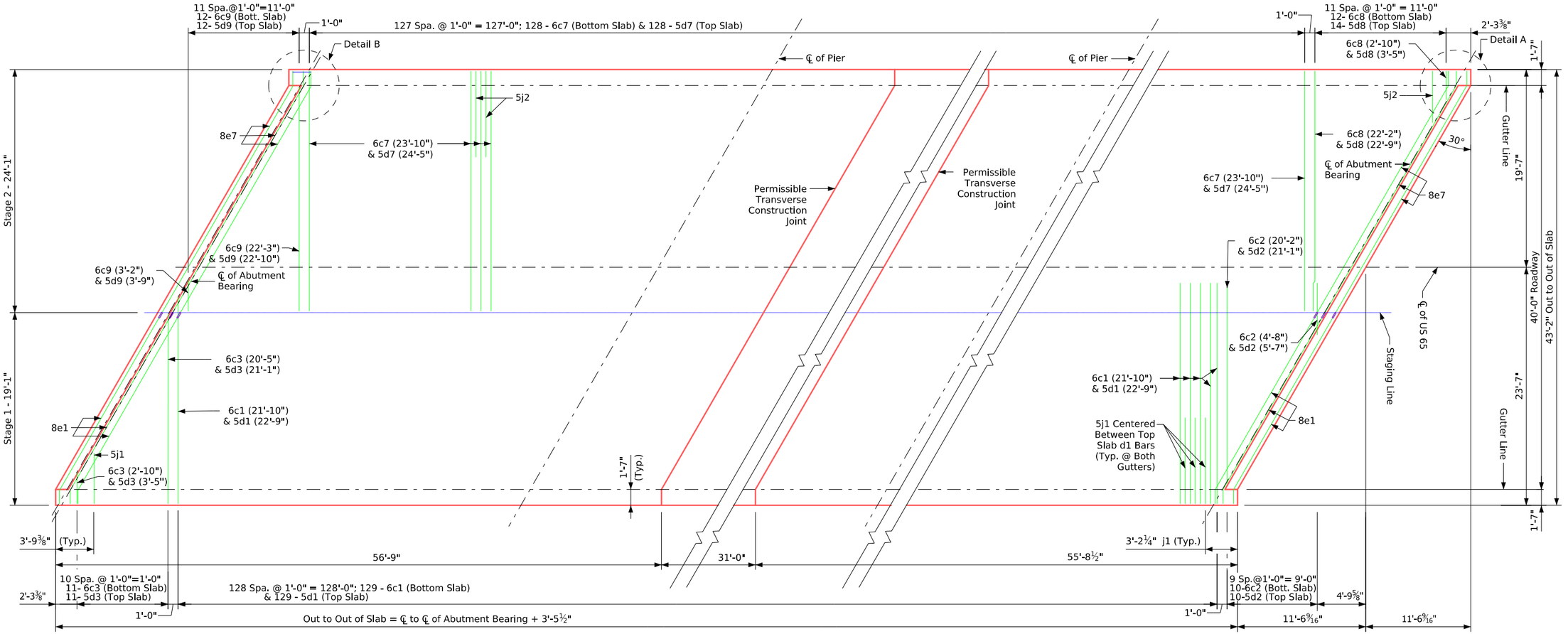
Warren County

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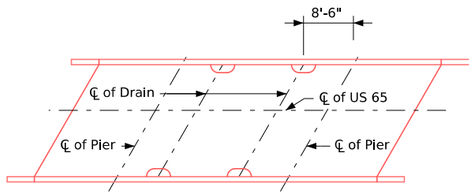
Design No. 0127 Design Sheet No. 13 of 23 FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.13

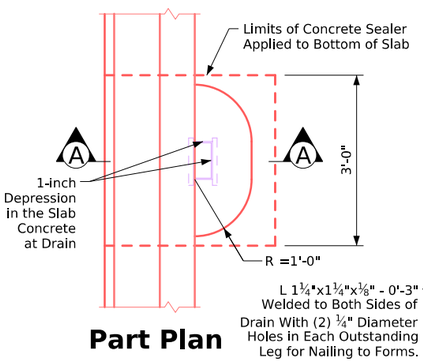
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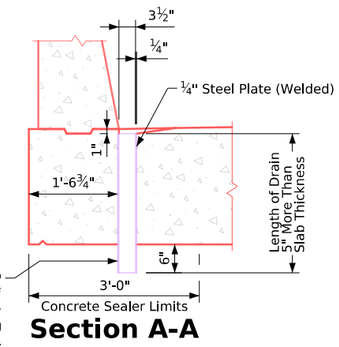
Transverse Reinforcing Steel Layout



Drain Locations



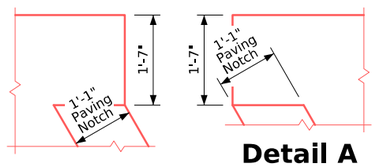
Part Plan



Section A-A

Floor Drain Details

Note: Drains are to be galvanized. Cost of drains is includedin the price bid for "**Structural Concrete Bridge**." (4 Drains Required)



Detail B

Detail A

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Superstructure Details - 2

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 14 of 23 — FHWA No. 050931

FILE NO. **32605**	ENGLISH	DESIGN TEAM **AECOM**	**WARREN** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER V.14

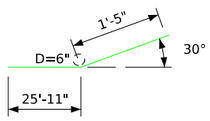
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Epoxy Steel Reinforcing for Superstructure

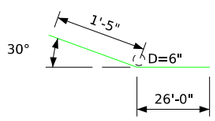
Location	Shape	Bar	No.	Length	Weight
Slab Longitudinal Bottom - Stage 1		9a1	24	26'-10"	2190
Slab Longitudinal Bottom - Stage 1		10a2	24	42'-10"	4424
Slab Longitudinal Bottom - Stage 1		9a3	24	44'-11"	3666
Slab Longitudinal Bottom - Stage 1		10a4	24	33'-10"	3495
Slab Longitudinal Bottom - Stage 1		9a5	12	35'-11"	1466
Slab Longitudinal Bottom, at Rail - Stage 1		9a6	4	42'-2"	574
Slab Longitudinal Bottom, at Rail - Stage 1		9a7	2	53'-10"	367
Slab Longitudinal Bottom, at Rail - Stage 1		9a8	4	30'-5"	414
Slab Longitudinal Bottom, at Rail - Stage 1		10a9	2	39'-10"	343
Slab Longitudinal Bottom, at Rail - Stage 1		9a10	4	12'-4"	168
Slab Longitudinal Bottom - Stage 2		9a13	30	26'-10"	2737
Slab Longitudinal Bottom - Stage 2		10a14	30	42'-10"	5530
Slab Longitudinal Bottom - Stage 2		9a15	30	44'-11"	4582
Slab Longitudinal Bottom - Stage 2		10a16	30	33'-10"	4368
Slab Longitudinal Bottom - Stage 2		9a17	15	35'-11"	1832
Slab Longitudinal Bottom, at Rail - Stage 2		9a18	4	42'-2"	574
Slab Longitudinal Bottom, at Rail - Stage 2		9a19	2	53'-10"	367
Slab Longitudinal Bottom, at Rail - Stage 2		9a20	4	30'-5"	414
Slab Longitudinal Bottom, at Rail - Stage 2		10a21	2	39'-10"	343
Slab Longitudinal Bottom, at Rail - Stage 2		9a22	4	12'-4"	168
Slab Longitudinal Top - Stage 1		8b1	24	6'-7"	422
Slab Longitudinal Top - Stage 1		11b2	24	24'-7"	3135
Slab Longitudinal Top - Stage 1		11b3	24	26'-0"	3316
Slab Longitudinal Top - Stage 1		11b4	24	21'-11"	2795
Slab Longitudinal Top - Stage 1		6b5	12	41'-4"	745
Slab Longitudinal Top - Stage 1		7b6	24	30'-1"	1476
Slab Longitudinal Top, at Rail - Stage 1		6b8	4	37'-9"	227
Slab Longitudinal Top, at Rail - Stage 1		6b9	4	42'-9"	257
Slab Longitudinal Top, at Rail - Stage 1		6b10	2	34'-6"	104
Slab Longitudinal Top, at Rail - Stage 1		11b11	4	25'-6"	542
Slab Longitudinal Top, at Rail - Stage 1		10b12	4	13'-6"	233
Slab Longitudinal Top - Stage 2		8b15	30	6'-7"	528
Slab Longitudinal Top - Stage 2		11b16	30	24'-7"	3919
Slab Longitudinal Top - Stage 2		11b17	30	26'-0"	4145
Slab Longitudinal Top - Stage 2		11b18	30	21'-11"	3494
Slab Longitudinal Top - Stage 2		6b19	15	41'-4"	932
Slab Longitudinal Top - Stage 2		7b20	30	30'-1"	1845
Slab Longitudinal Top, at Rail - Stage 2		6b21	4	37'-9"	227
Slab Longitudinal Top, at Rail - Stage 2		6b22	4	42'-9"	257
Slab Longitudinal Top, at Rail - Stage 2		6b23	2	34'-6"	104
Slab Longitudinal Top, at Rail - Stage 2		11b24	4	25'-6"	542
Slab Longitudinal Top, at Rail - Stage 2		10b25	4	13'-6"	233
Slab Transverse Bottom - Stage 1		6c1	129	21'-10"	4231
Slab Transverse Ends, Bottom - Stage 1		6c2	10	Varies	187
Slab Transverse Ends, Bottom - Stage 1		6c3	11	Varies	193
Slab Transverse Bottom - Stage 2		6c7	128	23'-10"	4583
Slab Transverse Ends, Bottom - Stage 2		6c8	12	Varies	226
Slab Transverse Ends, Bottom - Stage 2		6c9	12	Varies	230
Slab Transverse Top - Stage 1		5d1	129	22'-9"	3061
Slab Transverse Ends, Top - Stage 1		5d2	10	Varies	140
Slab Transverse Ends, Top - Stage 1		5d3	11	Varies	141
Slab Transverse Top - Stage 2		5d7	128	24'-5"	3260
Slab Transverse Ends, Top - Stage 2		5d8	12	Varies	164
Slab Transverse Ends, Top - Stage 2		5d9	12	Varies	167
Slab, Tansverse at Abutment - Stage 1		8e1	18	27'-5"	1318
Slab, Tansverse at Abutment - Stage 1		6e2	44	5'-5"	358
Slab, Tansverse at Abutment - Stage 1		6e3	42	5'-11"	374
Slab, Tansverse at Abutment - Stage 2		8e7	18	27'-4"	1314
Slab, Tansverse at Abutment - Stage 2		6e8	48	5'-5"	391
Slab, Tansverse at Abutment - Stage 2		6e9	50	5'-11"	445
Top of Slab, Transverse, at Rail - Stage 1		5j1	137	6'-9"	965
Top of Slab, Transverse, at Rail - Stage 2		5j2	137	6'-9"	965
Wing, Vertical - Stage 1		5m1	20	4'-5"	93
Wing, Vertical - Stage 2		5m2	20	4'-5"	93
Wing, Horizontal Back Face - Stage 1		5n1	24	6'-8"	167
Wing, Horizontal Back Face - Stage 2		5n2	24	6'-8"	167
Epoxy Coated Reinforcing Total Weight (lbs.)					90,733

Monolithic Pier Caps	3,908
Rail Single-Slope Barrier – Quantities - See V.18.	5,827
Epoxy Coated Rail Total-lbs. Monolithic Single-Slope Rail	100,468
Stainless Steel Rail Total-lbs. Single-Slope Rail	3,096

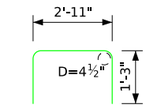
Bent Bar Details



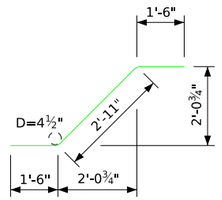
8e7



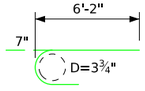
8e1



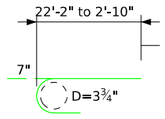
6e2 and 6e8



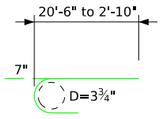
6e3 and 6e9



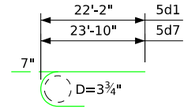
5j1 and 5j2



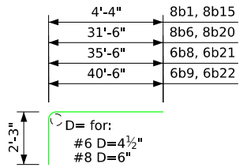
5d8



5d3



5d1 and 5d7



8b1, 8b6, 6b8
6b9, 8b15, 8b20,
6b21, and 6b22

Note: All Dimensions Are Out To Out. D=pin Diameter.

Epoxy Reinforcing Steel - One Pier

Bar	Shape	No.	Length	Weight
5h1 - Stage 1		16	8'-3"	138
8h2 - Stage 1		1	14'-5"	39
10h3 - Stage 1		4	20'-8"	356
10h4 - Stage 2		4	24'-9"	426
10h5 - Stage 1		4	Varies	342
10h6 - Stage 2		4	Varies	441
5h7 - Stage 2		20	8'-3"	173
8h8 - Stage 2		1	14'-5"	39
Epoxy Coated Reinforcing Total Weight (lbs.)				1954

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar - Stage 1		8u1	18	2'-1	101
Abutment Paving Notch Bar - Stage 2		8u1	22	2'-1	123
Stainless Steel Reinforcing Total Weight (lbs.)					224

8u1 bars are to be paid for under the price bid for **"Reinforcing Steel, Stainless Steel"**.

Estimated Quantities for Superstructure

Item	Stage 1	Stage 2
With Single-Slope Rail		
* Structural Concrete (Bridge) (c.y.)	2.3	2.3
Fiber Reinforced Structural Concrete (Bridge) (c.y.)	199.7	252.4
Reinf. Steel Epoxy Coated (lbs.)	41587	49146
Δ Reinf. Steel Stainless Steel (lbs.)	1649	1671
Concrete single-slope barrier (lin.ft.)	151.5	151.5

* Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.

Δ Includes abutment paving notch bar weight.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Superstructure Details - 3

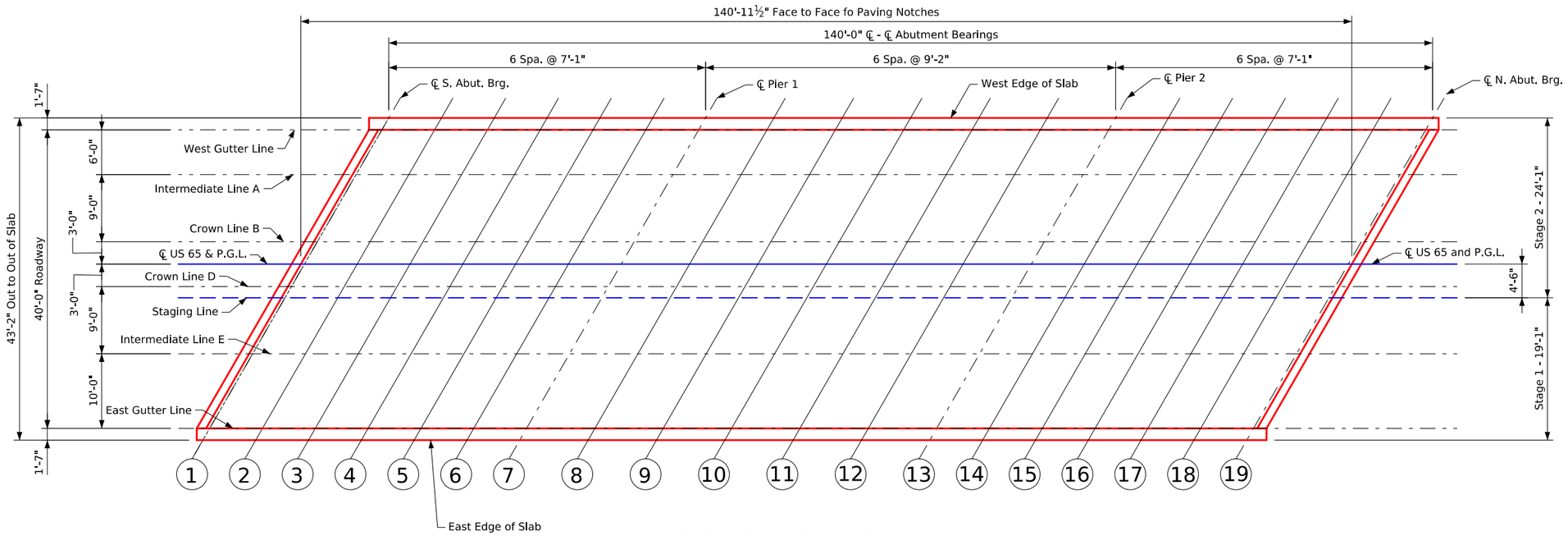
STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

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Design No. 0127 Design Sheet No. 15 of 23 FHWA No. 050931

Control Point: CP2, N 7435569.86, E 18543242.04, CP Cut X on Row Rail in SW Quad US 65 & Elk Horn St, Elev. = 800.61



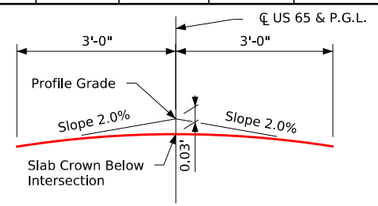
Slab Elevation Plan

N

Top of Slab Elevations

Location	℄ S Abut. Bearing						℄ Pier No. 1 Bearings						℄ Pier No. 2 Bearings						℄ N. Abut. Bearing
	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	Line 13	Line 14	Line 15	Line 16	Line 17	Line 18	Line 19
West Gutter Line	804.12	804.13	804.14	804.14	804.15	804.15	804.16	804.16	804.16	804.16	804.15	804.15	804.14	804.13	804.13	804.12	804.11	804.09	804.08
Intermediate Line A	804.24	804.25	804.25	804.26	804.27	804.27	804.28	804.28	804.28	804.28	804.28	804.27	804.26	804.26	804.25	804.24	804.23	804.22	804.21
Crown Line B	804.41	804.42	804.43	804.44	804.44	804.45	804.45	804.46	804.46	804.46	804.46	804.45	804.45	804.44	804.44	804.43	804.42	804.41	804.40
℄ US 65 and P.G.L.	804.44	804.45	804.46	804.47	804.47	804.48	804.48	804.49	804.49	804.49	804.49	804.49	804.48	804.48	804.47	804.46	804.45	804.44	804.43
Crown Line D	804.40	804.41	804.42	804.43	804.44	804.45	804.45	804.46	804.46	804.46	804.46	804.46	804.45	804.45	804.44	804.43	804.42	804.41	804.40
Staging Line	804.37	804.38	804.39	804.40	804.41	804.42	804.42	804.43	804.43	804.43	804.43	804.43	804.42	804.42	804.41	804.40	804.39	804.38	804.37
Intermediate Line E	804.22	804.23	804.24	804.25	804.26	804.26	804.27	804.27	804.28	804.28	804.28	804.28	804.27	804.27	804.26	804.26	804.25	804.24	804.23
East Gutter Line	804.00	804.02	804.03	804.04	804.05	804.06	804.06	804.07	804.08	804.08	804.08	804.08	804.08	804.07	804.07	804.06	804.06	804.05	804.04

Note:
Line numbers correspond to the circle numbers shown on this sheet.



Crown Template

No Scale

Note:
The top of slab elevations for the high point on the bridge slab are 0.03 feet below the high point on the approach roadway to account for the rounding of the slab with a parabolic template at the cross slope intersection.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Slab Elevations

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

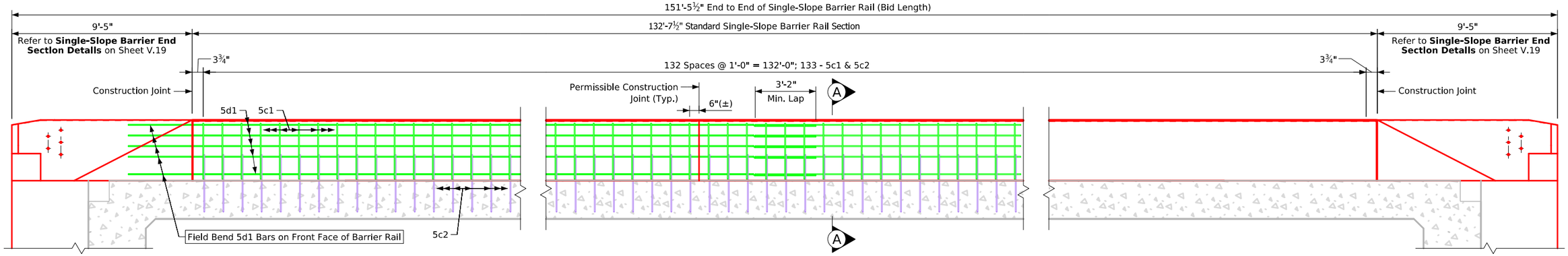
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

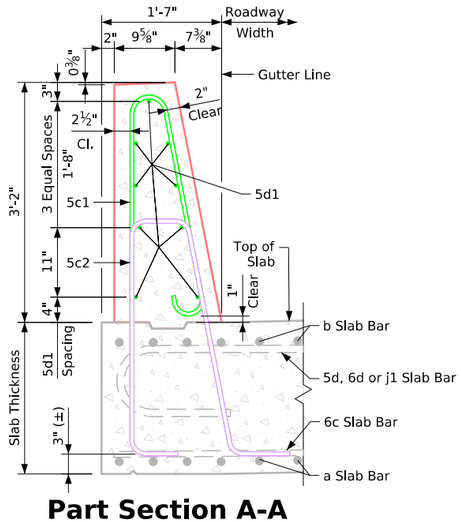
Design No. 0127 — Design Sheet No. 16 of 23 — FHWA No. 050931

FILE NO. **32605**	ENGLISH	DESIGN TEAM **AECOM**	**WARREN** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER V.16

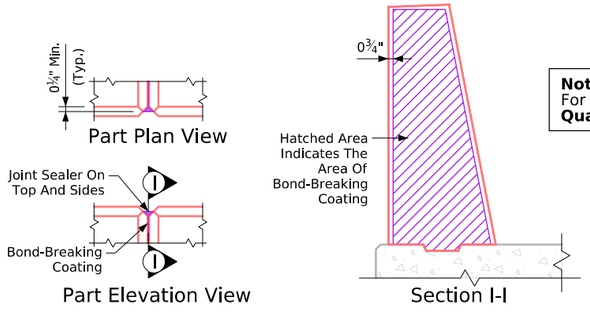
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Elevation of Single-Sloped Barrier Rail



Part Section A-A



Barrier Rail Joint Details

Note:
For **Rail Single-Slope Barrier - Quantities** on Sheet V.18.

Single-slope Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

The concrete single-sloped barrier rail is to be bid on a lineal foot basis. The number of lineal feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for **Concrete Barrier Rail** shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications.

If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.

Top of the barrier rail is to be parallel to the theoretical centerline grade.

Cross sectional area of the standard section of the barrier rail = 3.5 square feet.

All Single-sloped barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown or noted. The stainless steel reinforcing steel shall be deformed bar Grade 60 meeting the requirements of **Materials I.M.452.**

Concrete Single-sloped barrier rails placed using the slipform method will require the use of a Class BR concrete in accordance with **Article 2513.03, A, 2, of the Standard Specification.** Cast-in-place barrier rails shall use **Class C mix**. Class D concrete is not permitted for concrete single-sloped barrier rails (cast-in-place or slipformed method).

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Barrier Rail Details - 1

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

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Design No. 0127 Design Sheet No. 17 of 23 FHWA No. 050931

FILE NO. **32605**	ENGLISH	DESIGN TEAM **AECOM**	**WARREN** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER V.17

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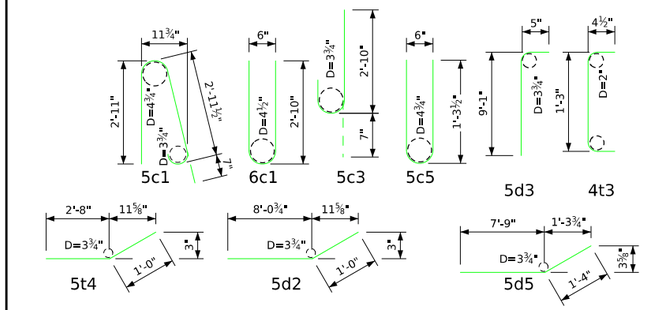
Epoxy Reinforcing Steel - Two Barrier Rails

Bridge Length				140'-0"		
Section	Bar	Location	Shape	No.	Length	Weight
2 Std.Sec	5c1	Vertical		266	6'-8"	1850
	5d1	Long.		72	37'-4"	2804
4 End Sec.	6c1	Rail Vertical		48	5'-11"	427
	5c3	Rail Vertical (Traffic Face)		12	3'-5"	43
	5c5	Rail Vertical (End)		16	3'-1"	51
	5d1	Rail Horiz (Back Face)		24	9'-1"	227
	5d2	Rail Horiz (Traffic Face)		12	9'-1"	114
	5d3	Rail Horiz (Traffic Face)		12	9'-6"	120
	5d4	Rail Horiz (Traffic Face)		8	6'-3"	52
	5d5	Rail Horiz (Top)		8	9'-1"	76
	4t3	Rail Abut Wing Tie Bars		24	2'-0"	32
	5t4	Wing Horiz (Tie Bars)		8	3'-8"	31
Epoxy Reinforced Total Weight (lbs)				Total		5827

Stainless Steel Reinforcing Steel - Two Barrier Rails

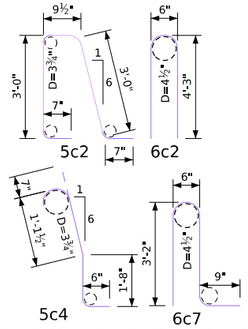
Bridge Length				140'-0"		
Section	Bar	Location	Shape	No.	Length	Weight
2 Std. Sec	5c2	Vertical		266	8'-0"	2220
4 End Sec	6c2	Rail, Vertical		20	9'-0"	270
	5c4	Rail Vertical (Traffic Face)		24	3'-11"	98
	5c6	Rail , Vertical (End)		32	5'-8"	189
	6c7	Rail, Vertical (Slab/Abut.)		28	7'-7"	319
Stainless Steel Reinforced Total Weight (lbs)				Total		3096

Epoxy Bent Bar Details



Note: All Dimensions Are Out To Out. D = Pin Diameter.

Stainless Bent Bar Details



Note: All Dimensions Are Out To Out. D = Pin Diameter.

Concrete Placement Summary

Bridge Length	140'-0"
Standard Section* 2 x "B" @ 0.1301 cu.yd. per ft.	17.4
End Section 4 @ 1.00 cu.yd.	
Total (cu.yd.)	21.4

Concrete Barrier Rail Quantities

Bridge Length		140'-0"
Concrete Barrier Railing	30° Skew	302.9

Note:
For **Rail Single-Slope Barrier - Details**, see Design Sheet V.17.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

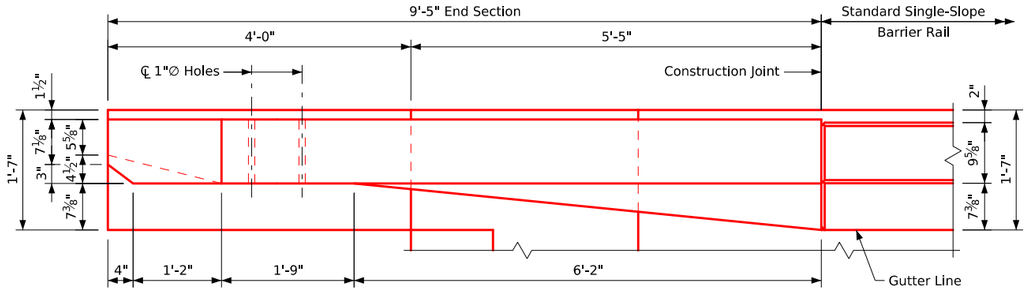
Barrier Rail Details - 2

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

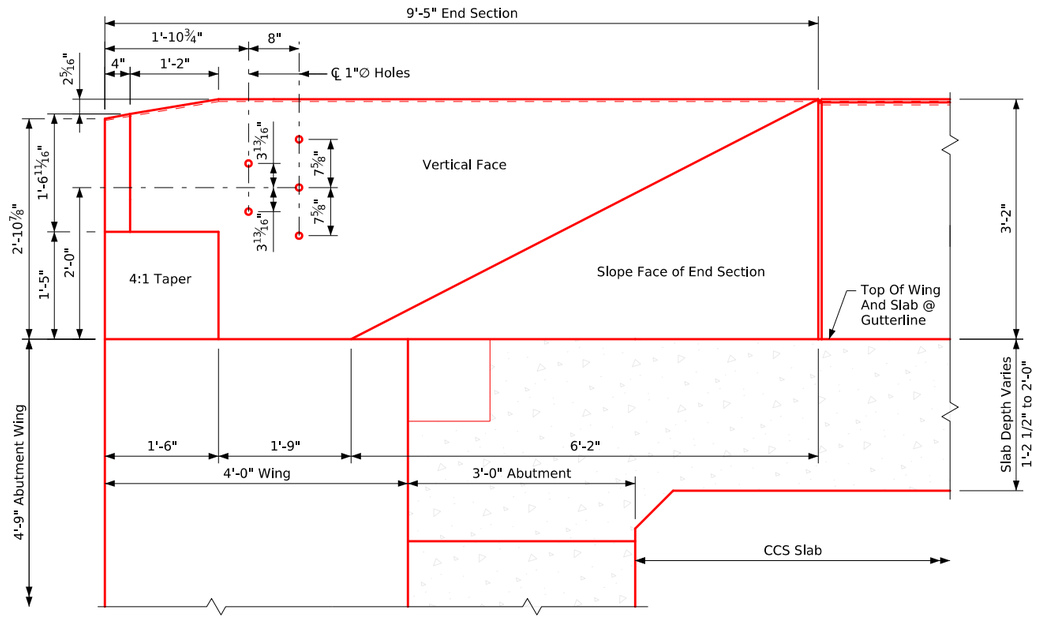
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 18 of 23 FHWA No. 050931

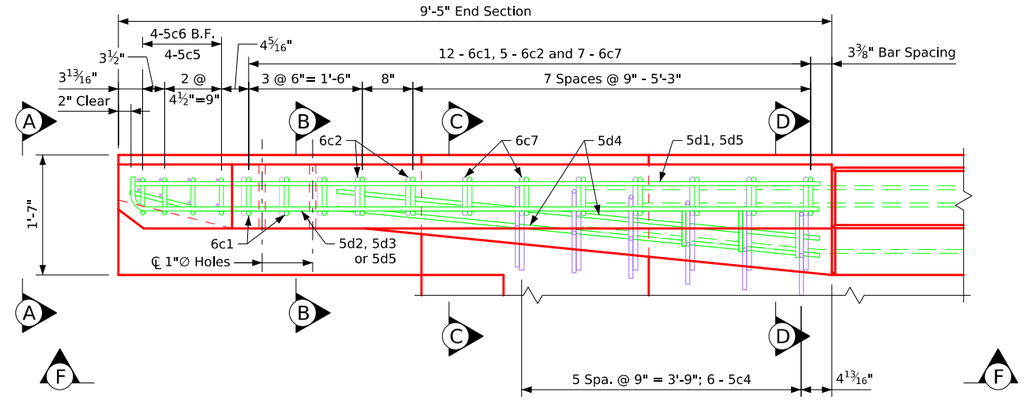


Part Plan View

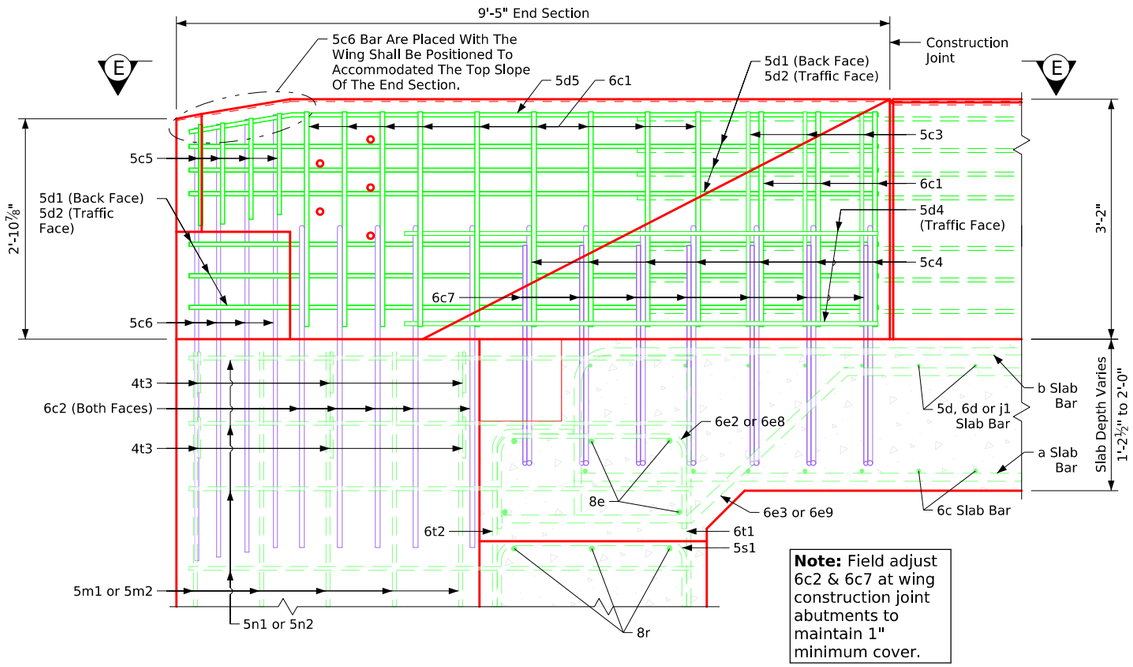
Provide five holes formed with 1" diameter plastic conduit.
Cost to be included in price of Bid for **Concrete Barrier Rail**.



Part Elevation View



Part View E-E



Note: Field adjust 6c2 & 6c7 at wing construction joint abutments to maintain 1" minimum cover.

Part View F-F

Note:
For section details, see Sheet V.20

Note: 4t3 placement: Six bars each at the top two rows of the 5n1 and 5n2 bars in the abutment wing to provide construction tie locations for vertical barrier bars.

Construction joint between the top of the abutment wing and the single-slope barrier rail is roughened concrete.

6c2, 5c4, 5c6, 6c7, 5t4 and 4t3 bars are to be placed with the abutment wing.

Dashed lines below the top of the wing indicate abutment wing and slab reinforcing steel. For additional details, see Sheet V.13.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

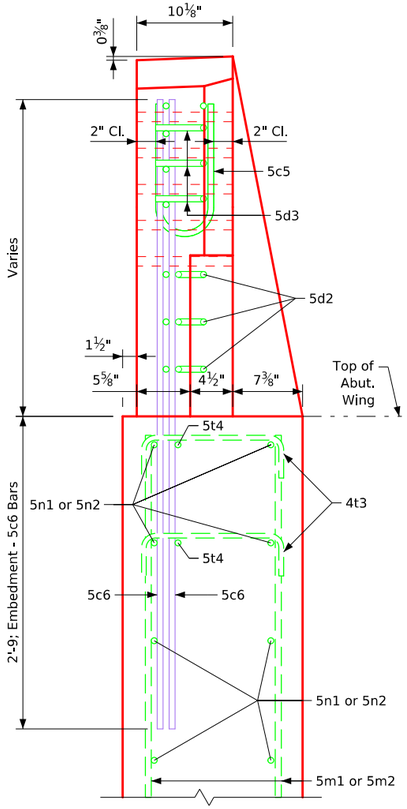
Barrier End Section - 1

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

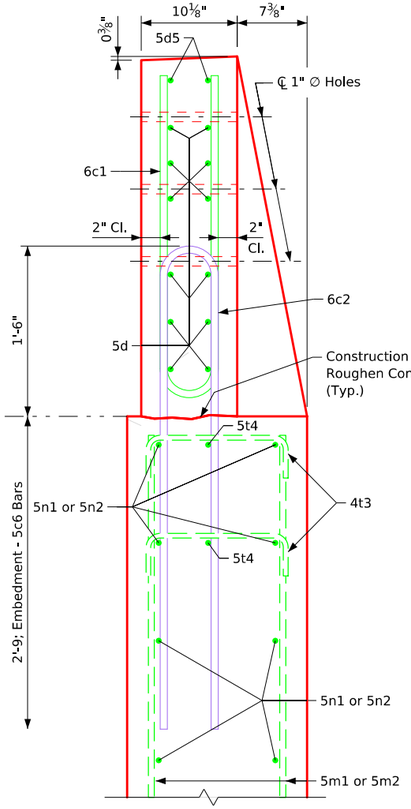
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

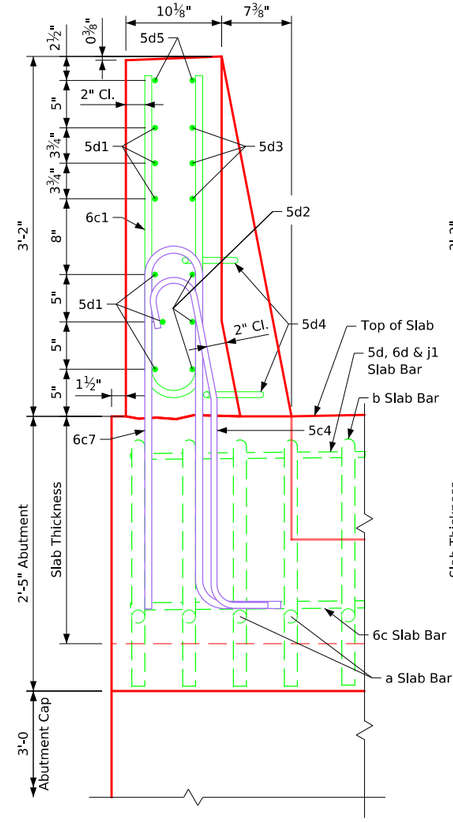
Design No. 0127 — Design Sheet No. 19 of 23 — FHWA No. 050931



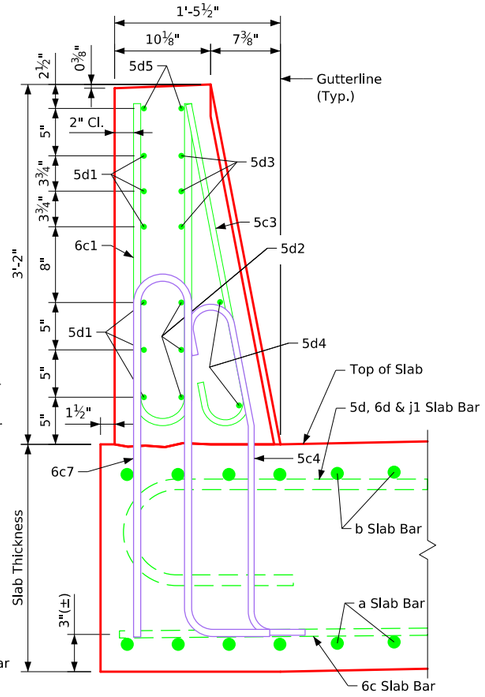
View A-A



Section B-B



Section C-C



Section D-D

Note: For End Section locations, see Sheet V.19.

Note: For barrier rail end section quantities, see Sheet V.18.

Note: For additional barrier-to-abutment wing details, see Sheet V.13.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Barrier End Section - 2

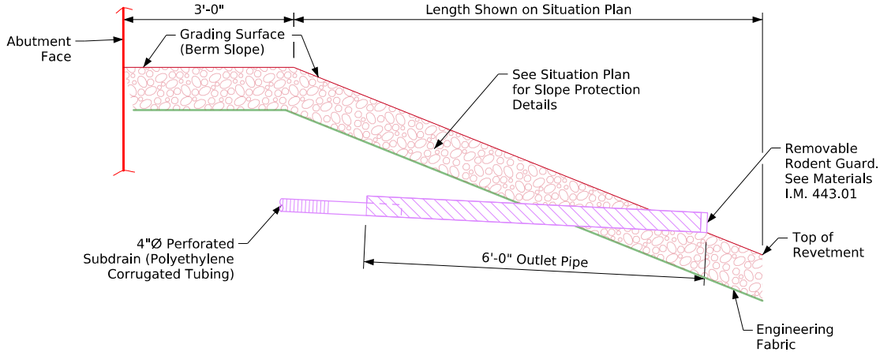
STA. 840+32.25 (US 65)

Turn-in Date: Sept. 2026

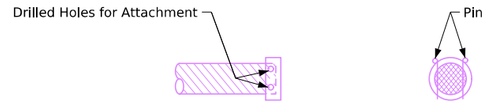
Warren County

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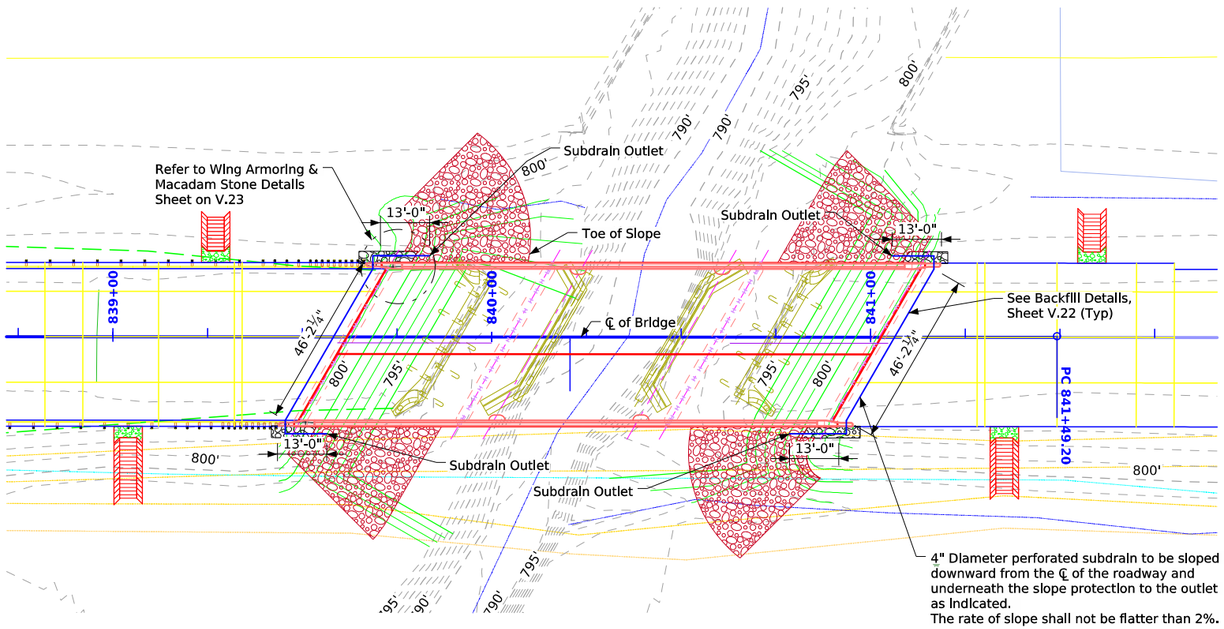
Design No. 0127 — Design Sheet No. 20 of 23 — FHWA No. 050931



Typical Subdrain Outlet Details



Removable Rodent Guard Details



Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Subdrain Details

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

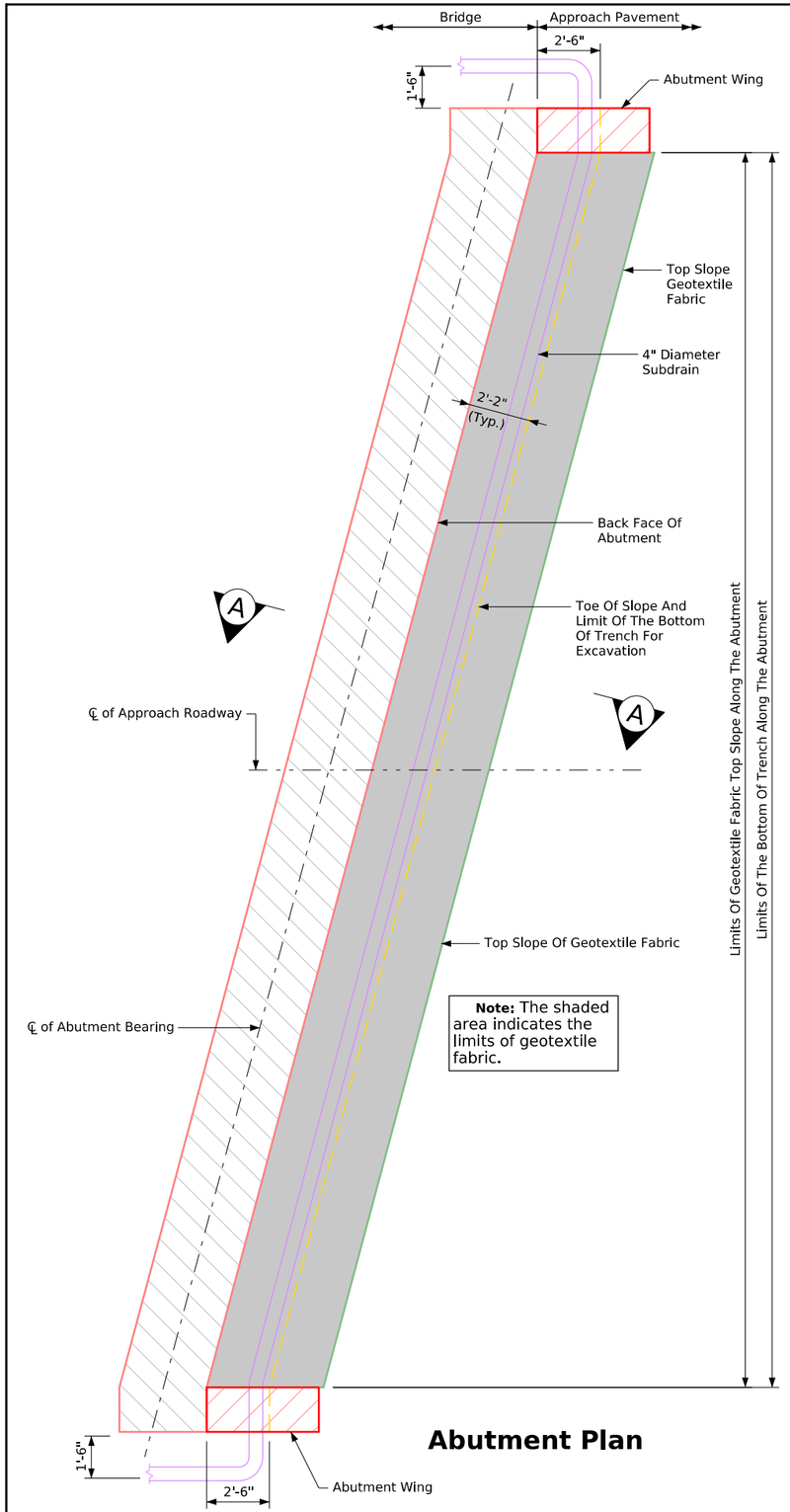
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 21 of 23 — FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.21

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Abutment Plan

Abutment Backfill Process:

The base of the excavation subgrade behind the abutment shall be graded with a 4% slope away from the abutment footing and a 2% cross slope towards the subdrain outlet. This grading should be completed before the installation of the geotextile and backfill material.

Once the subgrade is shaped, the geotextile fabric shall be installed according to the details shown. The fabric is to be placed at the base of the excavation and extended vertically up the abutment backwall, wing walls, and excavation face, reaching a height approximately 1 to 2 feet higher than the porous backfill, as shown in the "Backfill Details" on this sheet. The fabric strips should overlap by about 1 foot and be pinned in place. The fabric should be attached to the abutment using lath folded into the fabric and secured with shallow concrete nails. The fabric against the excavation face must also be pinned.

After the fabric is installed, the subdrain shall be placed directly on it at the toe of the rear excavation slope. A slot should be cut in the fabric where the subdrain exits near the end of the abutment wing wall.

Porous backfill shall be placed and leveled without compaction.

Next, floodable backfill shall be used, followed by surface flooding and vibratory compaction. The floodable backfill material must conform to the Standard Specifications. It should be placed in lifts, surface flooded, and compacted with vibratory compaction to ensure full consolidation, with a maximum loose lift thickness of 2 feet.

Surface flooding for each lift should start at the high point of the subdrain and proceed to the low point where the subdrain exits the fabric. Water should be applied through a 2-inch diameter hose, sprayed in 6-foot to 8-foot increments for 3 minutes per increment to ensure uniform flooding.

The placement of floodable backfill, flooding, and compaction should continue until the full thickness of the abutment backfill is completed.

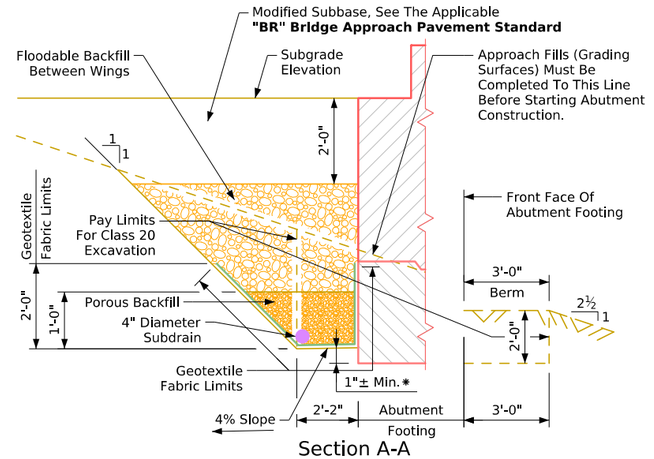
Water used for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric at the bridge abutments will not be measured separately for payment. The cost of this water shall be included in the contract unit price bid for **"Structural Concrete (Bridge)"**.

Note:

Subdrain shall slope downward 2% from centerline approach roadway when outletting both sides of the abutment.

Subdrain shall slope downward 2% from high end when outletting at one end of the abutment.

The geotextile fabric shall be in accordance with **Article 4196.01, B, 6 of the Standard Specifications.** If the engineering fabric is lapped the laps shall be a minimum of one foot in length, shingle fashion with up slope lap piece on top and stapled for continuity.



Section A-A

Backfill Details

Note: Geotextile fabric shall be attached to the face of the abutment footing and wings.

* Dimension varies due to the 2% subdrain slope.

Note: For additional details not shown on this sheet, see **Subdrain Details** on Sheet V.21.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans — 55'-0" Interior Span

Abutment Backfill Details

STA. 840+32.25 (US 65) — Turn-in Date: Sept. 2026

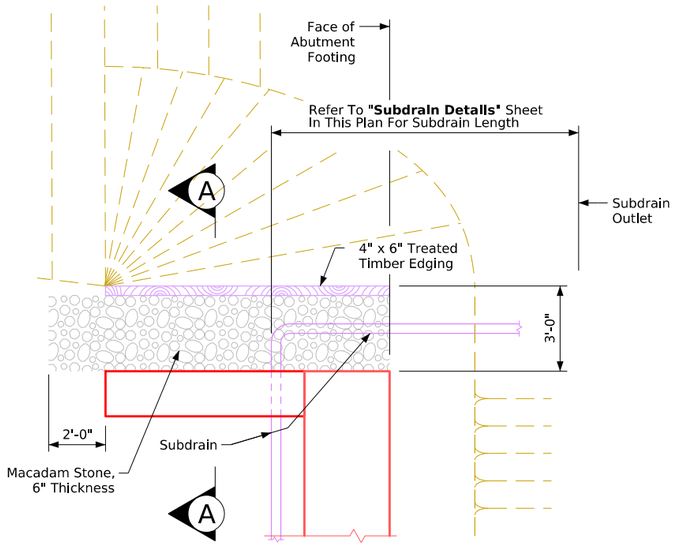
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 — Design Sheet No. 22 of 23 — FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM AECOM	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER V.22

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Plan View of Wing Armoring

Macadam Stone Wing Armoring Notes:

Macadam stone shall be placed along the side of the wing and abutment footing, typically at each corner of the bridge unless otherwise noted in the plans. This macadam stone shall be underlaid with engineering fabric and comply with **Article 4196.01, B, 3, of the Standard Specifications.**

The bridge berm foreslope shall be compacted and shaped as shown on these plans, the Situation Plan, and as directed by the Engineer. The berm foreslope shall be firm when the engineering fabric and macadam stone are placed.

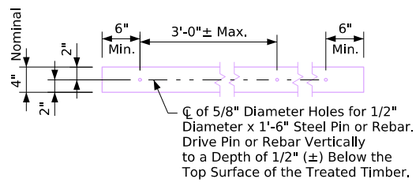
The engineering fabric shall meet the requirements of **Article 4196.01, B, 3, of the Standard Specifications.** If the fabric is lapped, the laps shall be a minimum of one foot in length, placed in shingle fashion with the upslope lap piece on top and stapled for continuity.

The macadam stone shall comply with **Article 4122.02 of the Standard Specifications** for coarse material (no choke stone allowed).

The wood preservative treatment for the timber edging shall meet the requirements for guardrail posts, sawed four sides, and comply with **Section 4161 of the Standard Specifications.**

The macadam stone shall be deposited, spread, consolidated, and shaped by mechanical or hand methods to provide uniform depth, density, and surface appearance.

Payment for the bridge wing armoring shall be incidental to the price bid item "**Structural Concrete (Bridge)**" and shall include all material and labor costs to construct the wing armoring as shown in these plans.



4" x 6" Treated Timber Edging Details

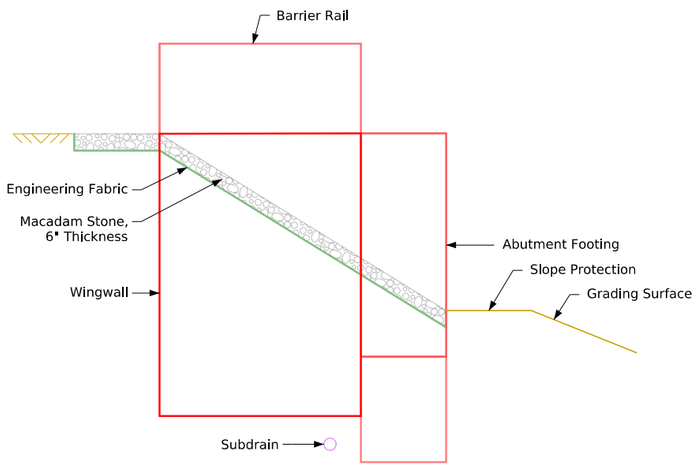
Subdrain Notes:

For details on placing all subdrains and subdrain outlets required for this structure, see **Subdrain Details** on sheet V.21 and "**Situation Plan**"

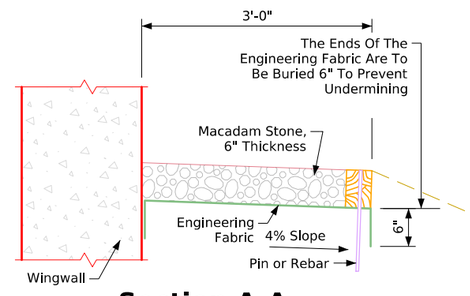
The Bridge Contractor is responsible for installing subdrains behind the abutment. The subdrains shall be 4" in diameter and comply with **Article 4143.01, B, of the Standard Specifications.** The subdrain outlet shall consist of a 6'-0" length of pipe with a removable rodent guard.

The dimensions shown for the proposed subdrains are based on the grading layout of the bridge berms. These dimensions are for estimating purposes only. Required lengths and general locations of subdrains may change due to field adjustments to the grading layout.

The cost for furnishing and placing the subdrain (including excavation), granular backfill, porous backfill, and subdrain outlet is to be included in the price bid for "**Structural Concrete (Bridge)**." No additional payment will be made.



Elevation View of Wing Armoring



Section A-A

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Bridge Wing Armoring

STA. 840+32.25 (US 65) Turn-in Date: Sept. 2026

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 23 of 23 FHWA No. 050931

FILE NO. **32605**	ENGLISH	DESIGN TEAM **AECOM**	**WARREN** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER V.23

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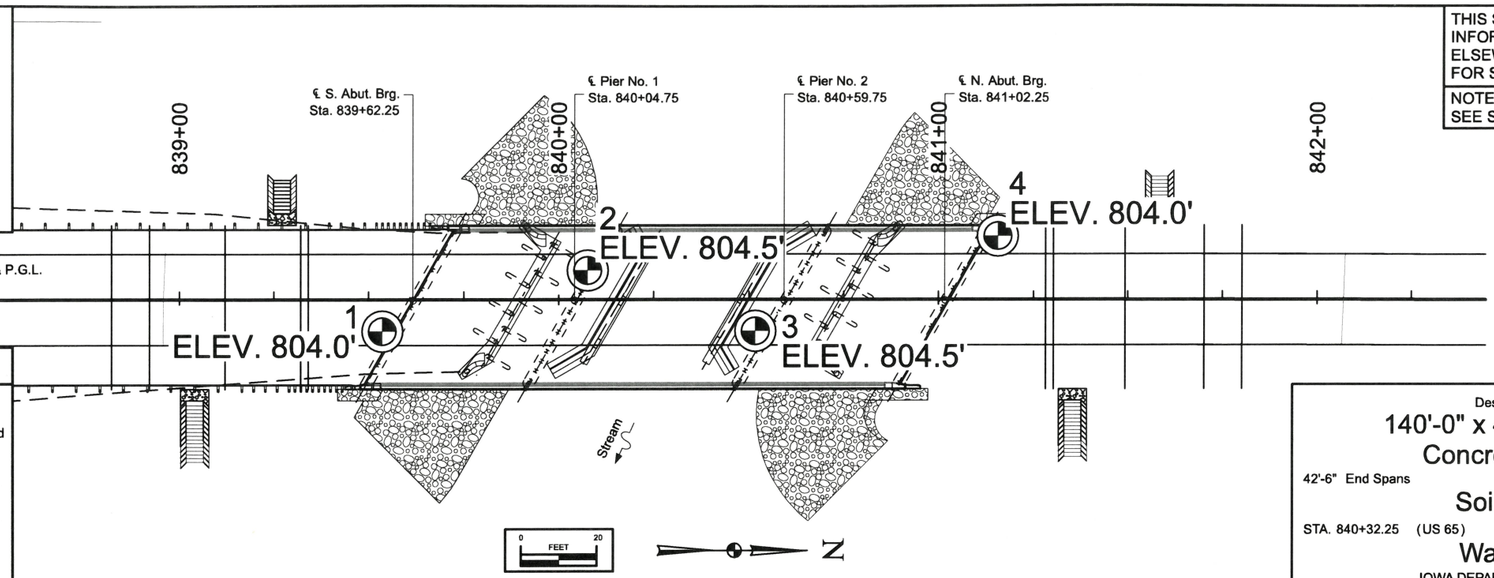
LEGEND

$-H_2O-$	WATER
— DRY	DRY
PLUGGED	PLUGGED
M—	MOISTURE
■	SHELBY
■	BLOW COUNT
▬	DENS. CORE
S	SAMPLE

BLOW COUNT
LAYER - NO. BLOWS
B2 ■ 5

	DIAMOND CORE
	SAND
	GRAVELLY SAND
	BOULDERS

	SOIL REMEDIATION AREA
	LIMESTONE (LS.)
	BROKEN & WEATHERED LS.
	SANDSTONE \ SILTSTONE
	SHALE
	SANDY SOIL



THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

NOTE: SOILS MAY VARY BETWEEN BORINGS. SEE STANDARD SPECIFICATION 1104.01

Location

US 65 Over Stream
T-77N R-23/24W
Sections 25/30
Greenfield/Lincoln Townships
Warren County
FHWA No. 050931
Bridge Maint. No. 9164.6R065
Latitude 41.443149°
Longitude -93.558441°

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
MATTHEW D. CUSHMAN
P20478
IOWA

I hereby certify that this engineering document was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Matthew Cushman 8-18-25
Signature Date

MATTHEW D. CUSHMAN
Printed or Typed Name
License Number P20478
My license renewal date is December 31, 2026

Pages or sheets covered by this seal: SPS.1-SPS.2

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

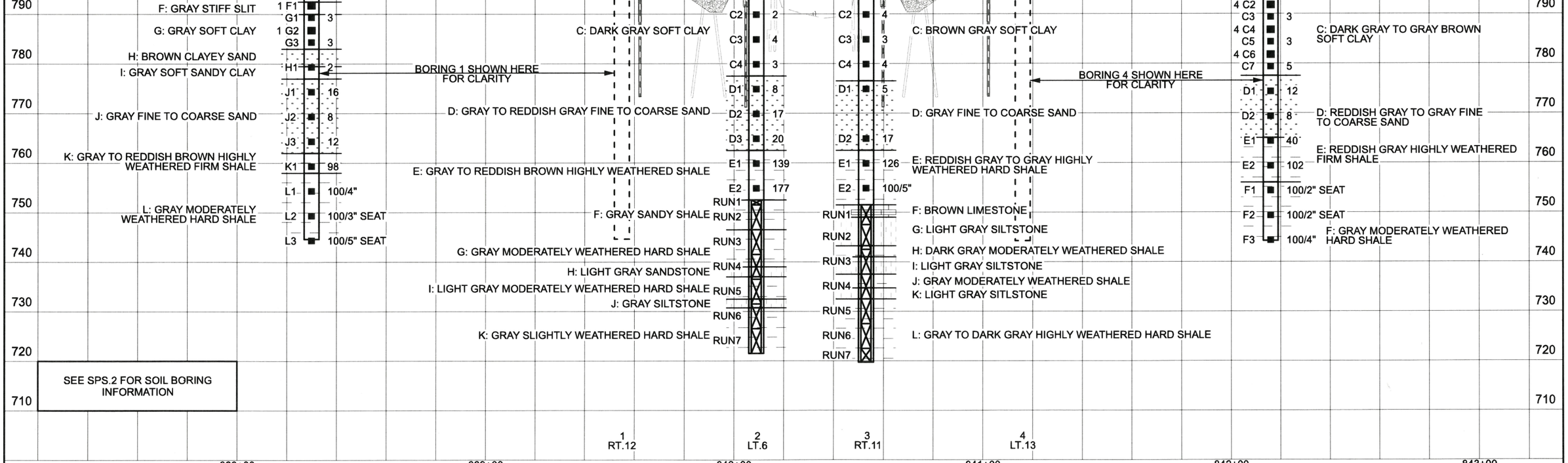
Soil Profile Sheet

STA. 840+32.25 (US 65)

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 1 of 2 FHWA No. 050931



SEE SPS.2 FOR SOIL BORING INFORMATION

FILE NO. 32605	ENGLISH	DESIGN TEAM Jacobs\Terracon	Warren COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER SPS.1	

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THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

NOTE: SOILS MAY VARY BETWEEN BORINGS. SEE STANDARD SPECIFICATION 1104.01

BORING	1	2	3	4
LAYER	THICKNESS	THICKNESS	THICKNESS	THICKNESS
A	0.7	1.6	1.6	1.0
B	2.3	5.4	5.4	8.0
C	3.5	20.0	21.0	17.5
D	1.0	15.0	14.0	12.5
E	4.0	10.0	11.0	9.0
F	2.5	6.0	2.5	11.8
G	7.0	7.5	5.8	-
H	3.5	2.0	2.2	-
I	2.5	4.5	3.5	-
J	15.0	1.8	2.8	-
K	4.0	9.2	2.2	-
L	13.4	-	12.8	-

SHELBY TUBE CORE DATA

CORE NO.	1 F1	1 G2	4 B1	4 B3	4 C2	4 C4	4 C6
DEPTH IN FEET	11.5-13.5	16.5-18.5	1.5-3.5	6.5-8.5	11.5-13.5	16.5-18.5	21.5-23.5
CLASSIFICATION (AASHTO)	A-4(10)	A-7-6(18)	A-7-6(27)	A-6(11)	A-6(14)	A-7-6(22)	A-6(20)
COEFF.CONSOL. (SQ. FT /DAY)	-	-	-	-	-	-	-
TRIAXIAL COMPRESSION	-	-	-	-	-	-	-
COHESION - PSF	UC	UC	UC	UC	UC	UC	UC
FRICTION COEFF.	700	345	1865	2065	365	750	560
MOISTURE CONTENT %	-	-	-	-	-	-	-
DRY DENSITY - PCF	29.7	38.4	26.1	19.6	38.6	36.4	28.6
CU-CONSOLIDATED UNDRAINED	92	80	99	101	82	85	96
UU-UNCONSOLIDATED UNDRAINED							
UC-UNCONFINED COMPRESSION (c=1/2 Qu)							

Water Level Observations (Ft.)				
Boring No.	Date Drilled	While Drilling	End of Drilling	Delayed Water Level
1	05/12/25	None*	-	-
2	05/14/25	None*	-	-
3	05/15/25	None*	-	-
4	05/13/25	None*	-	15.0 on 05/15/25

* None Observed Prior to Wash Bore Drilling

ROCK CORE INFORMATION					
Boring	Surface Elevation	Run No.	Interval(ft)	Recovery(%)	RQD(%)
2	804.5	1	52-53	100	58
2	804.5	2	53-58	100	42
2	804.5	3	58-63	98	42
2	804.5	4	63-68	88	43
2	804.5	5	68-73	100	80
2	804.5	6	73-78	100	53
2	804.5	7	78-83	97	73
3	804.5	1	53-57	100	56
3	804.5	2	57-62	100	32
3	804.5	3	62-67	100	97
3	804.5	4	67-72	100	100
3	804.5	5	72-77	100	27
3	804.5	6	77-82	100	72
3	804.5	7	82-84.8	100	67

ROCK CORE COMPRESSIVE STRENGTH TESTING REPORT					
Boring	Elevation	Material Description	Compressive Strength (psi)	Moisture %	Dry Density PCF
2	748.5	SHALE	1292	7.7	141
2	741.9	SHALE	93	9.5	129
2	734.5	SHALE	105	11	134
2	731.6	SILTSTONE	968	6.8	139
2	727.5	SHALE	249	8.4	138
3	750.3	LIMESTONE	1152	7.8	133
3	743.2	SHALE	159	9.5	133
3	733.9	SILTSTONE	1726	4.8	146
3	725.2	SHALE	749	6.3	142
3	720.5	SHALE	203	9.9	127

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Soil Profile Sheet

STA. 840+32.25 (US 65)

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 2 of 2 FHWA No. 050931

FILE NO. 32605	ENGLISH	DESIGN TEAM Jacobs\Terracon	Warren COUNTY	PROJECT NUMBER BRF-065-3(087)–38-91	SHEET NUMBER SPS.2	

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INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.3	Title Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 3	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1 - 2	Quantities
C.3	General Notes
C.4	Standard Road Plans
C.5	Index of Tabulations
C.6 - 22	Tabulations
CS Sheets	**Soils Tabulations**
CS.1 - 2	Soils Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2	US 65
G Sheets	**Survey Sheets**
G.1	Survey Information
G.2	Control Point Vacinity Map
G.3	Horizontal and Vertical Control Coordinates
H Sheets	**Right-of-Way Sheets**
H.1	US 65
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.2	Staging Notes Stage
J.3	Traffic Control & Staging Legend & Symbol Info. Sheet
J.4 - 6	Staging and Traffic Control Sheets Stage 1
J.7 - 9	Staging and Traffic Control Sheets Stage 2
J.10 - 12	Staging and Traffic Control Sheets Stage 3
R Sheets	**Erosion Control Sheets**
RC.1 - 11	Est. Quantities, PPP, General Notes and Tabulations
RR.1 - 3	Erosion Control Detail Sheets
T Sheets	**Earthwork Quantity Sheets**
T.1 - 2	Earthwork Legend Sheets
T.3 - 4	Earthwork Quantity Sheets
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
U.1	500 Series, Modified Standards and Detail Sheets
W Sheets	**Mainline Cross Sections**
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 15	Mainline Cross Sections

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
Trevor W. Schoenrock
28614
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Trevor Schoenrock 07-07-2026
Signature Date

Trevor W. Schoenrock

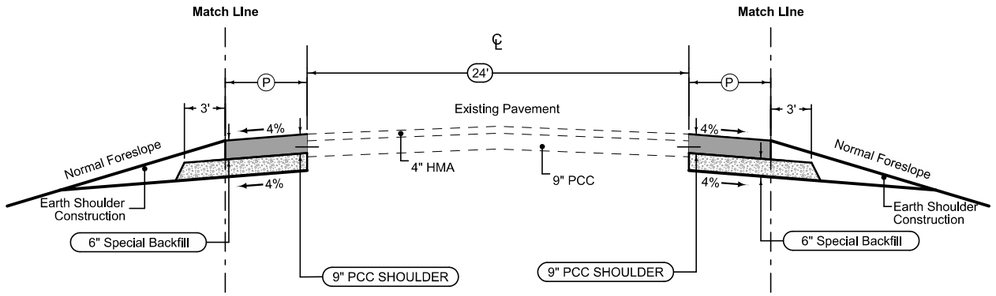
My license renewal date is December 31, 20 27

Pages or sheets covered by this seal: A.3, B.1-3, C.1-22, D.1-2, G.1-3, J.1-12, T.1-4, U.1, W.1-15

PCC SHOULDER

Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse Joint: C (match existing ML joint spacing)

	4_P_PCC		
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+21.91	838+82.05	6
NB	841+80.14	844+10.14	6



PCC SHOULDER

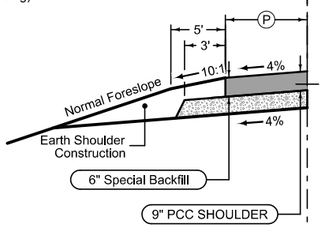
Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse Joint: C (match existing ML joint spacing)

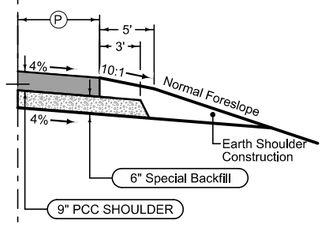
	4_P_PCC		
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+10.00	838+82.05	10
NB	841+80.14	842+55.00	11.6
NB	842+55.00	844+55.00	10

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C (match existing ML joint spacing)

	4_P_Guard_ 04-21-20		
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+21.91	836+41.91	3.6
NB	836+41.91	838+82.05	Varies





Paved Shoulder at Guardrail

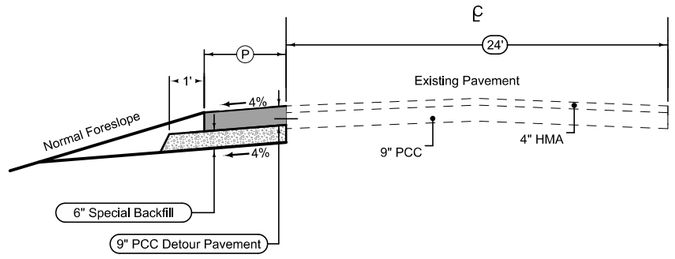
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C (match existing ML joint spacing)

	4_P_Guard_ 04-21-20		
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+36.32	836+56.32	13.6
NB	836+56.32	838+82.05	Varies

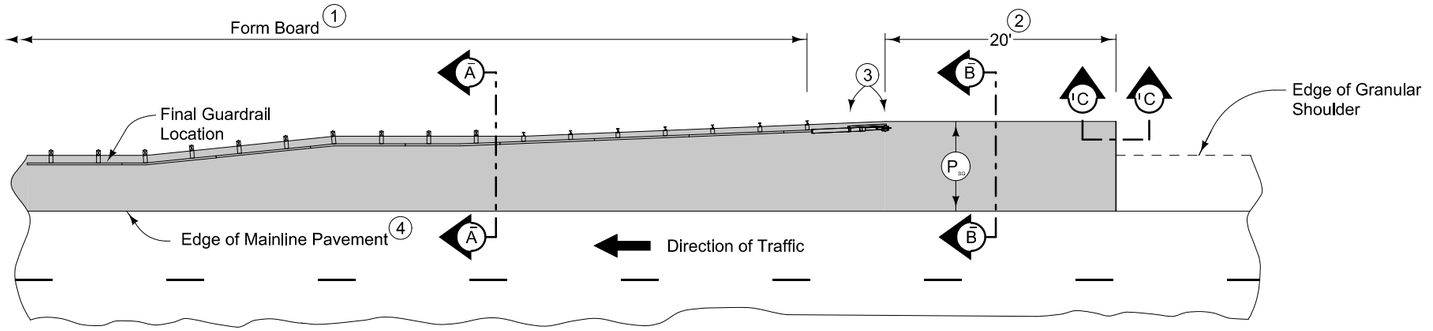
Detour Pavement

PCC Shoulder Jointing:
Longitudinal joint: B
Transverse joints: C

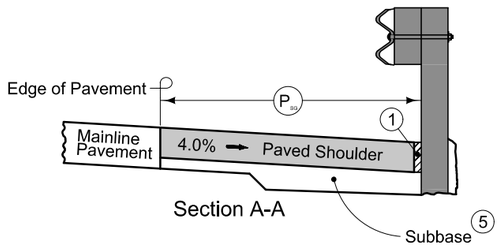
				Custom	
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	SPECIAL BACKFILL (TON)	DETOUR PAVEMENT (SY)
NB	836+27.17	839+50.00	4	56.7	143.5
NB	839+50.00	839+96.59	2	4.9	10.4
NB	840+82.37	844+51.35	4	60.7	164



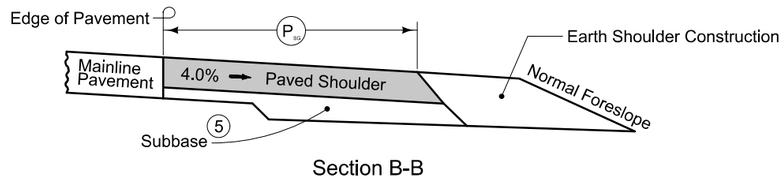
U.S. 65



PLAN VIEW

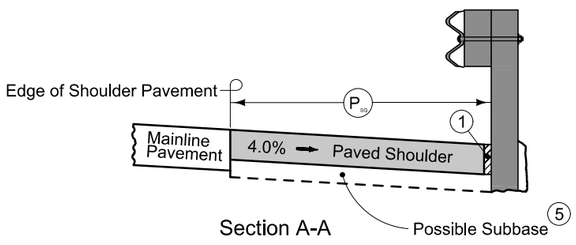


Section A-A

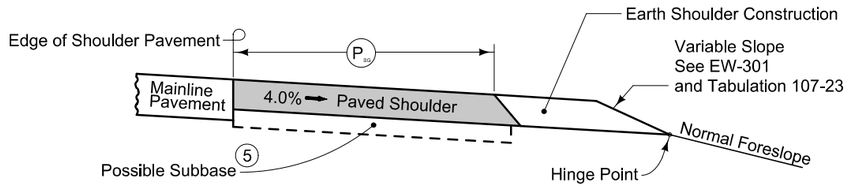


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

DESIGNER INFO

7156
Modified

9" PCC Paved Shoulder at guardrail 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.

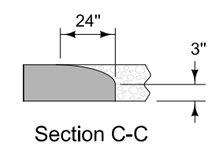
(1) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

(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.

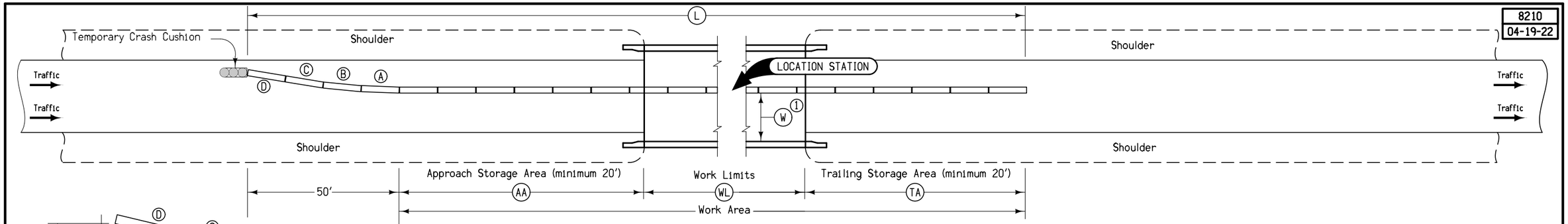
(4) 'BT' joint (per PV-101) for PCC shoulder.
'B' joint (per PV-101) for HMA shoulder.

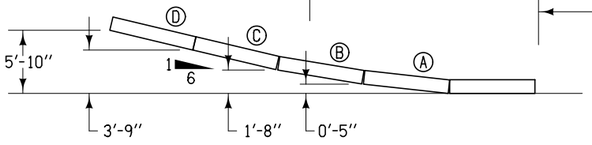
(5) Refer to other details in the plan.



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

PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)





BARRIER OFFSETS FOR FLARE SECTIONS

Station	Side	AA	WL	TA	L	Anchored	W (1)	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
840+32.25	LT	31.4	845	32.2	937.5	387.5	12'-0"	Stage 2
840+32.25	RT	30.4	788.23	25.6	875	387.5	15'-0"	Stage 3

(1) Where (W) is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.

TEMPORARY CONCRETE BARRIER LAYOUT for One-Way Traffic

8210
04-19-22

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.1	Refer to Tab. 110-17.
2	2102-0425070	SPECIAL BACKFILL	TON	1,048.68	Refer to Tab. 112-9 and Typical Detour Pavement on Sheet B.1.
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	320	Refer to T sheets.
4	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	1,928	All waste must be removed from the project site. Refer to T sheets.
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	10	A. Refer to Tab. 103-7 in the CS Sheets. B. Dispose of excess material according to Article 1106.07 of the current specifications.
6	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	696	Refer to Tab. 103-10 and the T Sheets. Approximately 506 CY of excess topsoil can be spread on the foreslope or used for Earth Shoulder Construction.
7	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	245	Refer to Tab. 103-6 in the CS Sheets and T Sheets.
8	2122-5190009	PAVED SHOULDER, P.C. CONCRETE, 9 IN.	SY	1,063.3	Refer to Tab. 112-9.
9	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	13.35	Requires 467.6 cu. yds. of Class 10 for Earth Shoulder Fill. Approximately 506 CY of excess topsoil can be spread on the foreslope or used for Earth Shoulder Construction. Refer to Tab. 112-09 and B Sheets.
10	2301-0690205	BRIDGE APPROACH, BR-205	SY	751.8	Refer to Tab. 112-6.
11	2304-0100000	DETOUR PAVEMENT	SY	317.9	Refer to Typical Detour Pavement on Sheet B.1 and J Sheets.
12	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK	SY	1,352	Refer to Tab. 100-28.
13	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	4	Refer to Tab. 104-8A and Sheet D.2.
14	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	457.5	Refer to Tab. 110-7A.
15	2505-4008300	STEEL BEAM GUARDRAIL	LF	437.5	Refer to Tab. 108-8A and Sheet D.2.
16	2505-4008415	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-209	EACH	2	
17	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	2	
18	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	2	

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
19	2510-6745850	REMOVAL OF PAVEMENT	SY	1,369.8	Refer to Tabs. 102-5 and 110-1. Includes 1100.1 LF of Saw Cut.
20	2526-8285030	CONSTRUCTION SURVEY, RIGHT OF WAY	LS	1	
21	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	8	Refer to Tab. 108-29.
22	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	31.6	Refer to Tab. 108-22.
23	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	8	Refer to Tab. 108-29.
24	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	53.15	Refer to Tab. 108-22.
25	2527-9263231	REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE	STA	45.7	
26	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	17.25	
27	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	1,812.5	Refer to J Sheets and Tab. 108-33.
28	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan in the J sheets.
29	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	0	See Proposal.
30	2548-0000250	DIAMOND GROUND SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	16.33	Refer to Tab. 112-10.
31	2551-0000130	TEMP CRASH CUSHION, SEVERE USE (SU)	EACH	2	Refer to Tab. 108-30.

262_05
9/28/22

UTILITIES (POINT 25 PROJECT)

This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	4/21/2026	Steel Beam Guardrail Components
BA-202	4/15/2025	Steel Beam Guardrail Bolted End Anchor
BA-205	10/17/2023	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-209	10/15/2024	Steel Beam Guardrail Barrier Transition Section (Mash Tl-3, 34in Mounting Height)
BA-250	10/21/2025	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-401	4/20/2021	Temporary Barrier Rail (Precast Concrete)
BR-205	4/21/2026	Double Reinforced 12in Approach (Slab Bridge)
BR-211	4/21/2026	Bridge Approach (Abutting PCC or Composite Pavement)
DR-306	10/17/2023	Precast Concrete Headwall for Subdrain Outlets
DR-402	4/16/2024	Rock Flume for Bridge End Drain
EW-202	4/19/2016	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	4/16/2024	Guardrail Grading
PM-110	10/15/2024	Line Types
PM-111	4/21/2020	Symbols and Legends
PM-115	10-20-26	Grooving for Line Types
PM-116	4/16/2024	Grooving for Symbols and Legends
PV-101	10/21/2025	Joints
PV-102	10/21/2025	PCC Curb Details
PV-12	10/20/2026	Milled Shoulder Rumble Strips
SI-882	10-18-16	Special Signs for Restricted Width Traffic Control Zones
TC-81	04-18-23	Restricted Width Signing (Less Than 15.5 Feet)
TC-418	4/18/2023	Lane Closure on Divided Highway
TC-421	10/21/2025	Lane Closure with TBR

111_25
10/20/26

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.
262_05	UTILITIES (POINT 25 PROJECT)	C.3
105_04	STANDARD ROAD PLANS	C.4
111_25	INDEX OF TABULATIONS	C.5
100_27	PROPOSED POSTED SPEED LIMIT	C.6
100_28	LONGITUDINAL GROOVING	C.7
102_05	EXISTING PAVEMENT	C.8
103_10	TOPSOIL STRIPPING AND PLACEMENT	C.9
104_08A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	C.10
107_23	GRADING FOR GUARDRAIL INSTALLATIONS	C.11
108_08A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.12
108_22	PAVEMENT MARKING LINE TYPES	C.13
108_29	PAVEMENT MARKING SYMBOLS AND LEGENDS	C.14
108_30	CRASH CUSHIONS	C.15
108_33	TEMPORARY BARRIER RAIL	C.16
110_01	REMOVAL OF PAVEMENT	C.17
110_07A	REMOVAL OF STEEL BEAM GUARDRAIL	C.18
110_17	CLEARING AND GRUBBING	C.19
112_06	BRIDGE APPROACH SECTION	C.20
112_09	SHOULDERS	C.21
112_10	MILLED RUMBLE STRIPS	C.22

100_27
8/15/22

PROPOSED POSTED SPEED LIMIT

Roadway Identification	Station From	Station To	Proposed Posted Speed	Remarks
US 65	836+10.00	844+55.00	over 45	

LONGITUDINAL GROOVING

Location	Total (SY)	Remarks
840+32.25	1352.0	Bridge and Bridge Approaches
Total:	**1352**	

EXISTING PAVEMENT

County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
Warren	US 65	NB	61.48	68.48	2009		STP-065-3(57)--2C-91	HMA	1.5	HMA	3.0			SCR	3.0	SULLY MINE	C.LST.			
Warren	US 65	NB	61.48	68.48	1991		F-65-3(24)--20-91	AAC	4.0							DENNY-JOHNSTON	GRAVEL			
Warren	US 65	NB	61.48	68.48	1972		FN-69-3(8)--21-91	PCC	9.0	ATB	4.0					EAST DES MOINES	GRAVEL	2		

103_10
4/30/25

TOPSOIL STRIPPING AND PLACEMENT

Road Identification	Dir. of Traffic	Station From	Station To	Topsoil Stripping Thickness (IN)	Topsoil Placement Thickness (IN)	Remarks
US 65	NB	835+96.42	844+55.00	9.0	6.0	

104_08A
8/15/22

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Bridge Station	Bridge Corner	Distance DI-1 or DI-2 (FT)	Bridge End Drain Type	Special Ditch Control, Wood Excelsior Mat EC-101 (SQ)	Turf Reinforced Mat (TRM) Type 2 EC-104 (SQ)	Transition Mat EC-105 (SF)	Macadam Stone Base (TONS)	Engineering Fabric (SY)	Erosion Stone (TON)	Remarks
840+32.25	SW	41.7	DR-402				1.600	7.5	8.000	
840+32.25	SE	41.7	DR-402				1.600	13.4	14.500	
840+32.25	NW	41.9	DR-402				1.600	8.3	8.910	
840+32.25	NE	41.9	DR-402				1.600	12.3	13.270	
Total:							**6.4**	**41.5**	**44.68**	

GRADING FOR GUARDRAIL INSTALLATIONS

Refer to EW-301.

(1) Lane(s) to which the installation is adjacent.

Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1 (FT)	Y1 (FT)	X4 (FT)	Y4 (FT)	Z (FT)	Excavation Class 10 (CY)	Embankment-in-Place (CY)	Remarks
NB	839+45.71	Right	3:1	233.3	6.7	289.4	8.6	51.1			Class 10 and Embankment included in T sheets
NB	839+68.81	Left	3:1	270.8	6.7	326.9	8.6	45.5			Class 10 and Embankment included in T sheets

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
NB	Right	839+44.65	22.3	BA-209	1	BA-205	1	240.625			47.70							1	D	1		200.0	
NB	Left	839+67.74	18.3	BA-209	1	BA-205	1	278.125			47.70						1		D	1		237.5	
Total:					**2**		**2**													**2**		**437.5**	

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17 | BCY6: Broken Centerline (Yellow) @ 0.25 | BLC6: Broken Line Contrast (White/Black) @ 0.50 | BLW4: Broken Lane Line (White) @ 0.17 | BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 | CHW8: Channelizing Line (White) @ 1.33 | CHW10: Channelizing Line (White) @ 1.67 | CHY8: Channelizing Line (Yellow) @ 1.33 | CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 | DCY4: Double Centerline (Yellow) @ 1.34 | DCY6: Double Centerline (Yellow) @ 2.00 | DDY4: Double Dotted Line (Yellow) @ 0.44 | DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 | DLW6: Dotted Line (White) @ 0.33 | DLY4: Dotted Line (Yellow) @ 0.22 | DLY6: Dotted Line (Yellow) @ 0.33 | ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 | ELY4: Edge Line Left (Yellow) @ 0.67 | ELY6: Edge Line Left (Yellow) @ 1.00 | LDW8: Lane Drop (White) @ 0.33 | LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 | NPY4: No Passing Zone Line (Yellow) @ 0.84 | NPY6: No Passing Zone Line (Yellow) @ 1.25 | RLW4: Ramp Edge Line Right (White) @ 0.67 | RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 | RLY6: Ramp Edge Line Left (Yellow) @ 1.00 | SLW2: Stop Line (White) @ 4.00 | SLW4: Solid Lane Line (White) @ 0.67 | SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 | SPW6: Sloped Curb 6" (White) @ 2.28 | SPY4: Sloped Curb 4" (Yellow) @ 2.16 | SPY6: Sloped Curb 6" (Yellow) @ 2.28 | STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 | YLW2: Yield Line (White) @ 1.15

Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW6 Factored (STA)	ELW6 Factored (STA)	ELY6 Factored (STA)	Remarks
STAGE 2 REMOVAL													
US 65	836+27.17	844+51.35	NB	Removal of Paint	1			No				8.20	Stage 2
STATE 2 PLACEMENT													
US 65	817+36.13	826+46.13	NB	Wet Retroreflective Removable Tape			1	No			9.10		Stage 2
US 65	826+46.13	836+47.29	NB	Waterborne/Solvent Paint			1	No			10.00		Stage 2
US 65	836+47.29	838+34.47	NB	Wet Retroreflective Removable Tape			1	No			1.90		Stage 2
US 65	838+34.47	842+31.54	NB	Waterborne/Solvent Paint			1	No			4.00		Stage 2
US 65	842+31.54	844+31.29	NB	Wet Retroreflective Removable Tape			1	No			2.00		Stage 2
US 65	836+47.29	844+51.35	NB	Waterborne/Solvent Paint	1			No				8.00	Stage 2
STAGE 3 REMOVAL													
US 65	817+36.13	826+46.13	NB	Removal of Removable Tape			1	No			9.10		Stage 3
US 65	836+10.00	844+55.00	NB	Removal of Paint			1	No			8.50		Stage 3
US 65	836+34.48	838+34.47	NB	Removal of Removable Tape			1	No			2.00		Stage 3
US 65	838+34.47	838+82.05	NB	Removal of Paint			1	No			0.50		Stage 3
US 65	841+80.14	842+31.54	NB	Removal of Paint			1	No			0.50		Stage 3
US 65	842+31.54	844+31.23	NB	Removal of Removable Tape			1	No			2.00		Stage 3
STAGE 3 PLACEMENT													
US 65	817+36.13	826+46.13	NB	Wet Retroreflective Removable Tape	1			No				9.10	Stage 3
US 65	826+46.13	836+34.48	NB	Waterborne/Solvent Paint	1			No				9.90	Stage 3
US 65	836+34.48	844+31.23	NB	Wet Retroreflective Removable Tape	1			No				8.00	Stage 3
US 65	836+34.48	838+34.47	NB	Wet Retroreflective Removable Tape			1	No			2.00		Stage 3
US 65	838+34.47	842+31.37	NB	Waterborne/Solvent Paint			1	No			4.00		Stage 3
US 65	842+31.37	844+31.23	NB	Wet Retroreflective Removable Tape			1	No			2.00		Stage 3
ULTIMATE REMOVAL													
US 65	817+36.13	826+46.13	NB	Removal of Removable Tape	1			No				9.10	Ultimate
US 65	826+46.13	836+34.48	NB	Removal of Paint	1			No				9.90	Ultimate
US 65	836+34.48	844+22.98	NB	Removal of Removable Tape	1			No				7.90	Ultimate
US 65	836+34.48	838+34.48	NB	Removal of Removable Tape			1	No			2.00		Ultimate
US 65	838+34.48	842+31.37	NB	Removal of Paint			1	No			4.00		Ultimate
US 65	842+31.37	844+31.37	NB	Removal of Removable Tape			1	No			2.00		Ultimate
ULTIMATE PLACEMENT													
US 65	836+21.91	844+22.98	NB	Waterborne/Solvent Paint	1			Yes	8.00			8.00	Ultimate
US 65	836+10.00	844+55.00	NB	Waterborne/Solvent Paint			1	Yes	8.50		8.50		Ultimate
US 65	838+82.05	841+80.14	NB	Waterborne/Solvent Paint		1		Yes	0.75	0.75			Ultimate
Total:									**17.25**	**0.75**	**74.1**	**78.1**	

Factored Bid Quantities:
Pavement Markings Removed: 31.6 STA
Painted Pavement Markings. Waterborne or Solvent-Based: 53.15 STA
Removeable Tape Markings. Wet Retroreflective: 34.1 STA
Grooves Cut for Pavement Markings: 17.25 STA

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Roadway Identification	Station	Side	Pavement Symbol	Quantity (EA)	Groove Marking Needed?	Remarks
US 65	794+86.13	Right	RLRW	1	No	Stage 2 (1)
US 65	795+86.13	Right	RLRW	1	No	Stage 2 (1)
US 65	804+86.13	Right	RLRW	1	No	Stage 2 (1)
US 65	805+86.13	Right	RLRW	1	No	Stage 2 (1)
US 65	794+86.13	Left	LLRW	1	No	Stage 3 (1)
US 65	795+86.13	Left	LLRW	1	No	Stage 3 (1)
US 65	804+86.13	Left	LLRW	1	No	Stage 3 (1)
US 65	805+86.13	Left	LLRW	1	No	Stage 3 (1)
Total:				**8**		

(1) Symbol is temporary for Staging and includes removal

CRASH CUSHIONS

* Bid Item
1. Lane(s) to which the installation is adjacent.
2. Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500.

Lane	Station	Side	Obstacle Width (FT)	Crash Cushion Type	Crash Cushion Quantity	V (FT) (2)	W (FT) (2)	X (FT) (2)	Y (FT) (2)	Z (FT) (2)	Excavation Class 10* (CY)	Embankment in Place* (CY)	Obstacle Description	Remarks
NB	835+27.48	Right	2.0	Temporary Severe Use	1								TBR	STAGE 2
NB	835+40.36	Left	2.0	Temporary Severe Use	1								TBR	STAGE 3
Total:					**2**									

TEMPORARY BARRIER RAIL

Possible Standard: BA-401 Possible Detail: 560-7

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station From	Station To	Length (FT)	Barrier Rail Type	Anchored*	Modular Glare Screen System	Remarks
STAGE 2							
1	835+27.63	838+34.49	300.0	Concrete BA-401	No	No	Stage 2
2	838+34.49	842+31.35	387.5	Concrete BA-401	Yes	No	Stage 2
3	842+31.35	844+87.33	250.0	Concrete BA-401	No	No	Stage 2
STAGE 3							
4	835+40.52	838+34.48	287.5	Concrete BA-401	No	No	Stage 3
5	838+34.48	842+31.37	387.5	Concrete BA-401	Yes	No	Stage 3
6	842+31.37	844+35.91	200.0	Concrete BA-401	No	No	Stage 3
Total:			**1812.5**				

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
836+10.00	839+96.54	All	Composite	768.4	563.1	
840+67.91	844+55.00	All	Composite	601.4	537.0	
Total:				**1369.8**	**1100.1**	

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1	NB	837+57.95	839+79.76	Right	222.4
2	NB	837+61.28	839+95.73	Left	235.1
Total:					**457.5**

CLEARING AND GRUBBING

Station From	Station To	Direction of Traffic	Work and Material Type	>3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Other Materials Length (FT)	Other Materials Width (FT)	Estimated Units	Estimated Area (Acres)	Estimated Herbicide Application (EA)	Remarks
839+76.64	839+90.04	NB	Trees - Clearing and Grubbing																	0.100		

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item
** Verify layout of bridge approach does not conflict with guardrail posts.

Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
840+32.25	S	30.0		12.0	79.7			144.1	96.1	136.0	BR-205	Movable	BR-213	59.3	838+92.05	Right	1.1	375.200	479.5		
840+32.25	N	30.0		12.0	77.4			148.4	91.4	135.8	BR-205	Movable	BR-213	58.0	841+70.14	Right	1.0	374.600	478.8		
Total:					**157.1**			**292.5**	**187.5**	**271.8**				**117.3**			**2.1**	**749.8**	**958.3**		

Total Bridge Approach: 751.8 SY

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) See Typ. 7156, 7157, or 7158.
(3) Bid Item.
(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(5) Bid Item. Typ. 7156, 7157, or 7158.
(6) Does not include shrink.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Shoulder at Grdrail (5)(7)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt. (3) (TON)	Special Backfill HMA Alt. (TON/STA)	Special Backfill PCC Alt. (3) (TON)	Special Backfill PCC Alt. (TON/STA)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Earth Shoulder Const. Alt (3) (STA)	Earth Shoulder Const. Alt HMA (6) (CY)	Earth Shoulder Const. Alt PCC (6) (CY)	Remarks
US 65	NB	836+21.91	836+41.91	Left		9.6		20.00						21.3				18.340	91.700						0.20		7.85	-9
US 65	NB	836+41.91	836+89.83	Left		9.6-7.6		47.92						45.8				41.930	87.500						0.48		18.81	-9
US 65	NB	836+89.83	838+82.05	Left		7.6		192.22						162.3				149.355	77.700						1.92		106.08	-9
US 65	NB	838+82.05	839+66.91	Left				84.86																	0.85		33.94	-10
US 65	NB	841+18.37	841+80.14	Left				61.77																	0.62		31.34	-10
US 65	NB	841+80.14	844+10.14	Left	6			230.00					153.3					152.950	66.500						2.30		50.77	-9
US 65	NB	836+10.00	836+36.32	Right	10			26.32					29.2					24.872	94.500						0.26		10.39	-9
US 65	NB	836+36.32	836+56.32	Right		13.6		20.00						30.2				23.940	119.700						0.20		7.90	-9
US 65	NB	836+52.32	837+10.06	Right		13.6-11.6		57.74						80.8				65.073	112.700						0.58		22.80	-9
US 65	NB	837+10.06	838+82.05	Right		11.6		171.99						221.7				181.793	105.700						1.72		67.90	-9
US 65	NB	838+82.05	839+43.82	Right				61.77																	0.62		21.96	-10
US 65	NB	840+95.28	841+80.14	Right				84.86																	0.85		19.49	-10
US 65	NB	841+80.14	842+55.00	Right	11.6			74.86					96.5					79.127	105.700						0.75		17.97	-9
US 65	NB	842+55.00	844+55.00	Right	10			200.00					222.2					189.000	94.500						2.00		50.37	-9
Total:													**501.2**	**562.1**				**926.38**							**13.35**		**467.57**	

(9) 9" PCC Shoulder and 6" Special Backfill Subbase
(10) Bridge Approach

RUMBLE STRIPS

* Calculated at 18" width for Shoulder.
** For use with penetrating Engineered Fog Seal. Calculated at 2" wider than rumble strips.

Road Identification	Station From	Station To	Surface Type	Rumble Strip Lane	Rumble Strip Type	Fog Seal Type	L (IN)	PCC Length (STA)	HMA Length (STA)	Fog Seal* Shoulder (GAL)	Fog Seal (SY)**	Effective Shoulder Width PCC (FT)	Effective Shoulder Width HMA (FT)	Effective Shoulder Width Granular\Earth (FT)	Remarks
US 65	836+10.00	844+55.00	PCC	Right Shoulder	Diamond Ground Shoulder Rumble Strips		12"	8.45				10.0			
US 65	836+21.91	844+10.14	PCC	Left Shoulder	Diamond Ground Shoulder Rumble Strips		12"	7.88				6.0			
Total:								**16.33**							

103_06
8/15/22

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Topsoil will not require Moisture Control.

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
MATTHEW D. CUSHMAN
P20478
IOWA

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Matthew Cushman 12/6/25
Signature Date

Matthew D. Cushman
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: CS.1-CS.2

FILE NO. 32605	ENGLISH	DESIGN TEAM Jacobs\Terracon	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER CS.1

11/17/2025 3:21:57 PM JACOBS\BRUXVOORT@IOWAID

SHRINKAGE DATA

Material	%	Remarks
Toposoil	40.0	
Estimated Boulder Quantity	0.0	10 CY Class 12 Excavation
Class 10	30.0	

SURVEY SYMBOLS

- 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
- WH Water Hydrant (Rural)
- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST 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

UTILITY LEGEND

PPA, MIDAMERICAN-ELEC

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Derek Johnson (Electric Distribution)
Customer Project Coordinator
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F0 ***FO1D, CENTURYLINK - Quality D***

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W ***WL1D, WARREN WATER DISTRICT - Quality D***

Warren Water District Water
Matt Van Wyk (Water)
System Manager
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mvanwyk@warrenwaterdistrict.com

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.**		**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%

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

- Reference Point / 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 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
- C/A Access Control
- Property Line Symbol
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER D.1

11:08:42 AM 7/6/2026 jevans4 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9106501022\Design\CADD_Files\Sheet_Files\SHT_91065087_LGD

Sta. 835+00.07, 53.5 Lt.
24"x 49.2' RCP
D.A.=Median Only
(UAC)

Greenfield TWP.
T-77N R-24W
SEC. 25

Sta. 840+76.49, 73.9 Lt.
Skew 30° LT AH
85'x40' Continuous Conc Slab Bridge
D.A.=1700 A-F Plans
(UAC)

24"x88.2'
Conc. Pipe
(UAC)

Sta. 841+49.6, 43.9 Lt.
24"x 67.5' RCP w/ 18" CMP Inlet
D.A.= Median Only
(UAC)

832+00 833+00 834+00 835+00 836+00 837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00 846+00 847+00

PI 847+13.43

US 65

PC 841+49.20

STA 835+96.42 (ML 65)
BEGIN PROJECT

STA 836+10.00 (ML 65)
BEGIN PAVING

STA 838+82.05 (ML 65)
BEGIN BRIDGE APPROACH

(Remove)
Sta. 840+32.50
Skew 30° LT AH
85'x28' Continuous Concrete
Slab Bridge
D.A.=1700 A-F Plans

Sta. 840+32.25
Build 140'-0" x 40'-0"
Continuous Concrete Slab Bridge
Skew: 30° LA
Design No. 0127

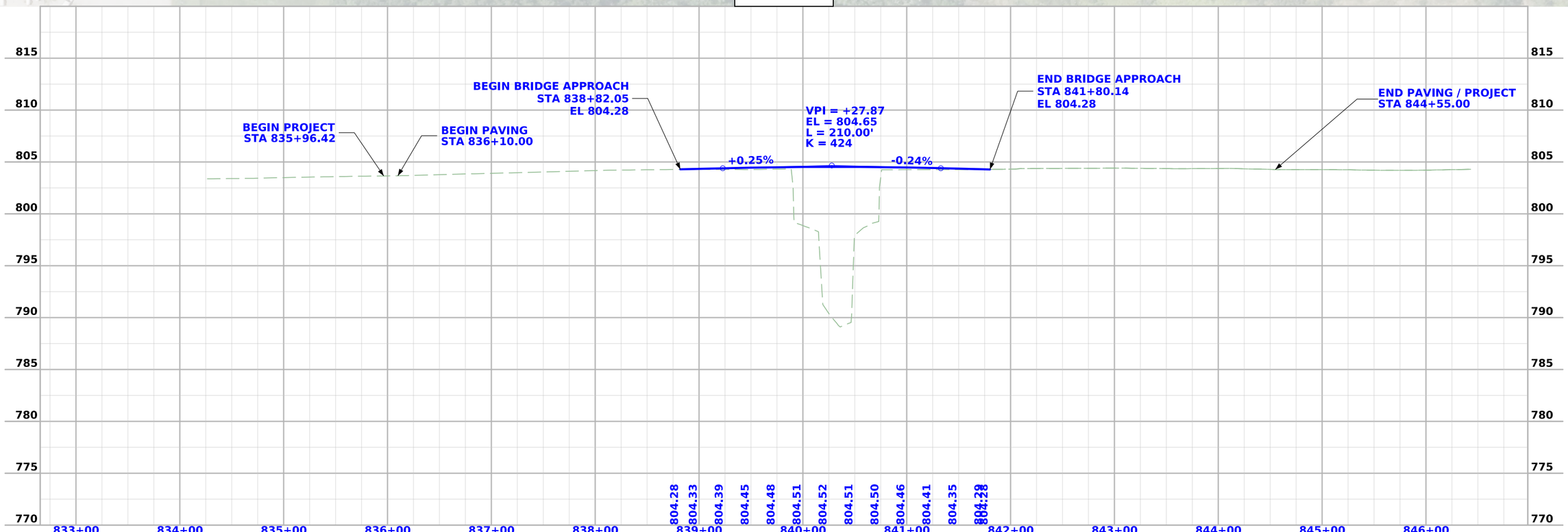
STA 841+80.14 (ML 65)
END BRIDGE APPROACH

STA 844+55.00 (ML 65)
END PAVING / PROJECT

Lincoln TWP.
T-77N R-23W
SEC. 30

Δ = 03°45'06.28" (RT)
T = 564.23'
L = 1128.06'
R = 17227.42'
E = 9.24'

0 50
FEET



FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER D.2

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SURVEY INDEX

Warren County
Project Number: BRF-065-3(87)--38-91
Location: Stream 0.2 mi N of Co Rd G24 (NB)
PIN: 22-91-065-010
Type of Work: Bridge
Project Directory: 9106501022

Survey Personnel

Jason Arn – Survey Party Chief
Clayton Henningsen – Survey Party Chief

Date(s) of Survey

Begin Date	10/19/2023
End Date	02/03/2024

General Information

This survey is for US Hwy 65 northbound bridge 0.2 mi north of county road G24. This survey request was for the US Hwy 65 corridor only. This project is a Full Field DTM survey.

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. Post processing is constrained to nearby Iowa Real Time Network reference stations. 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 08 (U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

Alignment was created by the District 1 Land Survey Office.

District 1 Notes:
The horizontal alignment for US 65/69 is a retrace of PCC Paving Plan FN-69-3(8)—21-91. Stationing was held at PI STA 822+67.40 (FN-69-3(8)—21-91) and was run ahead to PI STA 898+10.20 (FN-69-3(8)—21-91) with three (3) equation stations.

Begin Project
PI STA 822+67.40 (FN-69-3(8)—21-91) = PI STA 822+67.40 (this survey)
(#8000) also is NE COR 36-77-24 Found PK Nail in centerline of asphalt northbound lane US 65/69.

Equation PC STA 841+48.56 (FN-69-3(8)—21-91) = PC STA 841+48.56 (this survey)
(#3504) Computed Point – nothing found or set.

PI STA 847+12.79 (FN-69-3(8)—21-91) = PI STA 847+12.79 (this survey)
(#3500) Computed Point – nothing found or set.

PI STA 858+40.76 (FN-69-3(8)—21-91) = PI STA 858+40.85 (this survey)
(#3501) Computed Point – nothing found or set.

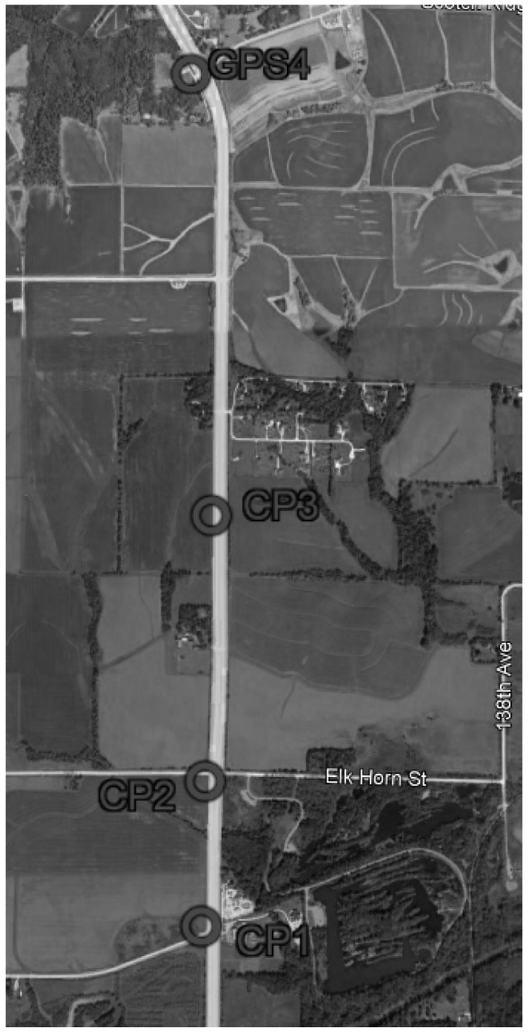
EQUATION PT STA 864+04.50 (FN-69-3(8)—21-91) = PT STA 864+04.67 (this survey)
(#3502) Computed Point – nothing found or set.

EQUATION 74-foot offset PT 864+04.50 (FN-69-3(8)—21-91) = 74-foot offset PT 864+04.67 (this survey)
(#3503) Computed Point – nothing found or set.

PI STA 898+10.20 (FN-69-3(8)—21-91) = PI STA 898+10.12 (this survey)
(#3000) Set Bridge Spike in asphalt patch best fit from ties.
END PROJECT

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 08 (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 08 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Feature Definition-Description
CP1	7433687.11	18543244.62	798.75	CP SET FENO MONUMENT IN NW QUAD INTERSECTION US 65 & COUNTY HWY G24
CP2	7435569.86	18543242.04	800.61	CP CUT X ON ROW RAIL IN SW QUAD US 65 & ELK HORN ST
CP3	7439149.96	18543328.50	907.21	CP CONC MONUMENT ON WEST TOP OF BACKSLOPE APPROX. 0.3 MI SOUTH INTERSECTION US 65 & DELAWARE ST
GPS4	7445249.74	18543016.03	926.84	CP REBAR W/ CAP AS DESCRIBED IN GOOD CONDITION

SE 1/4 SE 1/4
SEC. 25

NE 1/4 SE 1/4
SEC. 25

Greenfield TWP.
T-77N R-24W
SEC. 25

BEN KERN

832+00 833+00 834+00 835+00 836+00 837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00 846+00 847+00

US 65

STA: 835+96.42
BEGIN PROJECT

839+41
℄ 60'±EX.R/W Cor.

839+83
℄ 67'

840+98
℄ 60'±EX.R/W

840+67
℄ 69'

STA: 844+55.00
END PROJECT

HEARTLAND COOP

VICTOR FLORES-SANDOVAL & ORALIA MONTALVO-DAVILA

SHARON K WILEY

PROPERTY RIGHTS OBTAINED
VIA SOVEREIGN LAND PERMIT

1

DEPARTMENT OF NATURAL RESOURCES

(Remove)
Sta. 840+32.50
Skew 30° LT AH
85'x28' Continuous Concrete
Slab Bridge
D.A.=1700 A-F Plans

Sta. 840+32.25
Build 140'-0" x 40'-0"
Continuous Concrete Slab Bridge
Skew: 30° LA
Design No. 0127

Lincoln TWP.
T-77N R-23W
SEC. 30

SW 1/4 SW 1/4
SEC. 30

NW 1/4 SW 1/4
SEC. 30

Right of Way Design Information

THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: Larson / Hughes
ROW #: NHSN-065-3(088)--2R-91
Plan Date: 4-9-2025
Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition
- Permanent Acquisition County
- Permanent Acquisition City

0 50
FEET

FILE NO. 98765	ENGLISH	DESIGN TEAM Jia / Schoenrock / Evens	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER H.1

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108_23A
8/15/22

TRAFFIC CONTROL PLAN

At least one lane of traffic on NB US 65 shall be maintained at all times. Refer to J sheets for traffic control and staging plans.

The Contractor shall provide access to the east entrance and all side roads at all times.

108_26A
8/15/22

STAGING NOTES

STAGE 1
Traffic:
Shift NB U.S. 65 traffic to the outside lane following TC-418 for layout. Refer to other J sheets for details.

Construction:
Construct detour pavement from 836+27.17 to 844+25.83.

STAGE 2
Traffic:
Shift NB U.S. 65 traffic to the inside lane and the newly constructed outside shoulder and detour pavement via TBR. Refer to other J sheets for details.

Construction:
(1) Construct 17'-6" of the bridge (east side) and the corresponding approach pavement.
(2) Construct outside shoulder from 836+10.00 to 844+55.00 and guardrail.

STAGE 3
Traffic:
Shift NB U.S. 65 traffic to the newly constructed pavement in stage 2 via TBR. Refer to other J sheets for details.

Construction:
(1) Construct the rest of the bridge and approach pavement (west side).
(2) Construct outside shoulder from 836+21.91 to 844+10.14 and guardrail.

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 Subbase
- Proposed Special Backfill
- Temporary Barrier Rail
- Proposed Granular Shoulder
- Temporary Shoulder
- Existing Shoulder Strengthening
- 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
Orange	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

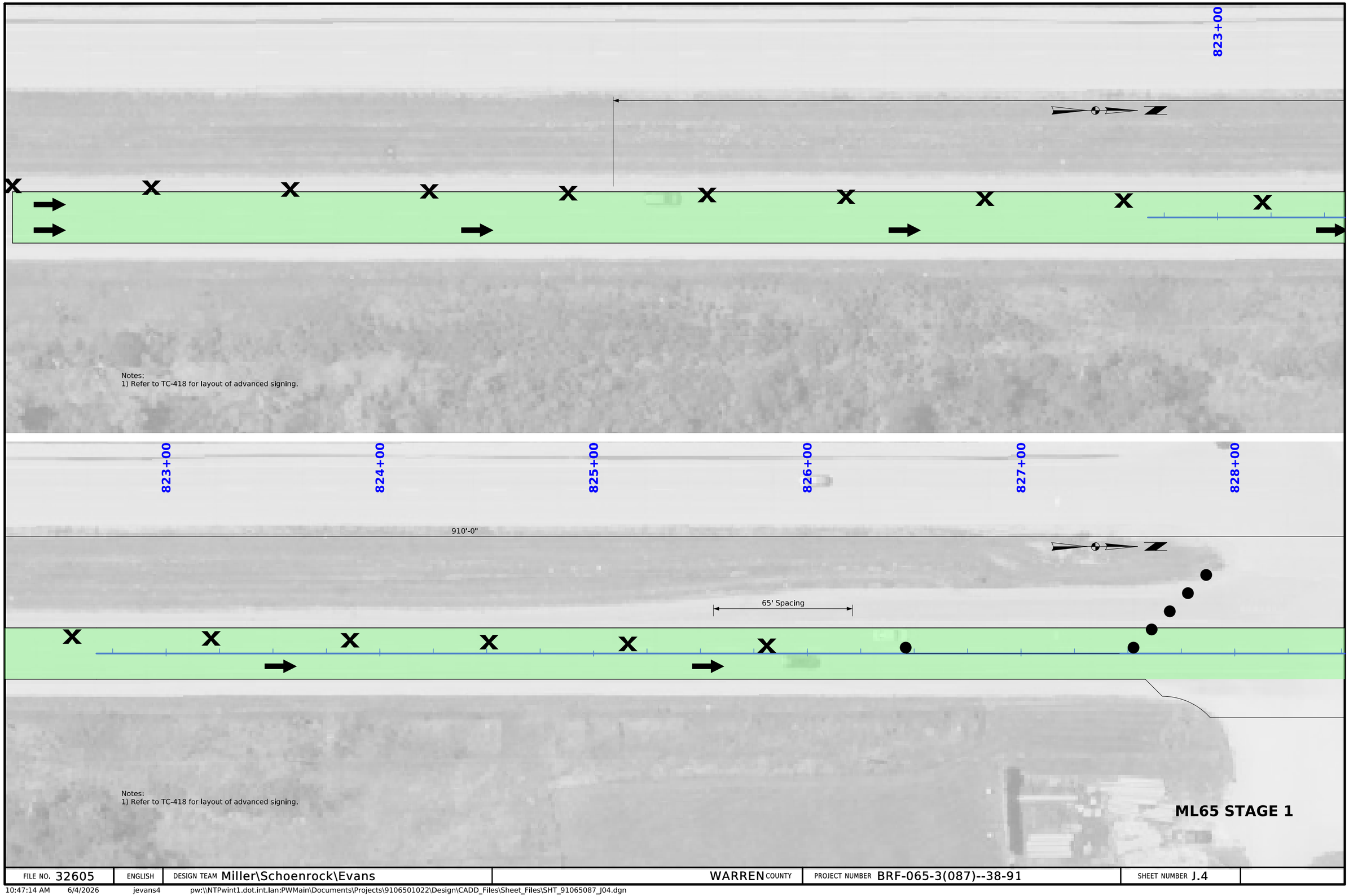
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

- Channelizing Device
- Drum
- Temporary Lane Separator
- Tubular Marker
- Channelizer Marker
- Concrete Barrier Marker
- Delineator
- Temporary Barrier Rail
- Pavement Removal
- Sand Barrel Layout
- Crash Cushion (Temp or Perm)
- Traffic Signal
- Flagger
- Temporary Floodlighting
- Traffic Sign
- Type III Barricade
- Type A Warning Light
- Direction of Traffic
- Safety Closure
- 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)



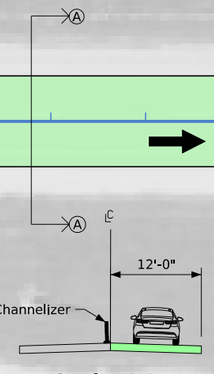
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828+00 829+00 830+00 831+00 832+00 833+00

100'-0" Spacing



Section A-A

Notes:
1) Refer to TC-418 for layout of advanced signing.

833+00 834+00 835+00 836+00 837+00 838+00

Notes:
1) Refer to TC-418 for layout of advanced signing.

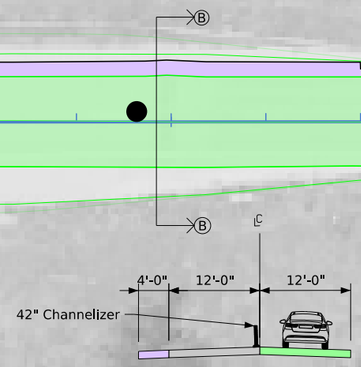
ML65 STAGE 1

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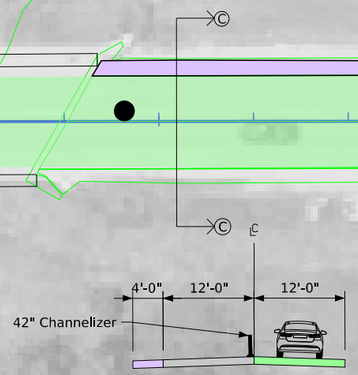
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838+00 839+00 840+00 841+00 842+00 843+00



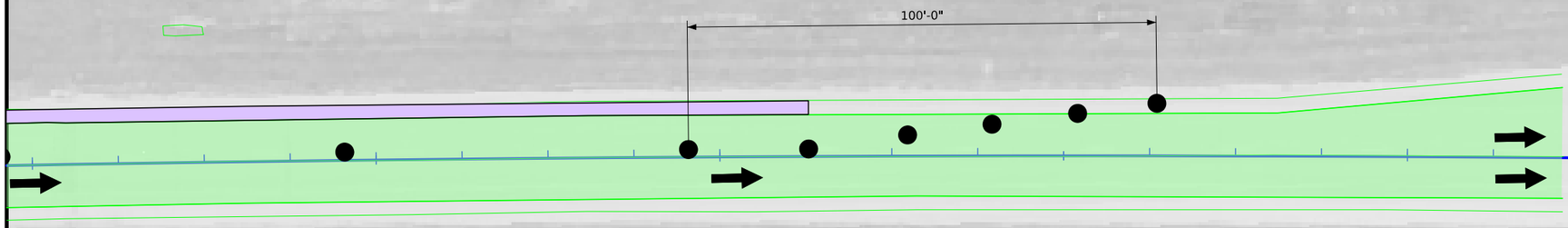
Section B-B



Section C-C

Notes;
1) Refer to TC-418 for layout of advanced signing.

842+00 843+00 844+00 845+00 846+00 847+00 848+00



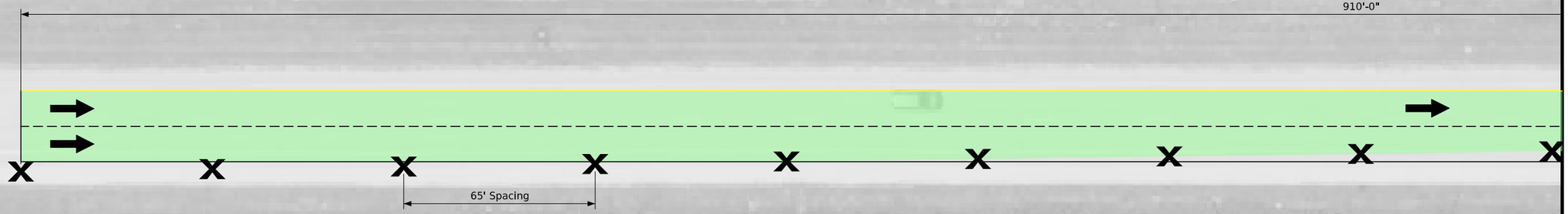
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1) Refer to TC-418 for layout of advanced signing.

ML65 STAGE 1

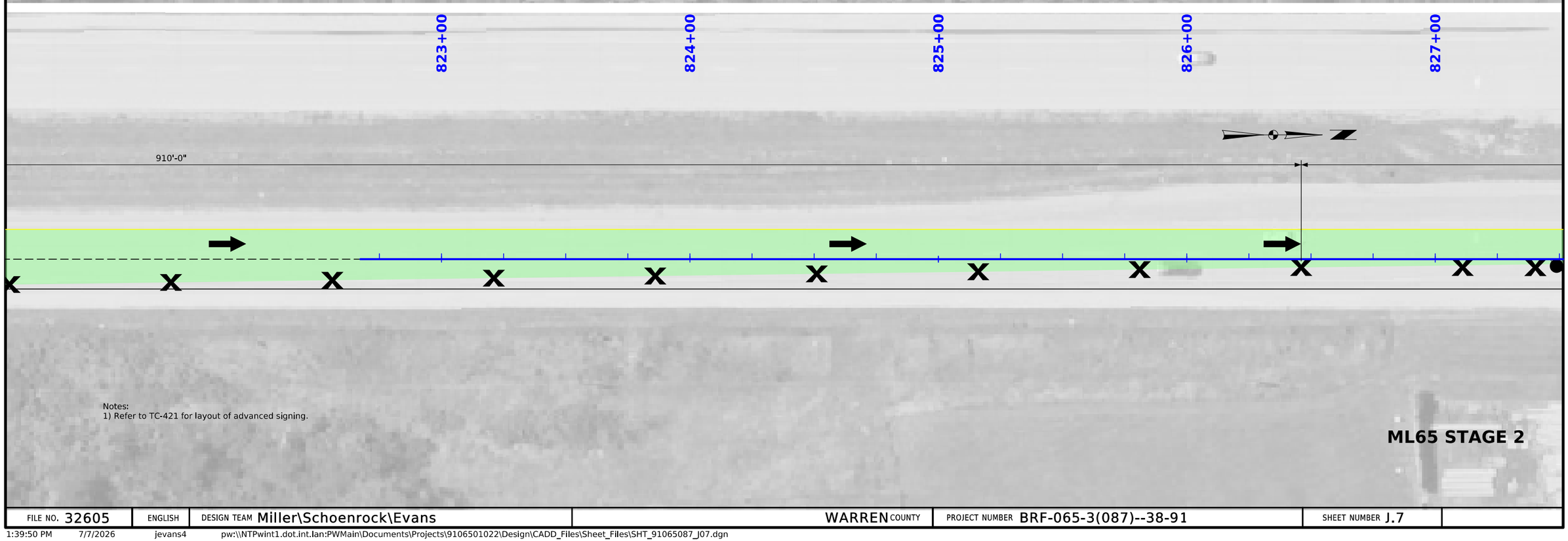
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Notes:
1) Refer to TC-421 for layout of advanced signing.



Notes:
1) Refer to TC-421 for layout of advanced signing.

ML65 STAGE 2

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827+00 828+00 829+00 830+00 831+00 832+00

624'-0¾"

5 Devices 5 Devices

Notes:
1) Refer to TC-421 for layout of advanced signing.

832+00 833+00 834+00 835+00 836+00 837+00

200'-0" 85'-0" 20' Min.

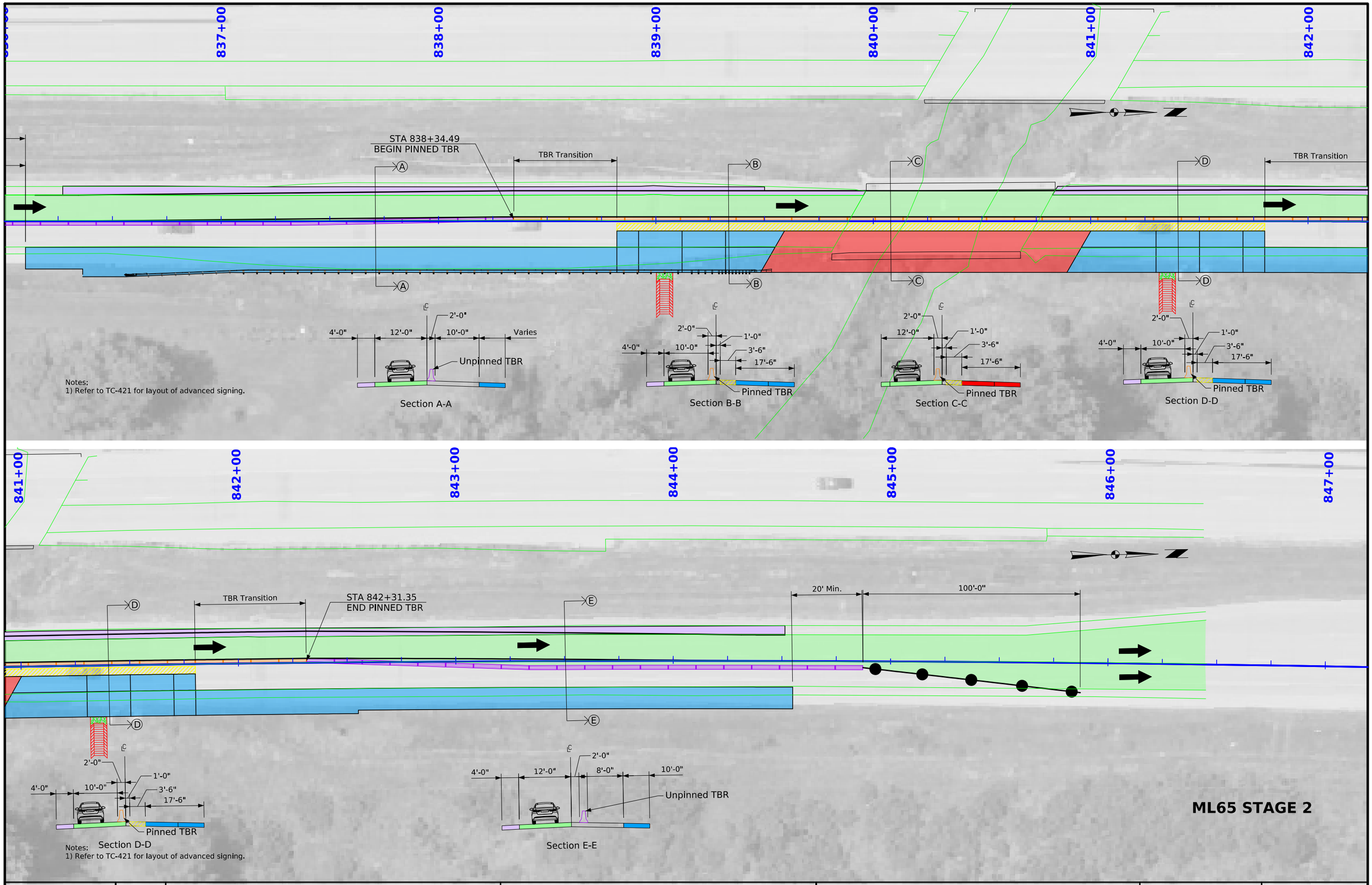
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1) Refer to TC-421 for layout of advanced signing.

ML65 STAGE 2

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER J.8

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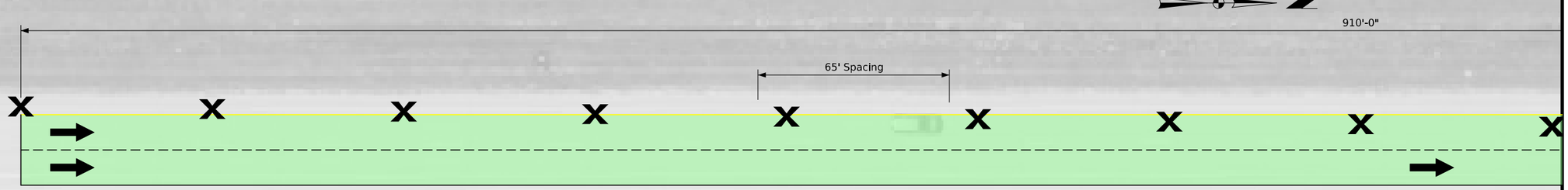
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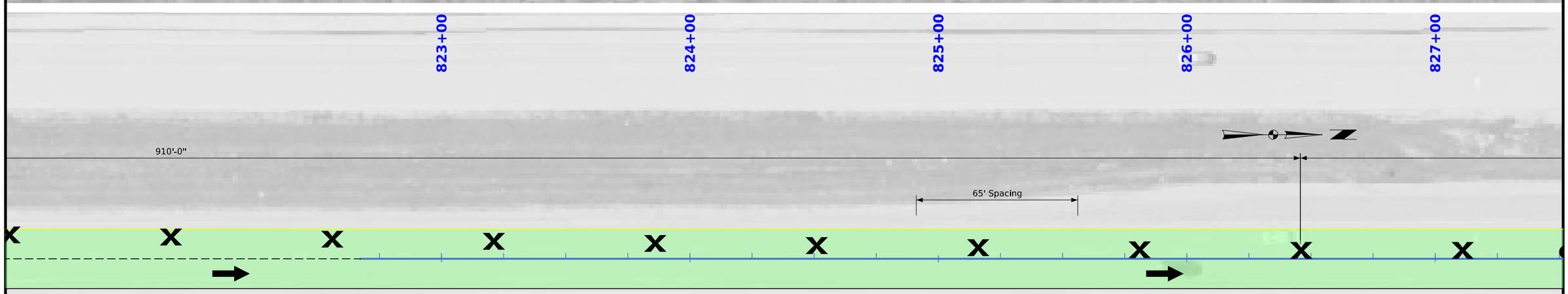
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Notes:
1) Refer to TC-421 for layout of advanced signing.



Notes:
1) Refer to TC-421 for layout of advanced signing.

ML65 STAGE 3

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER J.10	

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827+00 828+00 829+00 830+00 831+00 832+00

685'-8⅛"

Notes:
1) Refer to TC-421 for layout of advanced signing.

832+00 833+00 834+00 835+00 836+00 837+00

200'-0" 85'-0" 20' Min.

A A

C

12'-0" 12'-0"

Section A-A

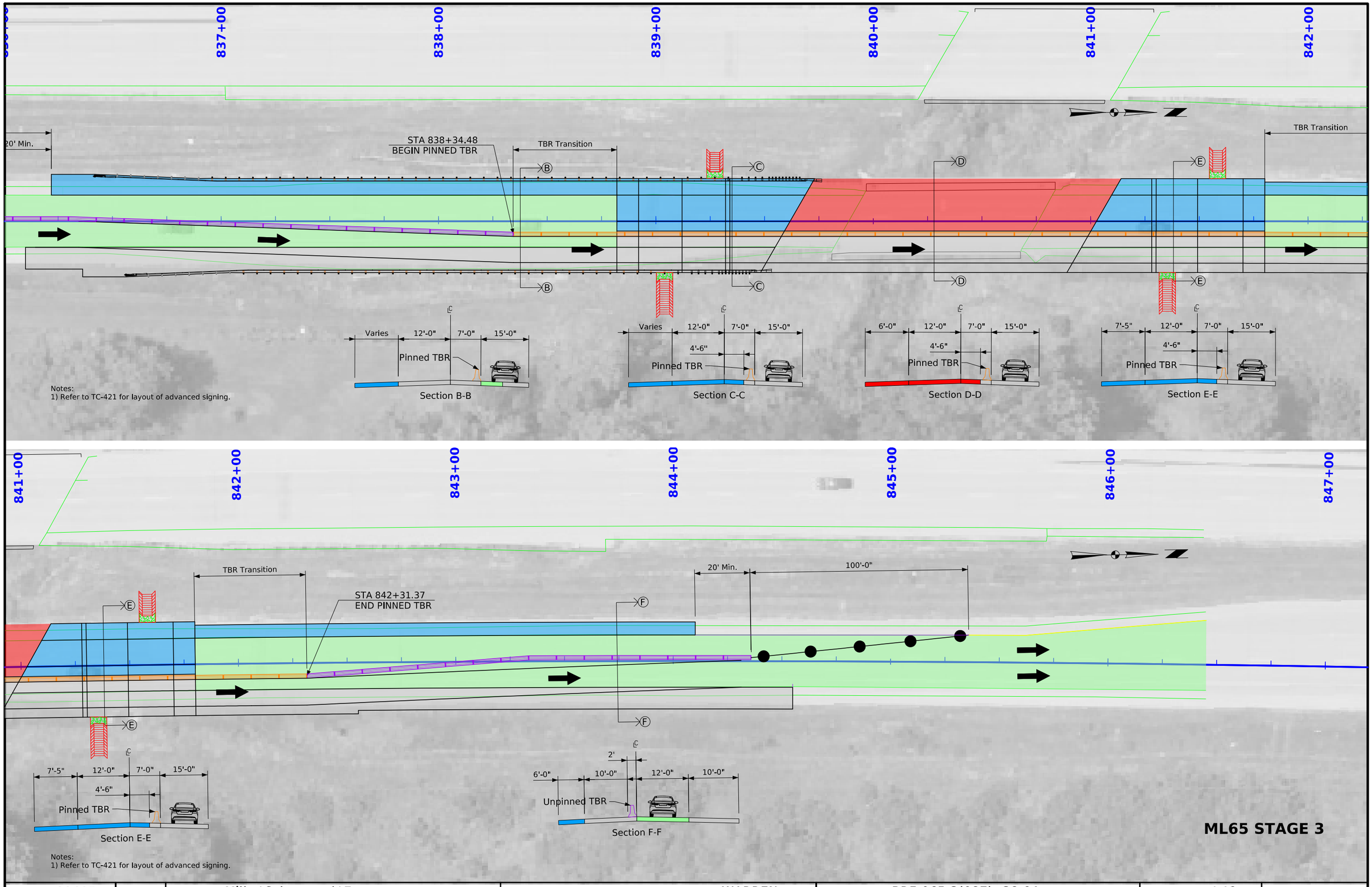
Notes:
1) Refer to TC-421 for layout of advanced signing.

ML65 STAGE 3

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FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER J.12

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LANDSCAPE DESIGN

STATE OF IOWA
Rachel A. Harris LA000775
PROFESSIONAL LANDSCAPE ARCHITECT

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly licensed professional landscape architect under the laws of the state of Iowa.

Signature 09-04-2026 Date

Rachel A. Harris
Printed or Typed Name

My license renewal date is June 30, 2028

Pages or sheets covered by this seal: RC.1 - RC.11; RR.1 - RR.3

FILE NO. **32605**	ENGLISH	DESIGN TEAM **Harris/Pohlen/McDonald**	**Warren** COUNTY	PROJECT NUMBER **BRF-065-3(087)--38-91**	SHEET NUMBER **RC.1**	

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadside Items	
1	2601-2634100	MULCHING	ACRE	1.1	Perform mulching according to Article 2601.03, E, 2, of the Standard Specifications. Anchor mulch into the soil using mulch anchoring equipment with a minimum of two passes. Item is included for areas requiring reshaping and seedbed preparation except where slope protection has been applied. Use mulch that is Certified Noxious Weed Seed Free Mulch as certified by the Iowa Crop Improvement Association or adjacent states Crop Improvement Associations. Mulch Rate: 1 1/2 tons of dry cereal straw or native grass straw per acre.
2	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	1.1	Refer to sheet RR.3 for seeding locations. Seed and fertilize all areas according to Article 2601.03, C, 3, of the Standard Specifications.
3	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	1.1	Item is included for disturbed areas. Seed and fertilize all disturbed areas according to Article 2601.03, C, 1, of the Standard Specifications. If permanent seeding cannot be placed due to the restrictive planting dates, stabilizing crop will need to be placed on all disturbed areas as temporary erosion control. When stabilizing crop must be used, place immediately following completions of finished grading. Reseeding of these areas will be required at contractors expense if damage occurs due to contractors negligence during the contract period.
4	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	200	Refer to Standard Road Plan EC-303.
5	2602-0000212	FLOATING SILT CURTAIN (HANGING)	LF	300	Refer to Tab 100-10 for locations. Refer to Standard Road Plan EC-202.
6	2602-0000240	MAINTENANCE OF FLOATING SILT CURTAIN	LF	150	
7	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	1,780	Refer to Tab. 100-19 for locations. Refer to Standard Road Plan EC-204. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 12 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadside Items	
8	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	1,780	Refer to Standard Road Plan EC-204. Item is included for temporary perimeter sediment control, inlet protection, and water velocity reduction on slopes or ditches at locations to be determined during construction. Verify specific locations with the Engineer prior to beginning placement. Item may be used in addition to, or as a direct replacement for "Perimeter and Slope Sediment Control Device, 12 in. dia." upon Engineer approval.
9	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	3,560	
10	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
11	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

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SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 3. A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

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11/9/23

STORM WATER BEST MANAGEMENT PRACTICES

When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided: Floating Silt Curtains, Perimeter and Slope Sediment Control Devices and Seeding.

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9/28/22

TEMPORARY STREAM CROSSING, CAUSEWAY, OR EQUIPMENT PAD

Standard Road Plan EW-401 is listed in Tabulation 105-4; however, it is included for information purposes only since it is an option. No quantities associated with constructing EW-401 are included in any bid items.

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10/20/26

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.
111_25	INDEX OF TABULATIONS	RC.5
105_04	STANDARD ROAD PLANS	RC.6
100_10	FLOATING SILT CURTAINS	RC.7
100_19	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	RC.8
100_34	STORMWATER DRAINAGE BASIN	RC.9
110_12	POLLUTION PREVENTION PLAN	RC.10 - RC.11

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
EC-202	10-21-14	Floating Silt Curtain
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-303	10-19-21	Stabilized Construction Entrance
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad

100_10
8/15/22

FLOATING SILT CURTAINS

Refer to EC-202

Station	Hanging (LF)	Containment (LF)	Clean-out (Containment) (LF)	Maintenance of Floating Silt Curtain (LF)	Remarks
840+19.00	150.0			75.0	
840+31.00	150.0			75.0	
Total:	**300**			**150**	

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
835+94.00	839+20.00	Left	Perimeter and Slope	12 inch	330.00	
839+32.00	839+69.00	Left	Perimeter and Slope	12 inch	50.00	
836+05.00	839+00.00	Right	Perimeter and Slope	12 inch	300.00	
839+09.00	839+48.00	Right	Perimeter and Slope	12 inch	50.00	
841+15.00	841+54.00	Left	Perimeter and Slope	12 inch	50.00	
841+61.00	844+08.00	Left	Perimeter and Slope	12 inch	250.00	
840+88.00	841+32.00	Right	Perimeter and Slope	12 inch	60.00	
841+40.00	844+61.00	Right	Perimeter and Slope	12 inch	330.00	
Total:					**1420**	

STORMWATER DRAINAGE BASIN

Refer to EC Standards and 570s Details.

Basin No.	Station From	Station To	Side	Discharge Station	Discharge Direction	Total Disturbed Area (ACRES)	Disturbed Area with Storage Provided (ACRES)	Disturbed Area without Storage Provided (ACRES)	Best Management Practice	Total Storage Volume Provided (CF)	Total Storage Volume Required (CF)	Storage Volume Met	Remarks
1	835+92.00	840+49.00	Median	835+92.00	S	0.4	0.4				1440.0	No	
2	835+92.00	840+26.00	Right	837+30.00	SE	0.4	0.4				1440.0	No	
3	840+00.00	844+70.00	R/M	840+00.00	SE	0.8	0.8				2880.0	No	

POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed during construction, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The Contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:
1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Is signature authority on the Base PPP. If consultant designed, signature from Contracting Authority is also required.

B. Contractor:
1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
4. Installs and maintains appropriate controls. This work may be subcontracted as documented through Subcontractor Request Forms (Form 830231).
5. Supervises and implements good housekeeping practices according to Paragraph III, C, 2.
6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.
8. Submits amended PPP site map according to Section 2602 of the Standard Specifications.

C. Subcontractors:
1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if: responsible for sediment or erosion controls; involved in land disturbing activities; or perorming work that is a source of potential pollution as defined in this PPP. Subcontracted work items are identified in Subcontractor Request Forms (Form 830231). All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Implement good housekeeping practices according to Paragraph III, C, 2.

D. RCE/Project Engineer:
1. Is Project Storm Water Manager.
2. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
7. Is familiar with the Project PPP and storm water site map.
8. On projects where DOT is Contracting Authority, is responsible for periodically monitoring inspection reports to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
10. Is signature authority on Notice of Discontinuation.
11. Maintains an up-to-date record of contractors, subcontractors, and subcontracted work items through Subcontractor Request Forms (Form 830231).
12. Makes information to determine permit compliance available to the DNR upon their request.

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POLLUTION PREVENTION PLAN

E. Inspector:
1. Updates PPP through fieldbook entries and storm water site inspection reports if there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
2. Makes information to determine permit compliance available to the DNR upon their request.
3. Conducts joint required inspections of the site with the contractor/subcontractor.
4. Completes an inspection report after each inspection.
5. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for a Bridge Replacement in Warren County.

B. This PPP covers approximately 4.0 acres with an estimated 1.6 acres being disturbed. The portion of the PPP covered by this contract has 1.6 acres disturbed.

C. The PPP is located in an area of Sharpsburg - Shelby - Adair soil association. The estimated weighted average runoff coefficient number for this PPP after completion will be 0.38.

D. Storm Water Site Map is located in the R sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the C or CE sheets.

E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries and amended PPP site map.

F. Runoff from this work will flow into an Unnamed Creek to the Middle River.

III. CONTROLS

A. The Contractor’s ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries, amended PPP site map, or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water site inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices
1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
a) Permanently ceased on any portion of the site, or
b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
4) Permanent and Temporary Stabilization practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C or R sheets.
5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets. Additional information may be found in the Tabulations in the C or T Tabulation sheets, or is referenced in Section 2105 of the Standard Specifications.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
2) Structural practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B or R sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C or R sheets.

POLLUTION PREVENTION PLAN

c. Storm Water Management
Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the storm water site map and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS
Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.

a. Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
b. Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
c. Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
d. Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
e. Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean up spills and prevent material discharges to the storm drain system and waters of the state.
f. Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
g. Concrete Grooving/Grinding Slurry – Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
h. Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
i. Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
j. Dewatering – Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

3. APPROVED STATE OR LOCAL PLANS
During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES
The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS
A. Inspections shall be made jointly by the Contractor and the Contracting Authority's inspector at least once every seven calendar days. Storm water site inspections will include:
1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water site inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

VI. NON-STORM WATER DISCHARGES

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POLLUTION PREVENTION PLAN

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION
Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS
A. Base PPP - Initial Pollution Prevention Plan.
B. Amended PPP - Base PPP amended during construction. May include Plan Revisions or Contract Modifications for new items, storm water site inspection reports, fieldbook entries made by the inspector, amended PPP site map by the Contractor, ECIP, NOI, co-permittee certifications, and Subcontractor Request Forms. Items amending the PPP are stored electronically and are readily available upon request.
C. Fieldbook Entries – This contains the inspector’s daily diary and bid item postings.
D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
E. Signature Authority - Representative authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Nathan Pohlen
Signature

Nathan J. Pohlen
Print Name

LINE STYLE LEGEND OF LANDSCAPE SHEETS

LINESTYLE	Design Element
– – – – – – – – – – – –	Living Snow Fence Single Row
⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝⁝	Living Snow Fence Double Row
———	Mechanical Edge

CELL LEGEND OF LANDSCAPE SHEETS

CELL	Design Element	Plant Diameter
	Clearing	
	Proposed Shrub	6 FT
	Proposed Understory Tree	12 FT
	Proposed Conifer Tree	18 FT
	Proposed Overstory Tree	30 FT

PATTERN LEGEND OF LANDSCAPE SHEETS

Brush Clearing

Spray Area

Clearing & Grubbing

LINE STYLE LEGEND OF EROSION CONTROL SHEETS

LINESTYLE	Design Element
	Silt Fence
9	Perimeter and Slope Sediment Control Device (9")
12	Perimeter and Slope Sediment Control Device (12")
20	Perimeter and Slope Sediment Control Device (20")
	Open-Throat Curb Intake Sediment Filter
	Concentrated Flow
	Rock Check and Rock Check Dam
	Sheet Flow

CELL LEGEND OF EROSION CONTROL SHEETS

CELL	Design Element
	Temporary Sediment Control basin
	Erosion Control for Circular Intake or Manhole Well
	Erosion Control for Rectangular Intake or Manhole Well
	Grate Intake Sediment Filter Bag
	Silt Basin
	Silt Fence Tail
	Stormwater Drainage Basin Discharge Point

PLAN VIEW COLOR LEGEND OF EROSION CONTROL 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
Black	(0)	Permanent Erosion Control Features
Blaze Orange	(222)	Temporary Erosion Control Features

SHADING	Design Color No.		Transparency
Citron	(234)	Mulching, All Types	50%
Light Brown	(238)	Special Ditch Control, Wood Excelsior Mat	0%
Grass Green	(233)	8FT Mow Strip	50%
Red	(3)	Delineates Restricted Areas	0%

PATTERN LEGEND OF EROSION CONTROL SHEETS

Seeding and Fertilizing

R — Seeding and Fertilizing (Rural)

U — Seeding and Fertilizing (Urban)

N — Native Grass Seeding

ST — Salt Tolerant Seeding

WL — Wetland Grass Seeding

WF — Wildflower Seeding

SOD — Sodding

Turf Reinforcement Mat Type 1

Turf Reinforcement Mat Type 2

Turf Reinforcement Mat Type 3

Turf Reinforcement Mat Type 4

Slope Protection, Wood Excelsior Mat

Transition Mat

Rock Features, Permanent

Rock Features, Temporary

LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D & R)



FILE NO. 32605	ENGLISH	DESIGN TEAM Harris/Pohlen/McDonald	Warren COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER RR.2	

2:00:36 PM 4/20/2026 bmcdona pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9106501022\Roadside\91065087_Basins_SHT.dgn

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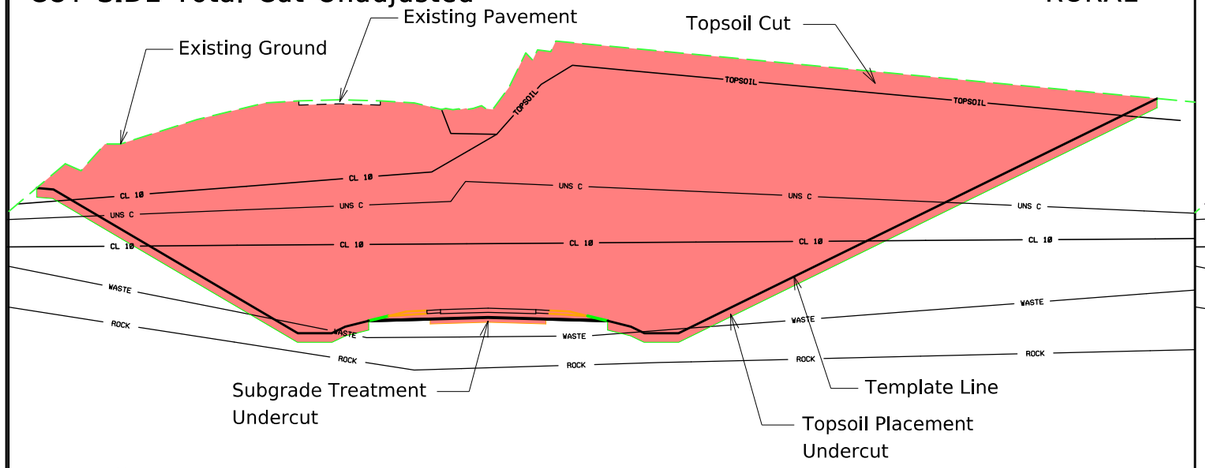


FILE NO. 32605	ENGLISH	DESIGN TEAM Harris/Pohlen/McDonald	Warren COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER RR.3	

11:31:14 AM 6/16/2026 bmcdona pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9106501022\Roadside\91065087_Siteplan_SHT.dgn

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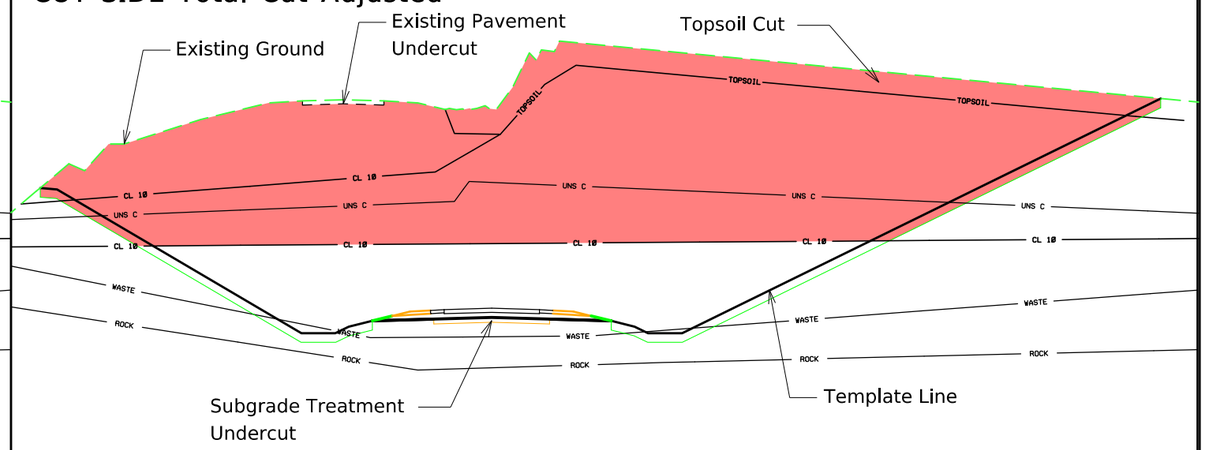
CUT SIDE Total Cut Unadjusted — RURAL



Notes:

1. "Total Cut Unadjusted" Column includes all cut values in the Station Range based on Typical, Topsoil and Subgrade Treatment needs.
2. "Total Cut Unadjusted" does not include and Existing Pavement values inside or outside the cut template as shown on cross sections.
3. Tabulated Plowing and Shaping operations are included in the "Total Cut Unadjusted" values.

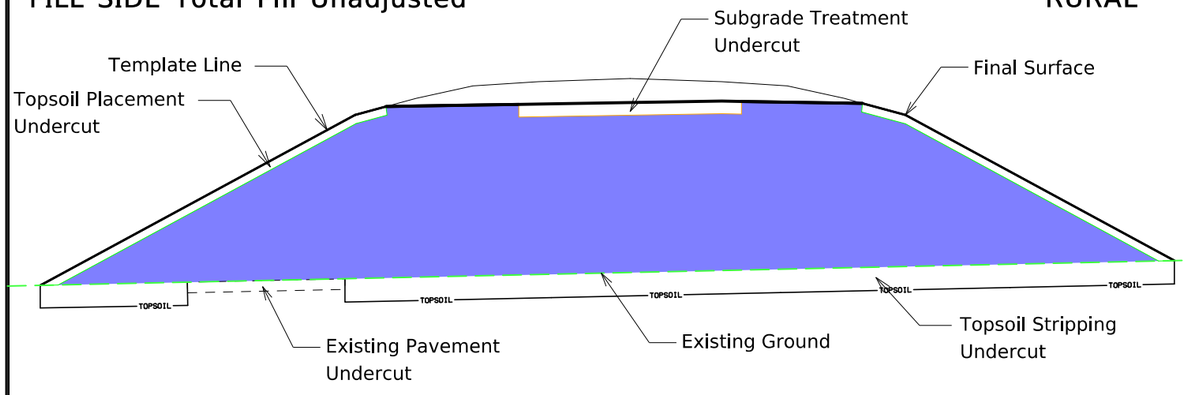
CUT SIDE Total Cut Adjusted



Notes:

1. "Total Cut Adjusted" Column includes all cut values usable as Class 10 material.
2. "Total Cut Adjusted" does not include and Existing Pavement , Existing Topsoil, or material to be wasted.

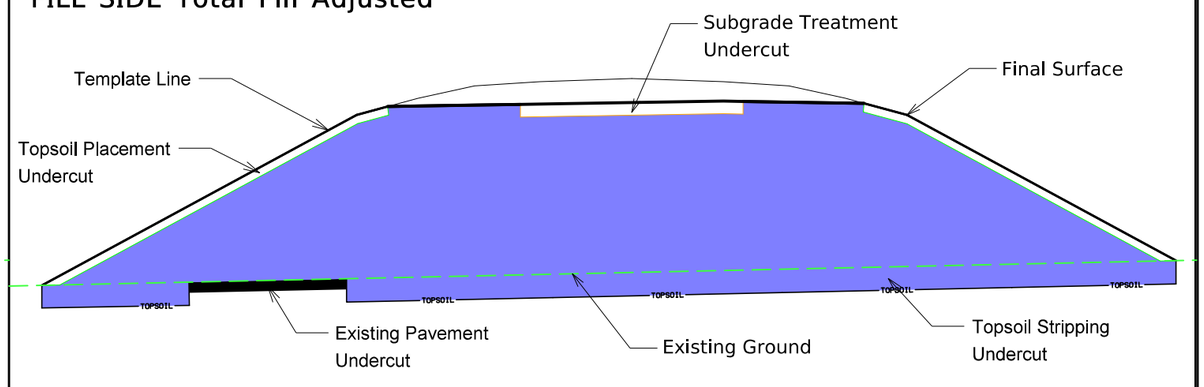
FILL SIDE Total Fill Unadjusted — RURAL



Notes:

1. "Total Fill Unadjusted" Column includes all Class 10, 12, and 13 fill. This excludes the topsoil, subgrade treatment, subbase, new pavement, and shoulder fill needs in that station range.
2. "Total Fill Unadjusted" Column does not include adjustments for additional fill from cuts such as existing pavement removed, plowing and shaping operations, entrances, dikes, or topsoil stripping.

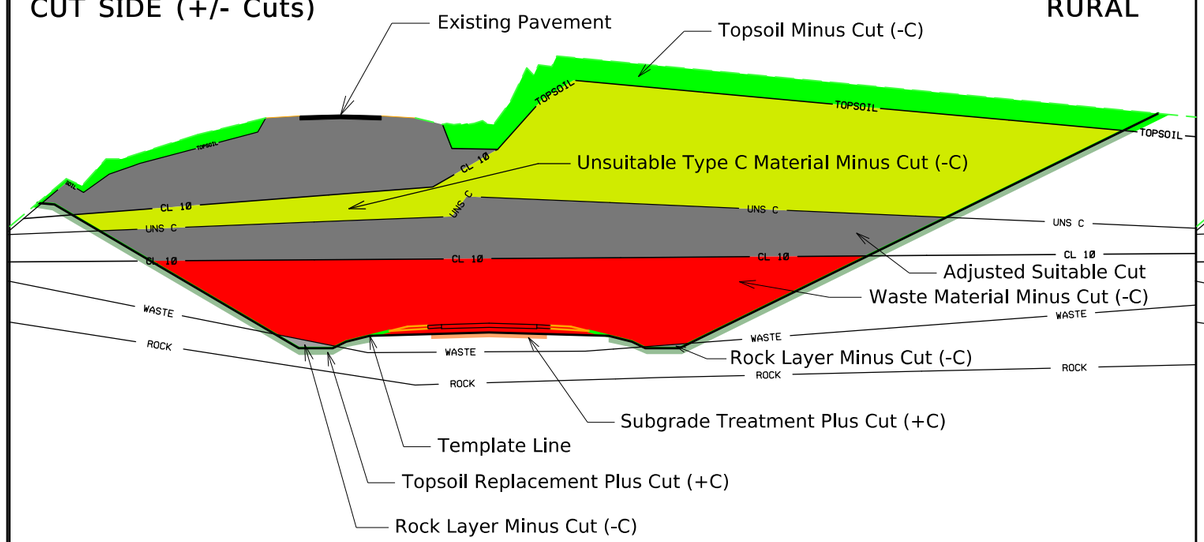
FILL SIDE Total Fill Adjusted



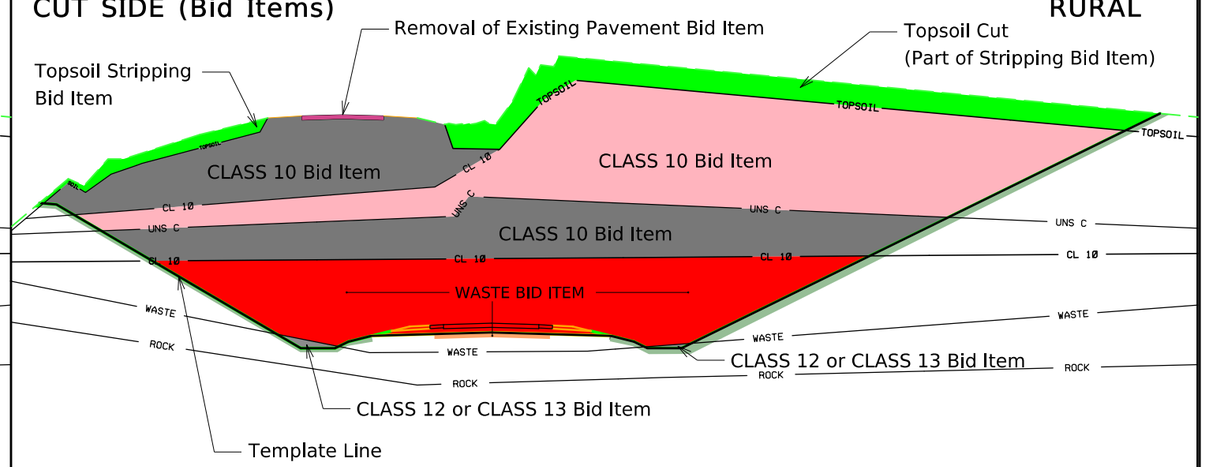
Notes:

1. "Total Fill Adjusted" Column includes all Class 10, 12, and 13 fill and adjustments for additional fill from cuts such as existing pavement, plowing and shaping operations, entrances, dikes, and topsoil stripping.
2. The available area to place unsuitable materials in the T Sheet tabulation does not include the undercut values from the topsoil stripping, existing pavement, or plowing and shaping

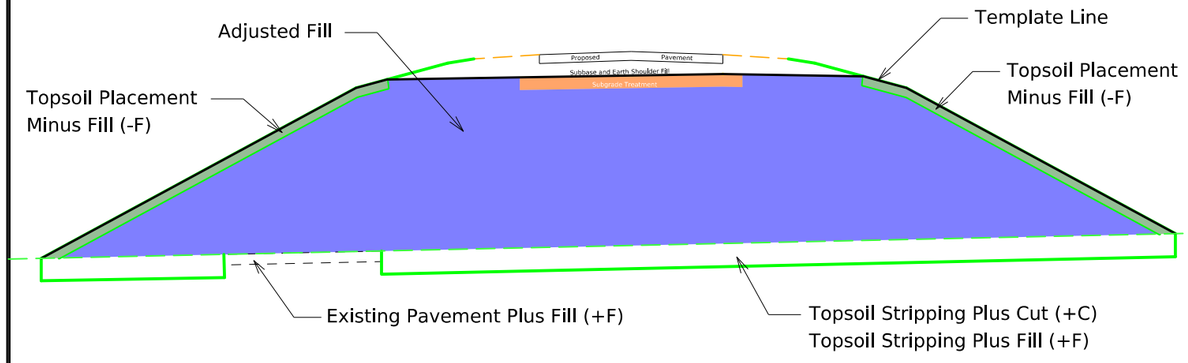
CUT SIDE (+/- Cuts) — RURAL



CUT SIDE (Bid Items) — RURAL



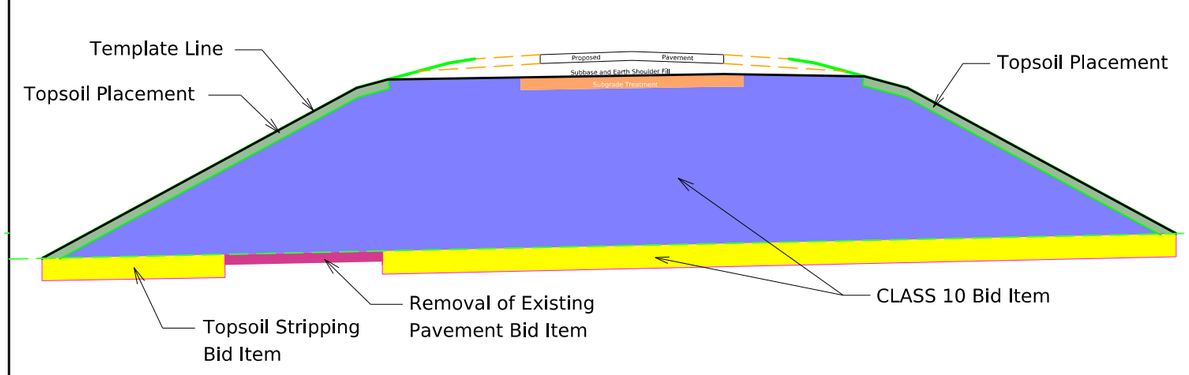
FILL SIDE (+/- Fills) — RURAL



Notes:

1. "Add Quantity +C" columns are additional cut encountered that is not Typical, Topsoil, or Subgrade Treatment Based. (Entrance, Dike, Etc.)
2. "-C" columns are either soil types or Class 10, 12, or 13 designated material that is encountered in the cut station range that is paid for by other bid items.
3. The "(SoilType) Cut" columns are soil types encountered in the cut that are paid by either Class 10, 12, or 13.
4. The "Adjusted Clas (10,12 or 13)" columns are the sum of all various soil types encountered in that station range, that are paid by Class 10, 12, or 13 bid items.
5. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

FILL SIDE (Bid Items) — RURAL



Notes:

1. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER T.2

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut					Fill				Checks (EW-102)		Topsoil										
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
US65																						
835+96.42																						
836+00.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
836+25.00	31	15	12	3	15	8	8	11	5	0	0	12	2	3	9							
836+50.00	61	31	23	7	31	19	19	25	6	0	0	23	4	6	18							
836+75.00	62	30	24	8	30	22	22	29	2	0	0	24	5	6	18							
837+00.00	62	31	22	10	31	15	15	19	12	0	0	22	4	6	16							
837+25.00	64	35	17	12	35	7	7	9	25	0	0	17	3	4	14							
837+50.00	68	41	13	14	41	4	4	5	36	0	0	13	1	1	12							
837+75.00	69	43	11	15	43	3	3	4	40	0	0	11	0	0	11							
838+00.00	69	41	12	15	41	4	4	5	36	0	0	12	1	1	11							
838+25.00	69	38	15	15	38	5	5	7	31	0	0	15	2	3	12							
838+50.00	67	37	14	16	37	4	4	6	32	0	0	14	1	2	12							
838+75.00	66	35	16	15	35	7	7	10	25	0	0	16	2	3	13							
839+00.00	87	41	20	26	41	16	16	21	20	0	0	20	4	6	14							
839+25.00	106	48	22	36	48	20	20	26	22	0	0	22	4	6	16							
839+50.00	101	46	22	33	46	11	11	14	32	0	0	22	2	3	19							
839+75.00	245	190	25	31	190	2	2	3	187	0	0	25	0	0	25							
840+00.00	311	267	30	15	267	1	1	2	265	0	0	30	0	0	30							
840+25.00	117	100	16	0	100	1	1	1	99	0	0	16	0	0	16							
840+50.00	74	63	11	0	63	0	0	0	63	0	0	11	0	0	11							
840+75.00	295	259	27	9	259	0	0	0	259	0	0	27	0	0	27							
841+00.00	344	288	31	25	288	10	10	13	275	0	0	31	3	4	27							
841+25.00	174	114	27	33	114	16	16	21	93	0	0	27	5	7	20							
841+50.00	104	46	24	33	46	11	11	14	32	0	0	24	5	7	18							
841+75.00	107	50	24	33	50	9	9	12	38	0	0	24	5	8	16							
842+00.00	88	43	24	20	43	7	7	10	34	0	0	24	8	11	13							
842+25.00	67	35	24	8	35	6	6	8	27	0	0	24	9	13	11							
842+50.00	68	35	25	8	35	5	5	7	28	0	0	25	9	13	12							
842+75.00	66	34	24	8	34	4	4	6	29	0	0	24	9	13	11							
843+00.00	63	33	22	8	33	4	4	5	29	0	0	22	8	11	11							
843+25.00	62	32	21	8	32	4	4	5	28	0	0	21	7	10	11							
843+50.00	61	32	21	8	32	4	4	5	27	0	0	21	7	10	11							
843+75.00	61	32	21	8	32	4	4	5	26	0	0	21	7	10	11							
844+00.00	60	31	21	8	31	4	4	5	26	0	0	21	7	11	11							
844+25.00	48	25	17	6	25	3	3	5	20	0	0	17	6	9	9							
844+50.00	37	20	14	4	20	3	3	4	16	0	0	14	5	7	7							
844+55.00	7	4	3	1	4	1	1	1	3	0	0	3	1	1	1							
US65																						
Totals:	3,441	2,246	696	499	2,246	245	245	320	1,928	0	0	696	137	192	506							

FILE NO. 32605	ENGLISH	DESIGN TEAM MILLER\SCHOENROCK\EVANS	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER T.3

Refer to Standard Road Plans EW-101 and EW-102.

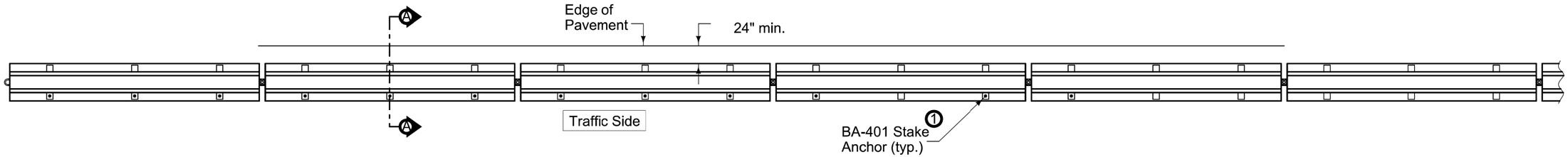
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

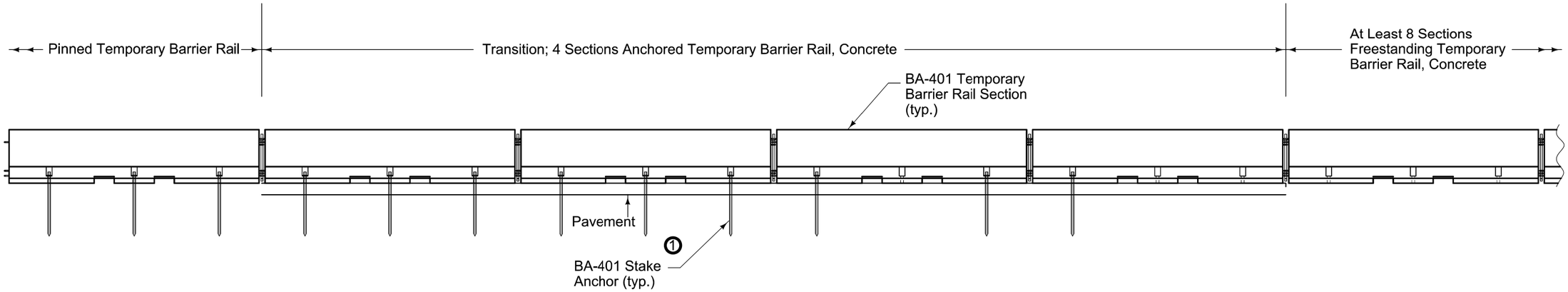
Station	Cut					Fill				Checks (EW-102)		Topsoil										
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
Summary:																						
US65	3,441	2,246	696	499	2,246	245	245	320	1,928	0	0	696	137	192	506							
Project Totals:	3,441	2,246	696	499	2,246	245	245	320	1,928	0	0	696	137	192	506							

Totals:
Excavation, Class 10, Roadway & Borrow: 320 [8]
Excavation, Class 10, Waste: 1,928 [9]
Topsoil, Strip, Salvage, and Spread: 696 [12]
Compaction with Moisture Control: 245 [7]

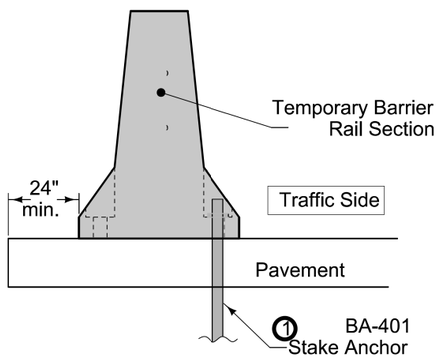
FILE NO. 32605	ENGLISH	DESIGN TEAM MILLER\SCHOENROCK\EVANS	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER T.4



PLAN



ELEVATION



SECTION A-A

Install temporary barrier rail on a flat, level surface. Where anchored TBR sections are not located on existing pavement, construct a 2 inch minimum thickness HMA pad.

① Each transition requires nine (9) BA-401 stake anchors as shown. Use of the strap anchorage is not allowed in transition. When transition is placed on Composite or PCC Pavement pre-drill holes for stakes with 1⅝ inch core bit.

Transition from
Pinned TBR to
Unpinned TBR

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature
Aggregate	
(64)	Choke Stone
(42)	Engineering Fabric
(8)	Flooded Backfill
(92)	Macadam Stone
(20)	Modified
(12)	Plowing Shaping
(14)	Porous Backfill
(8)	Revetment Class A
(6)	Revetment Class B
(62)	Revetment Class C
(188)	Revetment Class D
(28)	Revetment Class E
(12)	Shoulder Special Backfill
(12)	Special Backfill
(20)	Subbase
(20)	Subbase Lower
(20)	Subbase Upper
(118)	Subgrade Treatment
Asphalt	
(207)	HMA Base Course
(207)	HMA Interim Course
(207)	HMA Surface Course
Bridge	
(0)	Bridge
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Existing	
(0)	Existing Pavement
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular
Structural	
(112)	Noise Wall
(112)	Noise Wall Footing
(112)	Retaining Wall Back
(112)	Retaining Wall Back Excavate
(112)	Retaining Wall Face
(112)	Retaining Wall Front Excavate
(112)	Retaining Wall Front Footing
(112)	Retaining Wall MSE Gutter
(112)	Retaining Wall Reinforced Earth

Design Color No.	Feature
Grading	
(8)	Behind Curb Cut
(6)	Granular
(13)	Granular Back Fill
(48)	Rock Undercut
(8)	Shoulder Earth Fill
(2)	Side Slopes
(226)	Side Slopes Dressing
Substrata	
(128)	Boulder
(209)	Boulder Removed
(48)	Broken Weathered
(210)	Broken Weathered Removed
(3)	Core Out
(115)	Core Out Remove Only
(195)	Core Out Remove and Replace
(203)	Existing Pavement
(184)	Existing Pavement Remove Only
(200)	Existing Pavement Remove and Replace
(6)	Loam
(211)	Loam Removed
(80)	Rock
(212)	Rock Removed
(4)	Select Sand
(214)	Select Sand Removed
(3)	Shale
(215)	Shale Removed
(10)	Topsoil
(2)	Topsoil Remove Only
(4)	Topsoil Remove and Replace
Unsuitable / Waste	
(3)	Unsuitable Type A
(216)	Unsuitable Type A Removed
(13)	Unsuitable Type B
(217)	Unsuitable Type B Removed
(11)	Unsuitable Type C
(218)	Unsuitable Type C Removed
(3)	Waste
(219)	Waste Removed

NOTES:

Text

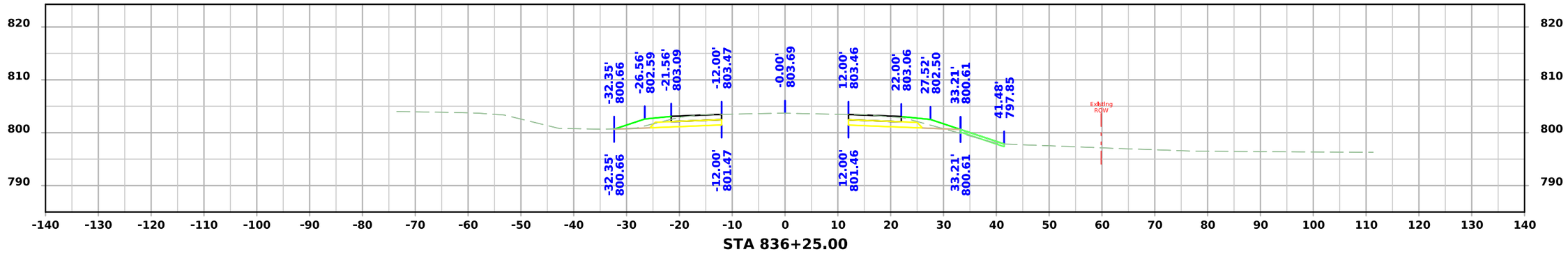
NOTES:

Text

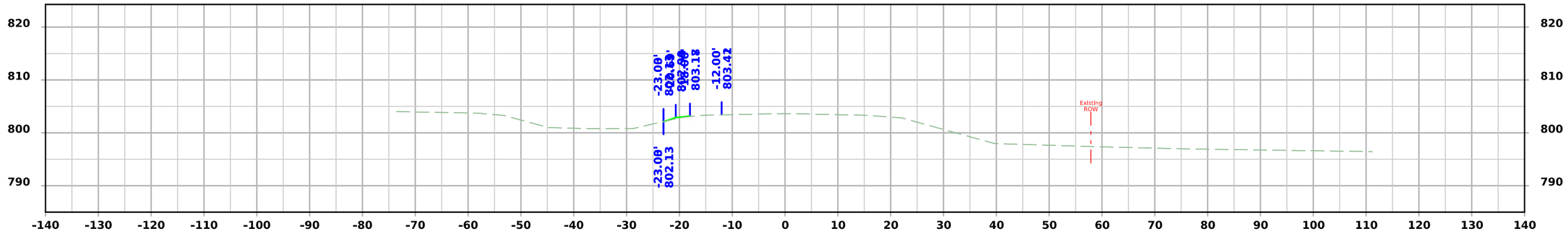
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

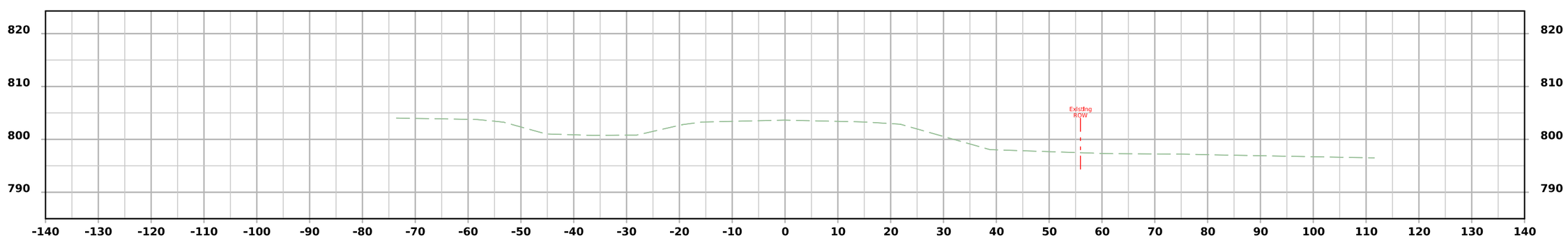
ML - US65



STA 836+25.00



STA 836+00.00

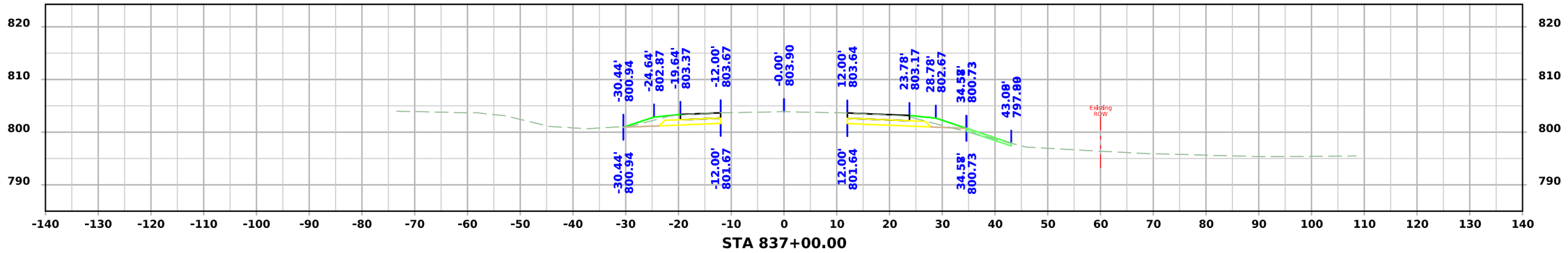


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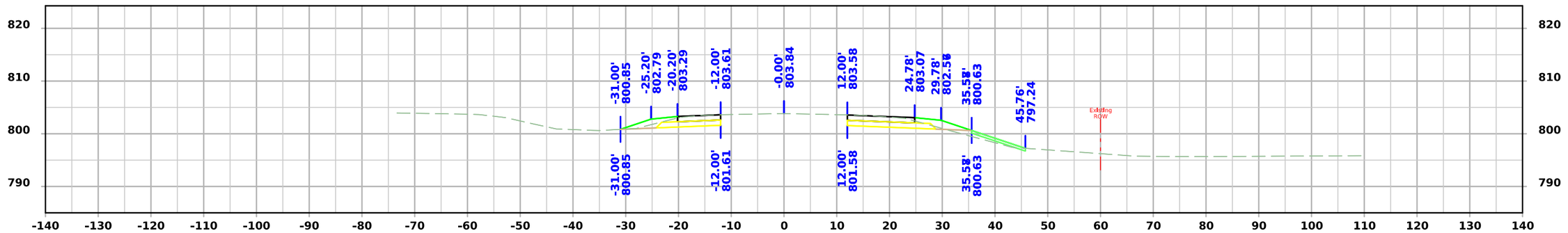
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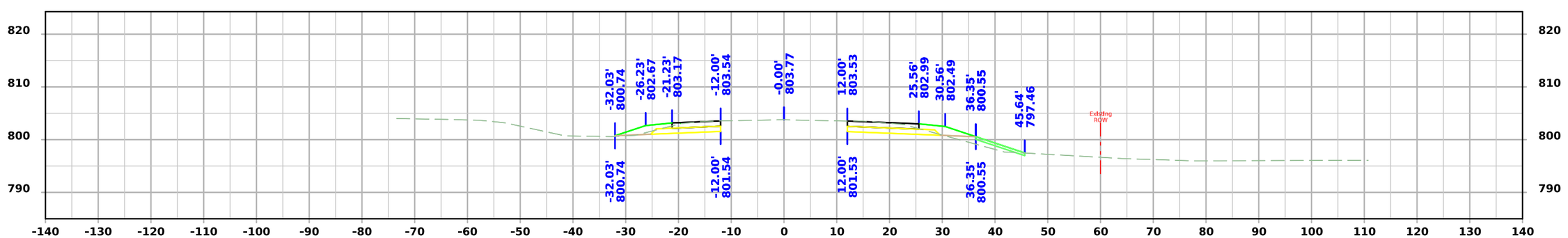
ML - US65



STA 837+00.00



STA 836+75.00

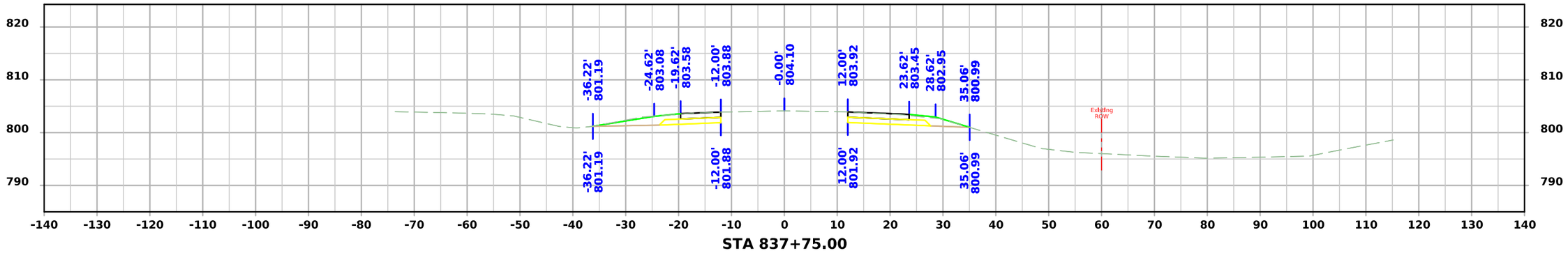


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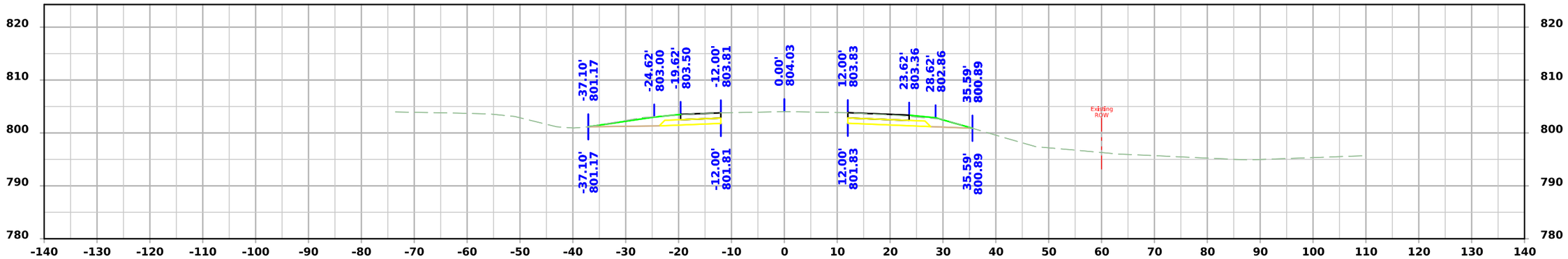
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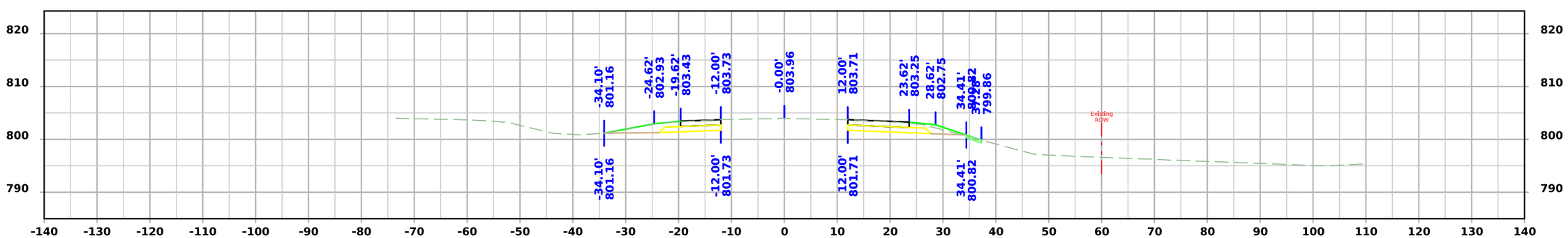
ML - US65



STA 837+75.00



STA 837+50.00

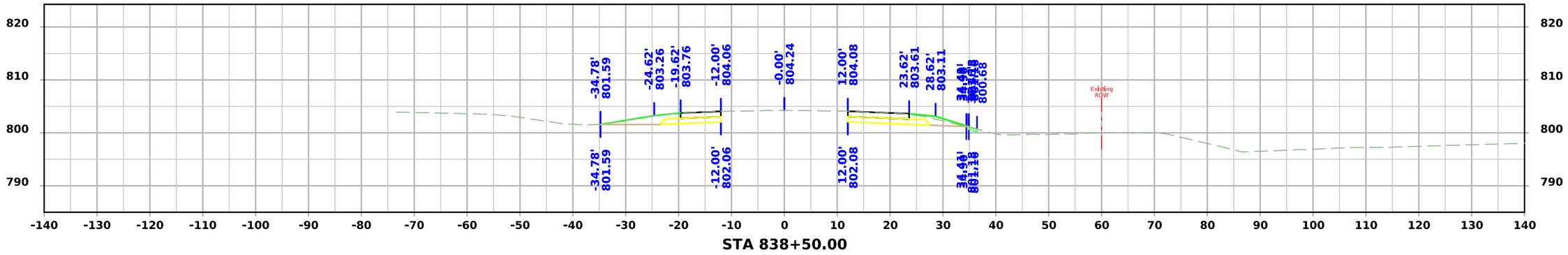


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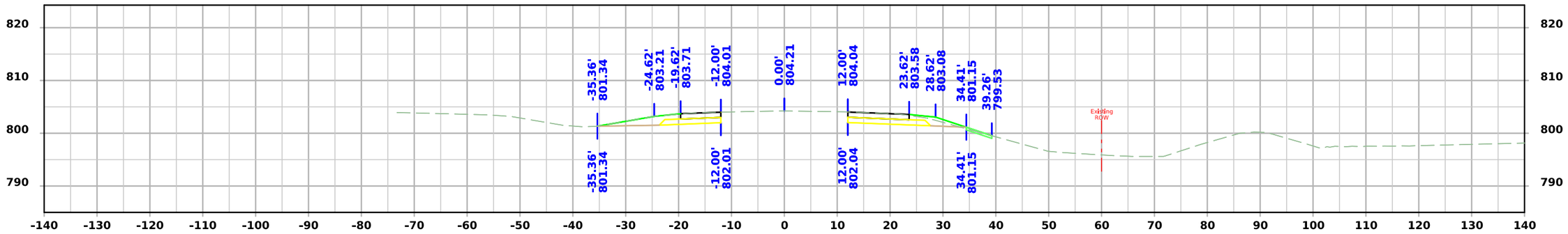
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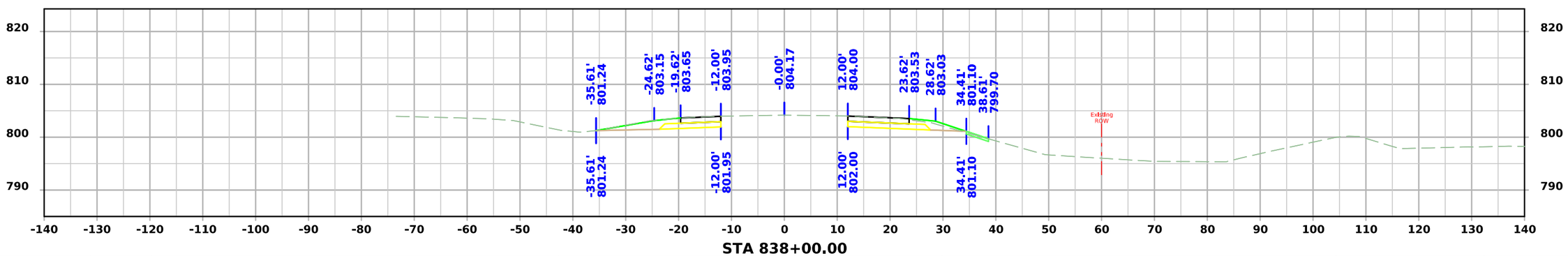
ML - US65



STA 838+50.00



STA 838+25.00

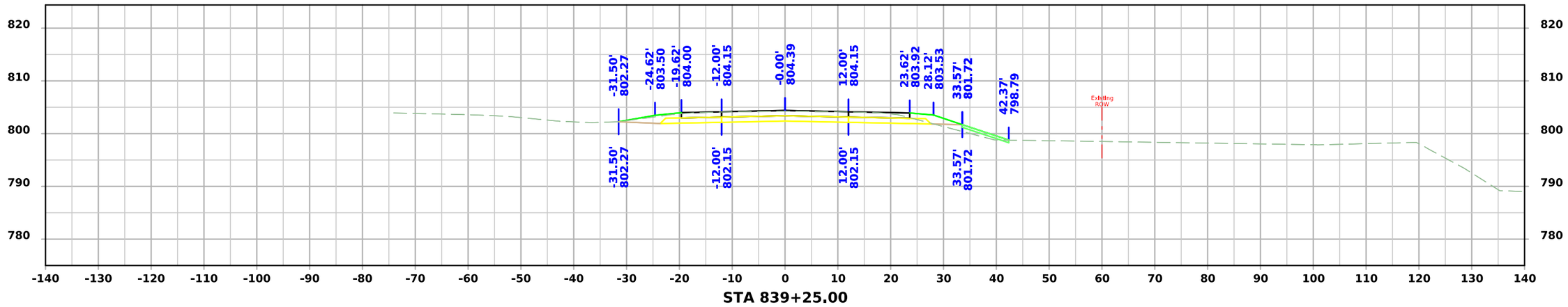


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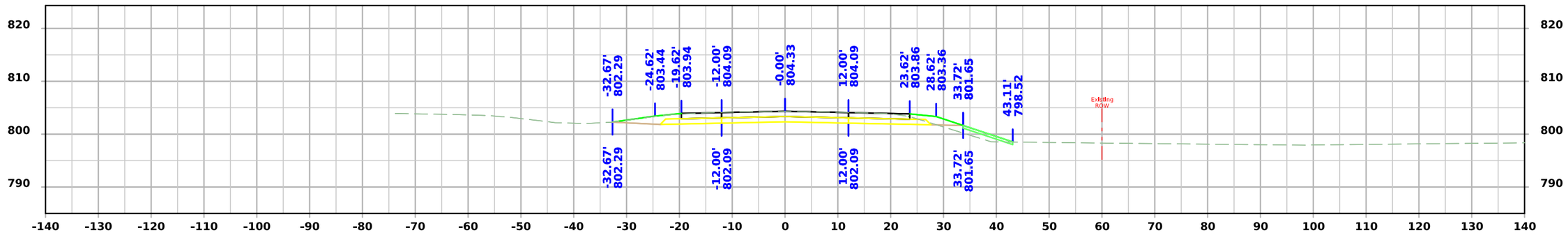
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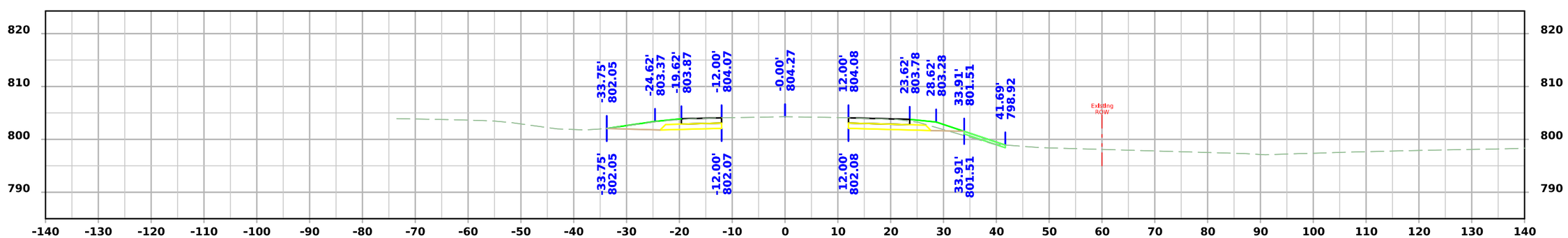
ML - US65



STA 839+25.00



STA 839+00.00

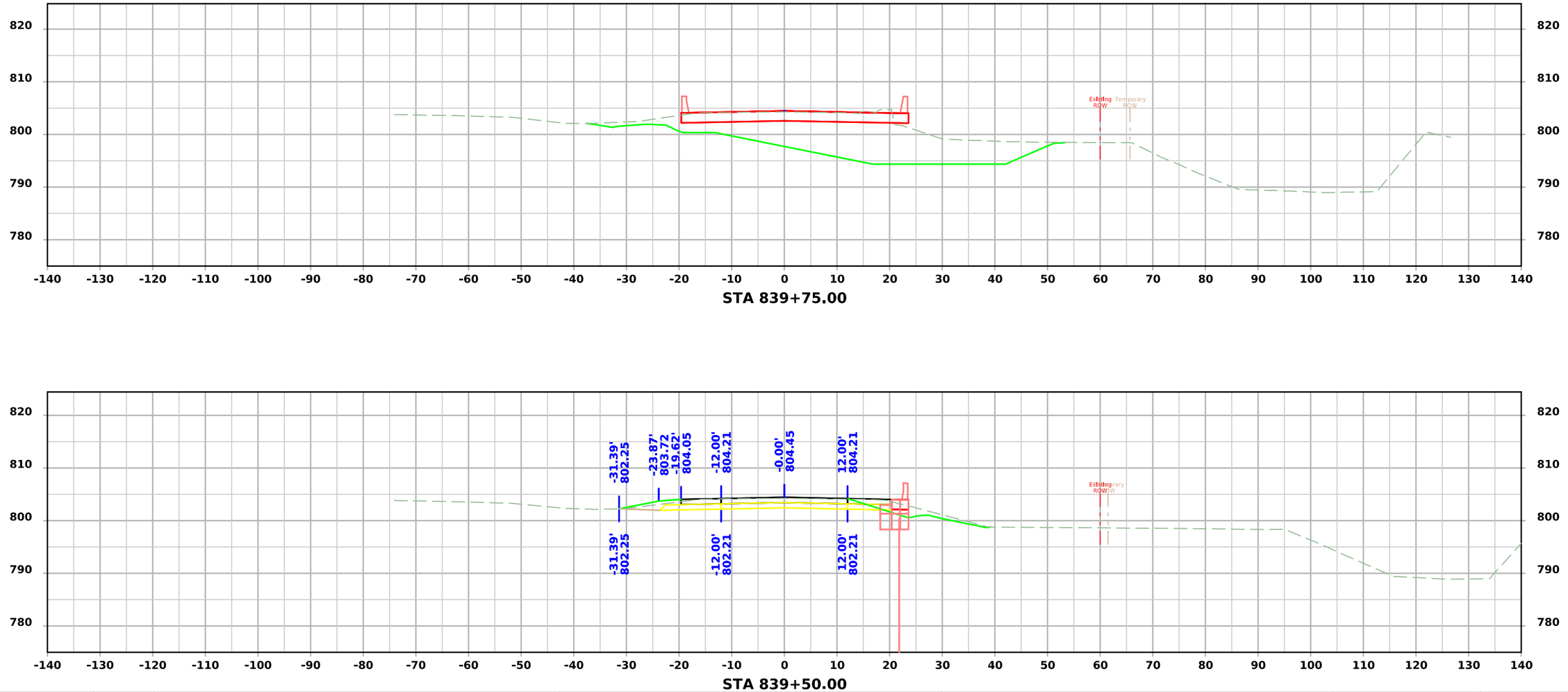


STA 838+75.00

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER W.6	

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ML - US65



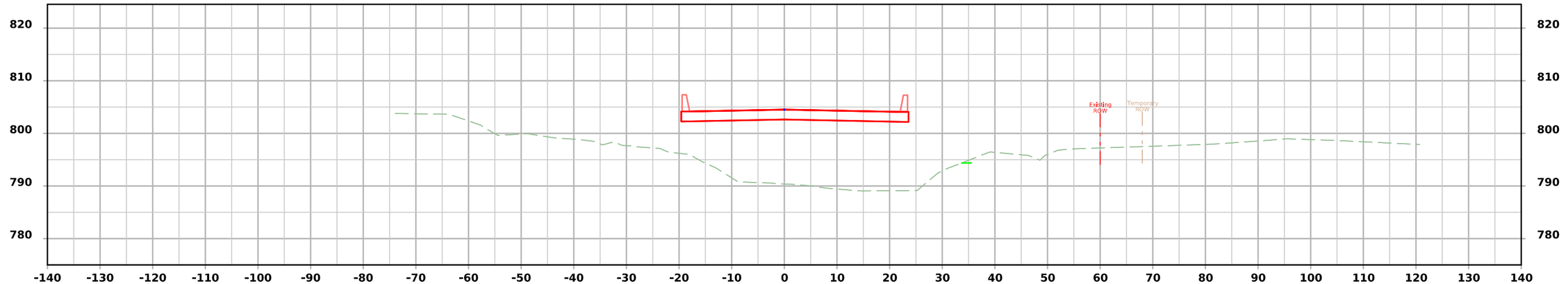
STA 839+75.00

STA 839+50.00

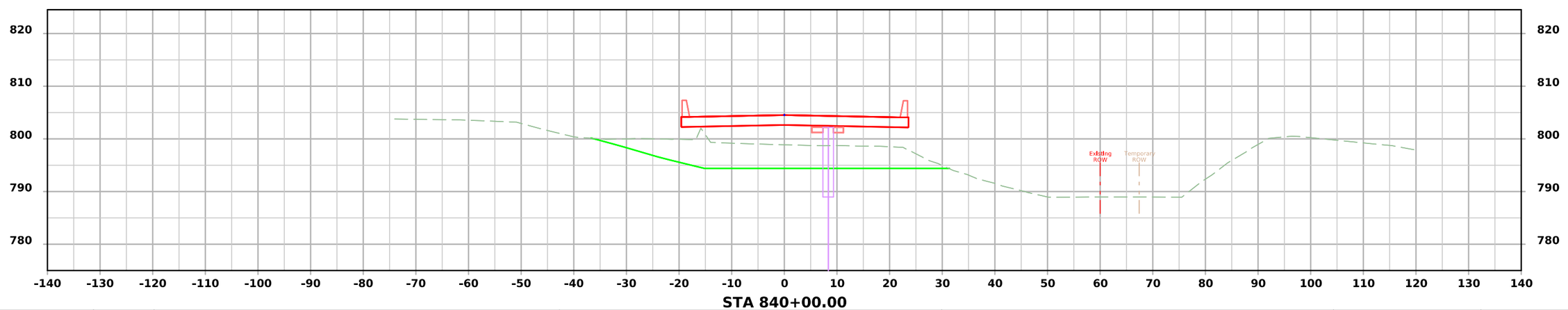
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ML - US65



STA 840+25.00

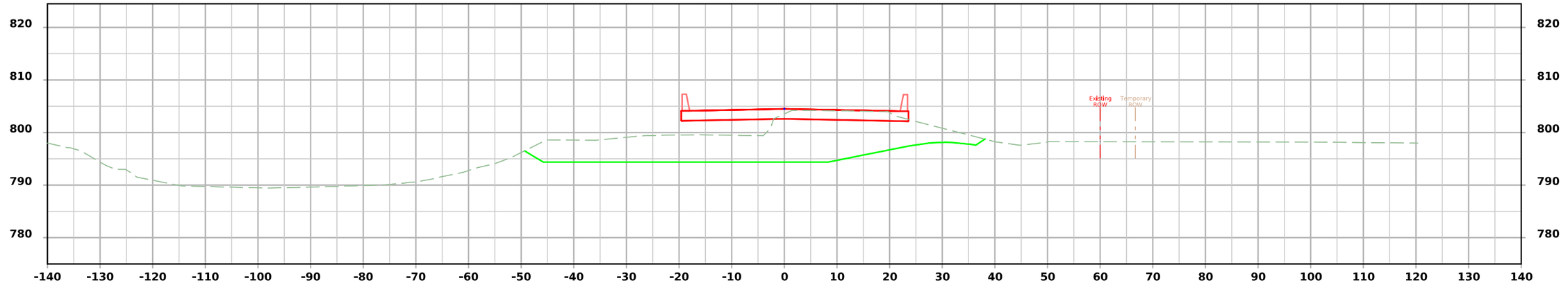


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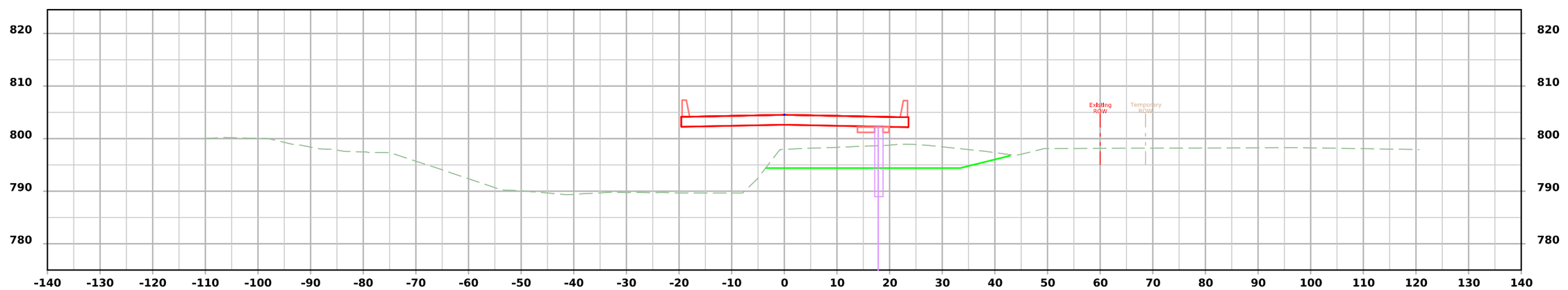
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ML - US65



STA 840+75.00

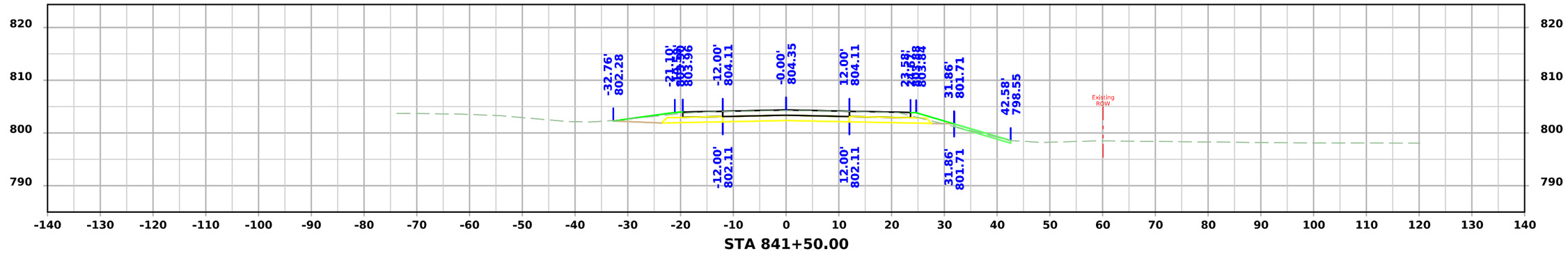


STA 840+50.00

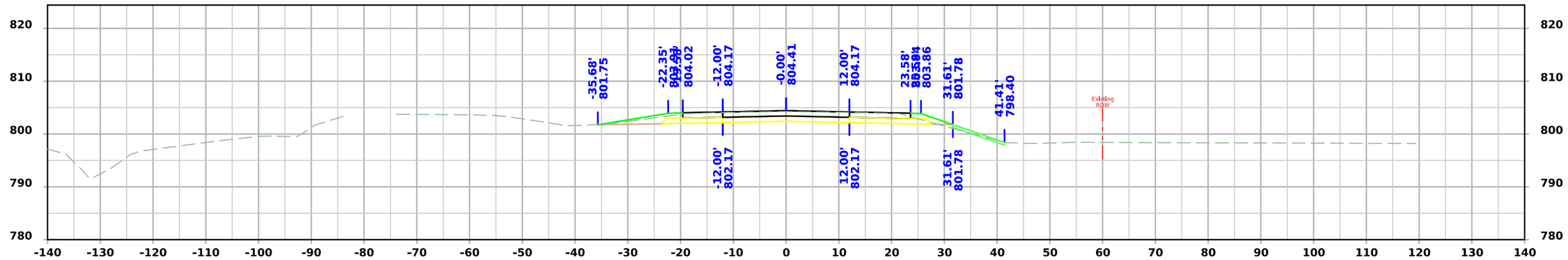
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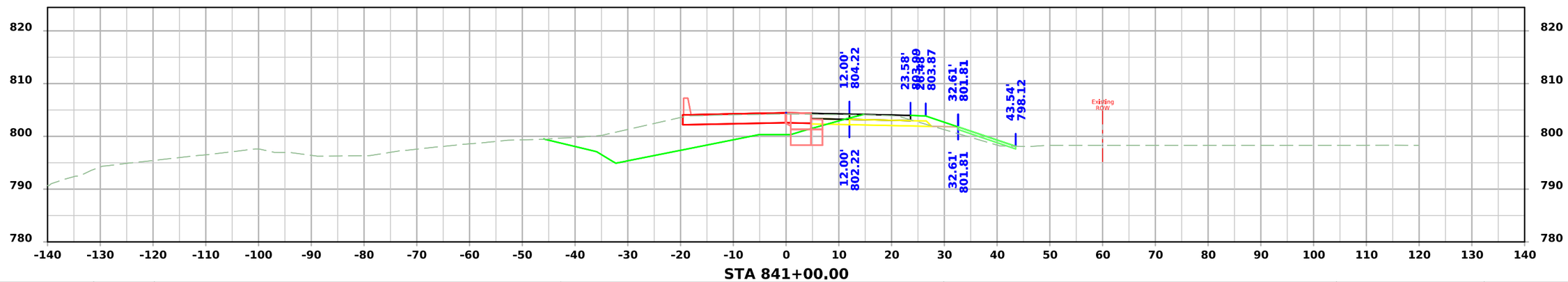
ML - US65



STA 841+50.00



STA 841+25.00

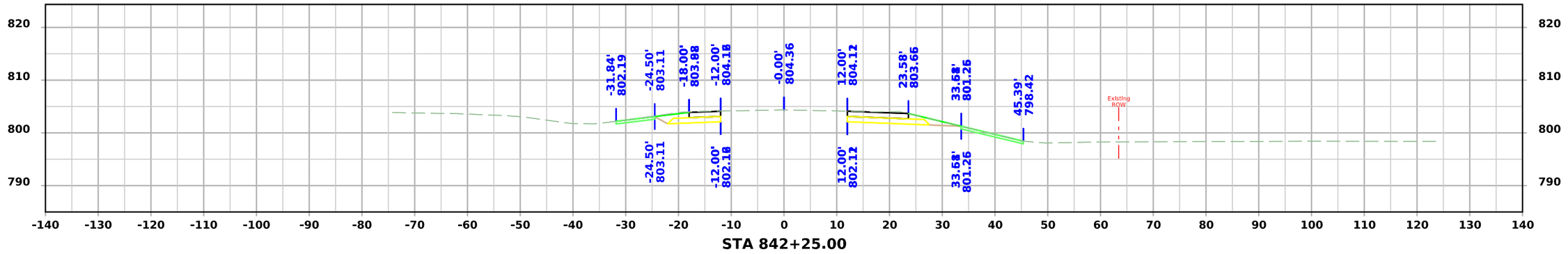


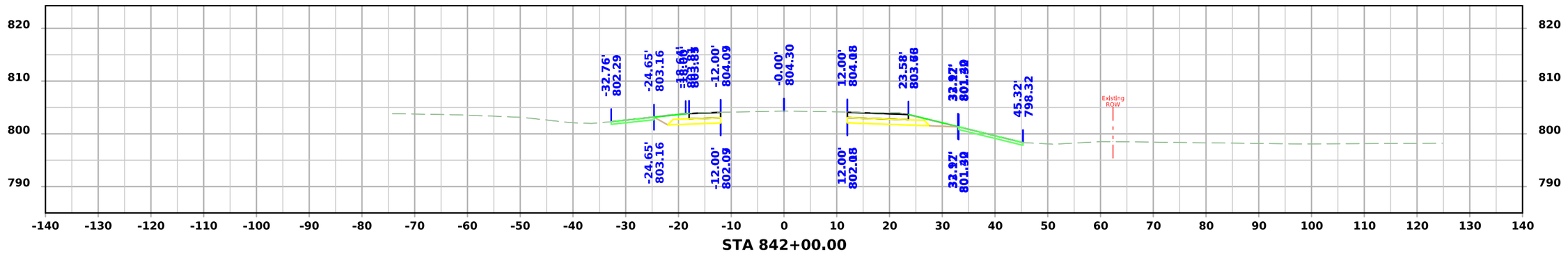
STA 841+00.00

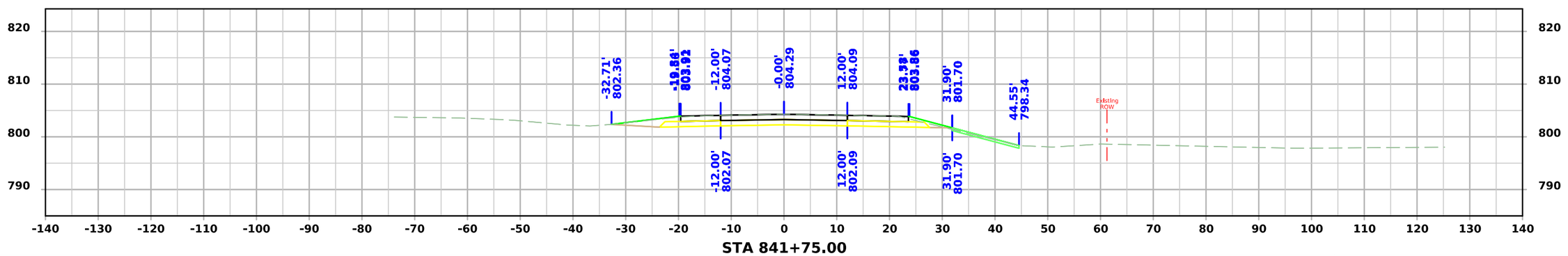
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ML - US65



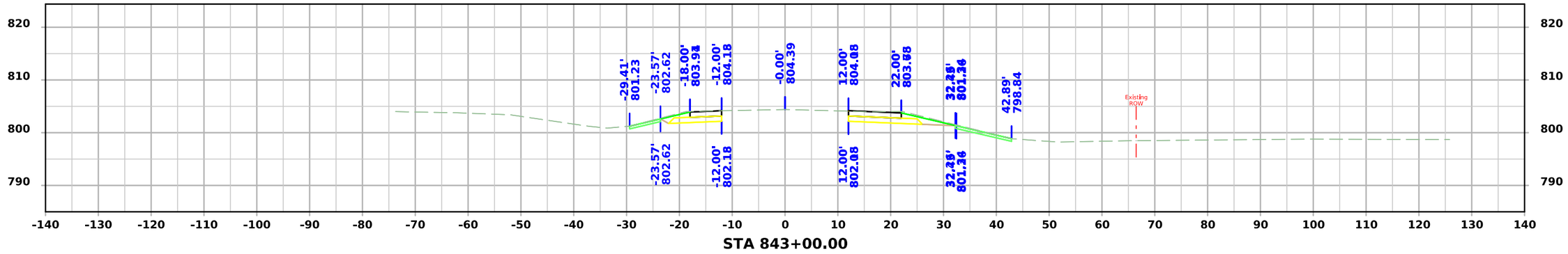




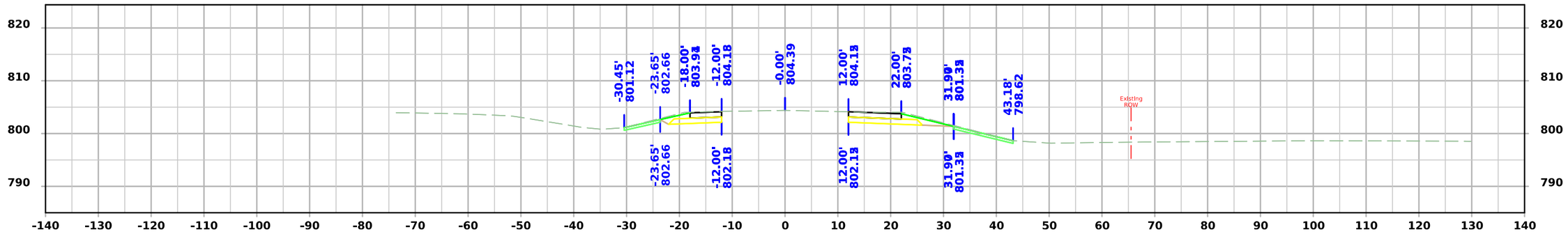
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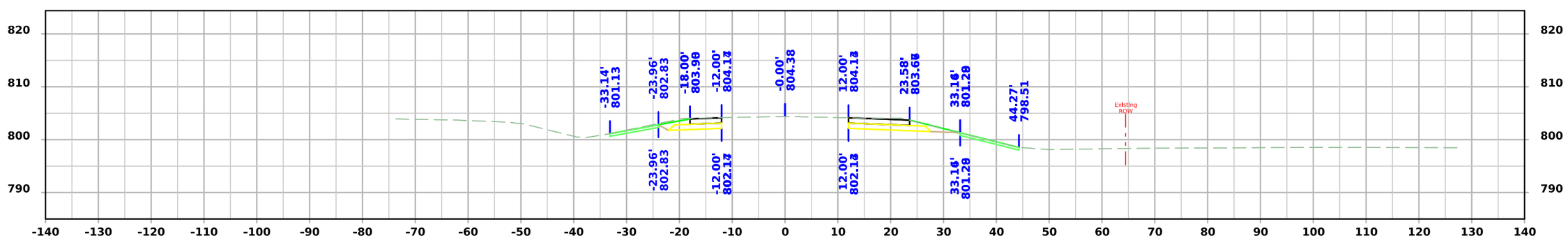
ML - US65



STA 843+00.00



STA 842+75.00

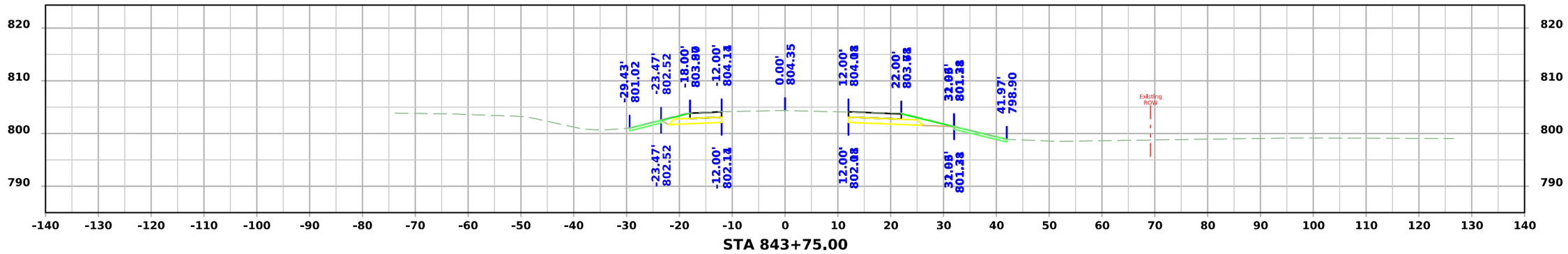


STA 842+50.00

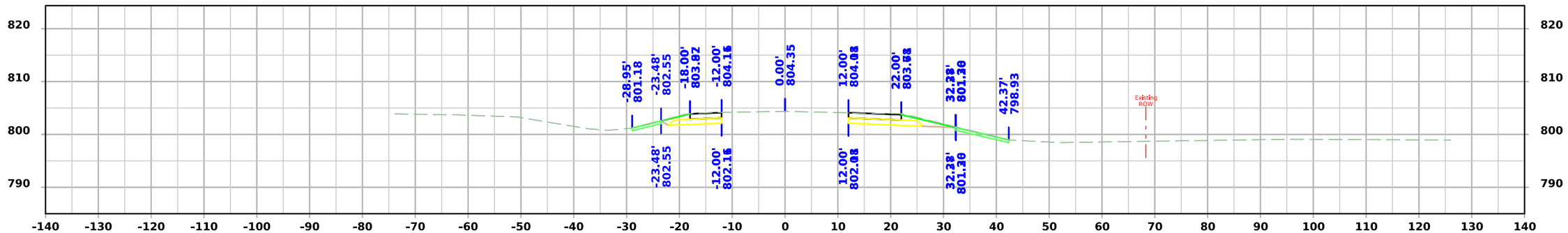
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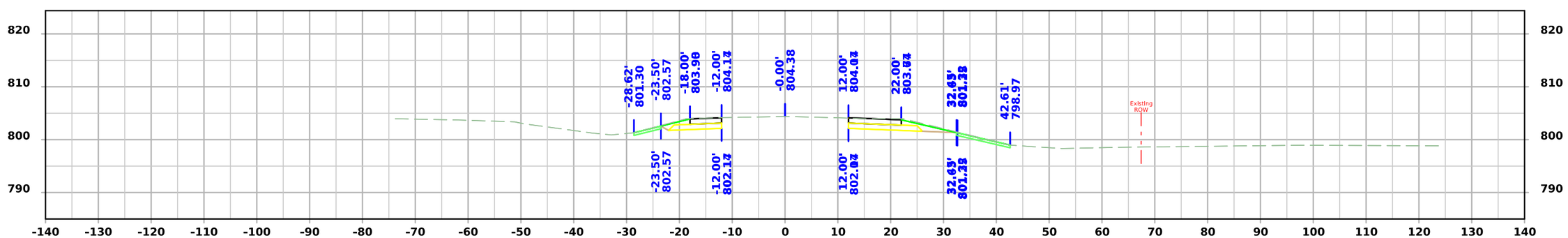
ML - US65



STA 843+75.00



STA 843+50.00

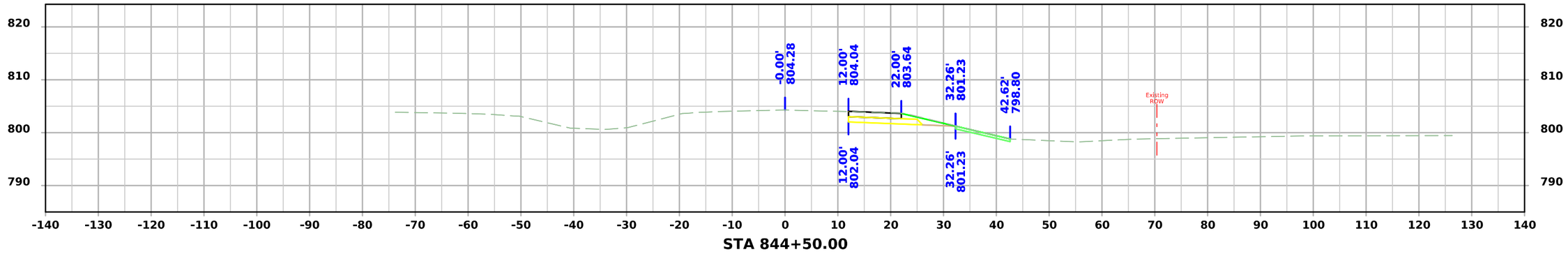


STA 843+25.00

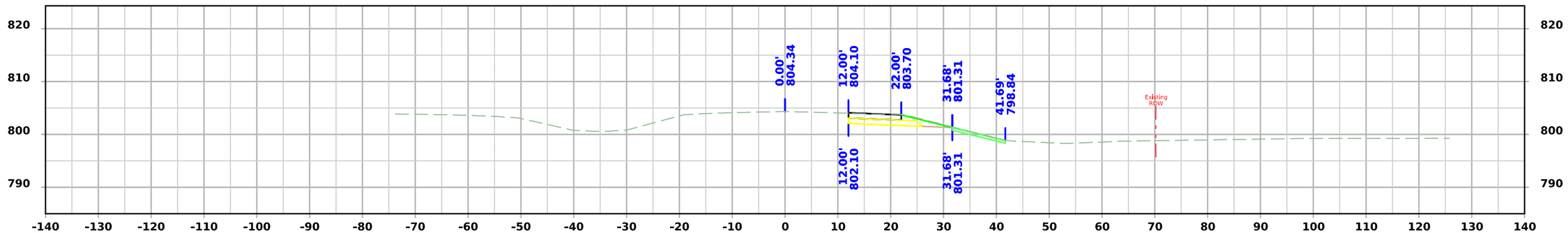
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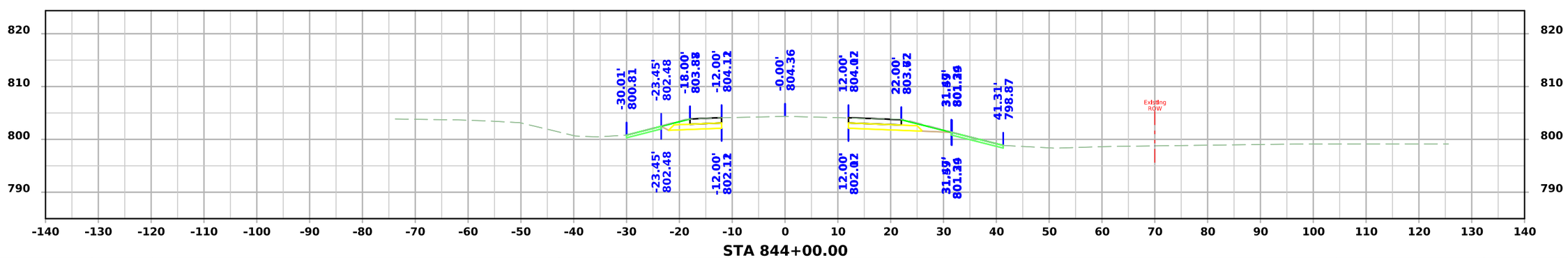
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STA 844+50.00



STA 844+25.00

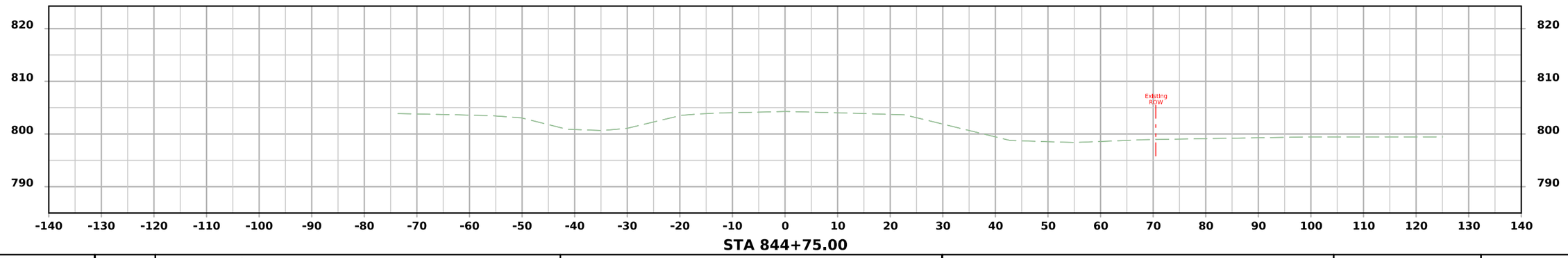


STA 844+00.00

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER W.14

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ML - US65



STA 844+75.00

FILE NO. 32605	ENGLISH	DESIGN TEAM Miller\Schoenrock\Evans	WARREN COUNTY	PROJECT NUMBER BRF-065-3(087)--38-91	SHEET NUMBER W.15

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