LETTING DATE
Nov. 17, 2026

Bridge Replacement
BRF-059-3(52)--38-78

Pottawattamie COUNTY

Index of Sheets

No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design No. 726
V.2 - V.30	Design No. 726
SPS Sheets	Bridge Plan Soils Sheets
SPS.1 - SPS.2	Bridge Plan Soils Sheets
Road Sheets	Road Plan
A.3-W.14	Road Plans
C.1-C.3	Estimated Quantities - Road
C.4	Standard Plans - Road
RC.2-RC.3	Estimated Quantities - Landscape

IOWA DOT

Revisions

	TOTAL
	109
PROJECT IDENTIFICATION NUMBER	
21-78-059-030	
CONTRACT ID NUMBER	
--	
PROJECT NUMBER	
BRF-059-3(52)--38-78	
R.O.W. PROJECT NUMBER	

PROJECT DIRECTORY NUMBER	
7805903021	

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

Pottawattamie COUNTY

Bridge Replacement

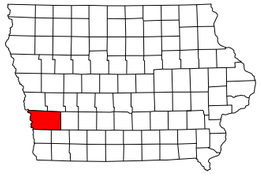
U.S. 59 over Stream
0.9 mi. S. of Co. Rd. G30

Refer to the Plan Sheets for list of applicable specifications.

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

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

Iowa DOT Bridges and Structures
Consultant Coordinator Contact:
Deborah Peters



Standard Road Plans

Standard Road Plans are listed on Sheet No. C.4

Design Data Rural

2026 AADT	1,800 V.P.D.
2046 AADT	1,900 V.P.D.
20-- DHV	-- V.P.H.
TRUCKS	21 %
Total Design ESALs	1,200,000

Index Of Seals

Sheet No.	Name	Type
A.1	Kevin M. Placzek	Structural Design
V.4	Eric J. Dean	Hydraulic Design
SPS.1, CS.1	Xinyi Jiang	Geotechnical Design
A.3	Jason Strum	Roadway Design
RC.1	Rachel A. Harris	Landscape Design

Structural Design

LICENSED PROFESSIONAL ENGINEER
Kevin M. Placzek
19175
IOWA

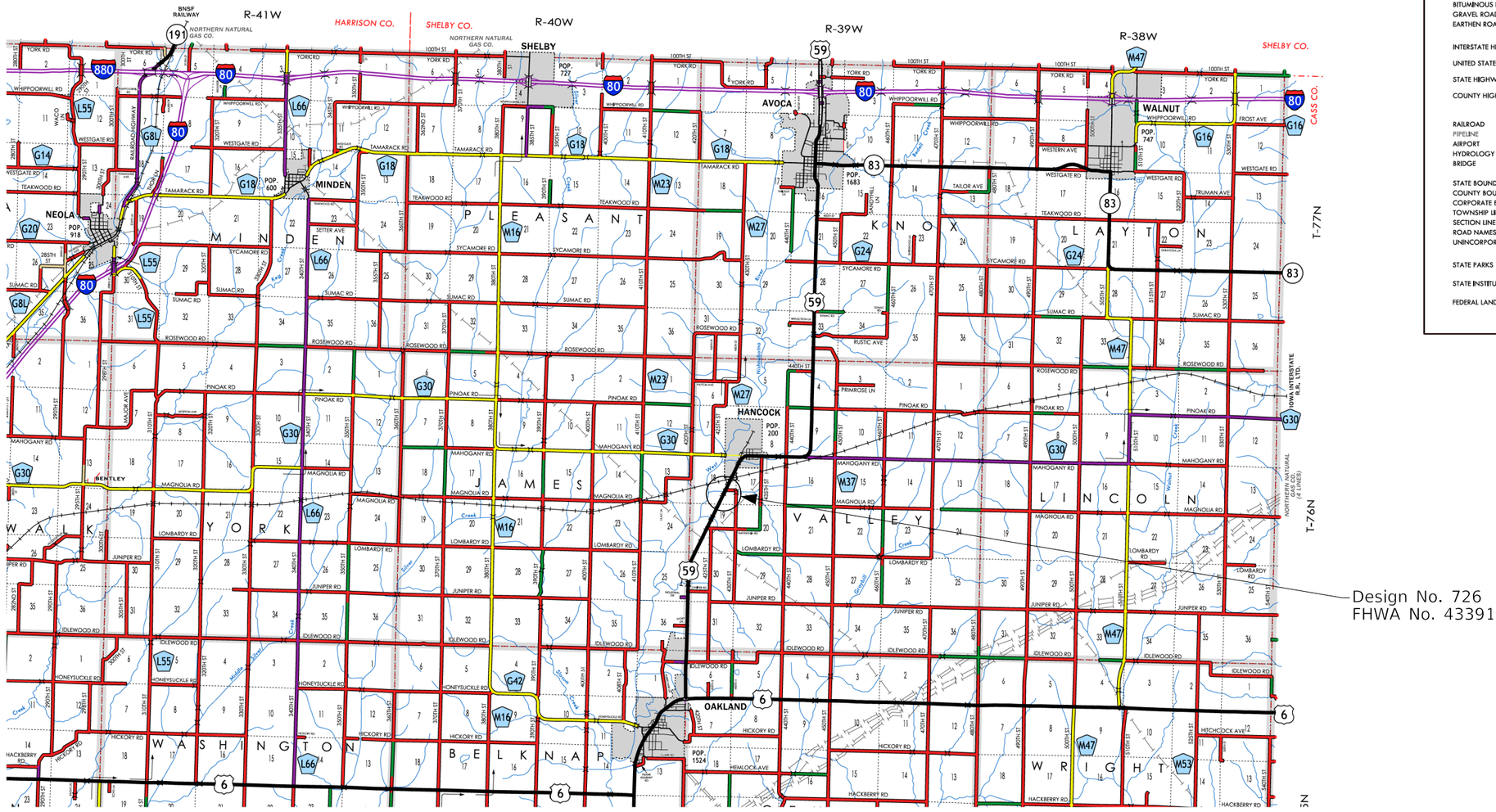
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Kevin M. Placzek — 08-24-2026
Signature — Date

Kevin M. Placzek
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheets A.1, A.2, V.1 thru V.30



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

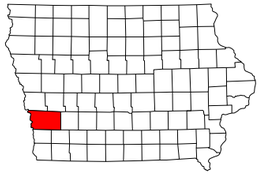
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE

- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES — ABBEY ROAD
- UNINCORPORATED PLACE — ELWOOD

- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND

Pottawattamie County Location Map

Not To Scale



FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER A.2

2:21:18 PM 9/10/2026 ksnider c:\pw_work\pwmain\kevin.snider\d2145315\SHT_78059052_726_43391_SPN.dgn

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	622
2	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1
3	2402-2720000	EXCAVATION, CLASS 20	CY	201.8
4	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	442.4
5	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	CY	356.2
6	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)	LS	1
7	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	95418
8	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	3137
9	2414-6424110	CONCRETE BARRIER RAILING	LF	285
10	2501-0201042	PILES, STEEL, HP 10 X 42	LF	5120
11	2501-5478042	CONCRETE ENCASEMENT OF STEEL H PILES, HP 10 X 42 (P10L TYPE 3)	LF	352
12	2501-6335010	PREBORED HOLES	LF	160
13	2501-8400172	TEMPORARY SHORING	LS	1
14	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	21
15	2507-3250005	ENGINEERING FABRIC	SY	1027
16	2507-6800061	REVETMENT, CLASS E	TON	978
17	2507-8029000	EROSION STONE	TON	17
18	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1
19	2533-4980005	MOBILIZATION	LS	1

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL All waste must be removed from the project site.
2	2401-6745625	REMOVAL OF EXISTING BRIDGE Includes all work for removal and off-site disposal of existing bridge. Removal of scheduled items shall be in accordance with Section 2401 of the Standard Specifications. All waste must be removed from the project site. 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. Asbestos is not present at the location. Name of Asbestos Inspector: Brad AzeltineDate Inspected: 8/8/2022, IA License No.: Iowa DOT, Inspector Phone No.: 515-239-1938
3	2402-2720000	EXCAVATION, CLASS 20 Includes excavation for bridge abutments and wings.
4	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) Includes concrete for the deck, abutments, wingwalls, pier caps, and diaphragms. Includes all resilient joint filler required. Includes furnishing and placing subdrain (including excavation), floodable backfill, porous backfill, geotextile fabric, water flooding, and subdrain outlet at abutments and toe of berm. Refer to Developmental Specifications for "Fiber Reinforcement for Structure Concrete" for the slab. Includes furnishing and placing concrete sealer. Includes cost to furnish and install 4 drains at 41 lb each.
5	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE Refer to Developmental Specifications for "Fiber Reinforcement for Structural Concrete" for additional information.
6	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE) Refer to Developmental Specifications for "Fiber Reinforcement for Structural Concrete" for additional information.
7	2404-7775005	REINFORCING STEEL, EPOXY COATED Includes cost of all splice assemblies.
8	2404-7775009	REINFORCING STEEL, STAINLESS STEEL --
9	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 the concrete. Includes cost of 1" diameter plasic conduit.
10	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.
11	2501-5478042	CONCRETE ENCASEMENT OF STEEL H PILES, HP 10 X 42 (P10L TYPE 3) --
12	2501-6335010	PREBORED HOLES - -
13	2501-8400172	TEMPORARY SHORING - -
14	2507-2638650	BRIDGE WING ARMORING - EROSION STONE Includes furnishing and placing engineering fabric, erosion stone, and all required excavating, shaping and compacting for wing armoring.
15	2507-3250005	ENGINEERING FABRIC Engineering fabric shall be material as specified for embankment erosion control in accordance with Article 4196.01,B,3, of the Standard Specifications. Material shall be measured in sq. yard of actual area covered. Refer to details on Design Sheet No. 6.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
16	2507-6800061	REVETMENT, CLASS E Estimated at 1.6 ton/cu yd. Class E revetment shall meet requirements of Article 4130. Broken concrete and granite is not allowed. Refer to details on Design Sheet No. 6.
17	2507-8029000	EROSION STONE Estimated at 120 lb/cu ft. Erosion Stone shall meet the requirements of Article 4130. Broken Concrete and granite is not allowed. Refer to details on Design Sheet No. 6. Includes furnishing and placing erosion stone and all required excavating, shaping, and compacting.
18	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY Refer to TC-283 for traffic control layout. Survey information provided in project plans is for reference only and should not be used for purposed related to construction survey. Project plans and associated electronic files are not geo-referenced to a standard coordinate system and should not be used to establish survey baselines. Prior to construction, perform a survey to lay out the proposed grading design per Section 2526.01. The GPS Machine Control Grading data files as listed in the current standard specifications will be made available at contractor's request. No additional files or formats will be provided. After finishing grading and prior to seeding, the Contractor shall prepare a topographic survey, using the established baselines to show conformance to the proposed grades. The survey shall indicate the established baselines and the finished grades shown in 0.5 foot contours. Survey all grading areas. The Contractor shall provide the Engineer and the Office of Location and Environment with the electronic surface files in LandXML format. Provide electronic data and survey copies to Alan Beddow, Mitigation Construction Engineer Iowa Department of Transportation, 800 Lincoln Way, Ames, Iowa, 50010, phone number (515)956-7203, Alan.Beddow@iowadot.us.
19	2533-4980005	MOBILIZATION --

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

Estimated Quantities

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 1 of 30 FHWA No. 43391

Summary of Concrete Quantities

Location	Structural Concrete	HPC Struct. Concrete
S Abutment (Stage 1)	7.5	
S Abutment (Stage 2)	9.1	
N Abutment (Stage 1)	19.6	
N Abutment (Stage 2)	23.8	
Bridge Slab + Abut + Pier Diaphragms (Stage 1)	160.9(F)	
Bridge Slab + Abut + Pier Diaphragms (Stage 2)	195.3(F)	
Abutment Wings (Stage 1)	13.1	
Abutment Wings (Stage 2)	13.1	
Total (Cu. Yds.)	442.4	

Summary of Reinforcing Steel

Location	Non-Coated Reinforcing Steel	Stainless Steel Reinforcing Steel	Epoxy Coated Reinforcing Steel
Bridge Slab + Abutment Footing (Stage 1) **		111	39,960
Bridge Slab + Abutment Footing (Stage 2) **		134	46,780
Abutment Wings (Stage 1)			1,572
Abutment Wings (Stage 2)			1,572
Barrier Rails (Stage 1)		1,446	2,767
Barrier Rails (Stage 2)		1,446	2,767
** Includes Abutment, Pier Diaphragms and South Wingwalls			
Total (Lbs.)		3,137	95,418

Summary of Excavation

Location	Class 10 Excavation	Class 20 Excavation
S Abutment	306.0	74.6
N Abutment	316.0	127.2
Total (Cu. Yds.)	662.0	201.8

Summary of Foundations

Location	Substructure Type	Foundation Type	Number	Length (Lin. Ft.)	Total (Lin. Ft.)
S Abutment (Stage 1)	Integral Abutment	HP 10x42	4	105	420
S Abutment (Stage 2)	Integral Abutment	HP 10x42	4	105	420
N Abutment (Stage 1)	Integral Abutment	HP 10x42	4	100	400
N Abutment (Stage 2)	Integral Abutment	HP 10x42	4	100	400
N Wingwall (Stage 1)	Wingwall	HP 10x42	4	105	420
N Wingwall (Stage 2)	Wingwall	HP 10x42	4	105	420
S Pier (Stage 1)	Pile Bent Pier	HP 10x42	5	120	600
S Pier (Stage 2)	Pile Bent Pier	HP 10x42	6	120	720
N Pier (Stage 1)	Pile Bent Pier	HP 10x42	5	120	600
N Pier (Stage 2)	Pile Bent Pier	HP 10x42	6	120	720

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

Summary Quantities Sheet

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 2 of 30 FHWA No. 43391

General Notes:

This design is for the replacement of the existing 80'-0 x 30'-0 Continuous Concrete Slab Bridge, Design No. 4550, with a year of construction of 1950. 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 80'-0 x 30'-0 Continuous Concrete Slab Bridge. Removals shall be in accordance with section 2401 of the Standard Specifications.

Faint lines on plans indicate the existing structure.

These bridge plans label all reinforcing steel with english notation (5a1 is 5/8 inch 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 milimeters.

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.

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

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.

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.

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.

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. When determining slope stability to support structures such as bridges, culverts and retaining walls, a global stability analysis shall be included in the design of the temporary shoring in accordance with chapter 200F-1 in the design manual of the Iowa DOT, Design Breau 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.

This 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 the Stage 2 falsework.

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

Construction stages I & II as detailed on these plans may be reversed at the contractors option subject to the engineers approval.

Cast in-one-piece steel pile points are required for all piles in accordance with Article 4167.02 of the current Standard Specifications and materials IM 468.

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

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 slipform method).

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

The Bridge Contractor is to clear and/or shape the channel within the approximate limits of the areas as shown on the Situation Plan and Longitudinal Section Along Centerline Roadway on Design Sheet No. 5.

The Bridge Contractor shall prebore holes for abutment piles. Holes shall be bored to the elevations shown on the "Longitudinal Section Along Centerline Roadway" on Design Sheet No. 5. Piles shall be driven through the holes to at least the specified design bearing.

A scrape sample was taken from an area of this bridge to get an indication of the existence of and level of total chromium. Analysis of total lead on the deck drain sample was 170 parts per million (ppm). Analysis of total chromium on the deck drain sample was 94 ppm. These analysis show the existence of these two toxic constituents. Levels indicated by these tests could create conditions above regulatory limits for health and safety requirements. No other constituents were analyzed. The bidder shall not rely on the Iowa DOT's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents

Specifications:

Design:

AASHTO LRFD 10th Edition, Series of 2024, except as noted in the current Iowa Bridge Design Manual.

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 Specifications for Fiber Reinforcement for Structural Concrete.

Design Stresses

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 10th Edition, Series of 2024, except as noted in the current Iowa DOT Bridge Design Manual.

Concrete in accordance with AASHTO LRFD Section 5, f'c = 4,000 psi

Reinforcing steel in accordance with AASHTO LRFD Section 5, Grade 60 for epoxy coated and non-coated, and Grade 60 or 75 for stainless.

Bridge slab concrete f'c = 4,000 psi

Design History at this Site
(Includes this Design)

Des. No.	Type of Work	Year
4550	Original Design	1950
2494	Bridge Deck Repair	1994
999	Rip-Rap	1999
726	Bridge Replacement	2026

Traffic Control Plan
The roadway will be open to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Pollution Prevention Plan shown elsewhere in these plans.

Roadway Quantities shown elsewhere in these plans.

All plan dimensions are horizontal unless noted otherwise.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

General Notes

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 3 of 30 — FHWA No. 43391

Bridge Slab Dimensions Table

No.	Item	Unit	Quantity
1	Slab Length	L.F.	121.0
2	Minimum Slab Width	L.F.	43.2
3	Maximum Slab Width	L.F.	43.2
4	Slab Area	S.F.	5222

1. Slab length is measured from face-to-face of paving notches along the ℄ US 59 & PGL.
2, 3. Slab widths are measured from out-to-out of deck perpendicular to the ℄ US 59 & PGL.
4. Slab area is to be based on the face-to-face paving notch distance and out-to-out slab dimensions.

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	Temporary Shoring	(052)_Pottawattamie_Design726_TempShoring.pdf	Yes
2	Bridge Slab Falsework	(052)_Pottawattamie_Design726_Falsework.pdf	Yes
3	Deck Drains	(052)_Pottawattamie_Design726_DeckDrains.pdf	No
4			

No.	Calculation Description	Calculation File Name Convention for Submittal	Certified by Iowa P.E. (Yes/No)
1	Temporary Shoring	(052)_Pottawattamie_Design726_TempShoring_Calcs.pdf	Yes
2	Bridge Slab Falsework	(052)_Pottawattamie_Design726_Falsework_Calcs.pdf	Yes
3			
4			

Bridge Coordinates

Location	℄ S. Abut. Brg.	℄ Pier No. 1	℄ Pier No 2	℄ N. Abut. Brg.
West Gutter Line	E=16599477.415 N=7011547.777	E=16599492.576 N=7011580.979	E=16599512.098 N=7011623.733	E=16599527.259 N=7011656.935
℄ US 59 & PGL	E=16599500.405 N=7011549.973	E=16599515.565 N=7011583.176	E=16599535.087 N=7011625.93	E=16599550.248 N=7011659.132
East Gutter Line	E=16599523.394 N=7011552.170	E=16599538.555 N=7011585.372	E=16599558.076 N=7011628.126	E=16599573.237 N=7011661.329

Note: An electronic file containing the bridge coordinate date is available as part of the E-Files supplied with the contract documents. The contractor shall verify these coordinates with the project horizontal control information provided in the road plans

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

General Notes

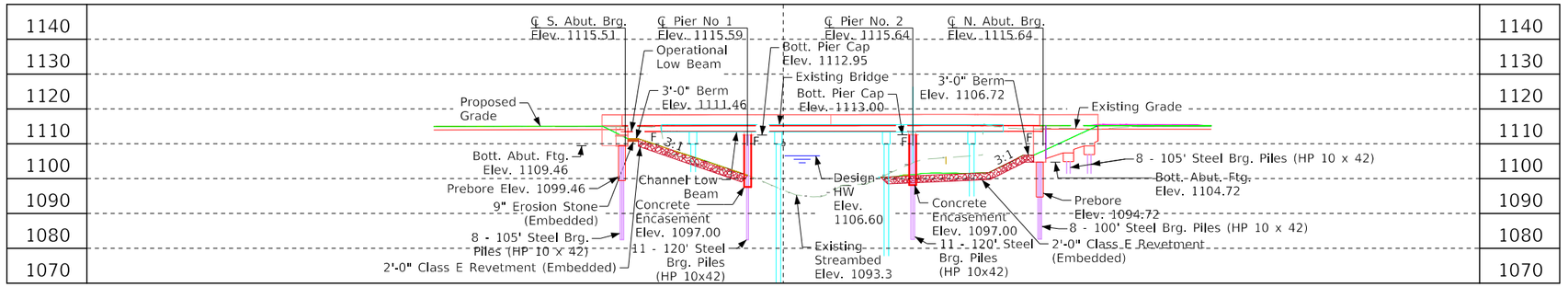
STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 4 of 30 FHWA No. 43391

Control Point: FD NGS monument 2 in. above ground 0.2 miles N along Hwy 59 from the intersection of Hwy 59 and 430th St. in Pottawattamie County.
Monument is 109 ft. E of CL Hwy 59 19 ft. SE of CL Rock Drive 2.3 ft. SW of a wood post and 2 ft. N of a wood post. El. 1108.54



Longitudinal Section Along ℄ Roadway

Plan Notes:
1. Top of bridge slab at centerline roadway is 0.03' below the profile grade to account for slab cross slope and parabolic crown.
2. Class E revetment stone is embedded.
3. The bridge will be design to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q100.

Hydraulic Design

LICENSED PROFESSIONAL ENGINEER
Eric J. Dean
P28149
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.

Eric Dean — 5-19-2026
Signature — Date

Eric J. Dean
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: V.5 and V.6

VPI Sta. 236+40.00
VPI Elev. 1115.78
Length 210'

+0.36% / -0.14%

VPC Sta. = 235+35.00
VPC Elev. = 1115.41

VPT Sta. 237+45.00
VPT Elev. 1115.63

Proposed Profile Grade US 59

Hydraulic Data

RIDB: NishnabotnaR_W_Trib65 (RM 0.33).
Drainage Area = 2.8 Sq. Mi.
Stream Slope (HGL) = 0.009 Ft./Ft.
Avg. Low Water Stage = 1,093.8

Operational Low Beam = 1113.4
Channel Low Beam = 1,113.50

Q_{50} = 2,591 cfs
Stage = 1,106.2
Avg. Bridge Velocity = 5.6 fps
Freeboard 7.2 ft.

Q_{100} = 3,187 cfs
Stage = 1,107.2
Backwater = 0.2 Ft.
Avg. Bridge Velocity = 5.7 fps

Q_{200} = 3,833 cfs
Stage = 1,108.3
Calculated Design Scour = 1,074.6

Q_{500} = 4,612 cfs
Stage = 1,108.2
Avg. Bridge Velocity = 7.6 fps
Calculated Check Scour = 1072.0

Roadway Overtop 1,109
Sta. 206+40

Utilities Note:

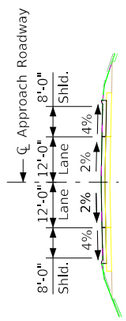
There are no known utilities in the vicinity of the structure per existing survey. To be verified in field.

Location

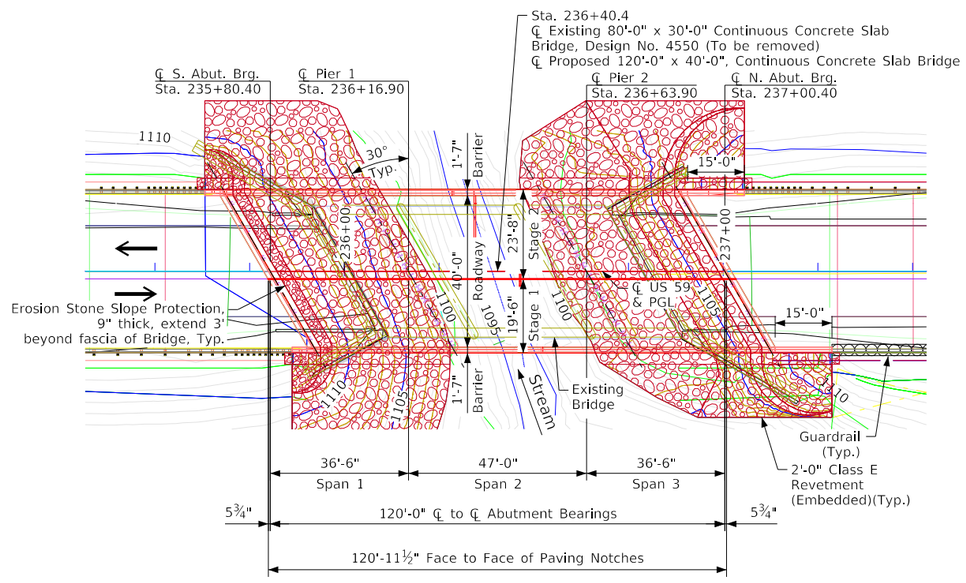
US 59 over Stream
T-76N R-39W
Section 18
Valley Township
Pottawattamie County
FHWA No. 43391
Bridge Maint. No. 7856.0S059
Latitude 41.378998°
Longitude -95.370799°

Traffic Estimate

2026 AADT	1,800	V.P.D.
TRUCKS	21	%
Total Design ESALs	1,200,000	

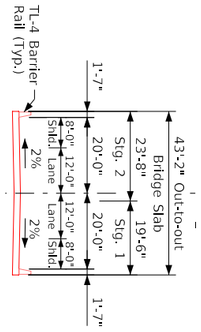


Typical Approach Section US 59



Situation Plan

Typical Bridge Section



Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Situation Plan

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

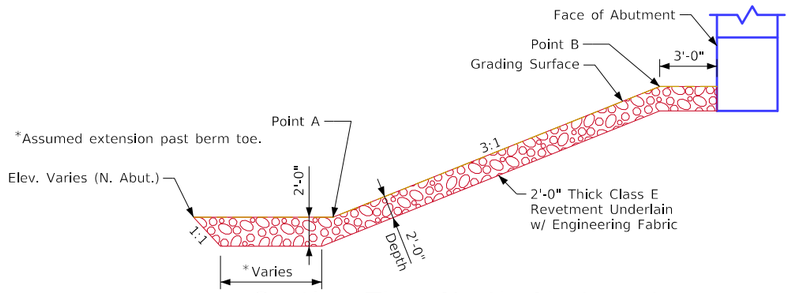
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

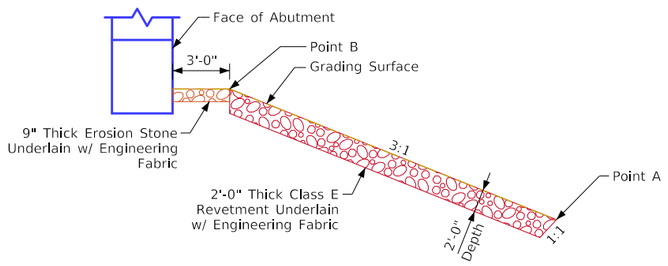
Design No. 726 — Design Sheet No. 5 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.5	

2:21:58 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



Section Thru North Abutment
Embedded Revetment Berm



Section Thru South Abutment
Embedded Revetment Berm

Berm Slope Location Table

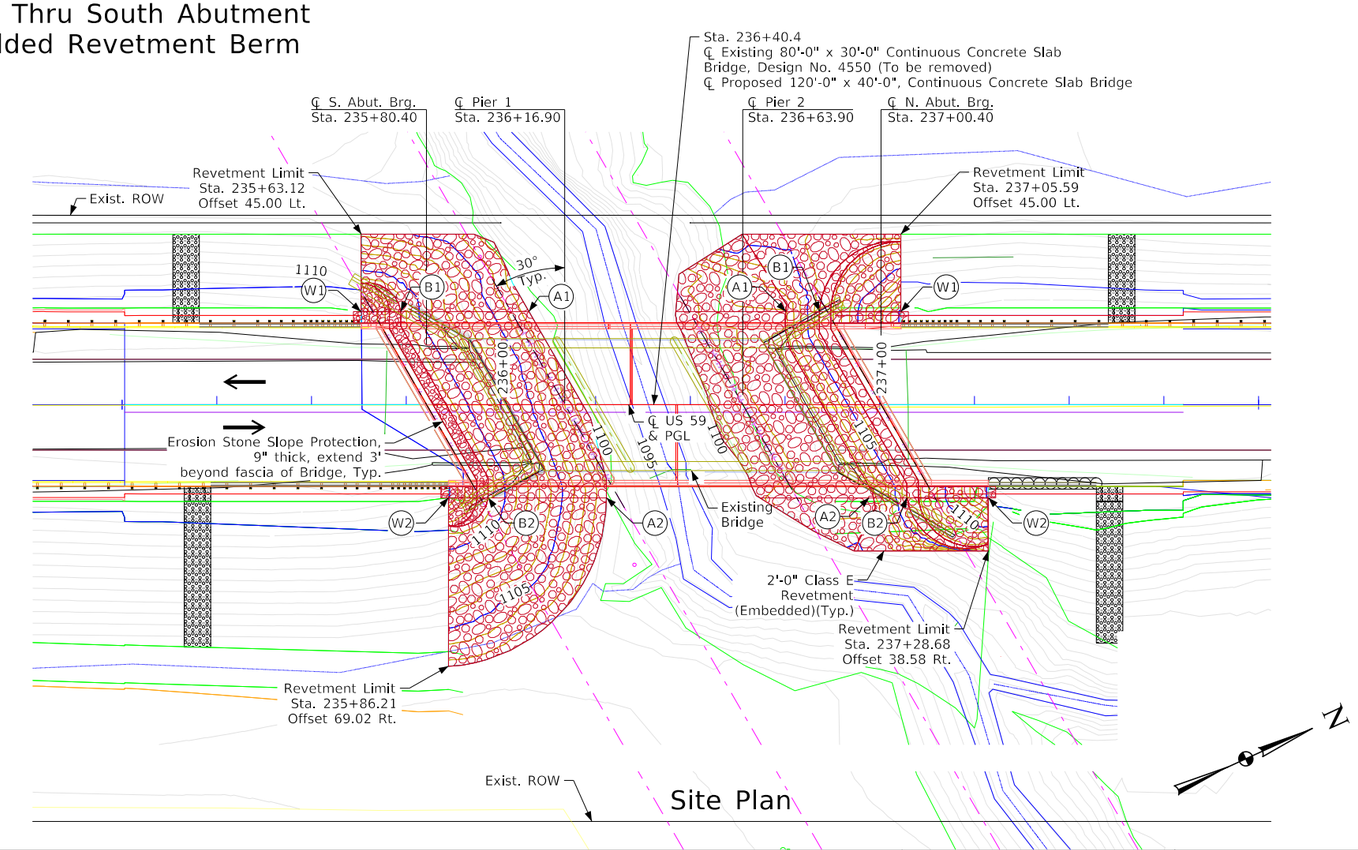
Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	236+07.43	24.58' Lt.	1102.47	236+75.26	24.58' Lt.	1101.75
A2	236+27.88	24.58' Rt.	1101.12	236+98.40	24.58' Rt.	1101.75
B1	235+73.59	24.58' Lt.	1111.46	236+84.12	24.58' Lt.	1106.72
B2	235+96.68	24.58' Rt.	1111.46	237+07.22	24.58' Rt.	1106.72
W1	235+63.12	24.58' Lt.	1115.06	237+05.59	24.58' Lt.	1115.24
W2	235+86.22	24.58' Rt.	1115.13	237+28.68	24.58' Rt.	1115.22

Berm slope elevations reflect the grading surface.
Offsets are given from the US 59 centerline.
All points are 3'-0" from the edge of the bridge slab.
"A" points are at toe of berm.

Estimated Revetment Quantities

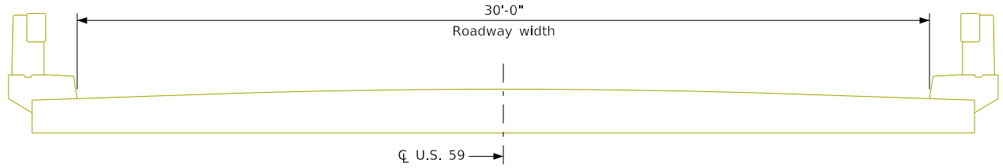
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Enginering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - South	473	17	538	306
Berm Lining - North	505	--	489	316
Totals	978	17	1027	622

Excavation quantity calculated from grading surface and includes only the excavation required to embed the slope protection.
Revetment based on density of 1.6 ton/CY.
Erosion stone based on a density of 120 lb/CF.
Revetment and Engineering Fabric based on extension beyond point "A" at North Abutment.

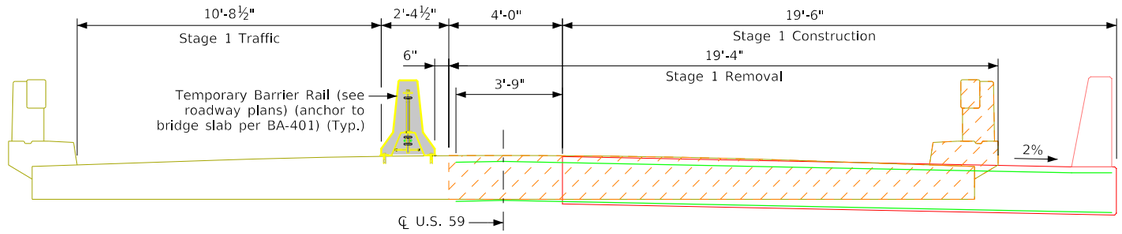


Site Plan

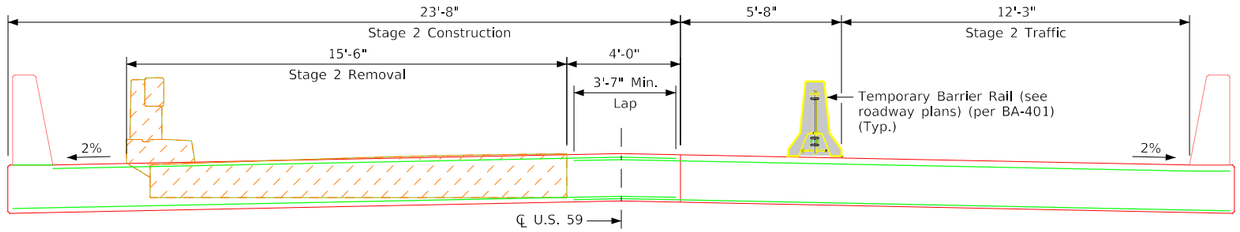
Design For 30 Degree Skew RA
120' x 40' Continuous
Concrete Slab Bridge
36'-6" End Spans 47'-0" Center Span
Situation Plan - Site
STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026
Pottawattamie County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 726 Design Sheet No. 6 of 30 FHWA No. 43391



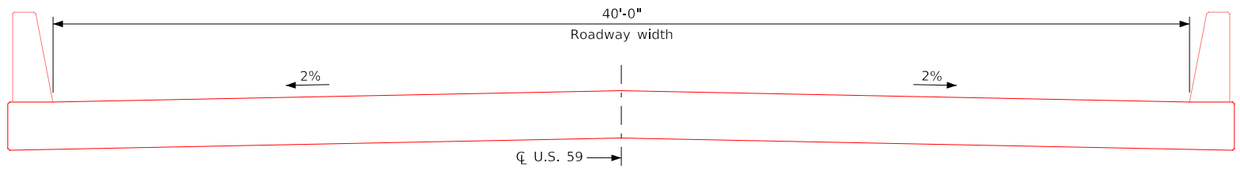
Existing Structure
(Looking North)



Stage 1
(Looking North)



Stage 2
(Looking North)



Final Section
(Looking North)

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Staging Sections

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

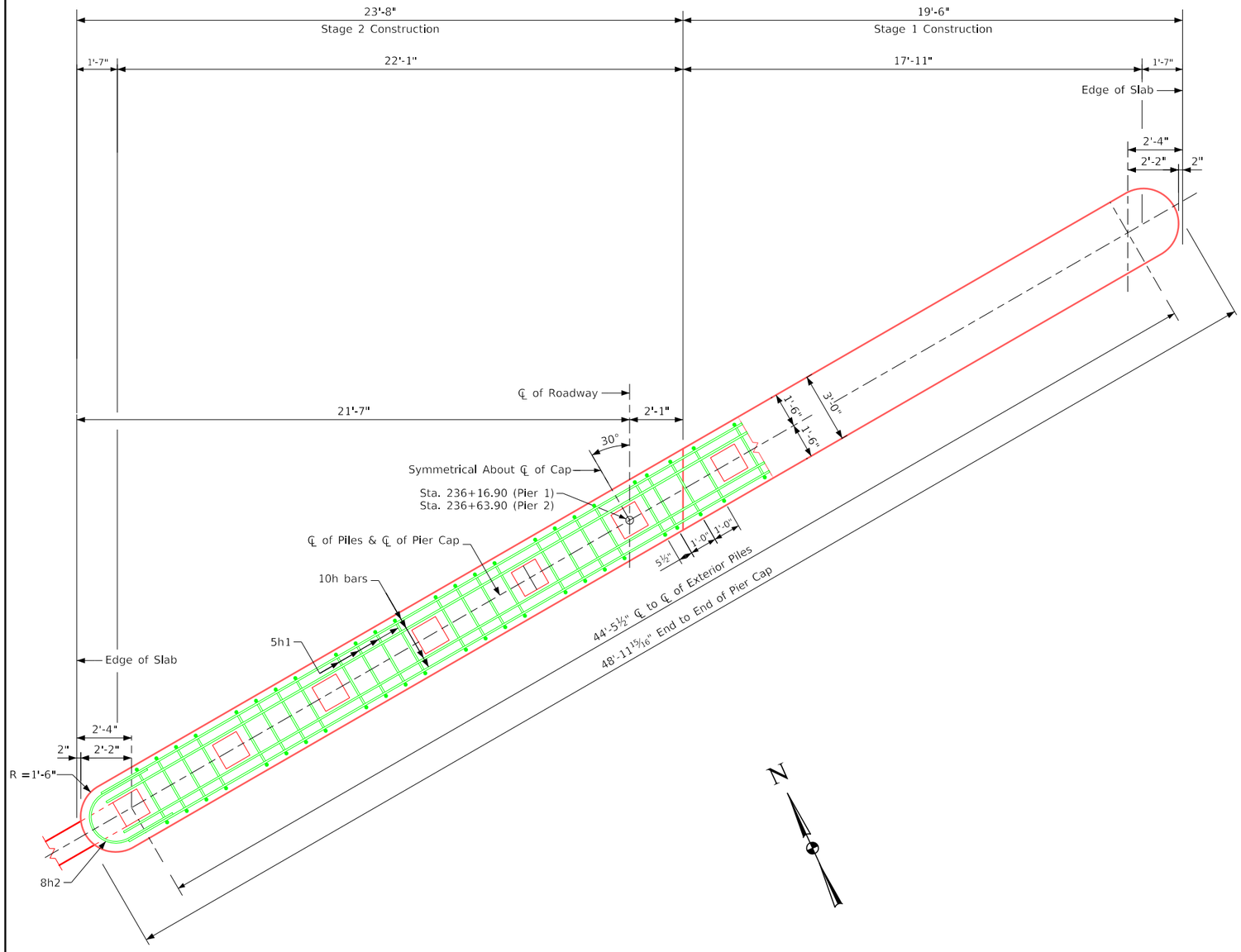
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

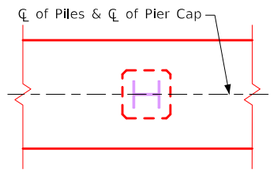
Design No. 726 — Design Sheet No. 7 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.7	

2:22:00 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



Section Below Slab



Pile Orientation

Type 3 Trestle Bent Piles.

Pier Notes:

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

Pier piles are to be driven to full penetration, if practicable, but in no case to a bearing value less than the pile bearing required for each bridge length as shown in plans. Additional driving capacity may be required through scourable layers. For General Plan Notes for additional information, see Design Sheet Nos. 3 & 4.

Cap steel, as detailed on Design Sheet No. 30, is required for monolithic pier caps.

All reinforcing steel is to be Grade 60.

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

The pier pile encasements are to be as detailed and noted on Iowa DOT Standard P10L, as shown in these plans. The unit price bid for encasement shall be full payment for furnished and placing all material and necessary excavation. The piling encasements are to extend from the bottom of pier cap to elevation shown.

Pier 1 Pile Notes:

The contract length of 120 feet for the Pier 1 piles is based on a cohesive soil classification, a total factored axial load per pile (PU) of 131 kips, and a geotechnical resistance factor (PHI) of 0.65 for soil and 0.70 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (PHI) of 0.65 for soil and 0.70 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of pier cap. Design scour (200-year) was assumed to affect the upper 28 feet of embedded pile length and cause 34 kips of driving resistance.

The required nominal axial bearing resistance for Pier 1 piles is 118 tons at the 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.

Pier 2 Pile Notes:

The contract length of 120 feet for the Pier 2 piles is based on a cohesive soil classification, a total factored axial load per pile (PU) of 131 kips, and a geotechnical resistance factor (PHI) of 0.65 for soil and 0.70 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a mixed soil classification and a geotechnical resistance factor (PHI) of 0.65 for soil and 0.70 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of pier cap. Design scour (200-year) was assumed to affect the upper 31 feet of embedded pile length and cause 36 kips of driving resistance.

The required nominal axial bearing resistance for Pier 2 piles is 119 tons at the 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.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

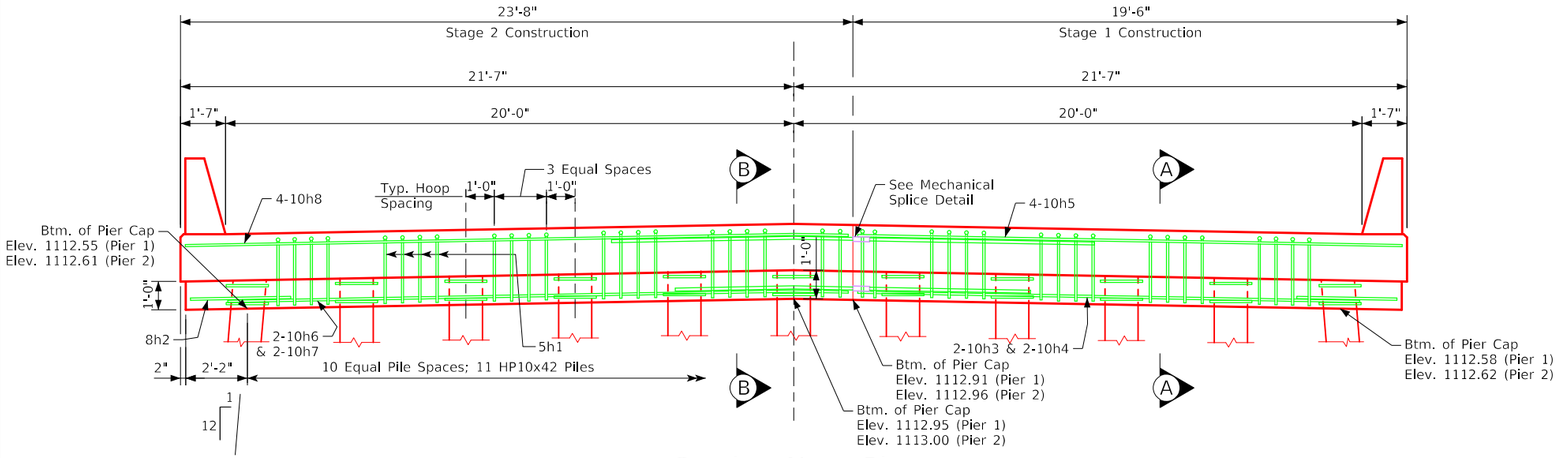
Pier Cap Monolithic Details (1 of 2)

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

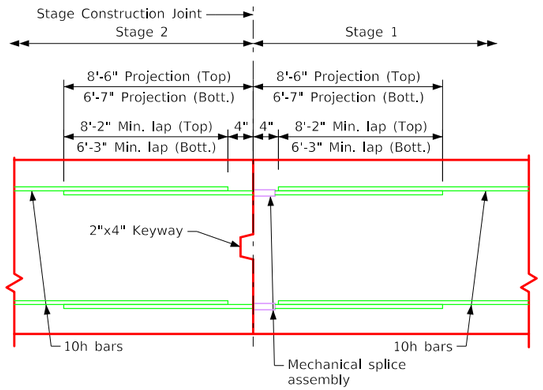
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 8 of 30 FHWA No. 43391



Section Near Pier
(Looking North)



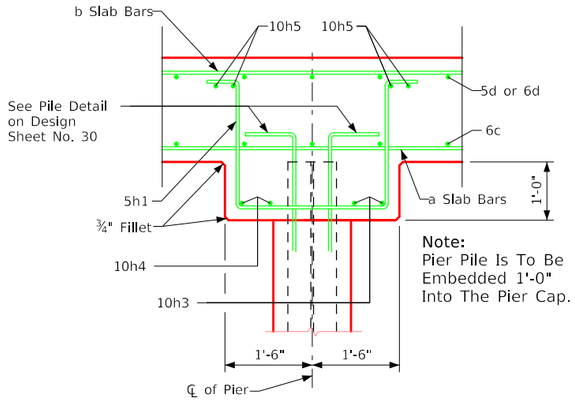
Mechanical Splice Detail

Mechanical Splice Assemblies:

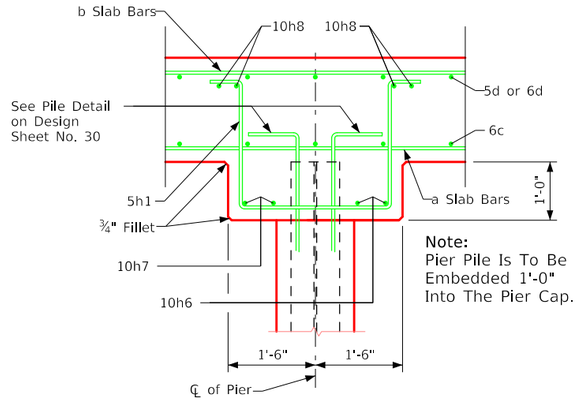
The 10h3, 10h4, 10h5, 10h6, 10h7 & 10h8 bars in the pier cap and slab shall be spliced at the locations shown using mechnical splice assemblies. Mechanical splice assemblies consist of mechanical splicers and reinforcing splice bars as required to facilitate the use of the mechanical splicer. The mechanical splice assembly used shall meet the requirements of materials IM 451 Appendix E. Reinforcing splice bars shall be a minimum of 1¼ inch dia.

All mechanical splice assemblies to be used in splicing 10h3, 10h4, 10h5, 10h6, 10h7 & 10h8 bars in the pier cap and slab 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 8 - 1¼" dia. epoxy coated splice assemblies will be required at each pier.



SECTION A-A



SECTION B-B

Epoxy Reinforcing Steel - Monolithic One Pier - Stage 1

Bar	Location	Shape	No.	Length	Weight
5h1	Stirrup		18	7'-10"	147
8h2	Cap End		1	14'-5"	38
10h3	Cap Bottom Longitudinal		2	21'-2"	182
10h4	Cap Bottom Longitudinal		2	19'-8"	169
10h5	Cap Longitudinal		4	22'-1"	380
			Epoxy Reinforcing	Total Weight (lbs)	916

Epoxy Reinforcing Steel - Monolithic One Pier - Stage 2

Bar	Location	Shape	No.	Length	Weight
5h1	Stirrup		22	7'-10"	180
8h2	Cap End		1	14'-5"	38
10h6	Cap Bottom Longitudinal		2	24'-5"	210
10h7	Cap Bottom Longitudinal		2	26'-0"	224
10h8	Cap Longitudinal		4	26'-11"	463
			Epoxy Reinforcing	Total Weight (lbs)	1115

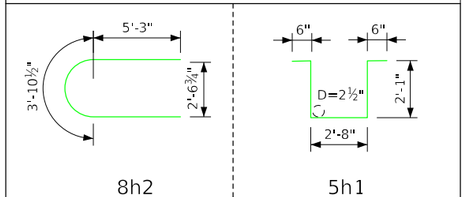
Est. Concrete Qty - Monolithic One Pier Stage 1

Structural Concrete (Cu. Yds.)	2.4

Est. Concrete Qty - Monolithic One Pier Stage 2

Structural Concrete (Cu. Yds.)	3.0

Bent Bar Details



Note: All dimensions are out-to-out. D = Pin diameter.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

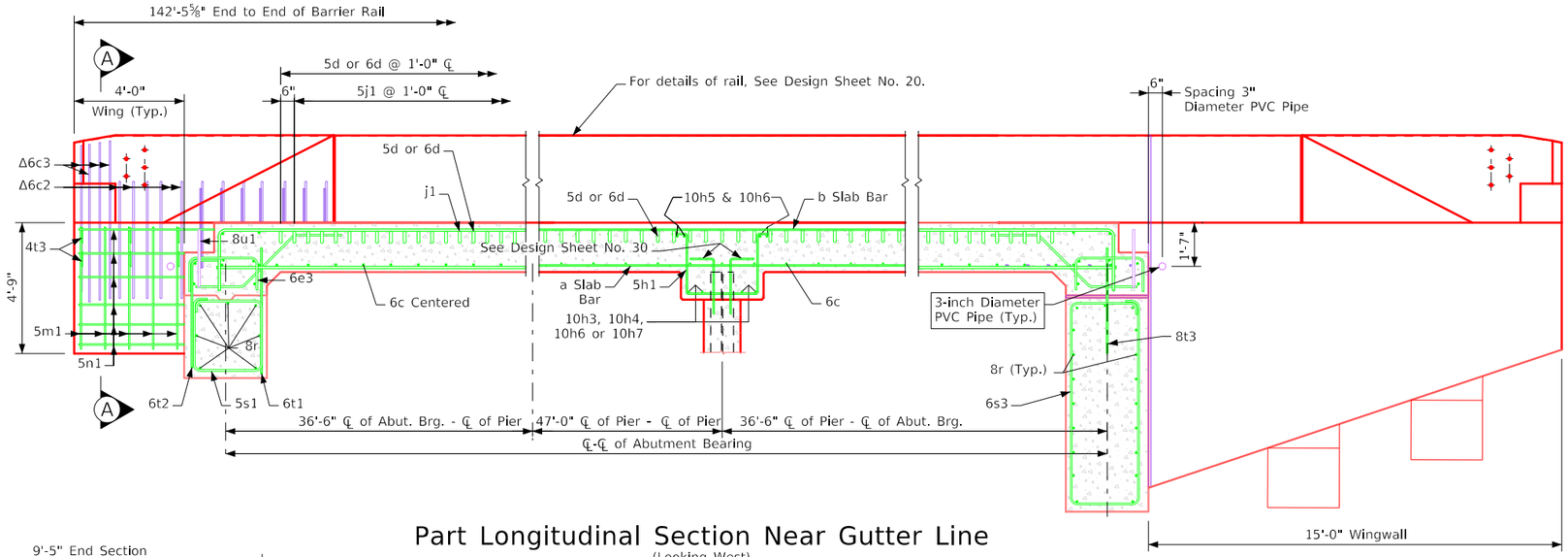
Pier Cap Monolithic Details (2 of 2)

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

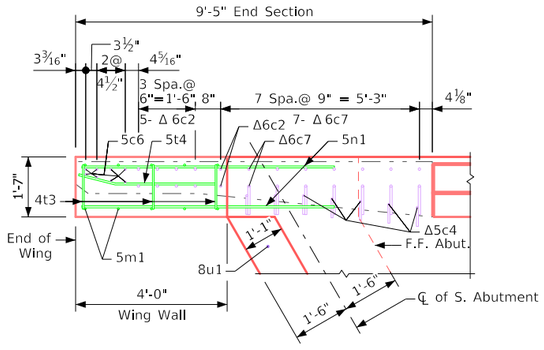
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 9 of 30 — FHWA No. 43391



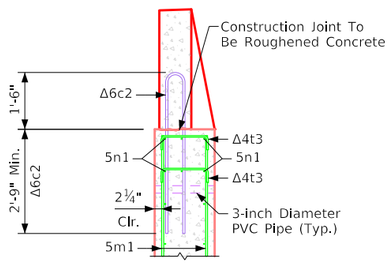
Part Longitudinal Section Near Gutter Line

(Looking West)



Part Plan South End

(End Section Not Shown)



Section A-A

Δ Note: Refer to Rail Single-Slope Barrier - End Section Details (1 of 2) on Design Sheet Nos. 22 & 24 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) on Design Sheet Nos. 23 & 25.
Note: 5m1 and 5n1 are included in the Superstructure Quantities sheet.

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.

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)".

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Superstructure General Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

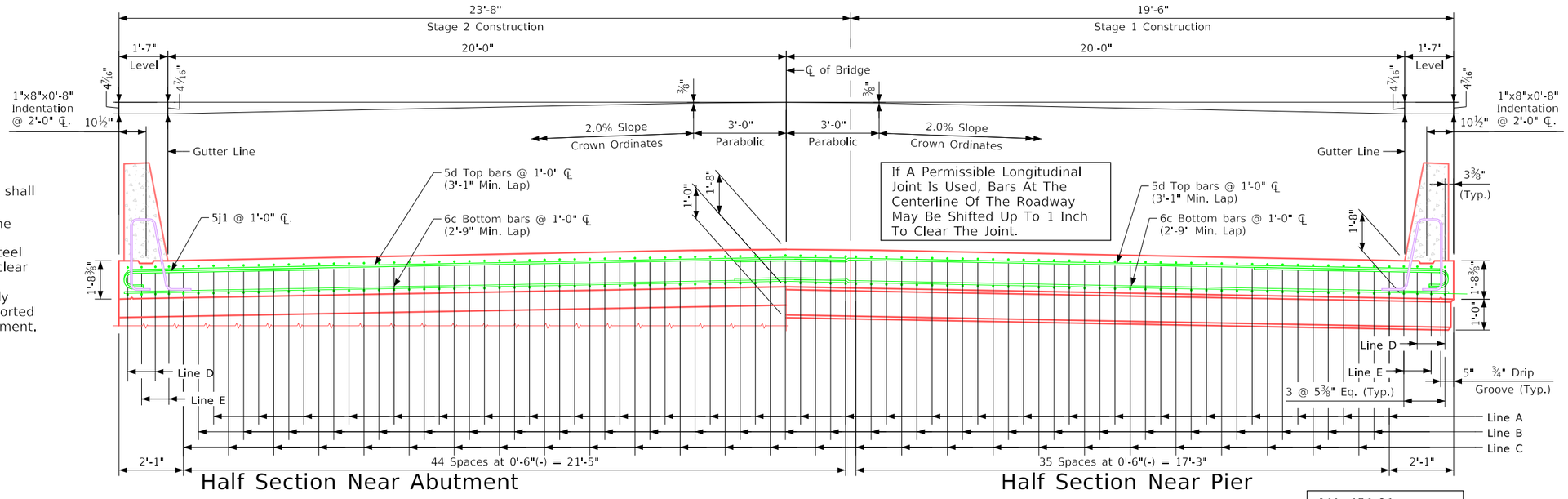
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 10 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Superstructure General Details	Standard Sheet J40-20-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.10	

2:22:02 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

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.

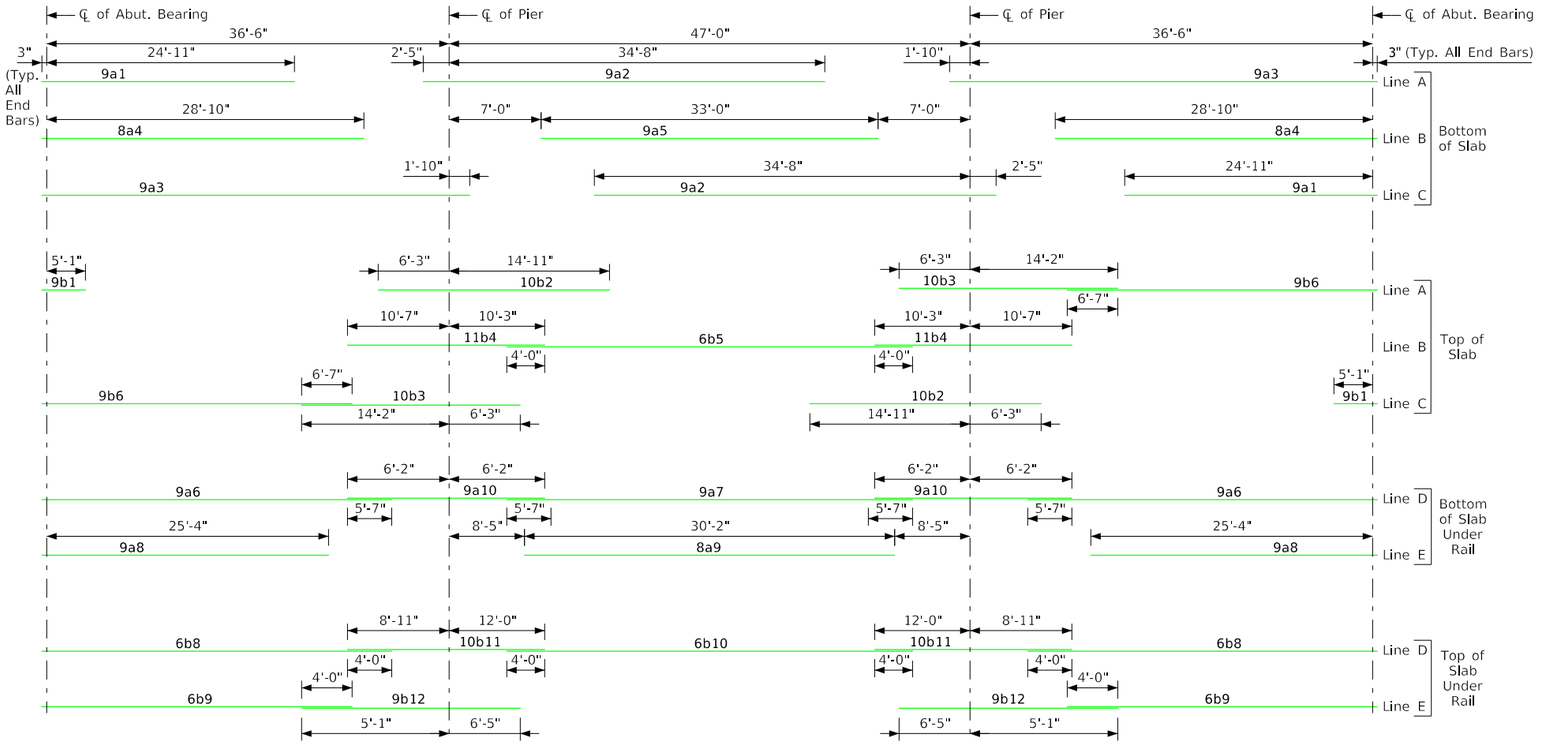


Half Section Near Abutment

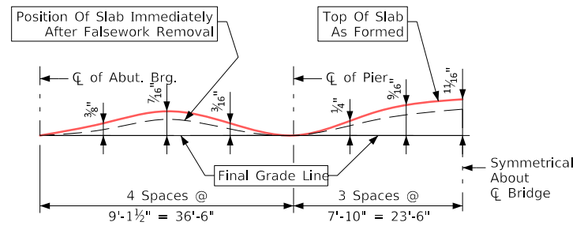
Half Section Near Pier

Slab Cross-Section Area = 71.99 sq. ft.

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



120' - 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 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Superstructure Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

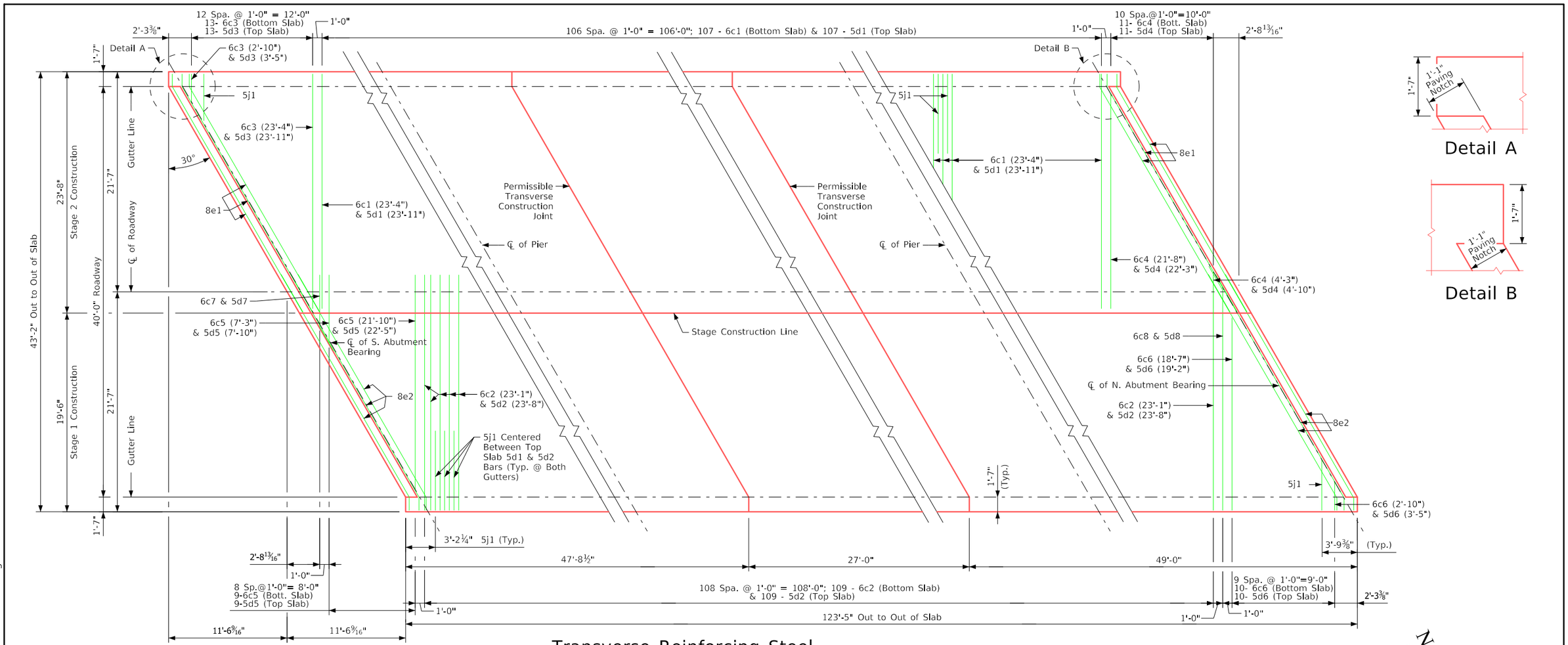
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 11 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Superstructure Details	Standard Sheet J40-12-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.11

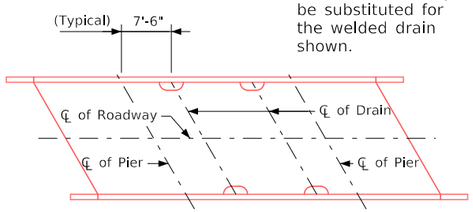
2:22:03 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

Revised 09-2026: Updated Bridge Engineer signature. Added missing note referencing 4" x 8" Outside dimension rolled tube..." In drain location details.

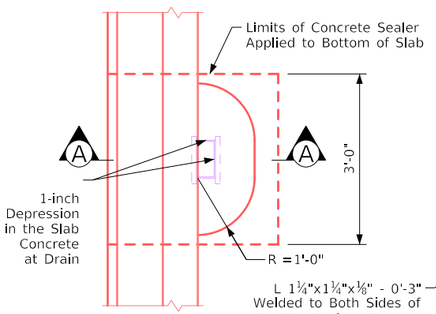


Transverse Reinforcing Steel Layout

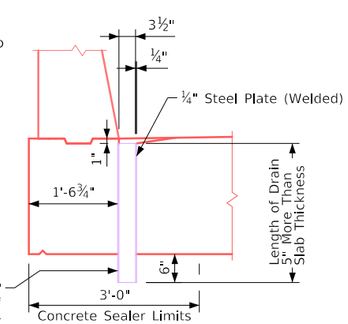
Note: 4" x 8" Outside dimension rolled tube with ¼" wall thickness may be substituted for the welded drain shown.



Floor Drain Location



Part Plan

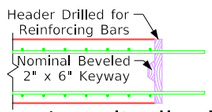


Section A-A

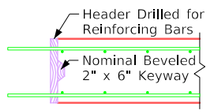
Weight of One Floor Drain	
Span	Weight, lbs.
120'-0"	41

Floor Drain Details

Note: Drains are to be galvanized. Include the cost of drains in the price bid for "Structural Concrete (Bridge)." (4 Drains Required)



Longitudinal Construction Joint



Transverse Construction Joint

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

Superstructure Details

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 12 of 30 FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Superstructure Details	Standard Sheet J40-23-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.12	

2:22:03 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

Revised 09-2026: Updated Bridge Engineer signature. Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Changed 6b8 and 6b9 bars (was 8b8 and 8b9).

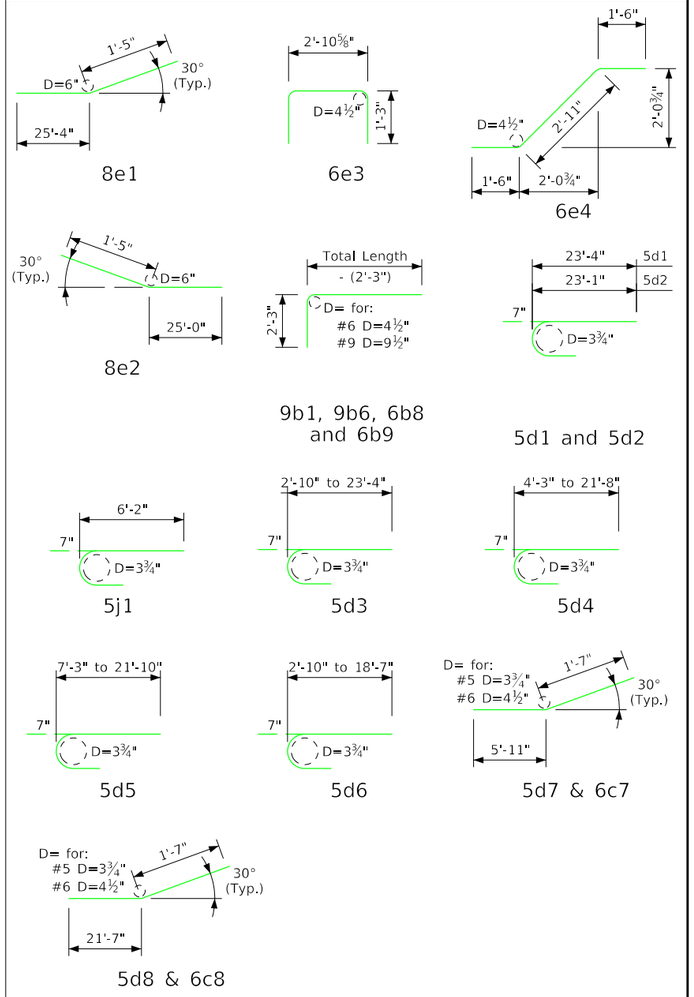
Epoxy Steel Reinforcing for Superstructure - Stage 1

Location	Shape	Bar	No.	Length	Weight
Slab Longitudinal Bottom		9a1	24	25'-2"	2054
Slab Longitudinal Bottom		9a2	24	37'-1"	3026
Slab Longitudinal Bottom		9a3	24	38'-7"	3148
Slab Longitudinal Bottom		8a4	24	29'-1"	1864
Slab Longitudinal Bottom		9a5	12	33'-0"	1346
Slab Longitudinal Bottom, at Rail		9a6	4	36'-2"	492
Slab Longitudinal Bottom, at Rail		9a7	2	45'-10"	312
Slab Longitudinal Bottom, at Rail		9a8	4	25'-7"	348
Slab Longitudinal Bottom, at Rail		8a9	2	30'-2"	161
Slab Longitudinal Bottom, at Rail		9a10	4	12'-4"	168
Slab Longitudinal Top		9b1	24	7'-7"	619
Slab Longitudinal Top		10b2	24	21'-2"	2186
Slab Longitudinal Top		10b3	24	20'-5"	2108
Slab Longitudinal Top		11b4	24	20'-10"	2656
Slab Longitudinal Top		6b5	12	34'-6"	622
Slab Longitudinal Top		9b6	24	31'-5"	2564
Slab Longitudinal Top, at Rail		6b8	4	34'-1"	205
Slab Longitudinal Top, at Rail		6b9	4	37'-11"	228
Slab Longitudinal Top, at Rail		6b10	2	31'-0"	93
Slab Longitudinal Top, at Rail		10b11	4	20'-11"	360
Slab Longitudinal Top, at Rail		9b12	4	11'-6"	156
Slab Transverse Bottom		6c2	109	23'-1"	3779
Slab Transverse Ends, Bottom		6c5	9	VARIES	197
Slab Transverse Ends, Bottom		6c6	10	VARIES	161
Slab Transverse Ends, Bottom		6c7	1	7'-6"	11
Slab Transverse Ends, Bottom		6c8	1	23'-2"	35
Slab Transverse Top		5d2	109	23'-8"	2691
Slab Transverse Ends, Top		5d5	9	VARIES	142
Slab Transverse Ends, Top		5d6	10	VARIES	118
Slab Transverse Ends, Top		5d7	1	7'-6"	8
Slab Transverse Ends, Top		5d8	1	23'-2"	24
Slab, Tansverse at Abutment		8e2	20	26'-5"	1411
Slab, Tansverse at Abutment		6e3	63	5'-5"	513
Slab, Tansverse at Abutment		6e4	42	5'-11"	373
Top of Slab, Transverse, at Rail		5j1	111	6'-9"	781
Wing, Vertical		5m1	10	4'-5"	46
Wing, Horizontal Back Face		5n1	12	6'-8"	83
Epoxy Reinforcing Total Weight (lbs)					35,089
Rail Single-Slope Barrier – Quantities - See Design Sheet No. 21					2,767
Epoxy Coated Rail Total-lbs. Monolithic Single-Slope Rail					37,856
Stainless Steel Rail Total-lbs. Single-Slope Rail					1,446

Epoxy Steel Reinforcing for Superstructure - Stage 2

Location	Shape	Bar	No.	Length	Weight
Slab Longitudinal Bottom		9a1	30	25'-2"	2567
Slab Longitudinal Bottom		9a2	30	37'-1"	3783
Slab Longitudinal Bottom		9a3	30	38'-7"	3936
Slab Longitudinal Bottom		8a4	30	29'-1"	2330
Slab Longitudinal Bottom		9a5	15	33'-0"	1683
Slab Longitudinal Bottom, at Rail		9a6	4	36'-2"	492
Slab Longitudinal Bottom, at Rail		9a7	2	45'-10"	312
Slab Longitudinal Bottom, at Rail		9a8	4	25'-7"	348
Slab Longitudinal Bottom, at Rail		8a9	2	30'-2"	161
Slab Longitudinal Bottom, at Rail		9a10	4	12'-4"	168
Slab Longitudinal Top		9b1	30	7'-7"	774
Slab Longitudinal Top		10b2	30	21'-2"	2732
Slab Longitudinal Top		10b3	30	20'-5"	2636
Slab Longitudinal Top		11b4	30	20'-10"	3321
Slab Longitudinal Top		6b5	15	34'-6"	777
Slab Longitudinal Top		9b6	30	31'-5"	3205
Slab Longitudinal Top, at Rail		6b8	4	34'-1"	205
Slab Longitudinal Top, at Rail		6b9	4	37'-11"	228
Slab Longitudinal Top, at Rail		6b10	2	31'-0"	93
Slab Longitudinal Top, at Rail		10b11	4	20'-11"	360
Slab Longitudinal Top, at Rail		9b12	4	11'-6"	156
Slab Transverse Bottom		6c1	107	23'-4"	3750
Slab Transverse Ends, Bottom		6c3	13	VARIES	255
Slab Transverse Ends, Bottom		6c4	11	VARIES	214
Slab Transverse Top		5d1	107	23'-11"	2669
Slab Transverse Ends, Top		5d3	13	VARIES	185
Slab Transverse Ends, Top		5d4	11	VARIES	155
Slab, Tansverse at Abutment		8e1	20	26'-9"	1428
Slab, Tansverse at Abutment		6e3	78	5'-5"	635
Slab, Tansverse at Abutment		6e4	52	5'-11"	462
Top of Slab, Transverse, at Rail		5j1	111	6'-9"	781
Wing, Vertical		5m1	10	4'-5"	46
Wing, Horizontal Back Face		5n1	12	6'-8"	83
Epoxy Reinforcing Total Weight (lbs)					40,930
Rail Single-Slope Barrier – Quantities - See Design Sheet No. 21					2,767
Epoxy Coated Rail Total-lbs. Monolithic Single-Slope Rail					43,697
Stainless Steel Rail Total-lbs. Single-Slope Rail					1,446

120'-0" Bridge-Bent Bar Details



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

Stainless Steel Reinforcing for Superstructure - Stage 1

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	20	2'-1	111

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

Stainless Steel Reinforcing for Superstructure - Stage 2

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	24	2'-1	134

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

Estimated Quantities for Superstructure - Stage 1

Item	30°
* Structural Concrete (Bridge) (c.y.)	160.9
Reinf. Steel Epoxy Coated (lbs.)	37,856
Δ Reinf. Steel Stainless Steel (lbs.)	1,557
Concrete single-slope barrier (lin.ft.)	142.5

* Includes 1 wing at 1.114 cubic yard and 1 wing at 12.0 cubic yard; excludes rail concrete.

Δ Includes abutment paving notch bar weight.

Estimated Quantities for Superstructure - Stage 2

Item	30°
* Structural Concrete (Bridge) (c.y.)	195.3
Reinf. Steel Epoxy Coated (lbs.)	43,697
Δ Reinf. Steel Stainless Steel (lbs.)	1,580
Concrete single-slope barrier (lin.ft.)	142.5

* Includes 1 wing at 1.114 cubic yard and 1 wing at 12.0 cubic yard; excludes rail concrete.

Δ Includes abutment paving notch bar weight.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

Superstructure Details

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

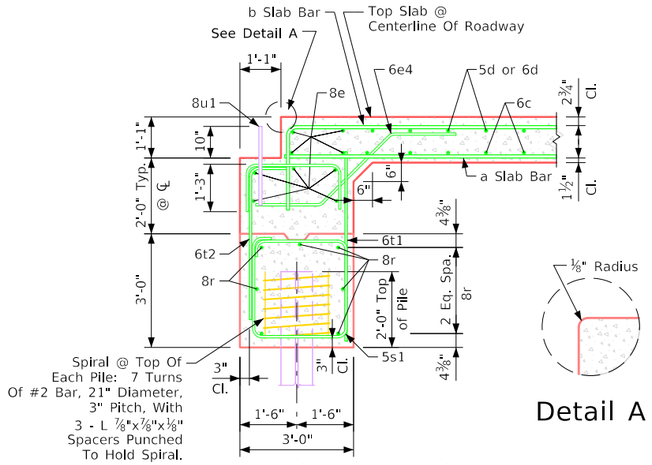
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 13 of 30 FHWA No. 43391

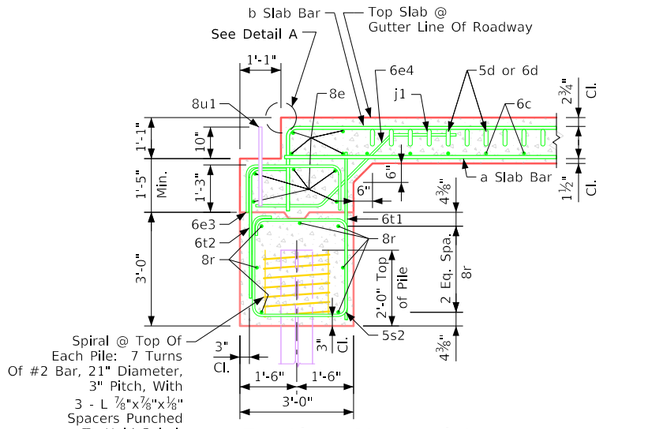
FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Superstructure Details	Standard Sheet J40-13-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.13	

2:22:04 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

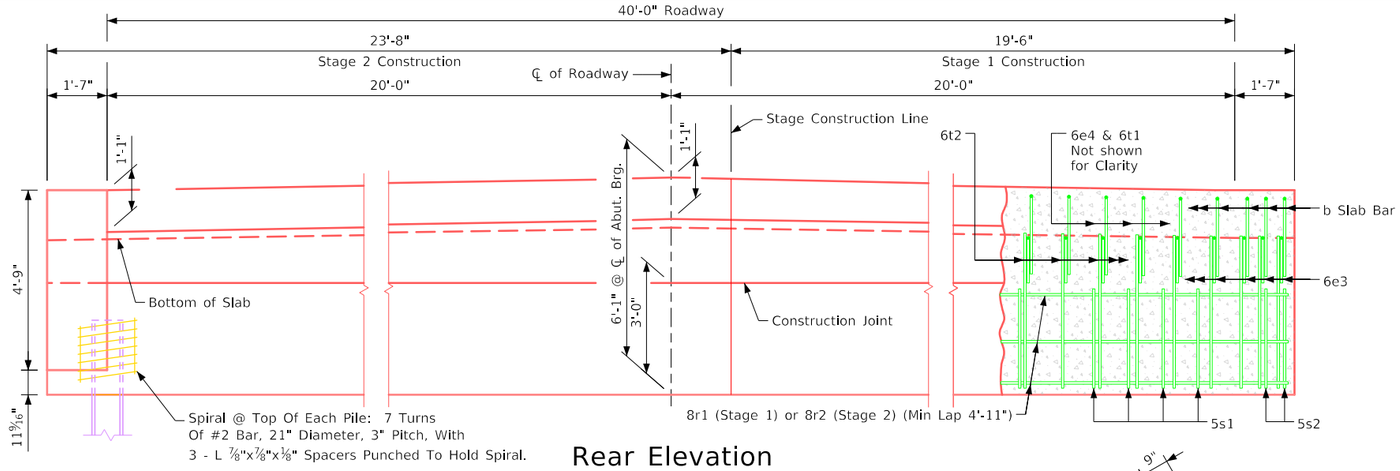


Section Normal to Abutment @ ℄

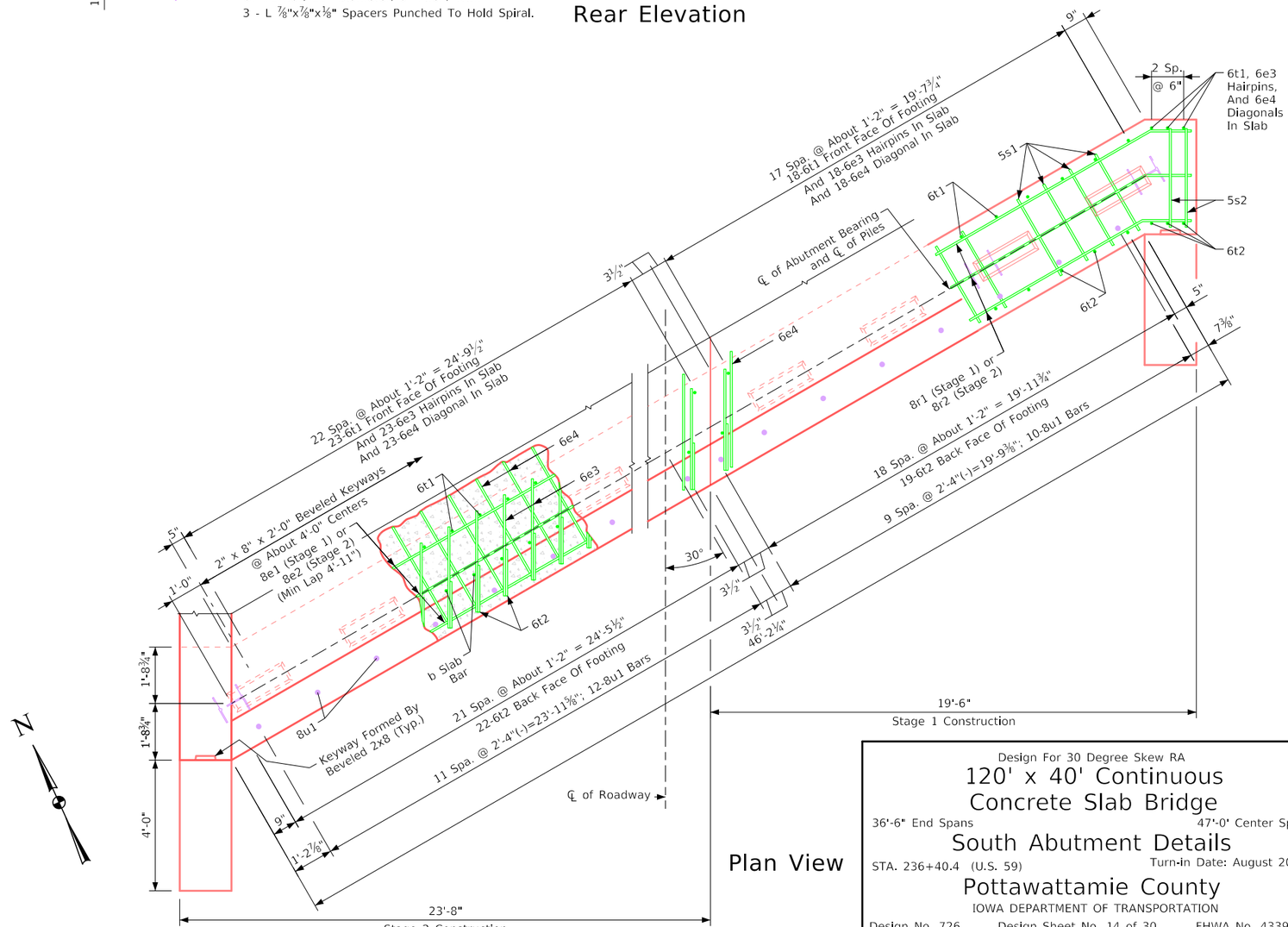
Detail A



Section Normal to Abutment @ Gutter Line



Rear Elevation



Plan View

N

NOTES:

Barrier rails and reinforcement not shown.
Wing reinforcing not shown.
5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Design Sheet No. 10.
6e3, 6e4, and 8e bars are included in the Superstructure Quantities

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

South Abutment Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

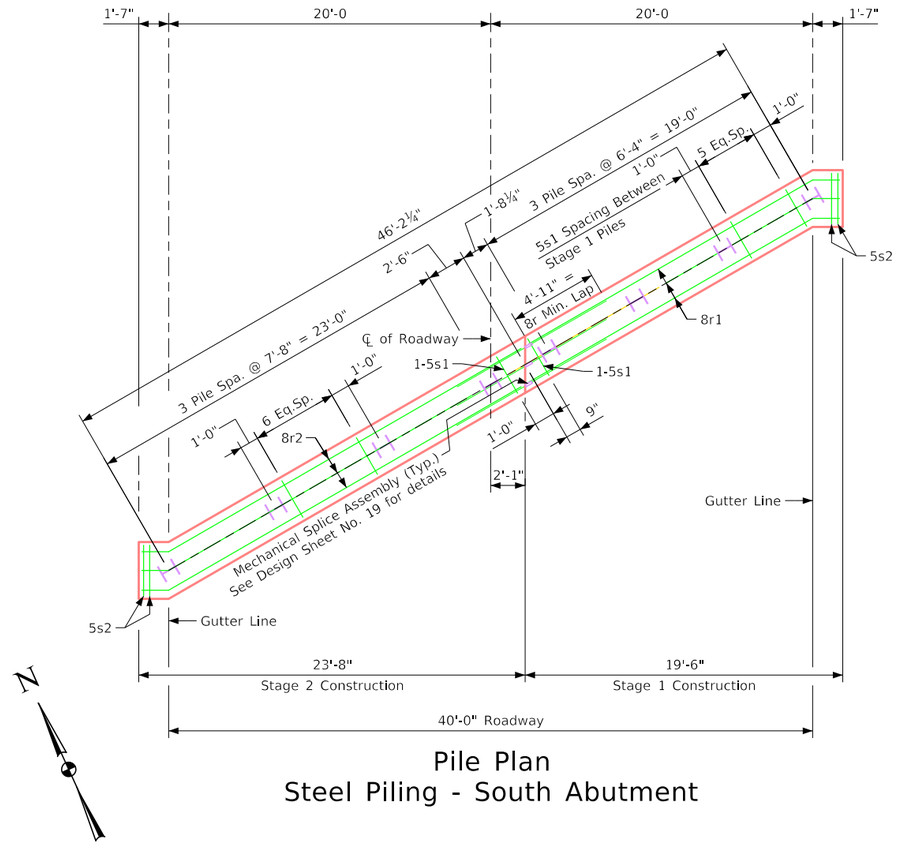
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 14 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Abutment Details (1 of 2)	Standard Sheet J40-42-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.14	

2:22:04 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



Pile Plan
Steel Piling - South Abutment

South Abutment Piling Notes:

The contract length of 105 feet for the South Abutment piles is based on a cohesive soil classification, a total factored axial load per pile (pu) of 86 kips and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing. Design scour (200-year) was assumed to affect the upper 35 feet of embedded pile length and cause 36 kips of driving resistance.

The required nominal axial bearing resistance for the South Abutment is 84 tons at the 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.

Dimensions shown on the piling layout are at the bottom of footing.

8-HP10x42 steel bearing piling required.

Abutment Notes:

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.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

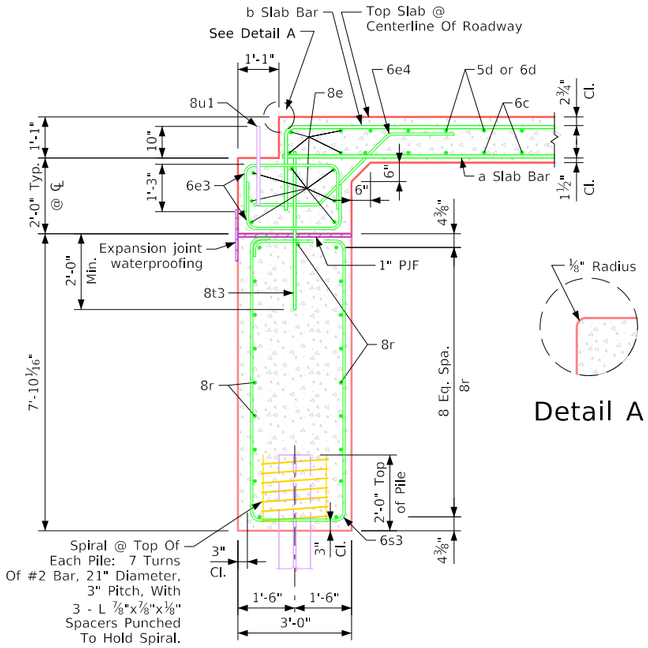
South Abutment Details

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

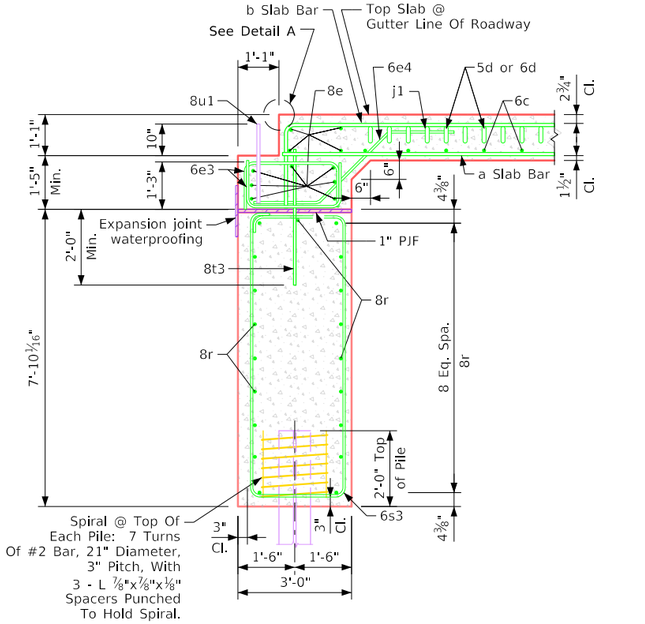
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 15 of 30 FHWA No. 43391



Section Normal to Abutment @ ℄

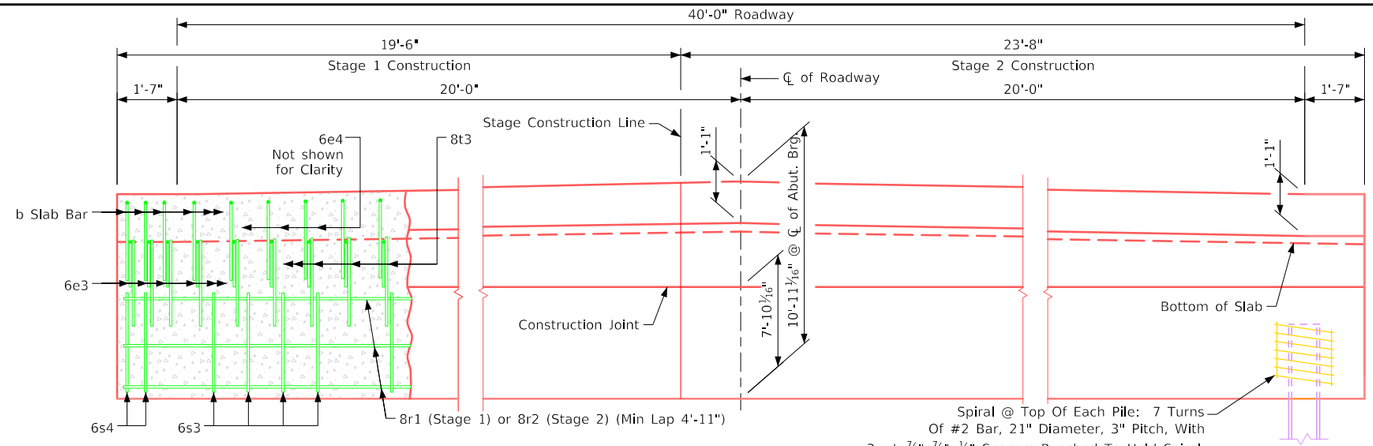
Detail A



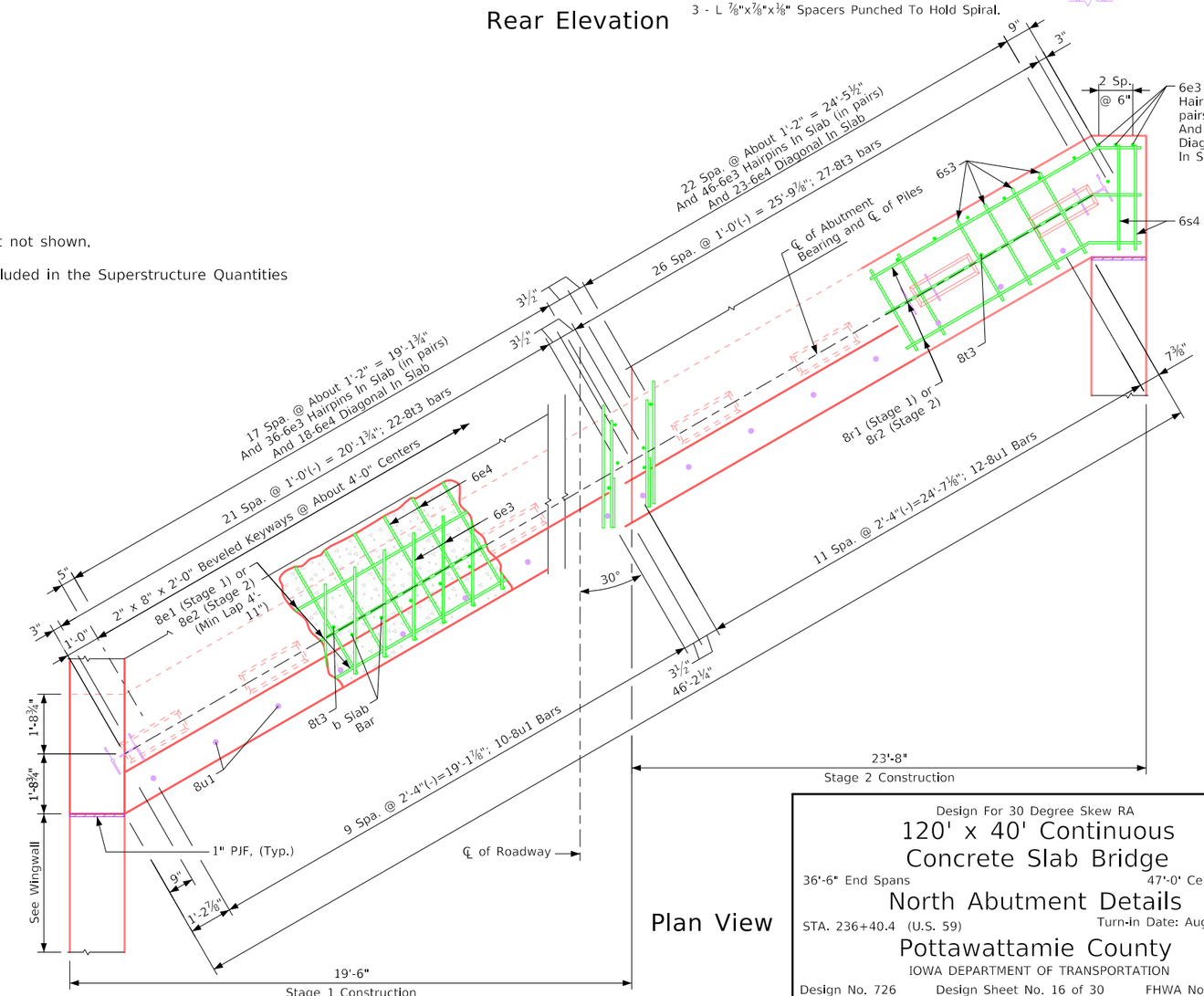
Section Normal to Abutment @ Gutter Line

NOTES:

Barrier rails and reinforcement not shown.
Wing reinforcing not shown.
6e3, 6e4, and 8e bars are included in the Superstructure Quantities



Rear Elevation



Plan View

N

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

North Abutment Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

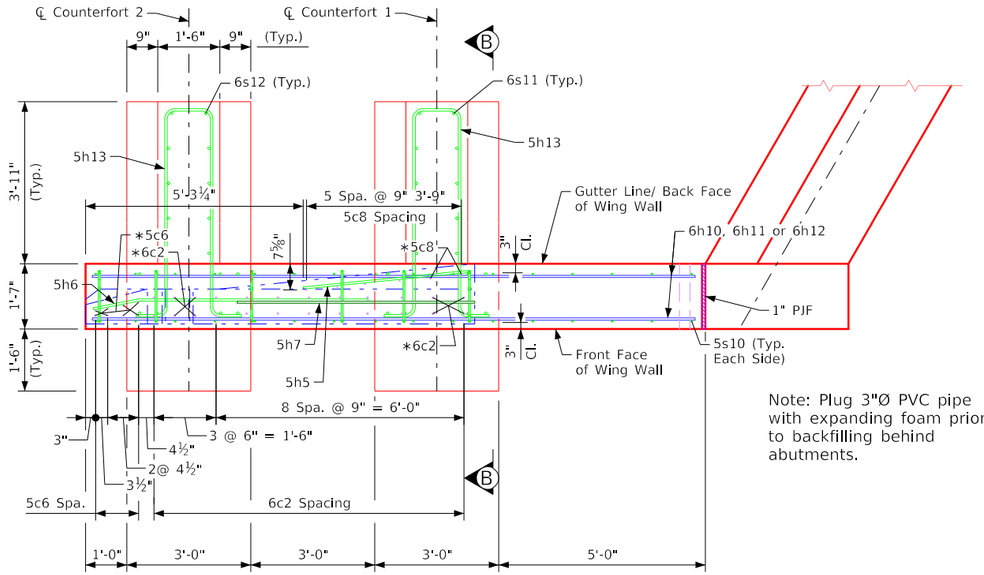
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 16 of 30 — FHWA No. 43391

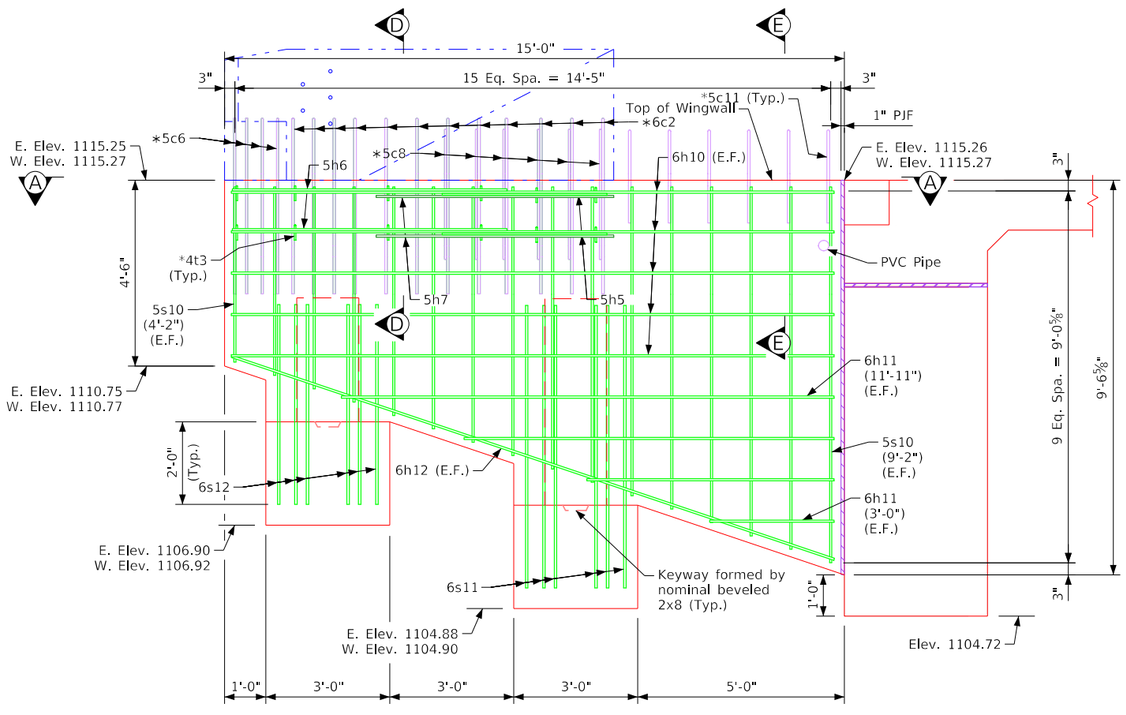
FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Abutment Details (1 of 2)	Standard Sheet J40-42-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.16	

2:22:06 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

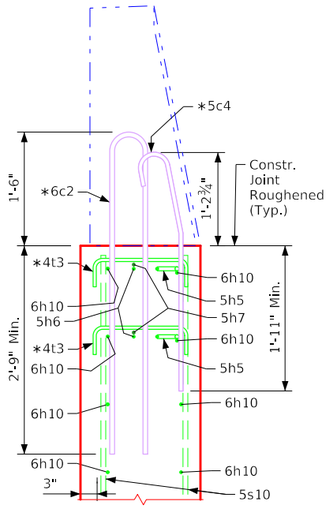


View A-A

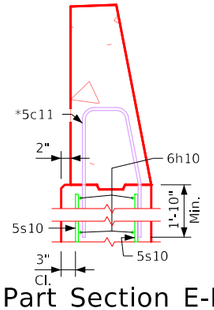
Note: Plug 3"Ø PVC pipe with expanding foam prior to backfilling behind abutments.



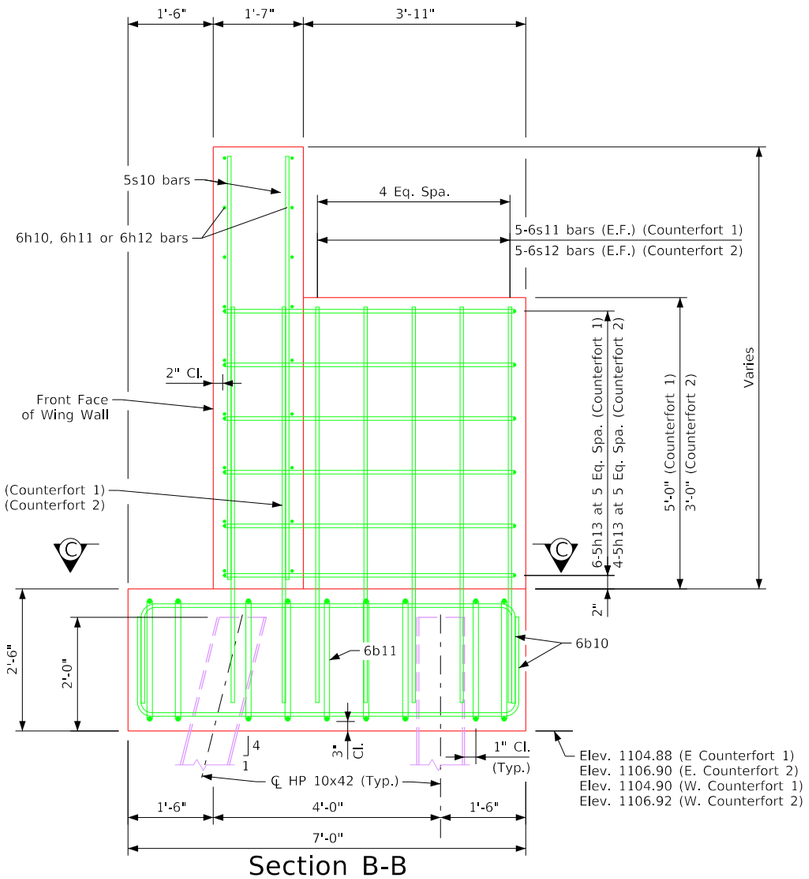
Wingwall Elevation
(East Wingwall shown, West Wingwall Similar)



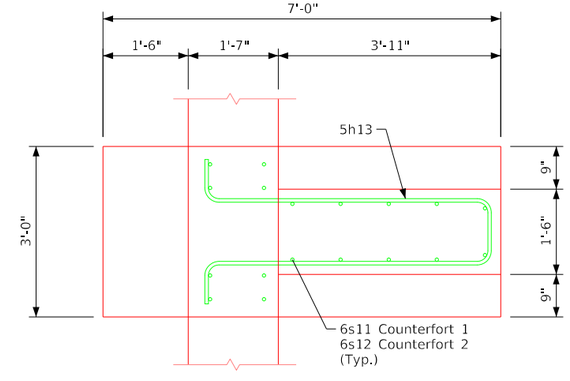
Section D-D



Part Section E-E



Section B-B



Section C-C

*Barrier rail end section bars to be placed with abutment wing.
See Barrier Rail and End Section Sheets on Design Sheet Nos. 20 thru 25 for details of reinforcing bars 6c2, 5c8, 5c6, 4t3 and 5c11.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

North Abutment Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

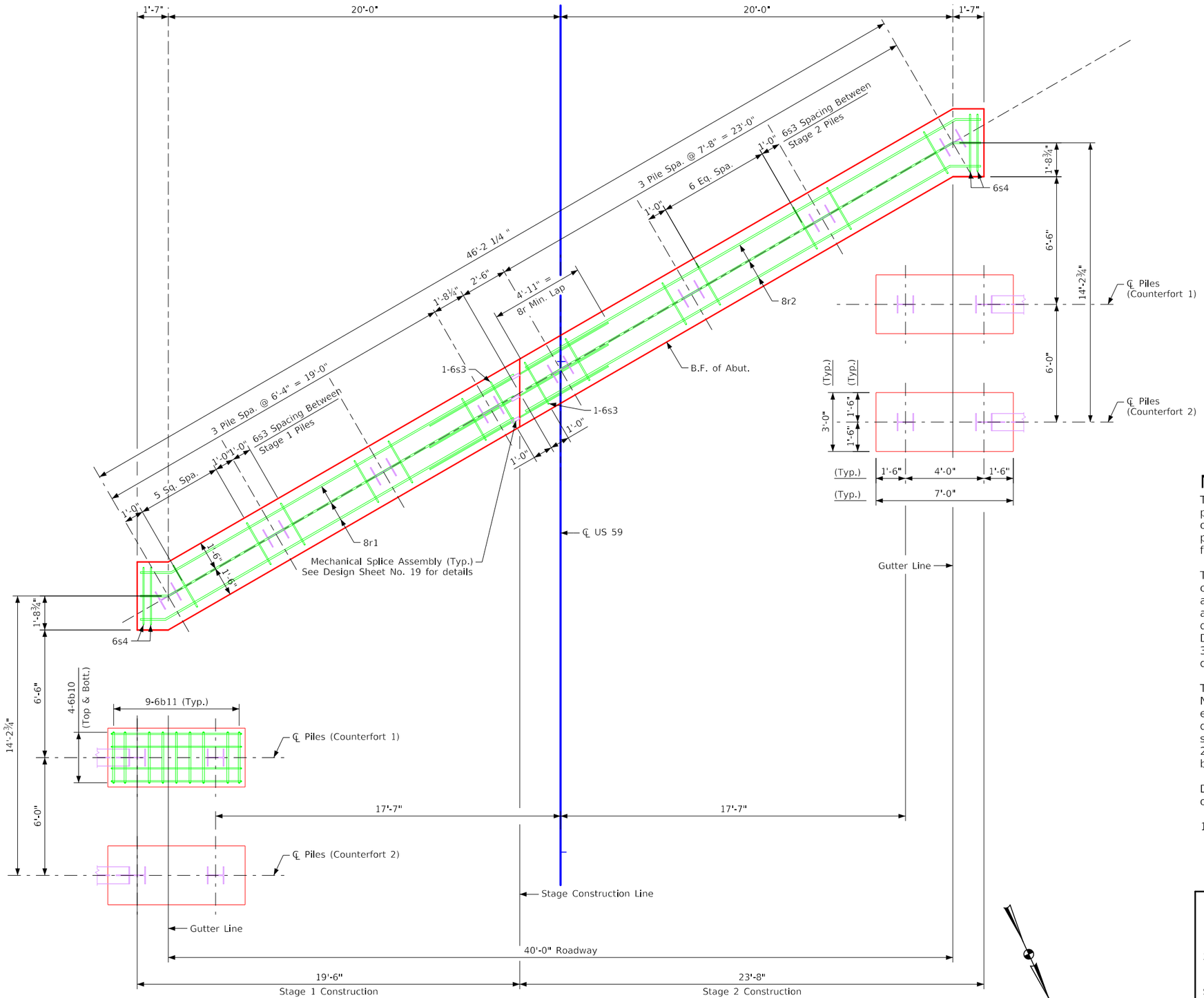
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 17 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.17

2:22:07 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



Abutment Notes:

The concrete 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.

North Abutment Piling Notes:

The contract length of 100 feet for the North Abutment piles and 105 feet for the North Wingwall piles is based on a cohesive soil classification, a total factored axial load per pile (pu) of 98 kips and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing. Design scour (200-year) was assumed to affect the upper 30 feet of embedded pile length and cause 36 kips of driving resistance.

The required nominal axial bearing resistance for the North Abutment and North Wingwall piles is 93 tons at the end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. In no case shall a the North Wingwall piles be embedded less than 20 feet. Construction control requires a weap analysis with bearing graph.

Dimensions shown on the piling layout are at the bottom of footing.

16-HP10x42 steel bearing piling required.

Pile Plan
Steel Piling - North Abutment

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0' Interior Span

North Abutment Details

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 18 of 30 FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.18

2:22:07 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

Epoxy Coated Reinforcing Steel South Abutment - Stage 1

Mark	Location	Shape	No.	Length	Weight
8r1	Abutment Footing Longitudinal		7	21'-11"	410
5s1	Abutment Footing Hoops		19	11'-0"	218
5s2	Abutment Footing Hoops		2	11'-11"	25
6t1	Footing To Slab Bars		18	5'-0"	135
6t2	Footing To Slab Bars		19	5'-7"	159
#2	Pile Spiral		4	38'-6"	26
	Spiral Spacers - L 7/8x7/8x1/8x 0.70		12	1'-10"	16
	Reinforcing steel epoxy coated - total (lbs.)				989

Estimated Quantities - South Abut. - Stage 1

Location	Unit	Quantity
Structural Concrete (Bridge)	c.y.	7.5
Reinforcing Steel, Epoxy-Coated	lbs.	989
Steel Piling HP 10x24	no.	4
Prebored Holes	ft.	40

Epoxy Coated Reinforcing Steel North Abutment - Stage 1

Mark	Location	Shape	No.	Length	Weight
8r1	Abutment Footing Longitudinal		19	21'-9"	1103
6s3	Abutment Footing Hoops		19	20'-10"	595
6s4	Abutment Footing Hoops		2	21'-9"	65
8t3	Footing To Slab Bars		22	4'-2"	245
#2	Pile Spiral		4	38'-6"	26
	Spiral Spacers - L 7/8x7/8x1/8x 0.70		12	1'-10"	16
	Reinforcing steel epoxy coated - total (lbs.)				2050

Estimated Quantities - North Abut. - Stage 1

Location	Unit	Quantity
Structural Concrete (Bridge)	c.y.	19.6
Reinforcing Steel, Epoxy-Coated	lbs.	2050
Steel Piling HP 10x24	no.	8
Prebored Holes	ft.	40

Epoxy Coated Reinforcing Steel - North Abutment Wingwall - Stage 1

Bar	Location	Shape	No.	Length	Weight
6b10	Counterfort Footing, Longitudinal		16	10'-0"	240
6b11	Counterfort Footing, Hoops		18	10'-0"	270
5h5	Abut. To Wing Anchor		2	4'-0"	8
5h6	Horizontal Wingwall		2	6'-8"	14
5h7	Abut. To Wing Anchor		2	5'-9"	12
6h10	Wingwall, Horizontal		10	14'-5"	217
6h11	Wingwall, Horizontal		8	Varies	90
6h12	Wingwall, Horizontal		2	15'-4"	46
5h13	Counterfort, Horizontal		10	13'-0"	136
5s10	Wingwall, Vertical		32	Varies	223
6s11	Counterfort, Vertical		18	6'-10"	185
6s12	Counterfort, Vertical		18	4'-10"	131
	Epoxy Reinforcing Steel Total Weight (lbs.)				1572

Epoxy Coated Reinforcing Steel South Abutment - Stage 2

Mark	Location	Shape	No.	Length	Weight
8r2	Abutment Footing Longitudinal		7	26'-9"	500
5s1	Abutment Footing Hoops		22	11'-0"	252
5s2	Abutment Footing Hoops		2	11'-11"	25
6t1	Footing To Slab Bars		23	5'-0"	173
6t2	Footing To Slab Bars		22	5'-7"	184
#2	Pile Spiral		4	38'-6"	26
	Spiral Spacers - L 7/8x7/8x1/8x 0.70		12	1'-10"	16
	Reinforcing steel epoxy coated - total (lbs.)				1176

Estimated Quantities - South Abut. - Stage 2

Location	Unit	Quantity
Structural Concrete (Bridge)	c.y.	9.1
Reinforcing Steel, Epoxy-Coated	lbs.	1176
Steel Piling HP 10x24	no.	4
Prebored Holes	ft.	40

Epoxy Coated Reinforcing Steel North Abutment - Stage 2

Mark	Location	Shape	No.	Length	Weight
8r2	Abutment Footing Longitudinal		19	26'-7"	1349
6s3	Abutment Footing Hoops		22	20'-10"	688
6s4	Abutment Footing Hoops		2	21'-9"	65
8t3	Footing To Slab Bars		27	4'-2"	300
#2	Pile Spiral		4	38'-6"	26
	Spiral Spacers - L 7/8x7/8x1/8x 0.70		12	1'-10"	16
	Reinforcing steel epoxy coated - total (lbs.)				2444

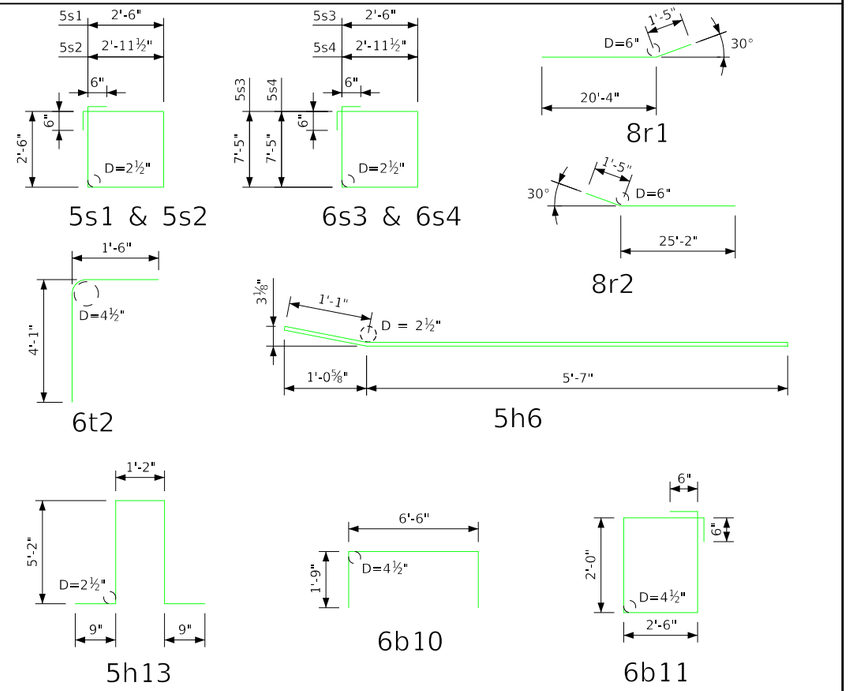
Estimated Quantities - North Abut. - Stage 1

Location	Unit	Quantity
Structural Concrete (Bridge)	c.y.	23.8
Reinforcing Steel, Epoxy-Coated	lbs.	2444
Steel Piling HP 10x24	no.	8
Prebored Holes	ft.	40

Epoxy Coated Reinforcing Steel - North Abutment Wingwall - Stage 2

Bar	Location	Shape	No.	Length	Weight
6b10	Counterfort Footing, Longitudinal		16	10'-0"	240
6b11	Counterfort Footing, Hoops		18	10'-0"	270
5h5	Abut. To Wing Anchor		2	4'-0"	8
5h6	Horizontal Wingwall		2	6'-8"	14
5h7	Abut. To Wing Anchor		2	5'-9"	12
6h10	Wingwall, Horizontal		10	14'-5"	217
6h11	Wingwall, Horizontal		8	Varies	90
6h12	Wingwall, Horizontal		2	15'-4"	46
5h13	Counterfort, Horizontal		10	13'-0"	136
5s10	Wingwall, Vertical		32	Varies	223
6s11	Counterfort, Vertical		18	6'-10"	185
6s12	Counterfort, Vertical		18	4'-10"	131
	Epoxy Reinforcing Steel Total Weight (lbs.)				1572

Bent Bar Details



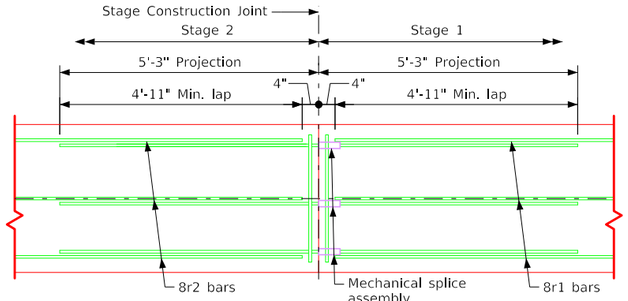
Note: All Dimensions Are Out To Out. D=pin Diameter.

Abutment Mechanical Splice Assemblies:

The 8r1 & 8r2 bars in the abutment footings 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 IM 451 Appendix E. Reinforcing splice bars shall me a minimum of 1 inch dia.

All mechanical splice assemblies to be used in splicing 8r1 & 8r2 bars in the abutment footings 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 26 epoxy coated splice assemblies will be required.



Mechanical Splice Detail

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

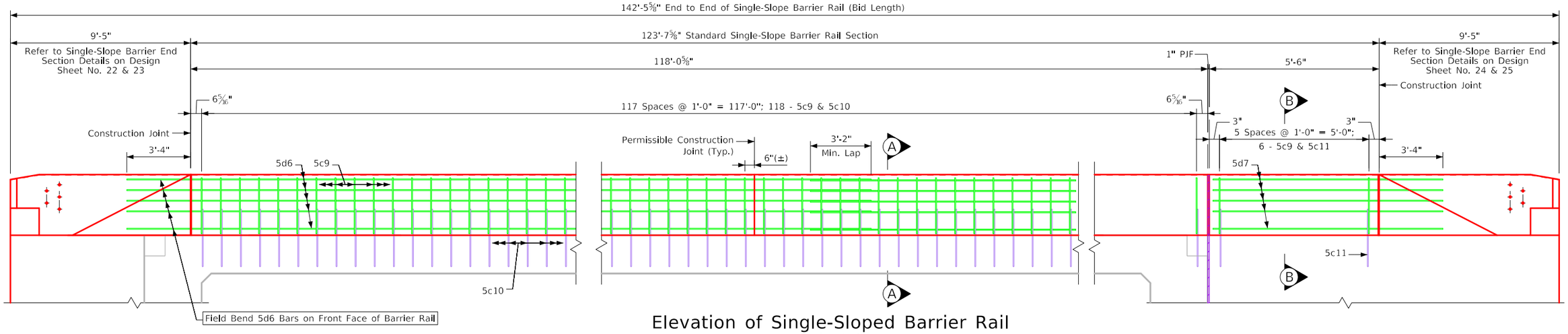
Abutment General Details

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

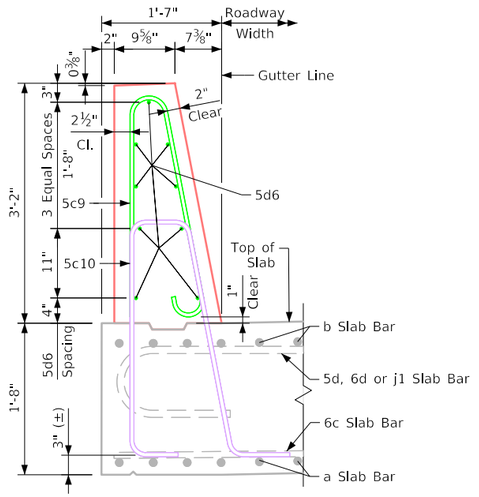
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 19 of 30 FHWA No. 43391

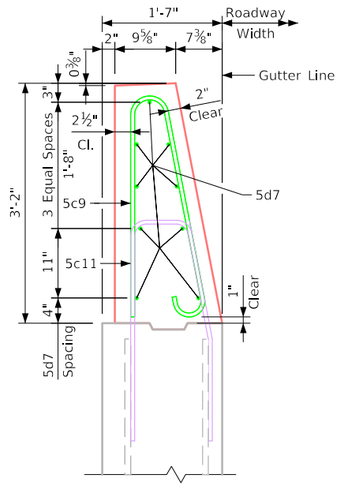


Elevation of Single-Sloped Barrier Rail

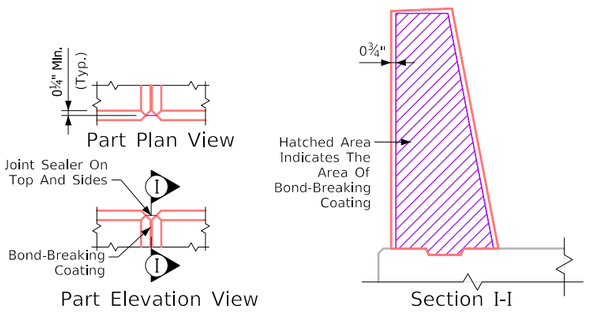
(Looking West)



Part Section A-A



Part Section B-B



Barrier Rail Joint Details

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.

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 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Single Slope Barrier - Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 20 of 30 — FHWA No. 43391

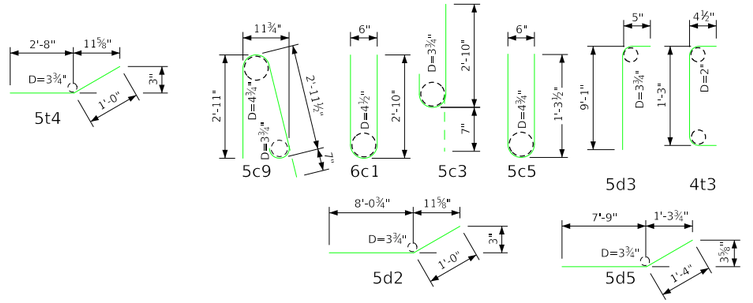
Epoxy Reinforcing Steel - Stage 1 Barrier Rail

Section	Bar	Location	Shape	No.	Length	Weight
Std. Sec.	5c9	Vertical		124	6'-8"	862
	5d6	Long.		36	32'-11"	1236
	5d7	Long.		9	8'-8"	81
South End Sec.	6c1	Rail Vertical		12	5'-11"	107
	5c3	Rail Vertical (Traffic Face)		3	3'-5"	11
	5c5	Rail Vertical (End)		4	3'-1"	13
	5d1	Rail Horiz (Back Face)		6	9'-1"	57
	5d2	Rail Horiz (Traffic Face)		3	9'-1"	28
	5d3	Rail Horiz (Traffic Face)		3	9'-6"	30
	5d4	Rail Horiz (Traffic Face)		2	6'-3"	13
	5d5	Rail Horiz (Top)		2	9'-1"	19
	4t3	Rail Abut Wing Tie Bars		6	2'-0"	8
	5t4	Wing Horiz (Tie Bars)		2	3'-8"	8
North End Sec.	6c1	Rail Vertical		12	5'-11"	107
	5c3	Rail Vertical (Traffic Face)		3	3'-5"	11
	5c5	Rail Vertical (End)		4	3'-1"	13
	5d1	Rail Horiz (Back Face)		6	9'-1"	57
	5d2	Rail Horiz (Traffic Face)		3	9'-1"	28
	5d3	Rail Horiz (Traffic Face)		3	9'-6"	30
	5d4	Rail Horiz (Traffic Face)		2	6'-3"	13
	5d5	Rail Horiz (Top)		2	9'-1"	19
	4t3	Rail Abut Wing Tie Bars		12	2'-0"	16
Epoxy Reinforced Total Weight (lbs)					Total	2767

Epoxy Reinforcing Steel - Stage 2 Barrier Rail

Section	Bar	Location	Shape	No.	Length	Weight
Std. Sec.	5c9	Vertical		124	6'-8"	862
	5d6	Long.		36	32'-11"	1236
	5d7	Long.		9	8'-8"	81
South End Sec.	6c1	Rail Vertical		12	5'-11"	107
	5c3	Rail Vertical (Traffic Face)		3	3'-5"	11
	5c5	Rail Vertical (End)		4	3'-1"	13
	5d1	Rail Horiz (Back Face)		6	9'-1"	57
	5d2	Rail Horiz (Traffic Face)		3	9'-1"	28
	5d3	Rail Horiz (Traffic Face)		3	9'-6"	30
	5d4	Rail Horiz (Traffic Face)		2	6'-3"	13
	5d5	Rail Horiz (Top)		2	9'-1"	19
	4t3	Rail Abut Wing Tie Bars		6	2'-0"	8
	5t4	Wing Horiz (Tie Bars)		2	3'-8"	8
North End Sec.	6c1	Rail Vertical		12	5'-11"	107
	5c3	Rail Vertical (Traffic Face)		3	3'-5"	11
	5c5	Rail Vertical (End)		4	3'-1"	13
	5d1	Rail Horiz (Back Face)		6	9'-1"	57
	5d2	Rail Horiz (Traffic Face)		3	9'-1"	28
	5d3	Rail Horiz (Traffic Face)		3	9'-6"	30
	5d4	Rail Horiz (Traffic Face)		2	6'-3"	13
	5d5	Rail Horiz (Top)		2	9'-1"	19
	4t3	Rail Abut Wing Tie Bars		12	2'-0"	16
Epoxy Reinforced Total Weight (lbs)					Total	2767

Epoxy Bent Bar Details



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

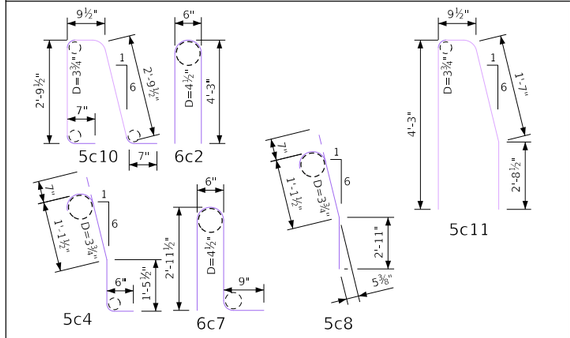
Stainless Steel Reinf. Steel - Stage 1 Bar. Rail

Section	Bar	Location	Shape	No.	Length	Weight
Std. Sec.	5c10	Vertical		118	7'-7"	933
	5c11	Vertical		6	9'-4"	58
South End Sec.	6c2	Rail, Vertical		5	9'-0"	68
	5c4	Rail Vertical (Traffic Face)		7	3'-8"	27
	5c6	Rail , Vertical (End)		8	5'-8"	47
	6c7	Rail, Vertical (Slab/Abut.)		7	7'-2"	75
North End Sec.	6c2	Rail, Vertical		12	9'-0"	162
	5c6	Rail , Vertical (End)		8	5'-8"	47
	5c8	Rail, Vertical		6	4'-8"	34
Stainless Steel Reinforced Total Weight (lbs)					Total	1446

Stainless Steel Reinf. Steel - Stage 2 Bar. Rail

Section	Bar	Location	Shape	No.	Length	Weight
Std. Sec.	5c10	Vertical		118	7'-7"	933
	5c11	Vertical		6	9'-4"	58
South End Sec.	6c2	Rail, Vertical		5	9'-0"	68
	5c4	Rail Vertical (Traffic Face)		7	3'-8"	27
	5c6	Rail , Vertical (End)		8	5'-8"	47
	6c7	Rail, Vertical (Slab/Abut.)		7	7'-2"	75
North End Sec.	6c2	Rail, Vertical		12	9'-0"	162
	5c6	Rail , Vertical (End)		8	5'-8"	47
	5c8	Rail, Vertical		6	4'-8"	34
Stainless Steel Reinforced Total Weight (lbs)					Total	1446

Stainless Bent Bar Details



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

Concrete Placement Summary - Stage 1

Standard Section	123.64 @ 0.1301 cu.yd. per ft.	16.1
End Section	2 @ 1.00 cu.yd.	2.0
Total (cu.yd.)		18.1

Concrete Placement Summary - Stage 2

Standard Section	123.64 @ 0.1301 cu.yd. per ft.	16.1
End Section	2 @ 1.00 cu.yd.	2.0
Total (cu.yd.)		18.1

Concrete Barrier Rail Quantities - Stage 1

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	142.5

Concrete Barrier Rail Quantities - Stage 2

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	142.5

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

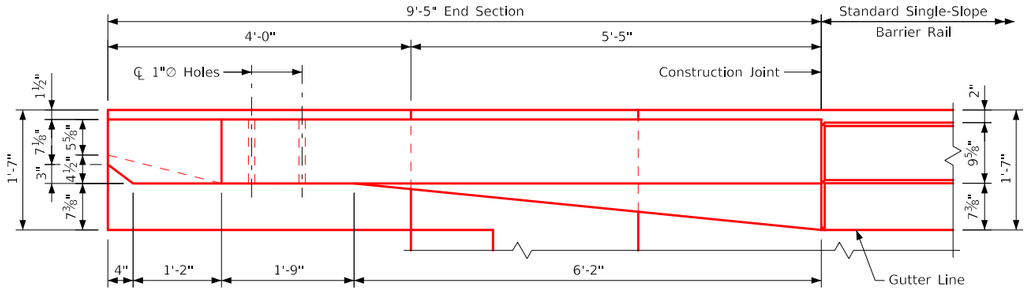
Rail Single Slope Barrier - Quantities

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

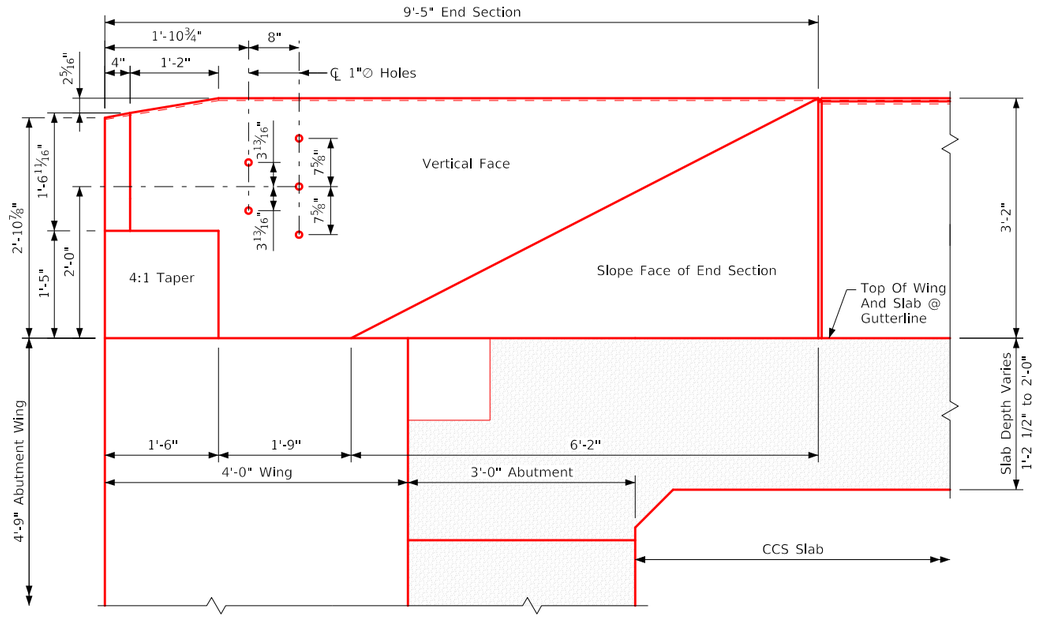
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 21 of 30 — FHWA No. 43391

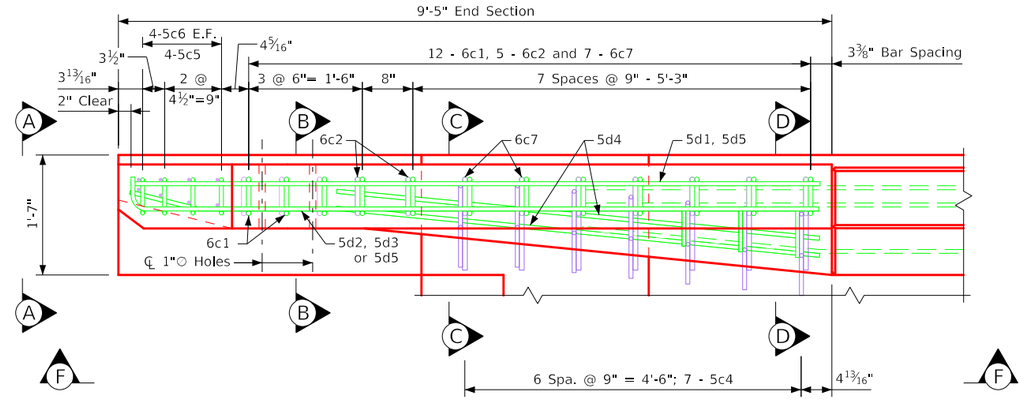


Part Plan View

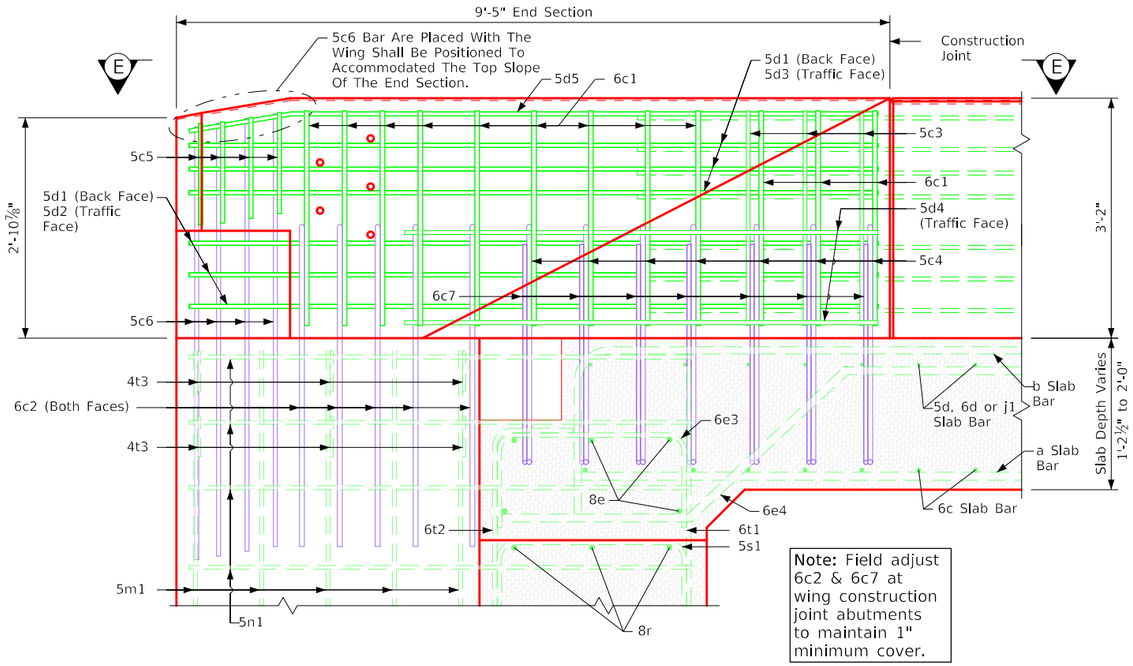
Provide five holes formed with 1" diameter plastic conduit.
Cost to be included in price of Bid for Concrete Barrier Railing.



Part Elevation View



Part View E-E



Part View F-F

Note: 4t3 placement: Six bars each at the top two rows of the 5n1 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 Design Sheet No. 10.

For View A-A and Sections B-B, C-C and D-D, See Design Sheet No. 23.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

South End Section Details (1 of 2)

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

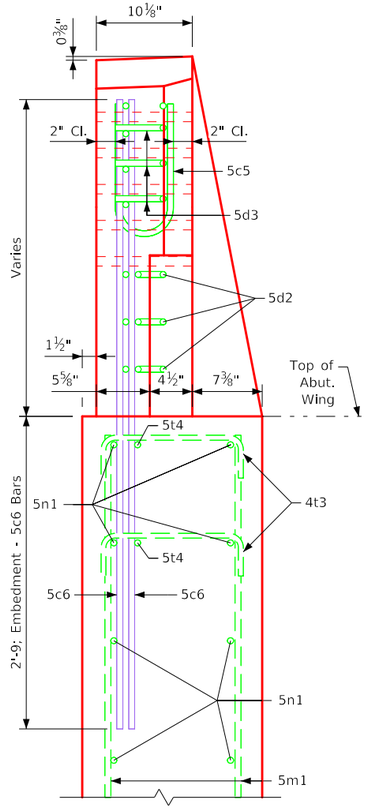
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

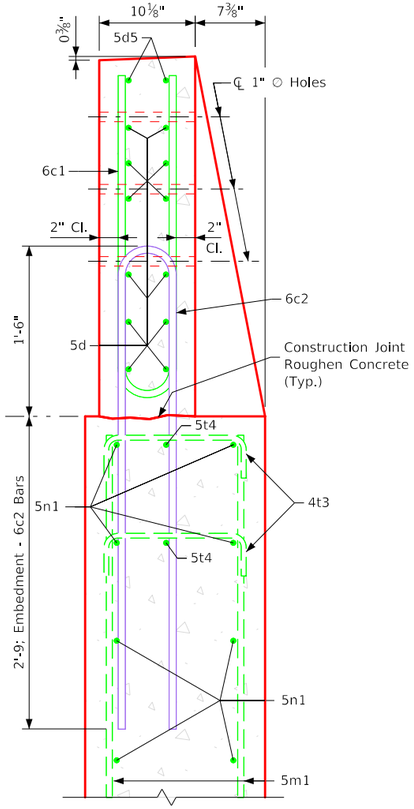
Design No. 726 — Design Sheet No. 22 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	End Section Details (1 of 2)	Standard Sheet J40-49-25	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.22	

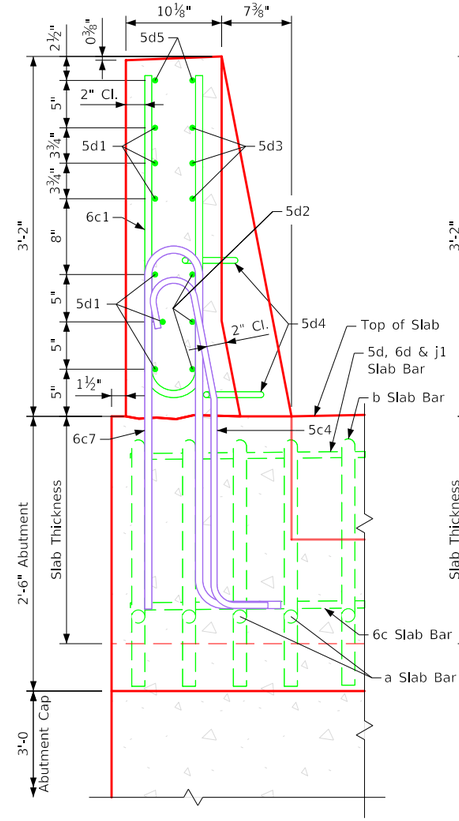
2:22:10 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



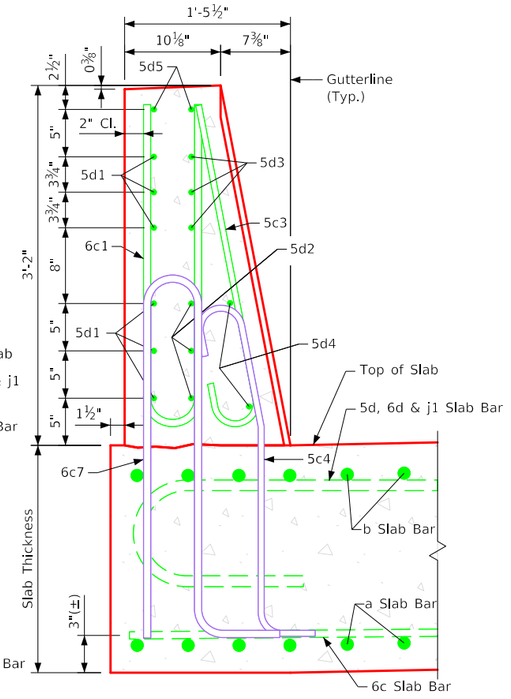
View A-A



Section B-B



Section C-C



Section D-D

Notes:

For End Section location, see Design Sheet No. 22.

For Barrier Rail End Section Quantities, see Design Sheet No. 21.

For additional barrier-to-abutment wing details, see Design Sheet No. 10.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

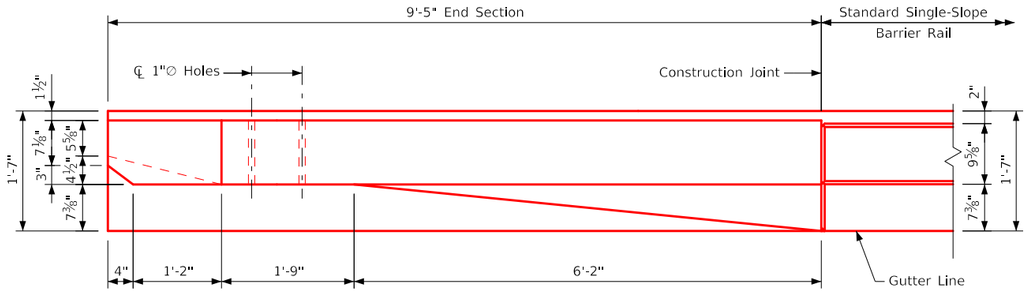
South End Section Details (2 of 2)

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

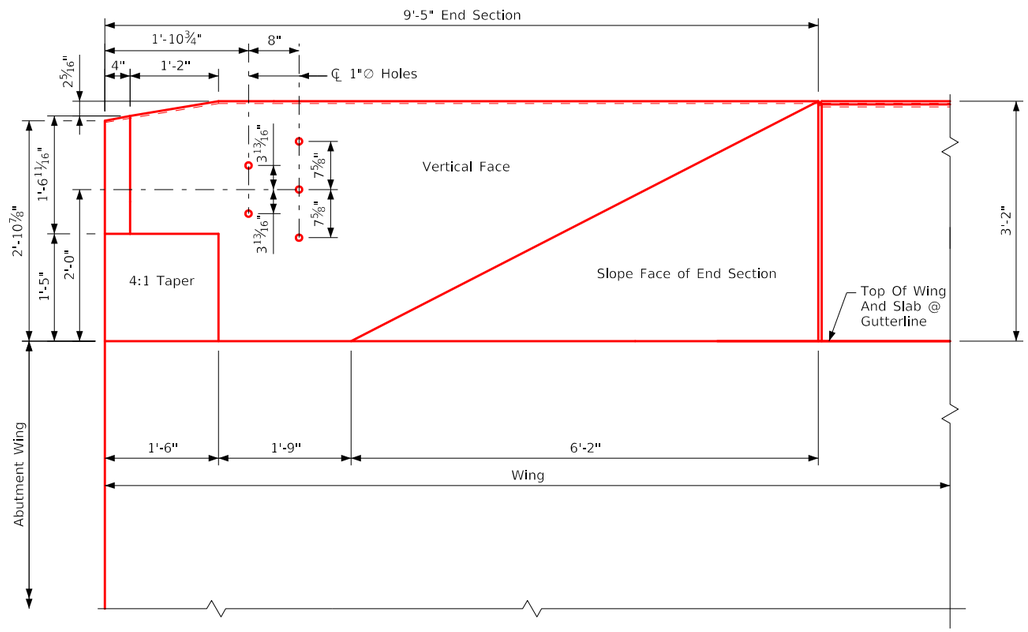
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 23 of 30 FHWA No. 43391

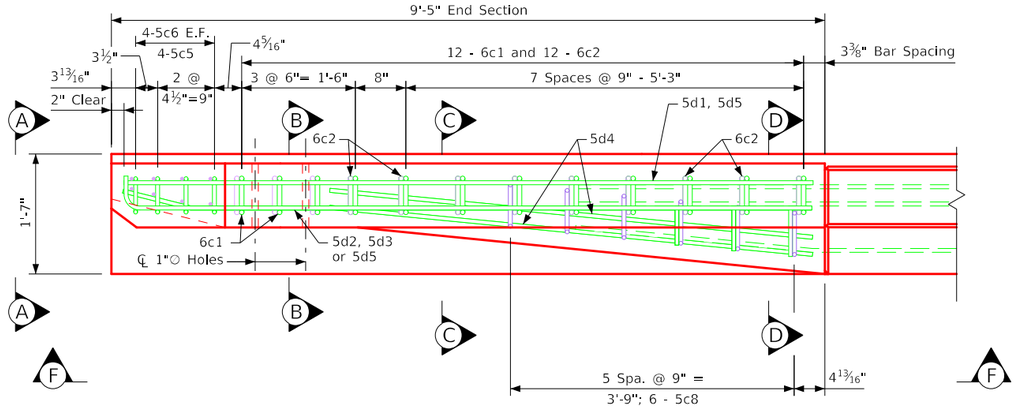


Part Plan View

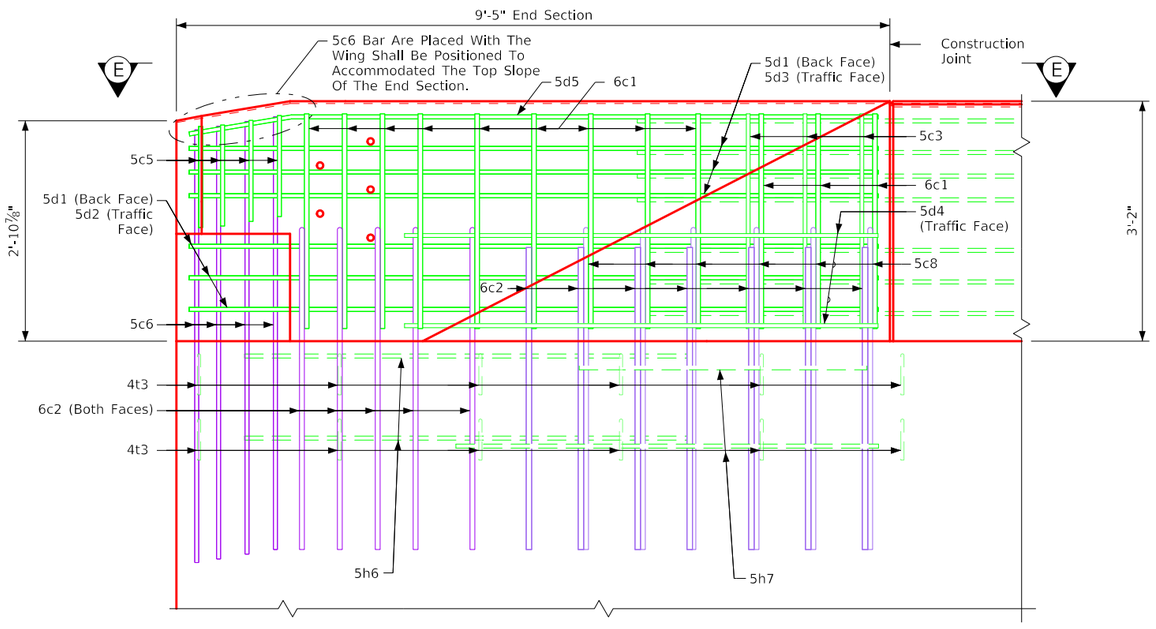
Provide five holes formed with 1" diameter plastic conduit.
Cost to be included in price of Bid for Concrete Barrier Railing.



Part Elevation View



Part View E-E



Part View F-F

Note: 4t3 placement: Six bars each at the top two rows of the 5n1 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, 5c6, 5c8, 5t5 and 4t3 bars are to be placed with the abutment wing.

Dashed lines below the top of the wing indicate abutment wing reinforcing steel. For additional details, see Design Sheet No. 17.

For View A-A and Sections B-B, C-C and D-D, See Design Sheet No. 25.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

North End Section Details (1 of 2)

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

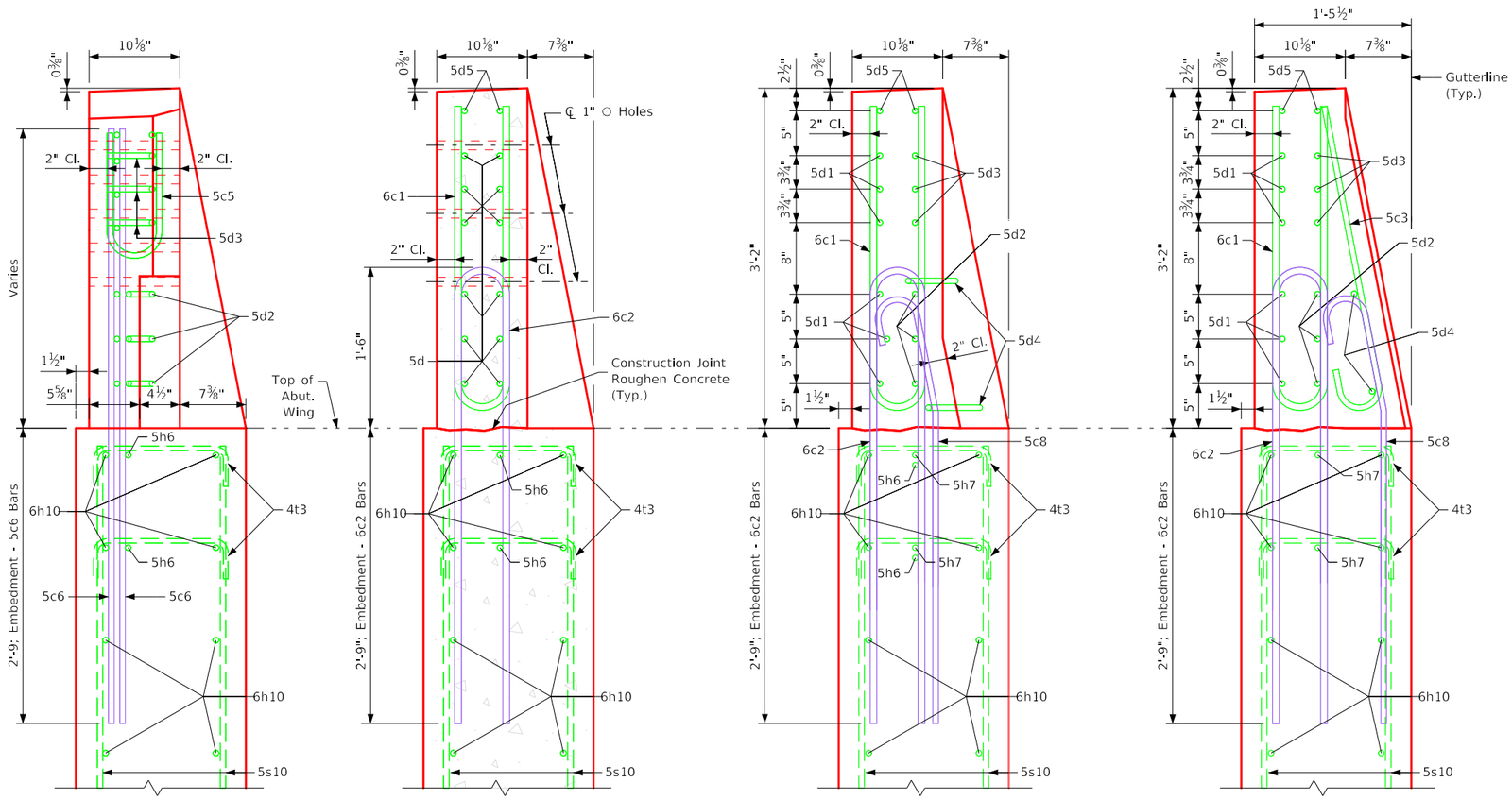
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 24 of 30 FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	End Section Details (1 of 2)	Standard Sheet J40-49-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.24	

2:22:11 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



View A-A

Section B-B

Section C-C

Section D-D

Notes:

For End Section location, see Design Sheet No. 24.

For Barrier Rail End Section Quantities, see Design Sheet No. 21.

For additional barrier-to-abutment wing details, see Design Sheet No. 17.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

North End Section Details (2 of 2)

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

Pottawattamie County

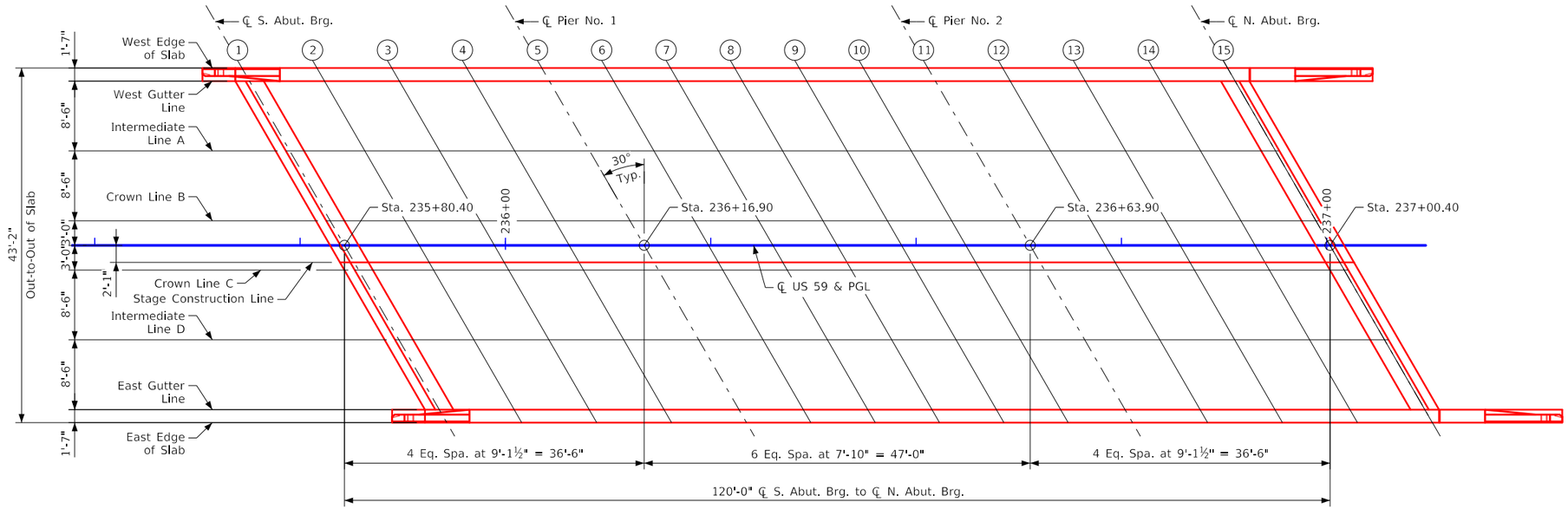
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 25 of 30 FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	End Section Details (2 of 2)	Standard Sheet J40-50-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.25	

2:22:12 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

Control Point: FD NGS monument 2 in. above ground 0.2 miles N along Hwy 59 from the intersection of Hwy 59 and 430th St. in Pottawattamie County.
Monument is 109 ft. E of CL Hwy 59 19 ft. SE of CL Rock Drive 2.3 ft. SW of a wood post and 2 ft. N of a wood post. El. 1108.54



Top of Slab Elevations Plan

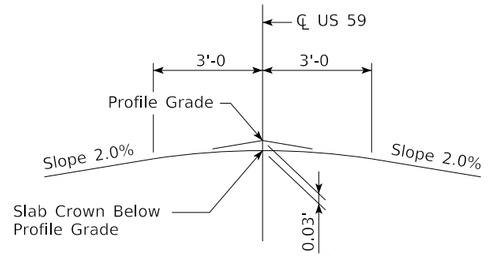


Top of Slab Elevations (Theoretical)

	℄ S. Abut. Brg.				℄ Pier 1						℄ Pier 2				℄ N. Abut. Brg.
Location	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
West Edge of Slab	1115.11	1115.13	1115.16	1115.18	1115.19	1115.21	1115.22	1115.23	1115.24	1115.25	1115.26	1115.27	1115.27	1115.27	1115.27
West Gutter Line	1115.11	1115.13	1115.16	1115.18	1115.20	1115.21	1115.22	1115.24	1115.24	1115.25	1115.26	1115.27	1115.27	1115.27	1115.27
Intermediate Line A	1115.29	1115.32	1115.34	1115.36	1115.38	1115.39	1115.40	1115.41	1115.42	1115.43	1115.43	1115.44	1115.44	1115.44	1115.44
Crown Line B	1115.48	1115.50	1115.52	1115.54	1115.55	1115.57	1115.58	1115.59	1115.60	1115.60	1115.61	1115.61	1115.61	1115.61	1115.61
Profile Grade Line	1115.51	1115.53	1115.55	1115.57	1115.59	1115.60	1115.61	1115.62	1115.63	1115.63	1115.64	1115.64	1115.64	1115.64	1115.64
Stage Construction Line	1115.50	1115.52	1115.54	1115.56	1115.58	1115.59	1115.60	1115.61	1115.62	1115.62	1115.63	1115.63	1115.63	1115.63	1115.63
Crown Line C	1115.49	1115.51	1115.53	1115.54	1115.56	1115.57	1115.58	1115.59	1115.60	1115.60	1115.61	1115.61	1115.61	1115.61	1115.61
Intermediate Line D	1115.33	1115.35	1115.37	1115.38	1115.40	1115.41	1115.42	1115.43	1115.43	1115.44	1115.44	1115.44	1115.44	1115.44	1115.44
East Gutter Line	1115.17	1115.19	1115.21	1115.22	1115.23	1115.24	1115.25	1115.26	1115.27	1115.27	1115.27	1115.27	1115.27	1115.27	1115.27
East Edge of Slab	1115.17	1115.19	1115.21	1115.22	1115.24	1115.25	1115.25	1115.26	1115.27	1115.27	1115.27	1115.27	1115.27	1115.27	1115.27

Top of Slab Elevations (Prior to Form Removal)

	℄ S. Abut. Brg.				℄ Pier 1						℄ Pier 2				℄ N. Abut. Brg.
Location	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
West Edge of Slab	1115.11	1115.16	1115.19	1115.19	1115.19	1115.23	1115.27	1115.29	1115.29	1115.27	1115.26	1115.28	1115.31	1115.30	1115.27
West Gutter Line	1115.11	1115.17	1115.19	1115.19	1115.20	1115.23	1115.27	1115.29	1115.29	1115.27	1115.26	1115.28	1115.31	1115.30	1115.27
Intermediate Line A	1115.29	1115.35	1115.38	1115.37	1115.38	1115.41	1115.45	1115.47	1115.47	1115.45	1115.43	1115.46	1115.48	1115.48	1115.44
Crown Line B	1115.48	1115.53	1115.56	1115.55	1115.55	1115.59	1115.62	1115.64	1115.64	1115.62	1115.61	1115.63	1115.65	1115.65	1115.61
Profile Grade Line	1115.51	1115.56	1115.59	1115.59	1115.59	1115.62	1115.66	1115.68	1115.67	1115.65	1115.64	1115.66	1115.68	1115.68	1115.64
Stage Construction Line	1115.50	1115.56	1115.58	1115.58	1115.58	1115.61	1115.65	1115.67	1115.66	1115.64	1115.63	1115.65	1115.67	1115.66	1115.63
Crown Line C	1115.49	1115.54	1115.56	1115.56	1115.56	1115.59	1115.63	1115.65	1115.65	1115.63	1115.61	1115.63	1115.65	1115.64	1115.61
Intermediate Line D	1115.33	1115.38	1115.40	1115.40	1115.40	1115.43	1115.46	1115.48	1115.48	1115.46	1115.44	1115.46	1115.48	1115.47	1115.44
East Gutter Line	1115.17	1115.22	1115.24	1115.24	1115.23	1115.27	1115.30	1115.32	1115.31	1115.29	1115.27	1115.29	1115.31	1115.30	1115.27
East Edge of Slab	1115.17	1115.22	1115.24	1115.24	1115.24	1115.27	1115.30	1115.32	1115.31	1115.29	1115.27	1115.29	1115.31	1115.30	1115.27



Crown Template

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Top of Slab Elevations

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

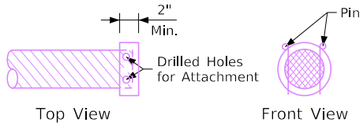
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 26 of 30 — FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.26	

2:22:12 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

Control Point: FD NGS monument 2 in. above ground 0.2 miles N along Hwy 59 from the intersection of Hwy 59 and 430th St. and 430th St. in Pottawattamie County monument is 109 ft. E of CL Hwy 59 19 ft. SE of CL Rock Drive 2.3 ft. SW of a wood post and 2 ft. N of a wood post. El. 1108.54



Removable Rodent Guard Details

Subdrain Notes:

This plan sheet shows details for placing all subdrains and subdrain outlets required for this structure.

The Bridge Contractor is responsible for installing subdrains behind the abutment. The subdrains shall be 4"Ø and shall be in accordance with Article 4143.01, B, of the Standard Specifications.

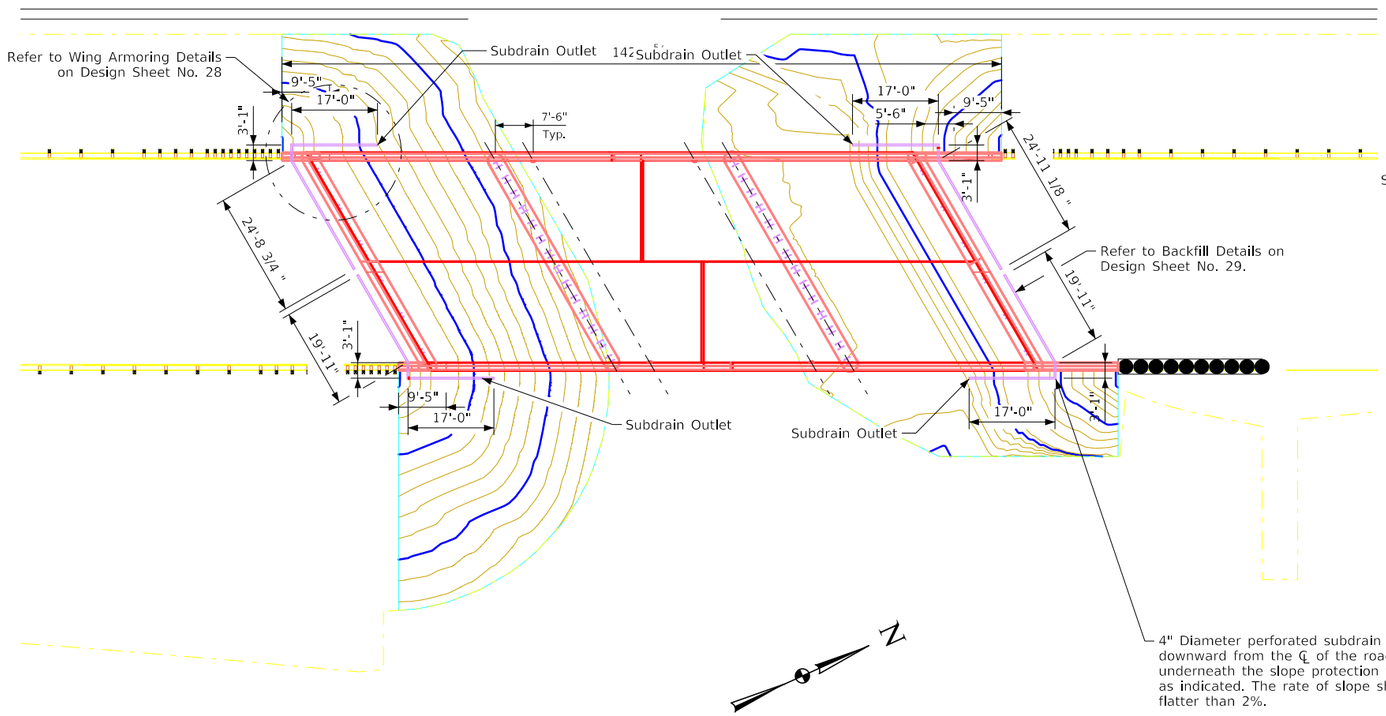
The subdrain outlet shall consist of a length of pipe with a removable rodent guard as detailed on this sheet. The length of the outlet pipe shall be determined by the revetment and it's placement location. The Contractor is to insure the outlet pipe is adequately strong enough and will not be damaged when revetment is placed. A check will be made at the subdrain outlet to insure that the subdrain is not damaged and is draining properly during the backfill flooding process. If a metal outlet pipe is used, it shall be 6"Ø and coupled to the 4"Ø subdrain in one of the two following ways.

-Use an inside fit reducer coupler (coupler must be inserted a minimum of 1'-0" into the metal outlet pipe).

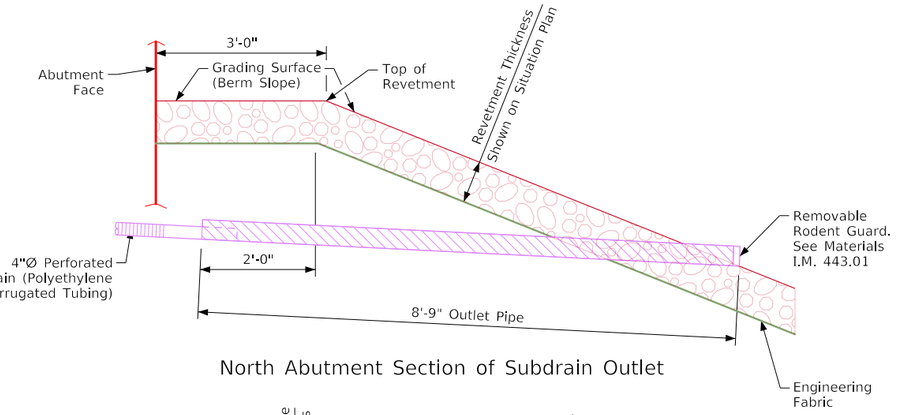
-Insert 1'-0" of the 4"Ø subdrain into the 6"Ø metal outlet pipe, then fully seal the entire opening with grout.

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

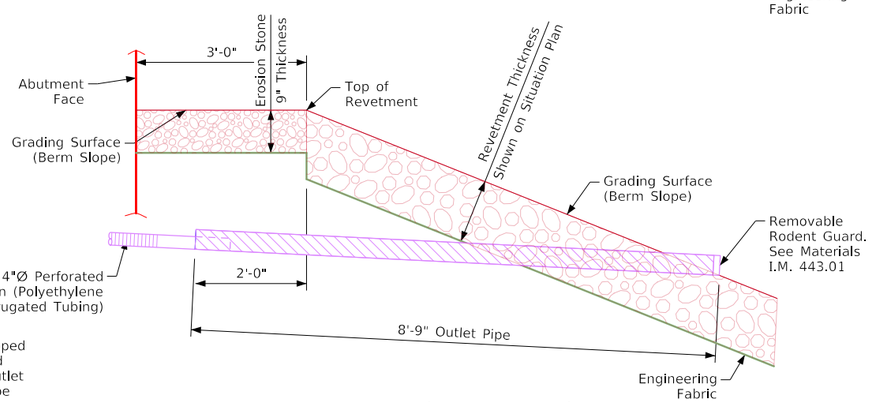
The dimensions shown for the proposed subdrains are based on the proposed grading layout of bridge berms. The dimensions shown are for estimating only. Required lengths and general locations of subdrains are subject to change due to field adjustments of the grading layout.



Situation Plan



North Abutment Section of Subdrain Outlet



South Abutment Section of Subdrain Outlet

Subdrain Outlet Elevations	
Location	Elevation
Southwest Corner	1109.25
Southeast Corner	1109.25
Northwest Corner	1104.54
Northeast Corner	1104.54

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

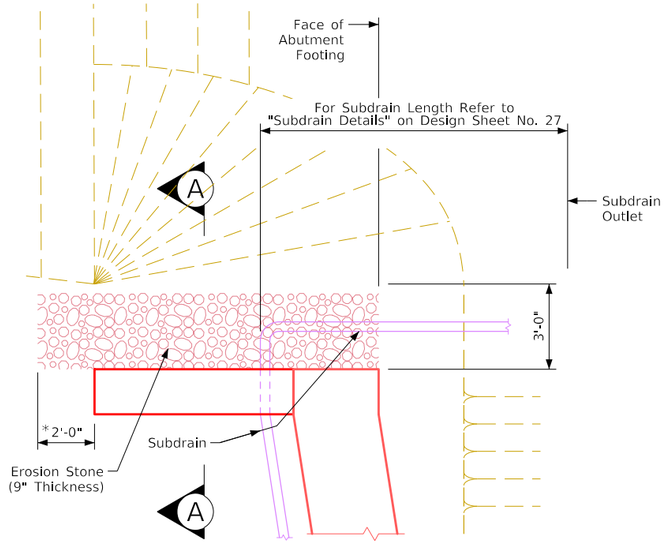
Subdrain Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

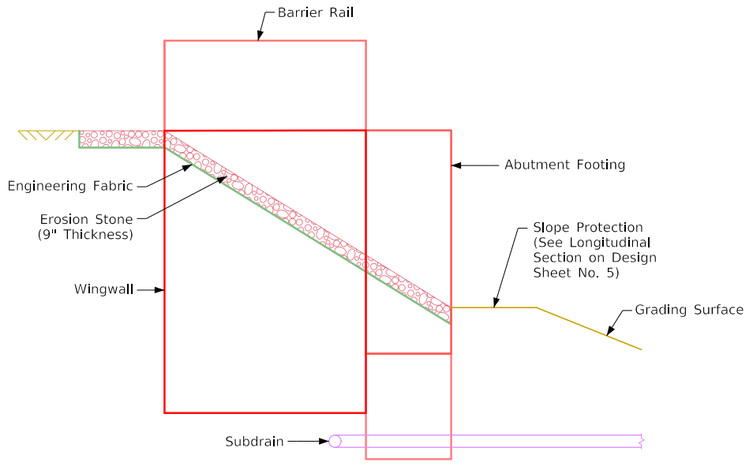
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 27 of 30 — FHWA No. 43391

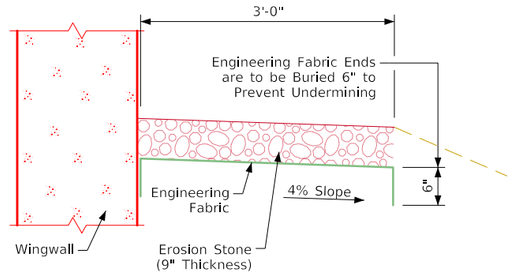


Plan View of Wing Armoring

*Revetment stone at north end of bridge to have same end treatment.



Elevation View of Wing Armoring



Section A-A

General Notes:

Erosion stone shall be placed along the sides of the wings and abutment footing as shown in Section A-A. This is typical at each corner of the bridge unless otherwise noted in the plans. The erosion stone at these locations shall be underlayed with engineering fabric in accordance with Article 4196.01, B, 3, of the Standard Specifications.

The erosion stone shall be in accordance with Section 4130, of the Standard Specifications. Material passing the 3 inch screen but 100% retained on a 1 inch screen may be used as choke stone.

The erosion stone shall be deposited, spread, consolidated and shaped by mechanical or hand methods that will provide uniform 9 inch depth and density and provide uniform surface appearance.

Payment for the bridge wing armoring will be bid per square yard. Cost will include engineering fabric, erosion stone, excavation, shaping, and compaction to dimensions shown in these plans. Bid item shall be "Bridge Wing Armoring - Erosion Stone".

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans 47'-0" Center Span

Bridge Wing Armoring

STA. 236+40.4 (U.S. 59) Turn-in Date: August 2026

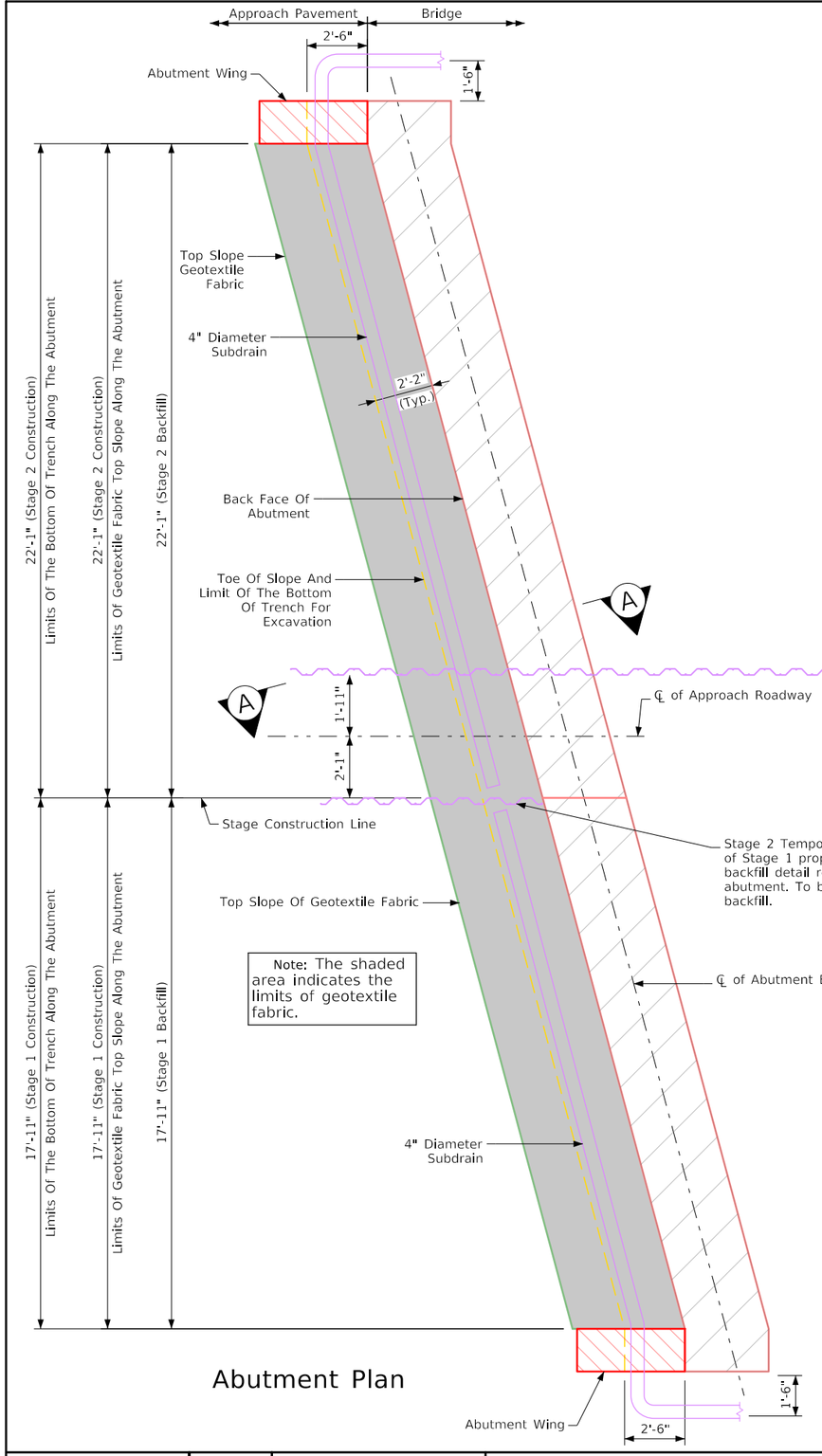
Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 Design Sheet No. 28 of 30 FHWA No. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Wing Protection & Macadam Stone Details	Standard Sheet J40-54-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.28	

2:22:14 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn



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.

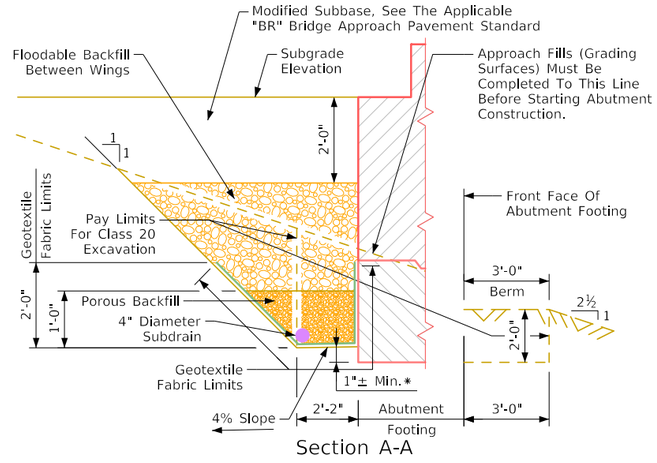
Water used for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric at the bridge abutments will not be measured separately for payment. The cost of this water shall be included in the contract unit price bid for "Structural Concrete (Bridge)".

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 Design Sheet No. 27.

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

Backfill Details

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

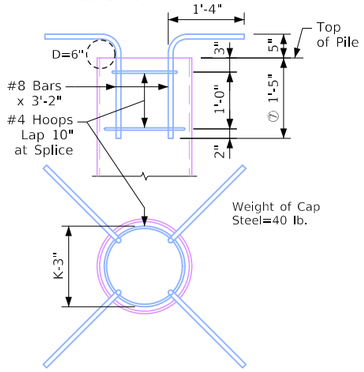
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 29 of 30 — FHWA No. 43391

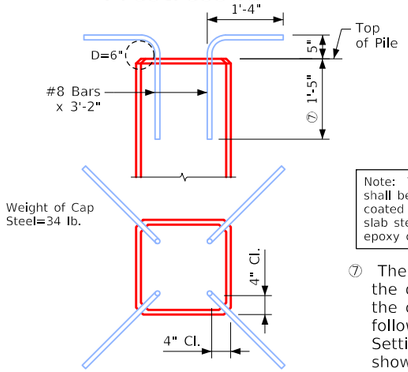
FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch	Backfill Details	Standard Sheet J40-56-25 (Modified)	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER V.29	

2:22:14 PM 9/10/2026 ksnider pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Bridge\(052)_Bridge-Unspecified\SHT_78059052_726_43391_SPN.dgn

Cast in Place



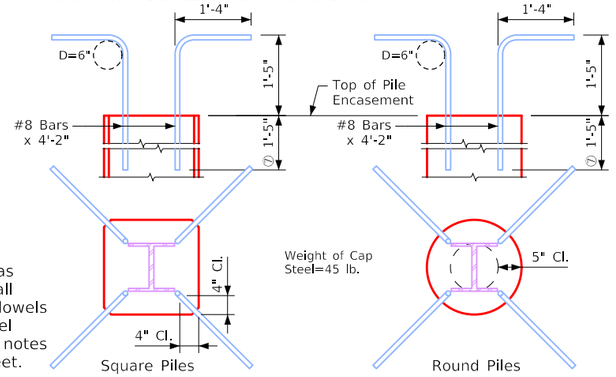
Prestressed



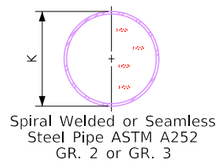
Note: The #8 bars shall be epoxy coated when the slab steel is epoxy coated.

⑦ The Contractor has the option to install the cap steel as dowels following the Dowel Setting Procedure notes shown on this sheet.

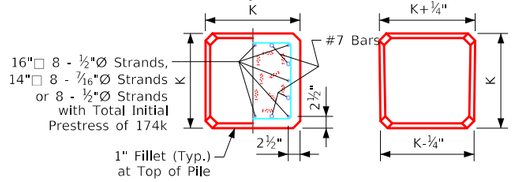
Concrete Encased Steel H Pile



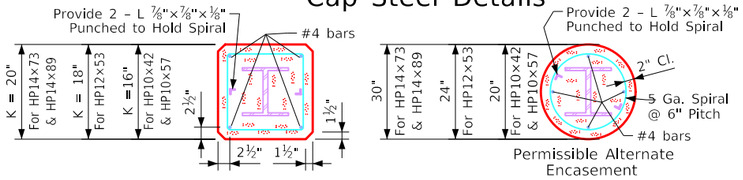
Cap Steel Details

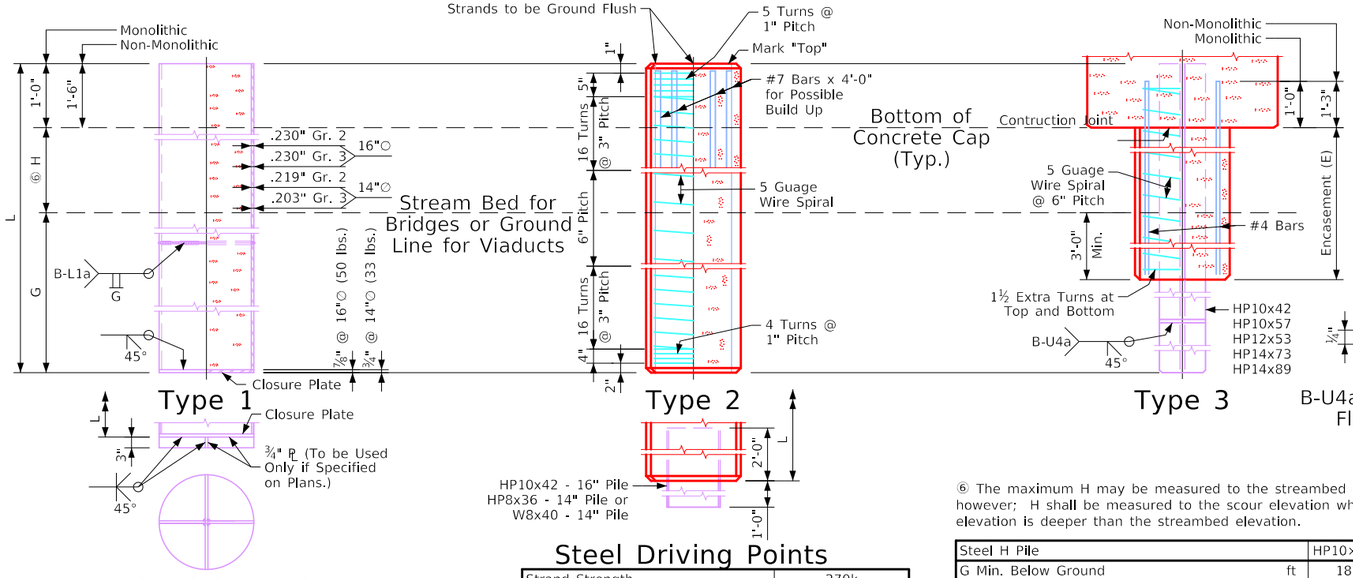


Cap Steel Details



Cap Steel Details





Steel Driving Points
ASTM A36

K Dimension	in	14Ø		16Ø	
G Min. Below Ground	ft	24		27	
⑥ H Max. Above Ground	ft	18		22	
Shell ASTM A-252		Gr. 2	Gr. 3	Gr. 2	Gr. 3
Concrete (L=40')	cy	1.49	1.49	1.95	1.95
Concrete 1' Change	cy	0.0372	0.0373	0.0488	0.0488
① Wt. of Shell (L=40')	lb	1325	1231	1600	1600
Wt. of Shell 1' Change	lb	32.26	29.94	38.77	38.77
f'c	ksi	4.0	4.0	4.0	4.0
⑤ Nominal Resistance Pn	kips	119	119	137	137

① Includes Weight of Closure Plate.

Steel Driving Points

Strand Strength		270k	
K Dimension	in	14□	16□
G Min. Below Ground	ft	24	27
⑥ H Max. Above Ground	ft	18	22
Concrete (L=40')	cy	2.01	2.62
Concrete 1' Change	cy	0.050	0.066
② Reinforcing (L=40")	lb	232	280
Reinforcing 1' Change	lb	3.93	5.10
Max. L 1 Pt. Pick-Up	ft	57	60
Max. L 2 Pt. Pick-Up	ft	82	86
f'c	ksi	5.0	5.0
⑤ Nominal Resistance Pn	kips	127	146
③ Initial Prestress	kips	174	231

② Includes Prestressing Strands.
③ Increase 5% for Artificial Curing.

⑥ The maximum H may be measured to the streambed elevation, however; H shall be measured to the scour elevation when this elevation is deeper than the streambed elevation.

Steel H Pile			HP10×42	HP10×57	HP12×53	HP14×73	HP14×89
G Min. Below Ground		ft	18	18	21	24	24
⑥ H Max. Above Ground W/ Monolithic		ft	19	19	23	28	29
⑥ H Max. Above Ground W/ Non-Monolithic		ft	15	16	20	25	26
Square	Concrete (E=18')	cy	1.12	1.10	1.41	1.74	1.72
	Concrete 1' Change	cy	0.062	0.061	0.078	0.097	0.096
	④ Reinforcing (E=18')	lb	96	96	99	103	103
	④ Reinforcing 1' Change	lb	4.98	4.98	5.13	5.28	5.28
Round	Concrete (E=18')	cy	1.40	1.38	2.02	3.17	3.15
	Concrete 1' Change	cy	0.078	0.076	0.112	0.176	0.175
	④ Reinforcing (E=18')	lb	97	97	102	110	110
	④ Reinforcing 1' Change	lb	5.02	5.02	5.26	5.62	5.62
⑤ Nominal Resistance Pn		kips	154	208	192	265	324
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



Pile Handling Diagram

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".

"Nominal resistance Pn", "G", and "H" as given in tables are recommended design values for ordinary conditions, but may be modified for special conditions on any given job.

Nominal resistance Pn and pile size required shall in all cases be as specified on the plans.

Nominal resistance Pn shown are for friction resistance except for Type 3 piling where the resistance values shown could be either friction or point resistance.

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.

Cast in Place Pile Notes:

Shell thicknesses shown are minimum requirements. The method of driving steel shell piles shall be adapted to the type and thickness of shell specified. Any shells which have been improperly driven, broken or are otherwise defective shall be removed and replaced by the bridge Contractor.

All cast in place piles shall have a closure plate. Driving points shall be used if specified on the plans.

Prestressed Pile Notes:

Except as otherwise noted all exposed corners 90° or sharper shall be filleted ¾".

Driving points for prestressed piles, if called for on the plans, shall be as detailed.

Heads of prestressed piles to be finished smooth and normal to axis of pile.

Bidding Notes:

The plans shall designate the size of pile to be used. They shall also specify the type, either Type 1, Type 2, or Type 3. If the option of Type 1 or 2 is given on the plans, the Contractor shall choose the type to be used. If Type 3 is specified, Type 3 shall be used, but the Contractor may choose the shape of the encasement. It should be kept in mind that for a given size and resistance value, length may vary with the shape (square or round).

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

Type 1 piling will be bid per linear foot of pile.

Type 2 piling will be bid per linear foot of pile.

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.

Dowel Setting Procedure:

If cap steel is required for the prestressed piles, the #8 deformed bars are to be set as dowels into the piles with polymer grout in accordance with Article 2301.03, E, of the Standard Specifications or by the following procedure.

A - Drill hole approximately twice the diameter of the dowel bar and to the depth indicated.

B - Fill hole with water and allow to stand long enough to thoroughly saturate the surrounding concrete (about four hours).

C - Blow out all free water and fill hole 2/3 full of mortar.

D - Insert dowel by driving, if necessary, and manipulate or tap with a hammer to consolidate mortar and secure complete embedment.

E - Add more mortar, if necessary, to fill hole.

F - Mortar shall consist of equal parts portland cement and sand with just enough water to make a workable mix.

Approved By: _____ Bridge Engineer

Design For 30 Degree Skew RA

120' x 40' Continuous Concrete Slab Bridge

36'-6" End Spans — 47'-0" Center Span

LRFD Trestle Pile Bents (Encasement)

STA. 236+40.4 (U.S. 59) — Turn-in Date: August 2026

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 726 — Design Sheet No. 30 of 30 — FHWA No. 43391

Revised 03-2022: Updated Spiral Requirements To ASTM A1054 Grade 70 (was ASTM A82).
Revised 06-2025: Corrected Typos and Added Note. This note was missing when the sheet was updated and re-issued on 11-2023 (the note was on the previous version of this sheet).
MiscellaneousBridges.dgn - P10L - This Sheet Re-issued 11-2023. Sheet Format Update.

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

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
XINYI JIANG
P29458
IOWA

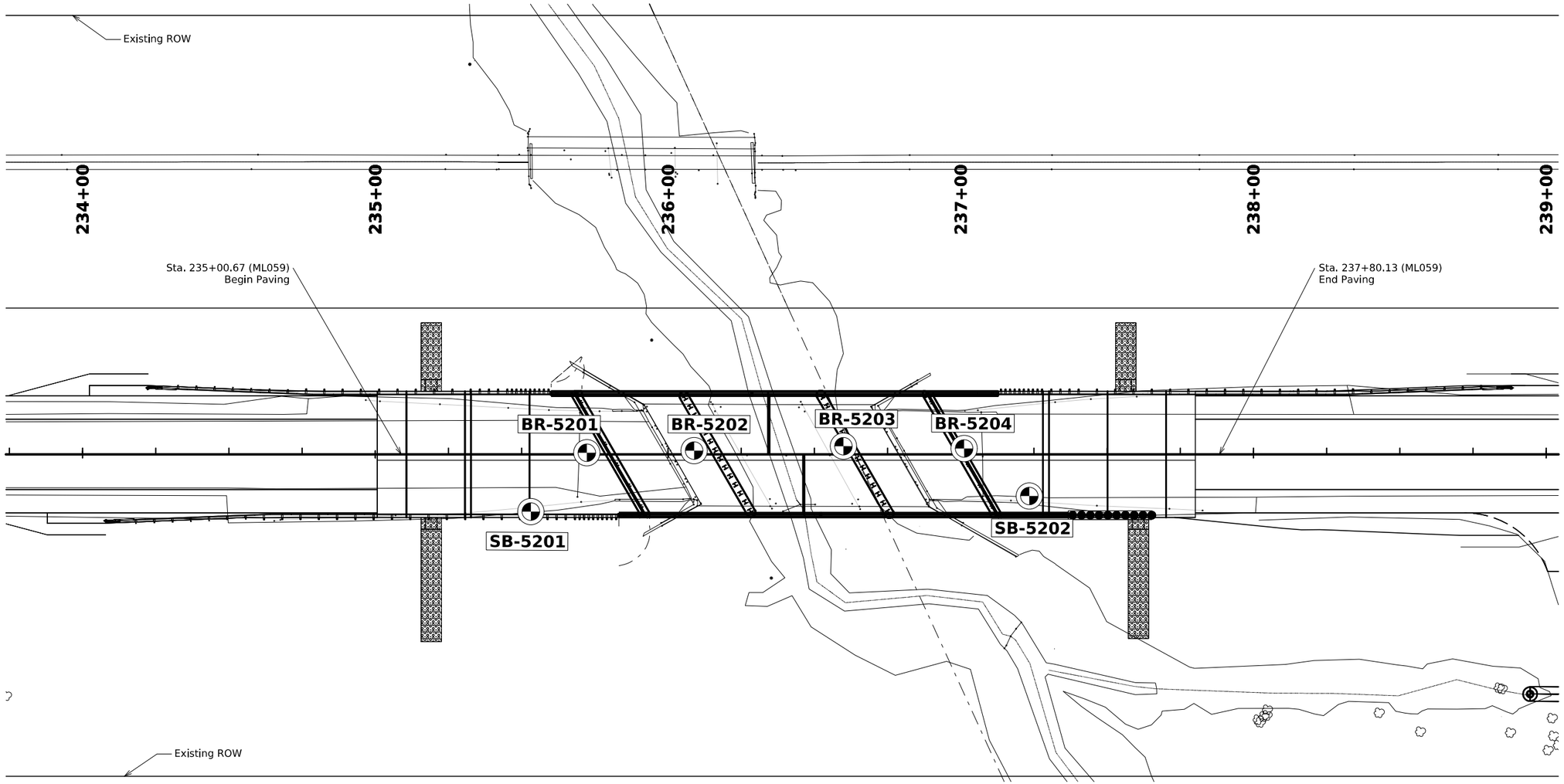
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — April 21, 2025 Date

Xinyi Jiang
Printed or Typed Name

My license renewal date is December 31, 2026

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



Location

US 59 over stream
T-76N R-39W
Section 18
Valley Township
Pottawattamie County
FHWA No. 43391
Bridge Maint. No. 7856.0S059
Latitude 41.378998°
Longitude: -95.370799°

Design For 30° Skew RA

120' x 40' Continuous CONCRETE SLAB BRIDGE

36'-6" End Span 47'-0" Interior Span

Soil Profile Sheet

STA. 236+40.4 (U.S. 59)

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 1 OF 2 DESIGN NO. 726 FHWA NO. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch / IowaDOT / Braun Intertec	Pottawattamie COUNTY	PROJECT NUMBER BRF-059--3(52)--38--78	SHEET NUMBER SPS.1	REVISED

3:30:20 PM 4/21/2025 ILudwig pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Soils\SPS sheets\SPS1.dgn

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

Table 4. Groundwater Observations Summary

Boring	Observation Depth while Drilling (ft)	Approximate Elevation (ft)
BR-5201	NA*	NA
BR-5202	NA*	NA
BR-5203	NA*	NA
BR-5204	NA*	NA
SB-5201	24.0	1091.0
SB-5202	26.0	1089.4

*Groundwater Level obscured due to mud rotary drilling.

EXISTING GROUND

(A)-DARK BROWN, SANDY CLAY, TRACE SAND (FILL)
(B)-GRAY, SOFT TO VERY STIFF, CLAY, TRACE SAND (ALLUVIUM)
(C)-GRAY, MEDIUM DENSE, FINE TO MEDIUM GRAINED, CLAYEY SAND (GLACIAL OUTWASH)
(D)-BROWN AND GRAY, MEDIUM DENSE, FINE TO COARSE-GRAINED, POORLY GRADED GRAVEL (GLACIAL OUTWASH)
(E)-GRAY, STIFF TO VERY STIFF, SANDY CLAY, WITH GRAVEL (GLACIAL TILL)
(F)-GRAY, VERY STIFF TO HARD, SANDY CLAY, TRACE GRAVEL (GLACIAL TILL)
(G)-GRAY, MEDIUM DENSE, FINE TO MEDIUM-GRAINED, CLAYEY SAND, TRACE GRAVEL (GLACIAL TILL)
(H)-GRAY, STIFF TO VERY STIFF, SANDY CLAY, TRACE GRAVEL (GLACIAL TILL)
(I)-TAN, SOFT, HIGHLY WEATHERED, SHALE

(A)-DARK BROWN, HIGH PLASTICITY CLAY, TRACE SAND (FILL)
(B)-DARK GRAY, HIGH PLASTICITY CLAY, TRACE SAND (FILL)
(C)-DARK GRAY, MEDIUM TO STIFF, CLAY, TRACE SAND (ALLUVIUM)
(D)-GRAY AND BROWN, LOOSE TO MEDIUM DENSE, FINE TO COARSE-GRAINED, POORLY GRADED SAND WITH CLAY, TRACE SAND (ALLUVIUM)
(E)-GRAY, MEDIUM DENSE, CLAYEY SAND, TRACE SAND (GLACIAL TILL)

(A)-CONCRETE
(B)-AIR
(C)-OVERBURDEN
(D)-LIGHT GRAY, SOFT, CLAY, TRACE SAND (ALLUVIUM)
(E)-BROWN, VERY DENSE, FINE TO MEDIUM-GRAINED, CLAYEY SAND, TRACE GRAVEL (GLACIAL OUTWASH)
(F)-GRAY, VERY STIFF, CLAY WITH SAND, TRACE GRAVEL (GLACIAL TILL)
(G)-GRAY, STIFF TO VERY STIFF, SANDY CLAY, TRACE GRAVEL (GLACIAL TILL)
(H)-GRAY, STIFF TO VERY STIFF, SANDY CLAY, TRACE GRAVEL (GLACIAL TILL)
(I)-TAN, SOFT, HIGHLY WEATHERED, SHALE
(J)-MODERATELY WEATHERED, LIMESTONE
(K)-DARK GRAY, SOFT, MODERATELY WEATHERED, SHALE

(A)-CONCRETE
(B)-AIR
(C)-OVERBURDEN
(D)-GRAY, VERY SOFT, SANDY SILT (ALLUVIUM)
(E)-GRAY, MEDIUM DENSE, FINE TO MEDIUM-GRAINED, POORLY GRADED SAND WITH SILT (ALLUVIUM)
(F)-GRAY, MEDIUM DENSE FINE TO DENSE, FINE TO MEDIUM-GRAINED, CLAYEY SAND WITH GRAVEL (GLACIAL OUTWASH)
(G)-GRAY, MEDIUM DENSE, FINE TO MEDIUM-GRAINED, CLAYEY SAND, (GLACIAL TILL)
(H)-GRAY, VERY STIFF TO HARD, SANDY CLAY WITH SAND, (GLACIAL TILL)
(I)-HIGHLY WEATHERED SHALE
(H)-DECOMPOSED, VERY SOFT, SHALE

(A)-CONCRETE
(B)-DARK BROWN, HIGH PLASTICITY CLAY, TRACE ORGANIC (FILL)
(C)-BROWN AND GRAY, MEDIUM TO STIFF, SANDY CLAY, (ALLUVIUM)
(D)-BROWN AND GRAY, VERY LOOSE, FINE-GRAINED, CLAYEY SAND, (ALLUVIUM)
(E)-BROWN AND GRAY, LOOSE, FINE TO MEDIUM-GRAINED, POORLY GRADED SAND, (ALLUVIUM)
(F)-BROWN AND GRAY, DENSE, FINE TO MEDIUM-GRAINED, POORLY GRADED SAND WITH CLAY, (GLACIAL OUTWASH)

(A)-CONCRETE
(B)-DARK BROWN, CLAY TRACE SAND, (FILL)
(C)-GRAY TO DARK GRAY, HIGH PLASTICITY CLAY, TRACE SAND, (FILL)
(D)-BROWN, STIFF, SILT WITH SAND, (ALLUVIUM)
(E)-BROWN, LOOSE TO VERY LOOSE, FINE TO MEDIUM-GRAINED, POORLY GRADED SAND, (ALLUVIUM)
(F)-GRAY, MEDIUM DENSE, FINE TO MEDIUM-GRAINED, POORLY GRADED SAND WITH GRAVEL (GLACIAL OUTWASH)
(G)-GRAY, VERY STIFF, SANDY CLAY WITH GRAVEL, (GLACIAL TILL)
(H)-GRAY, MEDIUM DENSE, FINE TO MEDIUM-GRAINED, CLAYEY SAND, TRACE GRAVEL, (GLACIAL OUTWASH)

Layer	Thickness
A	3.0'
B	5.0'
C	19.0'
D	11.0'
E	7.0'

SB-5201
RT.20'

Layer	Thickness
A	1.5'
B	3.5'
C	10.0'
D	5.0'
E	10.0'
F	5.0'
G	5.0'
H	5.0'

SB-5202
RT.14'

Layer	Thickness
A	13.0'
B	20.0'
C	4.0'
D	5.0'
E	46.0'
F	12.0'

BR-5201
LT.1'

Layer	Thickness
A	1.2'
B	11.8'
C	12.0'
D	8.0'
E	5.0'
F	5.0'
G	5.0'
H	55.0'
I	5.0'
J	5.0'
K	5.0'

BR-5202
LT.1'

Layer	Thickness
A	0.8'
B	9.5'
C	3.2'
D	14.5'
E	5.0'
F	20.0'
G	50.0'
H	5.6'

BR-5203
LT.3'

Layer	Thickness
A	0.2'
B	13.3'
C	6.5'
D	5.0'
E	7.0'
F	3.0'
G	10.0'
H	58.0'
I	1.0'

BR-5204
LT.2'

Rock Core Table

Sample Number	Boring Number	Run No.	Elevation (ft)	Unconfined Compressive Strength (psi)	Moisture (%)	Dry Density (pcf)	Rock Type
BR-5202-1	BR-5202	1	1007.6	2129	6	152	Limestone
BR-5202-2	BR-5202	1	1002.6	1625	11	129	Shale

ROCK CORE INFORMATION

Boring	Approx.Surf.Elevation(ft)	Run No.	Interval(ft)	Recovery(%)	RQD(%)
BR-5202	1115.6	1	108-118	99	83

SHELBY TUBE CORE DATA

CORE NO.	BR-5201-A2 (6.0'-7.5')	BR-5204-A3 (6.0'-7.5')	BR-5204-B2 (18.0'-20.0')	SB-5201-C2 (13.5'-15.0')	SB-5202-D1 (18.0'-20.0')
CLASSIFICATION (AASHTO)	-	A-7-6(10)	-	-	
COEFF. CONSOL. FT²/DAY	0.35	-	-	-	0.16
TRIAXIAL COMPRESSION	-	-	-	DS	-
COHESION, C - PSF	-	-	-	134	-
FRICTION ANGLE, ϕ - Degrees	-	-	-	31.5	-
MOISTURE CONTENT %	37	32	29	26	29
DENSITY - PCF	79	88	94	95	94
UU - UNCONSOLIDATED & UNDRAINED					
CU - CONSOLIDATED & UNDRAINED					
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)					

LEGEND

BLOW COUNT
LAYER - NO. BLOWS
B2 5

ROCK CORE
RUN NUMBER REC%RQD%
R1 100/85

WATER, DRY, PLUGGED, MOISTURE, SHELBY, BLOW COUNT, DENS. CORE, SAMPLE, DIAMOND CORE
SAND, GRAVELLY SAND, BOULDERS, SOIL REMEDIATION AREA, LIMESTONE (LS.), BROKEN & WEATHERED LS., SANDSTONE, SHALE, SANDY SOIL

234+00 235+00 236+00 237+00 238+00 239+00

Design For 30° Skew RA

120' x 40' Continuous CONCRETE SLAB BRIDGE

36'-6" End Span 47'-0" Interior Span

Soil Profile Sheet

STA. 236+40.4 (U.S. 59)

Pottawattamie County

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 2 OF 2 DESIGN NO. 726 FHWA NO. 43391

FILE NO. 32300	ENGLISH	DESIGN TEAM Benesch / IowaDOT / Braun Intertec	Pottawattamie COUNTY	PROJECT NUMBER BRF-059--3(52)--38--78	SHEET NUMBER SPS.2

3:30:48 PM 4/21/2025 lLudwig pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Soils\SPS sheets\SPS2.dgn

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	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 - 3	Estimated Project Quantities and Reference Notes
C.4	Standard Road Plans
C.5 - 12	Tabulations (beg. with tab. of incidentals if needed)
CS Sheets	**Soils Tabulations**
CS.1	Soils Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 59
G Sheets	**Survey Sheets**
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. & Super for all Alignments
J Sheets	**Traffic Control and Staging Sheets**
* J.1	Traffic Control Plan
* J.1	Staging Notes Stage
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3 - 13	Staging and Traffic Control Sheets
Q Sheets	**Soils Sheets**
* Q.1	Soils Legend & Symbol Information Sheet
* Q.2 - 3	Soils Sheets US 59
R Sheets	**Erosion Control Sheets**
RC.1 - 12	Est. Quantities, PPP, General Notes and Tabulations
* RR.1 - 3	Erosion Control Legend and Symbol Information Sheet
T Sheets	**Earthwork Quantity Sheets**
T.1 - 5	Earthwork Quantity Sheets
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
U.1	Grading for Guardrail
U.2	Clearing and Grubbing
W Sheets	**Mainline Cross Sections**
* W.1 - 14	US 59

* Color Plan Sheets

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
Jason R. Strum
16333
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 — 7/13/2026 Date

Jason R. Strum
Printed or Typed Name

My license renewal date is December 31, 2027

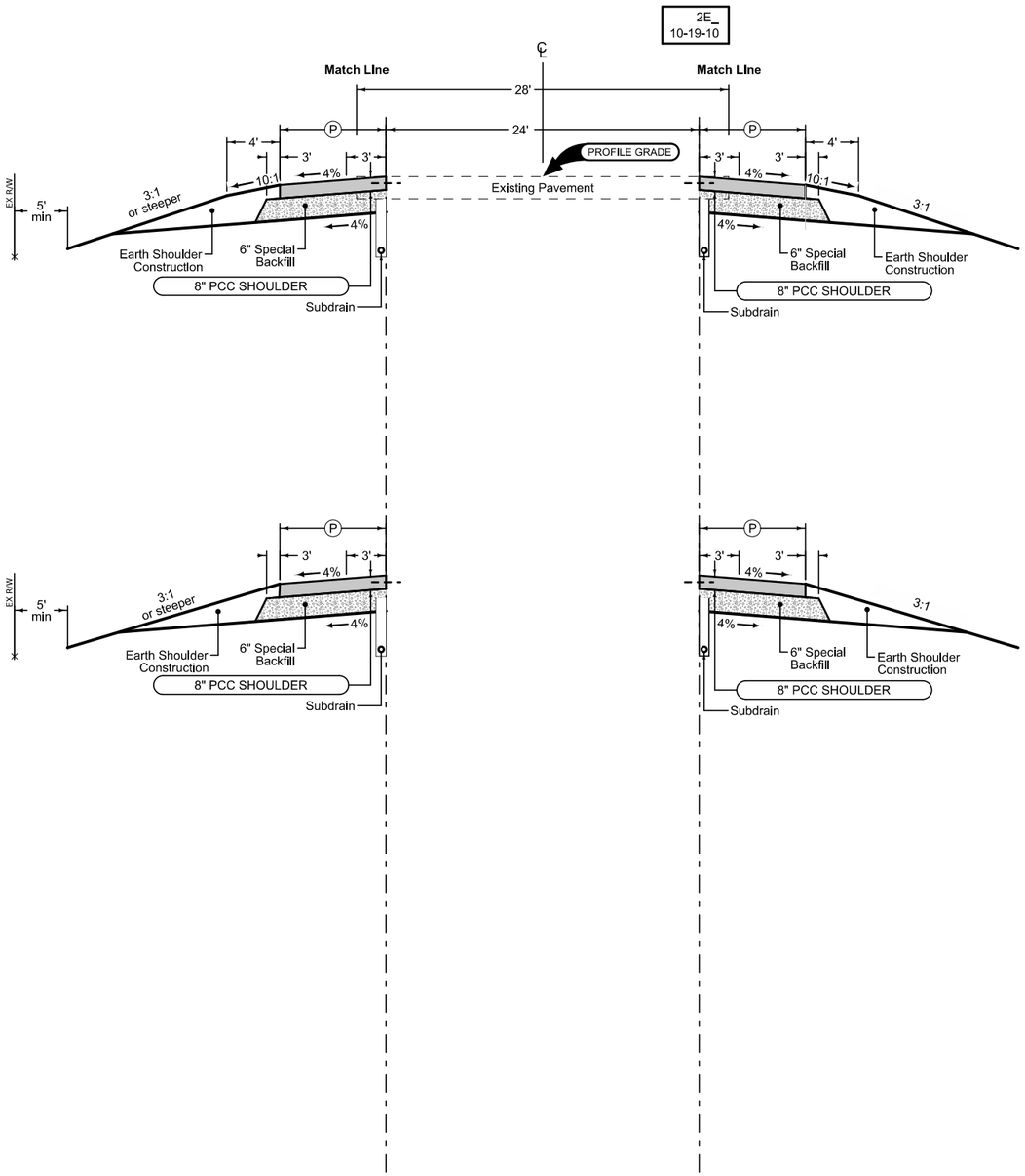
Pages or sheets covered by this seal: A.1, B.1-B.3, C.1-C.12, D.1-D.2, G.4, J.1-J.13 T.1-T.5 , U.1-U.2, W.1-W.14

2E_
10-19-10

Paved Shoulder at Guardrail

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

2_P_Guard_ 04-21-20		
STATION TO STATION		(P) Feet
234+05.63	235+00.67	Vari.
237+80.13	239+13.08	Vari.



Paved Shoulder

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

2_P_ Modified		
STATION TO STATION		(P) Feet
232+75.00	234+05.63	8
239+13.08	240+10.00	8

Paved Shoulder at Guardrail

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

2_P_Guard_ 04-21-20		
STATION TO STATION		(P) Feet
233+91.22	235+00.67	Vari.

Paved Shoulder

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

2_P Modified		
STATION TO STATION		(P) Feet
232+75.00	233+91.22	8
237+80.13	240+10.00	8

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

US 59

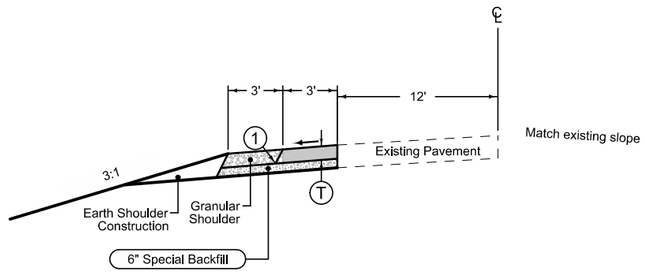
D_Detour
MODIFIED

LOCATION			DIMENSIONS				6" Special Backfill	Earth Shoulder Construction
			HMA		PCC			
ROAD IDENTIFICATION	STATION TO STATION	SIDE	(T) Inches	(SGW) Feet	(T) Inches	(SGW) Feet	Tons/Station	Station
US 59	232+25.00 to 235+69.88	LT	-	-	8	9.0		
US 59	237+07.08 to 240+55.00	LT	-	-	8	9.0		

Quantity calculations based on vertical pavement edges.

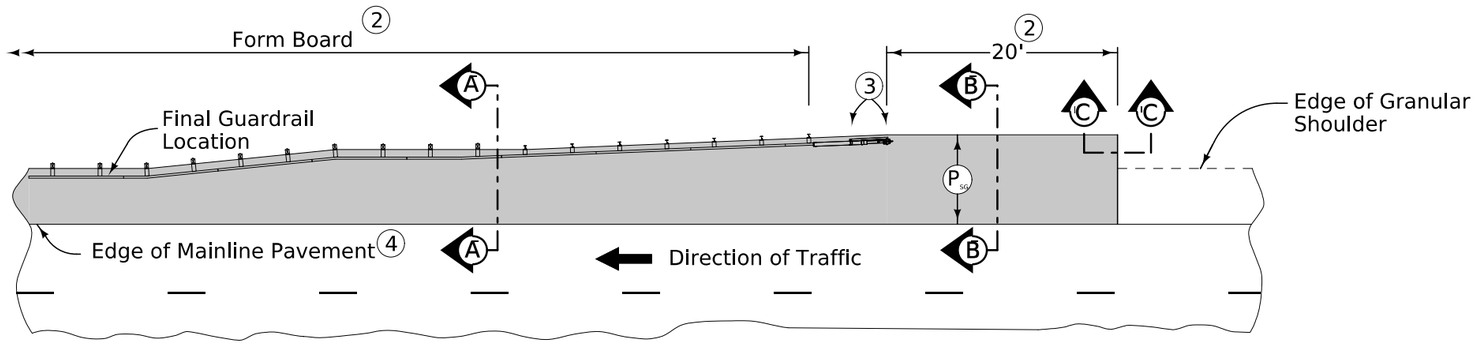
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

(1) Possible HMA 1:1 slope

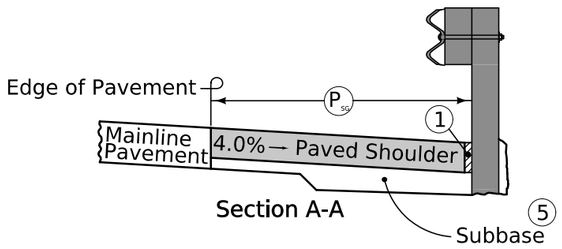


FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER B.2	

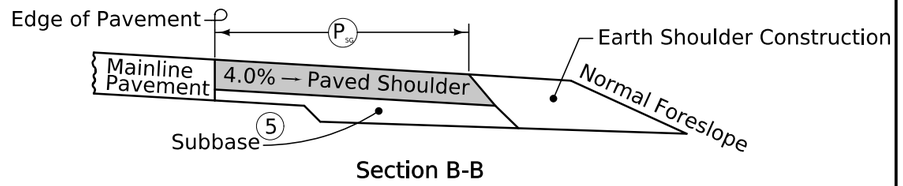
7:39:52 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_B01.dgn



PLAN VIEW

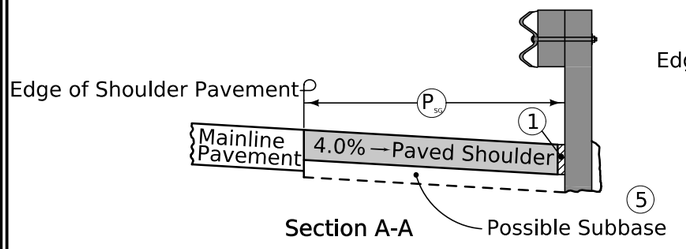


Section A-A

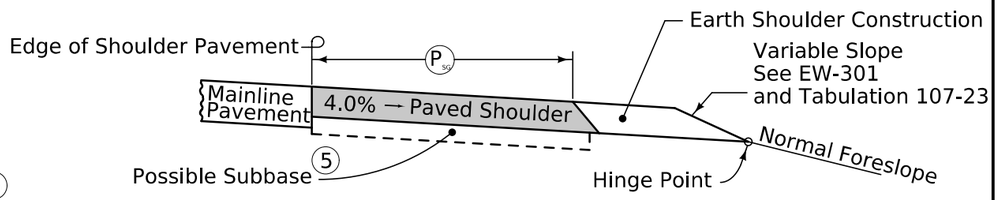


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

7156
MODIFIED

8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

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

Refer to Tabulation 112-9 for shoulder quantities.

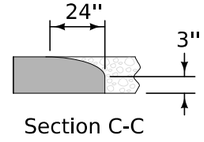
(1) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

(2) Continue paved shoulder 20 feet beyond the center of the first post.

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

(4) '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)

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.28	Refer to Sheet U.2.
2	2102-0425071	SPECIAL BACKFILL	CY	305.4	Refer to Tab. 112-9 on Sheet C.6
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1,003	Refer to T Sheets.
4	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	360	Refer to T Sheets.
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	1,369	Refer to Tab. 103-10 on Sheet CS.1 and the T Sheets. The excess topsoil can be used for Earth Shoulder Construction or spread evenly on the foreslope.
6	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	771	Refer to T sheets and Tab. 103-6 on Sheet CS.1. Cubic yards shown on the contract documents as determined by the template fill volume. Shrinkage will not be included in the moisture control quantity.
7	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	122.6	Refer to Typical D_Detour on Sheet B.2 and Tabulation 112-9 on Sheet C.6.
8	2122-5190008	PAVED SHOULDER, P.C. CONCRETE, 8 IN.	SY	1,155.7	Refer To Tab. 112-9 on Sheet C.6. Includes 385.4 SY of PCC shoulders at guardrail.
9	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	16.1	Refer to Tab. 112-9 on Sheet C.6. Requires 100.2 cu. yds. of Material for Earth Shoulder Fill (86.8 cu. yds. of topsoil and 13.4 cu. yds. of Class 10). --- Requires a minimum of 4 inches of topsoil.
10	2123-7450020	SHOULDER FINISHING, EARTH	STA	1.88	Material for the earth shoulders is included in the template quantities.
11	2301-0690205	BRIDGE APPROACH, BR-205	SY	809.45	Refer to Tab. 112-6 on Sheet C.5
12	2312-8260061	GRANULAR SURFACING ON ROAD, CLASS B CRUSHED STONE	TON	22.9	Surfacing on 430th St. Quantity based on 4" thickness.
13	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK AND/OR APPROACHES	SY	1,053.6	Refer to Tab. 100-28 on Sheet C.5.
14	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	1,151.1	Refer to Tab.104-9 on Sheet CS.1.
15	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	8	
16	2503-0500401	BRIDGE END DRAIN, DR-401	EACH	4	Refer to Tab.104-8A on sheet C.7.
17	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	472	Refer to Tab 110-7A on Sheet C.8.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
18	2505-4008300	STEEL BEAM GUARDRAIL	LF	237.5	Refer to Tab. 107-23 on Sheet C.9.
19	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	3	
20	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	3	
21	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	3	
22	2505-6765006	REMOVE AND REINSTALL FORMED STEEL BEAM GUARDRAIL	LF	236	Refer to Tab 110-7A on Sheet C.8. The intent of this work is to remove and reinstall only the steel beam guardrail for placement of pavement. Carefully remove and stockpile steel beam guardrail for reinstallation. The Contractor has the option to leave the posts in place, or to remove and reinstall the posts at no additional cost to the Contracting Authority. Replace steel beam rail and posts damaged by the Contractor's operations at no additional cost to the Contracting Authority. Posts, delineators, and object markers are to remain in place. Replace posts, delineators, and object markers damaged by the Contractors operations at no additional cost to the Contracting Authority. Ensure that all posts are firm and plum prior to reinstalling the guardrail. Restore the area disturbed by removal and reinstallation operations to an acceptable condition. Method of Measurement: Measurement will be in linear feet, measured along the front of the rail, of steel beam guardrail (includes W-beam and Thrie-beam guardrail) removed and reinstalled. Basis of Payment: Payment will be at the contract unit price per linear foot of steel beam guardrail removed and reinstalled. Payment includes all labor, equipment, and materials required to remove and reinstall the steel beam guardrail.
23	2510-6745850	REMOVAL OF PAVEMENT	SY	1,350.7	Refer to Tabs.110-1 and 102-5 on Sheet C.8.
24	2519-3300600	FENCE, SAFETY	LF	685	Refer to D sheet for placement. Method of Measurement: Linear feet constructed measured along the fence at the bottom. Basis of Payment: Per linear foot. Item includes removal at the end of the project.
25	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	64.39	Refer to Tab. 108-22 on Sheet C.11-C.12.
26	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	128.39	
27	2527-9263212	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	STA	27.38	
28	2527-9263231	REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE	STA	30.59	

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
29	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	30.75	
30	2528-2518000	SAFETY CLOSURE	EACH	5	Refer to Tab. 108-13A on Sheet C.10.
31	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	1,900	Refer to Sheet J.6, J.11, and Tab. 108-33 on Sheet C.10.
32	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	2	Refer to Tab. 108-28 on Sheet C.10.
33	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on Sheet J.1.
34	2551-0000110	TEMP CRASH CUSHION	EACH	4	Refer to Tab. 108-30 on Sheet C.10.
35	2551-0000230	PERMANENT CRASH CUSHION, SEVERE USE (SU)	EACH	1	
36	2595-0005135	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR IOWA INTERSTATE RAILROAD LLC	LS	1	

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	10/20/2026	Steel Beam Guardrail Components
BA-201	10/18/2022	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10/20/2026	Steel Beam Guardrail Bolted End Anchor
BA-203	10/15/2019	Steel Beam Guardrail W-Beam End Anchor
BA-205	10/17/2023	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10/20/2026	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-401	4/20/2021	Temporary Barrier Rail (Precast Concrete)
BA-500	4/20/2021	Temporary Crash Cushions Sand Barrel
BR-205	10/20/2026	Double Reinforced 12" Approach (Slab Bridge)
BR-213	10/19/2021	Bridge Approach (Abutting Pavement)
DR-303	10/17/2017	Subdrains (Longitudinal)
DR-306	10/17/2023	Precast Concrete Headwall for Subdrain Outlets
DR-401	4/16/2024	Scour Protection for Bridge End Drain
DR-601	4/18/2017	Reinforced Concrete Pipe Culvert
DR-621	4/18/2017	Pipe Extension
EW-301	4/16/2024	Guardrail Grading
PM-110	10/15/2024	Line Types
PM-115	10/20/2026	Grooving for Line Types
PV-101	10/20/2026	Joints
PV-102	10/21/2025	PCC Curb Details
PV-105	10/21/2014	PCC Pavement Widening
PV-121	10/21/2025	Jointing PCC Pavement Widening
SI-211	10/18/2022	Object Marker and Delineator Placement with Guardrail
TC-1	10/15/2019	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-61	10/21/2025	Two-Lane, Two-way Operation
TC-81	4/18/2023	Restricted Width Signing (Less Than 15.5 Feet)
TC-202	4/18/2023	Work Within 15 ft of Traveled Way
TC-217	10/20/2026	Lane Closure with Signals and TBR
TC-233	10/17/2017	Pavement Marking Operations Two-Lane

BRIDGE APPROACH SECTION

Refer to the Series.

* Not a bid item

Location				Approach Pavement					Standard Road Plans BR Series			Subdrain								
Bridge Station	End	Skew Ahead Degrees LEFT	Skew Ahead Degrees RIGHT	(T) Thickness	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area	Approach	Fixed or Movable Abutment	Abutting Pavement	* Perforated Subdrain 4"	* Subdrain Outlet		* Porous Backfill	* Class 'A' Crushed Stone Backfill	* Modified Subbase	* Polymer Grid	* Special Backfill	Remarks
				Inches	FT	SY	SY	SY				LF	STA	Side	CY	CY	TON	SY	TON	
236+40.40	South	--	30	12.0	79.3	143.6	95.7	167.2	BR-205		BR-213	57.0	235+10.67	RT	1.6	0.0	332.600	439.5		Sleeper slab included with double reinforced section
236+40.40	North	--	30	12.0	79.3	143.6	95.7	163.6	BR-205		BR-213	57.0	237+70.13	RT	1.6	0.0	327.400	433.0		Sleeper slab included with double reinforced section
				TOTAL:		287.2	191.5	330.8				114.0			3.2		660.000	872.4		

LONGITUDINAL GROOVING

Location	Total SY	Remarks
236+40.40	321.3	approach
236+40.40	411.0	bridge
236+40.40	321.3	approach
	1053.6	

PROPOSED POSTED SPEED LIMIT

Road Identification	Begin Station	End Station	Proposed Posted Speed Limit 35 or less	40 - 45	over 45	Remarks
US59	232+75.00	240+10.00			X	

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.

Calculations assume a HMA unit weight (lbs/cf) of 145, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location					Quantities																				
Road Identification	Direction Of Traffic (1)	Station to Station		Side	P Width	P_{SG} Width	G Width	L Length	Class 13 Excavation (4)	Hot Mix Asphalt		Binder	Paved Shoulder	8" PCC Shoulder at Guardrail	Reinforced Paved Shoulder	Special Backfill				Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
																HMA Alternate		PCC Alternate					STA (3)	HMA	PCC	
					FT	FT (2)	FT	FT	CY (3)	TON	TON/STA	TONS	SY (3)	SY (5)	SY (3)	CY (3)	0	CY (3)	TON/STA	CY (3)	TON (3)	TON/STA		CY (6)	CY (6)	
STG 0 8" PCC																										
US59		232+25.00	234+76.61	LT	3.0		3.0	251.6					83.9					32.406	24.342		39.303	15.621	2.5		14.0	
US59		234+76.61	235+69.88	LT	3.0		5.2 to 3	93.3					31.1					16.542	33.520		19.587	21.000	0.9		5.2	(1)
US59		237+07.08	238+34.29	LT	3.0		3 to 8.6	127.2					42.4					26.512	39.390		36.287	28.525	1.3		7.1	(1)
US59		238+34.29	240+10.00	LT	3.0		3.0	175.7					58.6					22.630	24.342		27.447	15.621	1.8		9.8	
STG 1																										
US59		232+75.00	233+91.22	RT	8.0			116.2					103.3					22.814	37.100				1.2		4.6	
US59		233+91.22	234+11.22	RT		11.5		20.0						25.6				5.481	51.800				0.2		3.0	
US59		234+11.22	234+58.95	RT		11.5 to 9.5		47.7						55.7				12.198	48.300				0.5		6.9	
US59		234+58.95	235+00.67	RT		9.5		41.7						44.0				9.889	44.800				0.4		5.9	
US59		237+80.13	240+10.00	RT	8.0			229.9					204.3					45.123	37.100				2.3			
STG 2																										
US59		232+25.00	234+05.63	LT	8.0			180.6					160.6					35.457	37.100				1.8		7.2	
US59		234+05.63	234+25.63	LT		11.5		20.0						25.6				5.481	51.800				0.2		3.0	
US59		234+25.63	234+73.36	LT		11.5 to 9.5		47.7						55.7				12.198	48.300				0.5		6.9	
US59		234+73.36	235+00.67	LT		9.5		27.3						28.8				6.473	44.800				0.3		3.8	
US59		237+80.13	238+45.38	LT		9.5		65.3						68.9				15.467	44.800				0.7		9.2	
US59		238+45.38	238+93.08	LT		9.5 to 11.5		47.7						55.7				12.190	48.300				0.5		6.9	
US59		238+93.08	239+13.08	LT		11.5		20.0						25.6				5.481	51.800				0.2		3.0	
US59		239+13.08	240+10.00	LT	8.0			96.9					86.2					19.025	37.100				1.0		3.8	
(1) Vari width granular shoulders at guardrail																										
								TOTALS:					770.3	385.4				305.367			122.623		16.1		100.2	

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

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

Location			Bid Items	Scour Protection (DR-401)			Rock Flume (DR-402)			Remarks
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	Bridge End Drain	Special Ditch Control, Wood Excelsior Mat	Turf Reinforced Mat (TRM), Type 2	Transition Mat	Macadam Stone Base	Engineering Fabric	Erosion Stone	
				EC-101	EC-104	EC-105				
		FT	TYPE	SQ	SQ	SF	TONS	SY	TONS	
236+40.40	SE	72.4	DR-401	3.2	3.5	33				
236+40.40	SW	50.5	DR-401	1.6	1.9	33				
236+40.40	NE	47.4	DR-401	3.1	3.4	33				
236+40.40	NW	75.4	DR-401	1.6	1.9	33				
			TOTAL:	9.5	10.8	132				

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
1	78	59		51.57	58.31	2012	Widen	STP-059-3(30)--2C-78	HMA	1.5	HMA	2	HMA	9							
						2012		STP-059-3(30)--2C-79	HMA	1.5	HMA	2									
						1952		FN-554	PC8	8							SACTON	GRAVEL	3		W. DSM GR.=2

110-1
04-16-13

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area SY	Saw Cut* LF	Remarks
STG 0						
232+25.00	234+76.61	LT	HMA	48.5	253.6	Shoulders
234+76.61	235+69.88	LT		66.5	93.3	Shoulders at guardrail
237+07.08	238+34.29	LT		128.0	127.2	Shoulders at guardrail
238+34.29	240+55.00	LT	HMA	41.4	222.7	Shoulders
STG 1						
235+00.00	236+00.00	RT	PC8/HMA	148.9	111.0	Includes approx. 47 SY reionforced approach pavement
236+85.00	237+80.00	RT	PC8/HMA	175.7	114.0	Includes approx. 42 SY reionforced approach pavement
232+75.00	234+49.00	RT	HMA	36.9	176.0	
234+49.00	236+00.00	RT		159.1	51.0	Shoulders at guardrail
236+90.00	238+00.00	RT		49.5	0.0	Shoulders at guardrail
237+80.00	240+10.00	RT	HMA	58.2	230.0	
STG 2						
232+75.00	235+69.94	LT	PCC	98.3	226.0	Shoulders (STG 0)
235+00.00	235+97.00	LT	PC8/HMA	113.7	10.0	Includes approx. 36 SY reionforced approach pavement
236+73.00	237+80.00	LT	PC8/HMA	125.1	10.0	Includes approx. 43.4 SY reionforced approach pavement
237+07.00	240+10.00	LT	PCC	101.0	230.0	Shoulders (STG 0)
			TOTAL:	1350.7	1854.8	

110-7A
04-17-12

REMOVAL OF STEEL BEAM GUARDRAIL

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

Location					Removal of Guardrail (2)
No.	(1) Direction of Traffic	Station to Station		Side	LF
STG0		Remove and reinstall			
1	SB	234+97.00	235+91.00	LT	94.0
2	SB	236+72.00	238+14.00	LT	142.0
		TOTAL Remove and Reinstall			**236.0**
STG 1		Remove			
1	NB	234+65.00	236+09.00	RT	144.0
2	NB	236+91.00	237+83.00	RT	92.0
STG 2					
3	SB	234+97.00	235+91.00	LT	94.0
4	SB	236+72.00	238+14.00	LT	142.0
			TOTAL Remove		**472.0**

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, 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.

Location				Layout Lengths				Long-Span System		Delineators and Object Markers (2)					Bid Items										
				BA-250, BA-260, LS-630, or LS-635														BA-250 or LS-630					BA-260 or LS-635		
No.	Direction of Traffic (1)	Side O = Outside M = Median	Station	Offset	VT1	VF	VT2	ET	BA-211		SI-211	Delineator SI-172	Object Marker SI-173			Bolted End Anchor		Post Adapter	Steel Beam Guardrail	Barrier Transition Section	End Terminal				Barrier Transition Section	End Terminal	Remarks
												Type 1	Type 2	Type 3							Tangent	Flared	Tangent	Flared		Tangent	
				FT	LF	LF	LF	LF	STATION	TYPE	TYPE	White	OM2-2	OM3-L	OM3-R	TYPE	EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
1	NB		235+86.21	20.8	128.125			47.7			3				1	D	1		87.5	1	1						
2	SB		235+63.12	20.8	90.625			47.7			3			1		D	1		50.0	1	1						
3	SB		237+05.59	20.8	140.625			47.7			3				1	D	1		100.0	1	1						
											TOTAL:						3		237.5	3	3						

GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent. Refer to EW-301

Location					Dimensions (Feet)									Earthwork		
No.	Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	Remarks
														CY	CY	
	NB	235+86.21			127.3	5.5					175.0	7.5	47.8			
	SB	235+63.12			89.7	5.5					137.5	7.5	47.8			
	SB	237+05.59			139.9	5.5					187.5	7.5	47.8			

108-30
04-16-13

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

No.	(1) Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details (2)					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V	W	X	Y	Z	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use		
										Length	Length	Length	Length	Length						
				FT						FT	FT	FT	FT	FT	CY	CY	EACH	EACH		
		STG 1																		
1		231+74.35		2.00	1														TBR	
2		241+05.65		2.00	1														TBR	
		STG 2																		
3		231+74.35		2.00	1														TBR	
4		241+05.65		2.00	1														TBR	
5		237+28.68		2.00					1										Bridge Rail End Section	
		TOTAL:			4				1											

108-33
10-15-19

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 to Station		Length	(Select One) Concrete	(Select One) Steel	Anchored*	Modular Glare Screen System	Remarks
			LF	BA-401	560-7	(Y/N)	(Y/N)	
	STG 1							
1	231+74.35	235+00.00	337.5	X		No	No	
2	235+00.00	237+80.00	287.5	X		Yes	No	
3	237+80.00	241+05.65	337.5	X		No	No	
	STG 2							
4	231+74.35	241+05.65	937.5	X		No	No	
		TOTAL:	1900.0					

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type Road Qty.	Closure Type Hazard Qty.	Remarks
STG 1 and 2			
239+20.00	1		430th St
STG 1			
235+75.00		1	
237+20.00		1	
STG 2			
235+60.00		1	
237+05.00		1	
Total	1	4	

108-28
08-01-08

TEMPORARY TRAFFIC SIGNALS

No.	Location Station	Type: One Lane Traffic	Type: Haul Road	Type: Intersection	Remarks
1	236+40.40	X			STG 1
2	236+40.40	X			STG 2

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

ELW4: Edge Line Right (White) @ 0.67 BCY4: Broken Centerline (Yellow) @ 0.17 ELW6: Edge Line Right (White) @ 1.00 BCY6: Broken Centerline (Yellow) @ 0.25 CHW8: Channelizing Line (White) @ 1.33
NPY6: No Passing Zone Line (Yellow) @ 1.25 CBW6: Crosswalk Bar (White) @ 10.00

Location								Length by Line Type (Unfactored)													Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			ELW4	BCY4*	ELW6	BCY6	CHW8	NPY6	CBW6							
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
STG 1																					
US59	229+75.00	243+05.00		PAVEMENT MARKINGS REMOVED	X			13.30													
	229+75.00	258+05.00		PAVEMENT MARKINGS REMOVED		X			28.30												
	229+75.00	235+00.00		PAVEMENT MARKINGS REMOVED			X														
	237+80.00	243+05.00		PAVEMENT MARKINGS REMOVED			X	5.25													
	229+75.00	231+40.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X					1.65									
	231+40.00	232+25.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					0.85									
	232+25.00	234+50.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X					2.25									
	234+50.00	238+30.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					3.80									
	238+30.00	240+55.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X					2.25									
	240+55.00	241+40.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					0.85									
	229+75.00	232+25.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X							2.50									
	232+25.00	234+50.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X							2.25									
	234+50.00	238+30.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X							3.80									
	238+30.00	240+55.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X							2.25									
	240+55.00	243+05.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X							2.50									
	243+05.00	258+05.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X							15.00								
	243+05.00			WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS										0.12							
STG 2																					
	229+75.00	231+40.00		REMOVAL OF REMOVABLE TAPE			X					1.65									
	231+40.00	232+25.00		PAVEMENT MARKINGS REMOVED			X					0.85									
	232+25.00	234+50.00		REMOVAL OF REMOVABLE TAPE			X					2.25									
	234+50.00	235+00.00		PAVEMENT MARKINGS REMOVED			X					0.50									
	237+80.00	238+30.00		PAVEMENT MARKINGS REMOVED			X					0.50									
	238+30.00	240+55.00		REMOVAL OF REMOVABLE TAPE			X					2.25									
	240+55.00	241+40.00		PAVEMENT MARKINGS REMOVED			X					0.85									
	229+75.00	232+25.00		PAVEMENT MARKINGS REMOVED	X							2.50									
	232+25.00	234+50.00		REMOVAL OF REMOVABLE TAPE	X							2.25									
	234+50.00	235+00.00		PAVEMENT MARKINGS REMOVED	X							0.50									
	237+80.00	238+30.00		PAVEMENT MARKINGS REMOVED	X							0.50									
	238+30.00	240+55.00		REMOVAL OF REMOVABLE TAPE	X							2.25									
	240+55.00	243+05.00		PAVEMENT MARKINGS REMOVED	X							2.50									
	229+75.00	232+25.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					2.50									
	232+25.00	234+70.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X					2.45									
	234+70.00	238+10.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					3.40									
	238+10.00	240+55.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X					2.45									
	240+55.00	243+05.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					2.50									
	232+25.00	234+70.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X							2.45									
	234+70.00	238+10.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X							3.40									
	238+10.00	240+55.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X							2.45									
	240+55.00	241+40.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X							0.85									
	241+40.00	243+05.00		WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X							1.65									
STG 3 Final																					
	229+75.00	232+25.00		PAVEMENT MARKINGS REMOVED			X					2.50									
	232+25.00	234+70.00		REMOVAL OF REMOVABLE TAPE			X					2.45									
	234+70.00	238+10.00		PAVEMENT MARKINGS REMOVED			X					3.40									
	238+10.00	240+55.00		REMOVAL OF REMOVABLE TAPE			X					2.45									
	240+55.00	243+05.00		PAVEMENT MARKINGS REMOVED			X					2.50									
	232+25.00	234+70.00		REMOVAL OF REMOVABLE TAPE	X							2.45									
	234+70.00	238+10.00		PAVEMENT MARKINGS REMOVED	X							3.40									
	238+10.00	240+55.00		REMOVAL OF REMOVABLE TAPE	X							2.45									
	240+55.00	241+40.00		PAVEMENT MARKINGS REMOVED	X							0.85									
	241+40.00	243+05.00		REMOVAL OF REMOVABLE TAPE	X							1.65									
	243+05.00	258+05.00		PAVEMENT MARKINGS REMOVED		X							15.00								
	243+05.00			REMOVAL OF REMOVABLE TAPE										0.12							
	229+75.00	235+00.00		PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE			X			5.25											
	235+00.00	267+80.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X			32.80											
	237+80.00	243+05.00		PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE			X			5.25											
	229+75.00	235+00.00		PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	X					5.25											
	235+00.00	267+80.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X					32.80											
	237+80.00	243+05.00		PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	X					5.25											
	229+75.00	235+00.00		PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE		X					5.25										
	235+00.00	267+80.00		PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X					32.80										
	237+80.00	258+05.00		PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE		X					20.25										

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

ELW4: Edge Line Right (White) @ 0.67 BCY4: Broken Centerline (Yellow) @ 0.17 ELW6: Edge Line Right (White) @ 1.00 BCY6: Broken Centerline (Yellow) @ 0.25 CHW8: Channelizing Line (White) @ 1.33
NPY6: No Passing Zone Line (Yellow) @ 1.25 CBW6: Crosswalk Bar (White) @ 10.00

Location								Length by Line Type (Unfactored)														Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			ELW4	BCY4*	ELW6	BCY6	CHW8	NPY6	CBW6								
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
	229+75.00	235+85.00		GROOVES CUT FOR PAVEMENT MARKINGS			X			6.10												
	237+15.00	243+05.00		GROOVES CUT FOR PAVEMENT MARKINGS			X			5.90												
	229+75.00	235+65.00		GROOVES CUT FOR PAVEMENT MARKINGS	X					5.90												
	236+95.00	243+05.00		GROOVES CUT FOR PAVEMENT MARKINGS	X					6.10												
	229+75.00	235+75.00		GROOVES CUT FOR PAVEMENT MARKINGS		X					6.00											
	237+05.00	258+05.00		GROOVES CUT FOR PAVEMENT MARKINGS		X					21.00											
				Factored Total: PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED				-	-	65.60	8.20	35.84	18.75	-	-	-	-	-	-	-	-	
				Factored Total: PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE				-	-	21.00	6.38	-	-	-	-	-	-	-	-	-	-	
				Factored Total: WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS				-	-	-	-	29.39	-	1.20	-	-	-	-	-	-	-	
				Factored Total: PAVEMENT MARKINGS REMOVED				12.43	4.81	-	-	28.40	18.75	-	-	-	-	-	-	-	-	
				Factored Total: GROOVES CUT FOR PAVEMENT MARKINGS				-	-	24.00	6.75	-	-	-	-	-	-	-	-	-	-	
				Factored Total: REMOVAL OF REMOVABLE TAPE				-	-	-	-	29.39	-	1.20	-	-	-	-	-	-	-	
				Bid Quantity: 2527-9263209 - PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED							128.39											
				Bid Quantity: 2527-9263212 - PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE							27.38											
				Bid Quantity: 2527-9263231 - WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS							30.59											
				Bid Quantity: 2527-9263181 - PAVEMENT MARKINGS REMOVED							64.39											
				Bid Quantity: 2527-9270112 - GROOVES CUT FOR PAVEMENT MARKINGS							30.75											
				NOT A BID ITEM: REMOVAL OF REMOVABLE TAPE							30.59											

103-6
10-17-17

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Stability berms placed outside the normal foreslope template and topsoil will not require Moisture Control.

103-7
08-01-08

SHRINKAGE DATA

Material	%	Remarks
Topsoil	40%	Shrinkage
Unsuitable Type B	35%	Shrinkage
Unsuitable Type C	35%	Shrinkage
Class 10	30%	Shrinkage
Select Loam (Clay)	20%	Shrinkage
Select Sand	15%	Shrinkage

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	
US 59 ML	SB	232+75.00	240+10.00	12.0	8.0	
US 59 ML	NB	232+75.00	240+10.00	12.0	8.0	

104-9
10-17-17

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Location					Depth	Longitudinal Subdrain (DR-303)							Subdrain Outlet		Porous* Backfill	Remarks
						Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306			
Line No.	Road or Lane Identification	Station to Station		Side	D	Size	Length	Size	Length	Standard Road Plan and Type	Size	Length	Station	Standard Road Plan and Type		
					IN	IN	FT	IN	FT		IN	FT			CY	
1	US 59 ML	232+75.00	235+00.67	LT	48.0	4.0	285.7						232+75.00	DR-306	30.9	
													235+00.67	DR-306		Follow Edge of Paved Shoulder
2	US 59 ML	237+80.13	240+10.00	LT	48.0	4.0	289.9						237+80.13	DR-306	31.3	Follow Edge of Paved Shoulder
													240+10.00	DR-306		
3	US 59 ML	232+75.00	235+00.67	RT	48.0	4.0	285.7						232+75.00	DR-306	30.9	
													235+00.67	DR-306		Follow Edge of Paved Shoulder
4	US 59 ML	237+80.13	240+10.00	RT	48.0	4.0	289.9						237+80.13	DR-306	31.3	Follow Edge of Paved Shoulder
													240+10.00	DR-306		
	Totals						1151.1							DR-306 = 8	124.4	

NOTE: ALL LONGITUDINAL SUBDRAINS ARE TYPE 7 WITH PCC OR TYPE 8 WITH HMA (ACC) UNLESS OTHERWISE NOTED IN REMARKS COLUMN.
NOTE: ALL LONGITUDINAL SUBDRAINS MAY BE ADJUSTED BOTH VERTICALLY AND HORIZONTALLY IN THE FIELD AS NECESSARY

LICENSED PROFESSIONAL ENGINEER
XINYI JIANG
P29458
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: May 20, 2025

Xinyi Jiang
Printed or Typed Name

My license renewal date is December 31, 20 25

Pages or sheets covered by this seal: CS.1, Q.1-Q.3

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

UTILITY LEGEND

FO1D, Fiber Optic CenturyLink- Quality D

Steve Parker
Manager of Engineering & Construction
Steven.Parker4@lumen.com
Phone 5073581978

TL1D, Telephone Line Farmers Mutual Telephone- Quality D

Jason Best
Operations Manager
OPSMGR@fmctc.com
Phone (402) 881-2295

Lumen

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.**	
Gray	(48)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Gray	(80)	Proposed Shoulder Paved Full Depth Shading
Gray	(64)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Gray	(90)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **D.1**

7:35:36 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_D01.dgn

Valley TWP.
T-76N R-39W
SEC. 18

Sta. 236+40.4
80'x30' Continuous Conc Slab Bridge
D.A.=2040ac R-F (As-Built)

Remove
Build
120'x40' Continuous Conc Slab Bridge
Design no 726

Begin Safety Fence
STA: 232+75.00
OFF: 48.00' LT

End Safety Fence
STA: 240+10.00
OFF: 48.00' LT

230+00

235+00

240+00

Sta. 232+75.00 (ML059)
Begin Construction

Sta. 235+00.67 (ML059)
Begin Paving

Sta. 237+80.13 (ML059)
End Paving

Sta. 240+10.00 (ML059)
End Construction

59

59

60"x73' CMP
UAC

430th St

0 FEET 50

1125
1120
1115
1110
1105
1100
1095
1090
1085
1080

STA 235+00.67
EL 1115.28

VPI = +40.00
ELV = 1115.78
L = 210.00
K = 417

STA 237+80.13
EL 1115.58

+0.36%

-0.14%

-0.65% RT Ditch Grade

RT +75
1103.29

RT +25
1101.00

1115.28 1115.37 1115.46 1115.53 1115.59 1115.63 1115.66 1115.67 1115.67 1115.66 1115.63 1115.58

230+00 231+00 232+00 233+00 234+00 235+00 236+00 237+00 238+00 239+00 240+00 241+00 242+00 243+00 244+00

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER D.2

3:26:44 PM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_D02.dgn

SURVEY INDEX

County: Pottawattamie
PIN: 21-78-059-030
Project Number: BRF-059-3(52)—38-78
Location: Stream 0.9mi S of Co Rd G30
Type of Work: Bridge Unspecified
Project Directory: 7805903021

Survey Personnel

Paul Harry – Survey Party Chief
Daniel Duncan – Assistant Survey Party Chief

Date(s) of Survey

Begin Date	01/31/2023
End Date	03/30/2023

General Information

This survey is for US Hwy 59 bridge over drainage ditch 0.9mi south of county road G30 in Pottawattamie County. 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

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. Three five-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

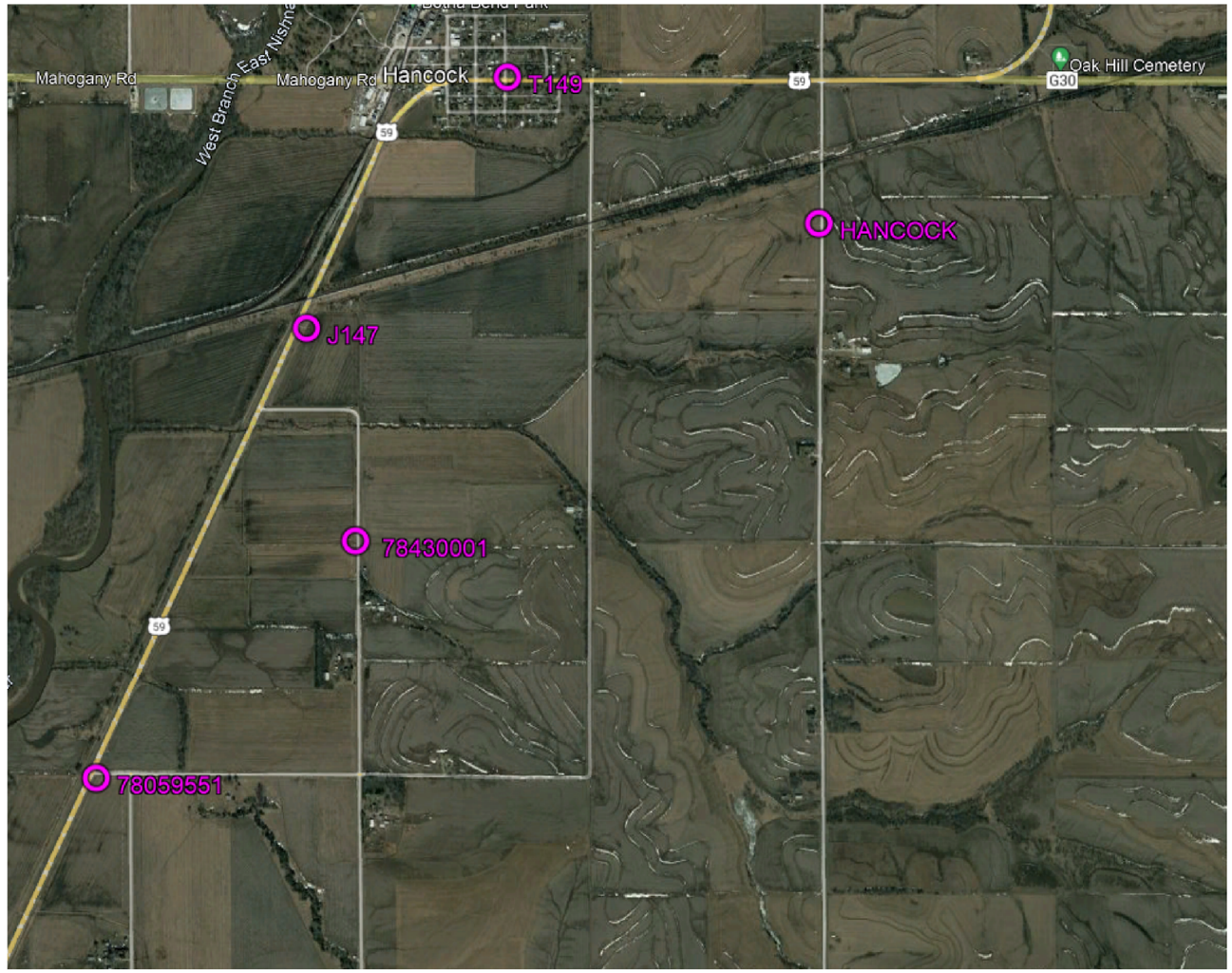
PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 06 (U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u2

Alignment Information

District 4 ROW office provided the horizontal alignment for U.S. Hwy 59.

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 06 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u2

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 06 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u2

78059551	7007624.69	16597808.11	1104.8	FENO SET FENO MONUMENT 3IN DEEP NEAR THE INTERSECTION OF HWY 59 AND MAGNOLIA RD IN POTTAWATTAMIE COUNTY MONUMENT IS 90FT E OF CL HWY 59 52FT S OF CL MAGNOLIA RD 36FT SW OF A COR POST AND 57FT N OF WOOD FENCE POST
78430001	7010352.17	16600740.35	1113.85	FENO SET FENO MONUMENT 3IN DEEP 0.5MILES N OF THE INTERSECTION OF MAGNOILA RD AND 430TH ST IN POTTAWATTAMIE COUNTY MONUMENT IS 34FT W OF CL 430TH ST 47FT N OF BRACE POST AND 38FT N OF CL FIELD ENTRANCE
J147	7012760.78	16600173.46	1108.54	CP FD NGS MONUMENT 2IN ABOVE GROUND 0.2MILES N ALONG HWY 59 FROM THE INTERSECTION OF HWY 59 AND 430TH ST IN POTTAWATTAMIE COUNTY MONUMENT IS 109FT E OF CL HWY 59 19FT SE OF CL ROCK DRIVE 2.3FT SW OF A WOOD POST AND 2FT N OF A WOOD POST
T149	7015616.6	16602462.64	1123.89	CP FD NGS MONUMENT 1IN DEEP NEAR THE INTERSECTION OF HWY 59 AND JOSEPH ST IN THE TOWN OF HANCOCK MONUMENT IS 33FT N OF CL HWY 59 24FT E OF CL JOSEPH ST AND 21FT NW OF TELE PED
HANCOCK	7013949.54	16606015.36	1251.25	CP FD NGS MONUMENT 3IN DEEP 0.3MILES S ALONG 440TH ST FROM THE INTERSECTION OF 440TH ST AND HWY 59 IN POTTAWATTAMIE COUNTY MONUMENT IS 29FT W OF CL 440TH ST 19FT N OF CL FIELD ENT AND 9.5FT S OF WOOD FENCE POST

ALIGNMENT COORDINATES

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
1	ML059	193+46.400	7007698.49	16597741.77															
1	ML059	270+02.785	7014663.17	16600921.93															
1	SR430	1236+92.920	7011835.86	16599830.21															
1	SR430	1238+92.920	7011834.26	16599630.21															

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US59		Pattawattamie	0.9 mi S of Co Rd G30		Barrier	N/A	Horizontal	15'	10.71'	9.71'	15'	

TRAFFIC CONTROL PLAN

US 59
Maintain at least one lane of traffic in each direction on US 59 at all times.

Sideroads
430th St closed during construction

STAGING NOTES

STG 0 Traffic
US 59 on existing Lanes
430th St on existing Lanes

STG 0 Construction
Construct SB shoulders
Remove and reinstall SB guardrail.

STG 1 Traffic
US 59 - Close NBL, shift traffic into single lane operation using temporary signals, per Standard Road Plan TC-217
430th St Closed

STG 1 Construction
Construct NB portion of bridge and approaches. Install NB guardrail.

STG 2 Traffic
US 59 - Close SBL, shift traffic into single lane operation using temporary signals, per Standard Road Plan TC-217
430th St Closed

STG 2 Construction
Construct SB portion of bridge and approaches. Install SB 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 Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

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

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

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

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

230+00

235+00

240+00

STA 232+25.00
OFF -12.00'

STA: 234+76.61
OFF: 12.00' LT

STA: 235+69.88
OFF: 12.00' LT

STA: 237+07.08
OFF: 12.00' LT

STA: 238+34.29
OFF: 12.00' LT

STA 240+55.00
OFF -12.00'

430th St

T1

T1

0 50
FEET

STG 0

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.3	

3:45:23 PM 7/9/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J03.dgn

200+00

205+00

BRF-059-3(50)--38-78

210+00

STOP HERE ON RED

R10-6
24" x 36"

59

225'

STOP HERE ON RED

R10-6
4" x 36"

0 FEET 50

STG 1

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.4	

9:55:14 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J04.dgn

NO PASSING ZONE
W14-3
48" X 60" X 60"

215+00

500'

W3-3
48" x 48"

350'

220+00

ONE LANE ROAD AHEAD
W20-4
48" x 48"

650'

W3-3
48" x 48"

225+00

DO NOT PASS
R4-1
36" x 48"

225'

DO NOT PASS
R4-1
36" x 48"

625'

W3-3
48" x 48"

ONE LANE ROAD AHEAD
W20-4
48" x 48"

375'

W3-3
48" x 48"

500'

NO PASSING ZONE
W14-3
48" X 60" X 60"

59

2+50.00
00' RT

0 FEET 50

STG 1

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.5	

9:55:15 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J04.dgn

230+00

235+00

240+00

STA: 231+40.00
OFF: 0.00' LT

STA: 232+25.00
OFF: 12.00' LT

STA: 232+25.00
OFF: 0.00' LT

STA: 234+50.00
OFF: 15.00' LT

STA: 235+00.00
OFF: 3.35' LT

STA: 237+80.00
OFF: 3.35' LT

STA: 238+30.00
OFF: 15.00' LT

STA: 241+05.65
OFF: 8.89' RT

STA: 240+55.00
OFF: 3.08' RT

STA: 238+30.00
OFF: 3.35' LT

STA: 229+75.00
OFF: 12.00' RT

STA: 231+74.35
OFF: 8.88' RT

STA: 232+25.00
OFF: 3.07' RT

225'

165'

85'

165'

85'

165'

1:35

1:35

59

STOP
HERE ON
RED

R10-6
24" x 36"

STOP
HERE ON
RED

R10-6
24" x 36"

430th St

T1

ROAD
CLOSED
AHEAD

W20-3
48" x 48"

Refer to TC-217

STG 1 Traffic

10.71'

0.5'

4'

1

15'

17.92'

Pavement Removal

STG1 Construction

0 50
FEET

STG 1

FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **J.6**

9:55:16 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J04.dgn

245+00

250+00

255+00

59

W3-3
48" x 48"

ONE LANE
ROAD
AHEAD

W20-4
48" x 48"

DO
NOT
PASS

R4-1
36" x 48"

W3-3
48" x 48"

ONE LANE
ROAD
AHEAD

W20-4
48" x 48"

NO
PASSING
ZONE

W14-3
48" X 60" X 60"

0 50
FEET

STG 1

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.7	

9:55:17 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J04.dgn



STG 1

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.8	

9:55:17 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J04.dgn

200+00

205+00

BRF-059-3(50)--38-78

210+00

STOP HERE ON RED

R10-6
24" x 36"

STOP HERE ON RED

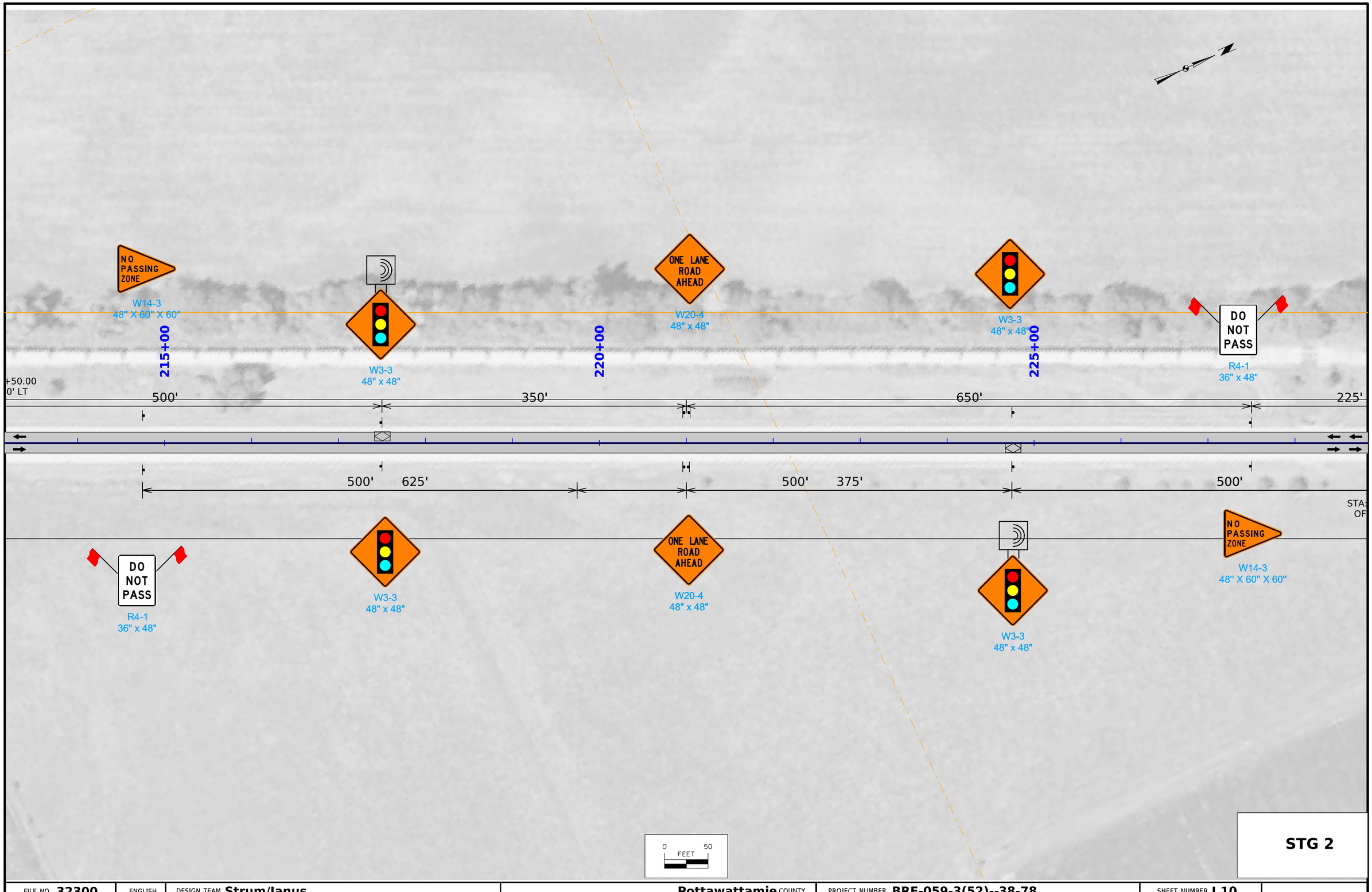
R10-6
24" x 36"

0 FEET 50

STG 2

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.9	

9:55:21 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J05.dgn



FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.10	

9:55:21 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J05.dgn

230+00

235+00

240+00

STA: 232+25.00
OFF: 3.00' LT

STA: 231+74.35
OFF: 8.81' LT

STA: 234+70.00
OFF: 6.69' RT

STA: 234+70.00
OFF: 8.12' RT

BRF-059-3(52)--38-78

STA: 238+10.00
OFF: 6.69' RT

STA: 238+10.00
OFF: 8.12' RT

STA: 240+55.00
OFF: 3.00' LT

STA: 240+55.00
OFF: 0.00' LT

STA: 241+05.65
OFF: 8.81' LT

STOP HERE ON RED

R10-6
24" x 36"

225'

85'

165'

1:25

1:25

250'

STA: 229+75.00
OFF: 12.00' RT

STA: 234+70.00
OFF: 19.13' RT

STA: 238+10.00
OFF: 19.13' RT

STA: 240+55.00
OFF: 12.00' RT

430th St

T1

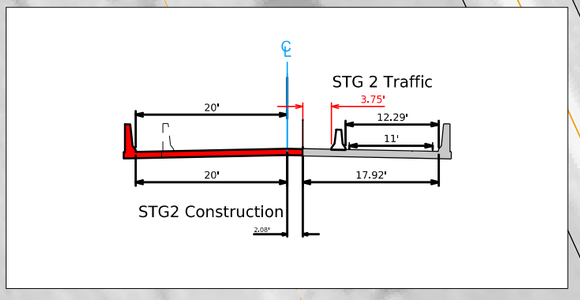
STOP HERE ON RED

R10-6
24" x 36"

ROAD CLOSED AHEAD

W20-3
48" x 48"

Refer to TC-217



0 50
FEET

STG 2

FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **J.11**

9:55:22 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J05.dgn

245+00

500'

W3-3
48" x 48"

250+00

500'

ONE LANE
ROAD
AHEAD

W20-4
48" x 48"

255+00

500'

DO
NOT
PASS

R4-1
36" x 48"

W3-3
48" x 48"

ONE LANE
ROAD
AHEAD

W20-4
48" x 48"

NO
PASSING
ZONE

W14-3
48" X 60" X 60"

0 50
FEET

STG 2

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.12	

9:55:22 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J05.dgn



STG 2

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER J.13	

9:55:23 AM 8/20/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_J05.dgn

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

UTILITY LEGEND

- FO — FO1D, Fiber Optic CenturyLink- Quality D
- T1 — TL1D, Telephone Line Farmers Mutual Telephone- Quality D

Lumen

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.**	
Gray	(48)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Gray	(80)	Proposed Shoulder Paved Full Depth Shading
Gray	(64)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Gray	(90)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

Date(s) Drilled 1/28/25 - 2/26/25

- Drill
- Dig/Core
- Water
- Dry
- Sample
- Plugged
- Moisture
- Shelby
- Blow Count
- Dens. Core
- Treatment
- Sand Blanket
- Soil Remediation Area
- Select Soil
- Select Sand
- Slope Dressing Only
- Broken and Weathered Rock
- Rock
- Sandstone
- Unsuitable A
- Unsuitable B
- Unsuitable C
- Sandy Soil
- Boulders
- Shale

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

RIGHT-OF-WAY LEGEND

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

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

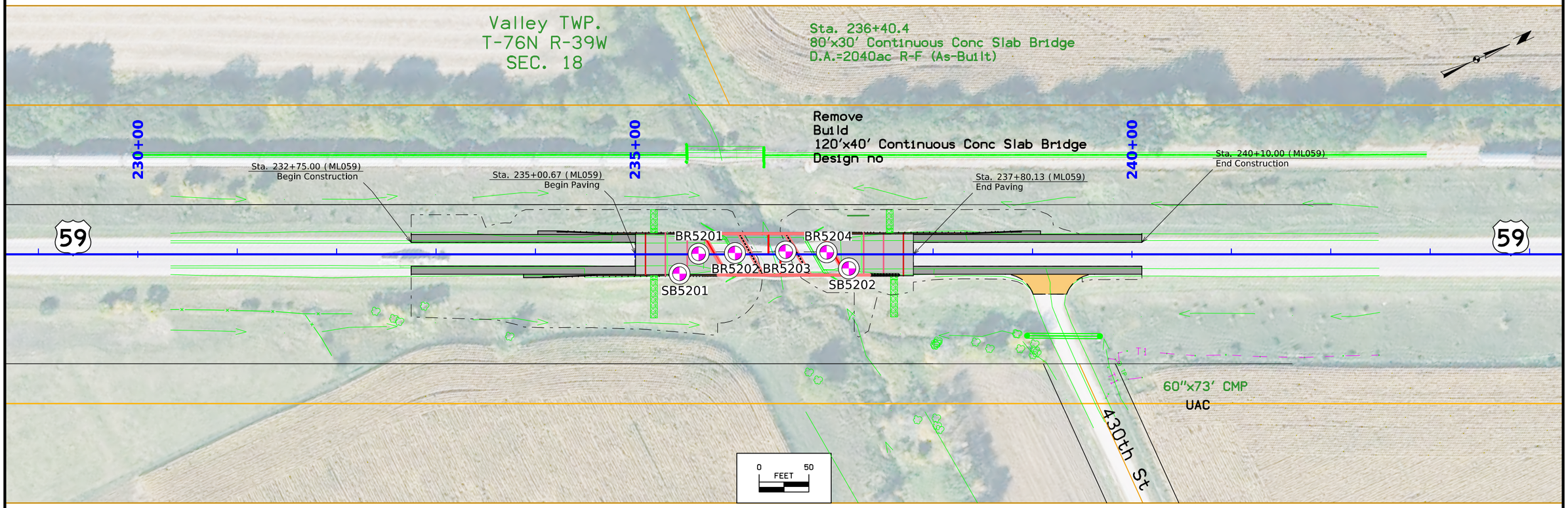
SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES Q)

FILE NO. 0726	ENGLISH	DESIGN TEAM Iowa DOT/Braun Intertec	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER Q.1

9:46:27 AM 5/21/2025 DRivers pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Soils\Q sheets\SHT_78059052_Q01.dgn

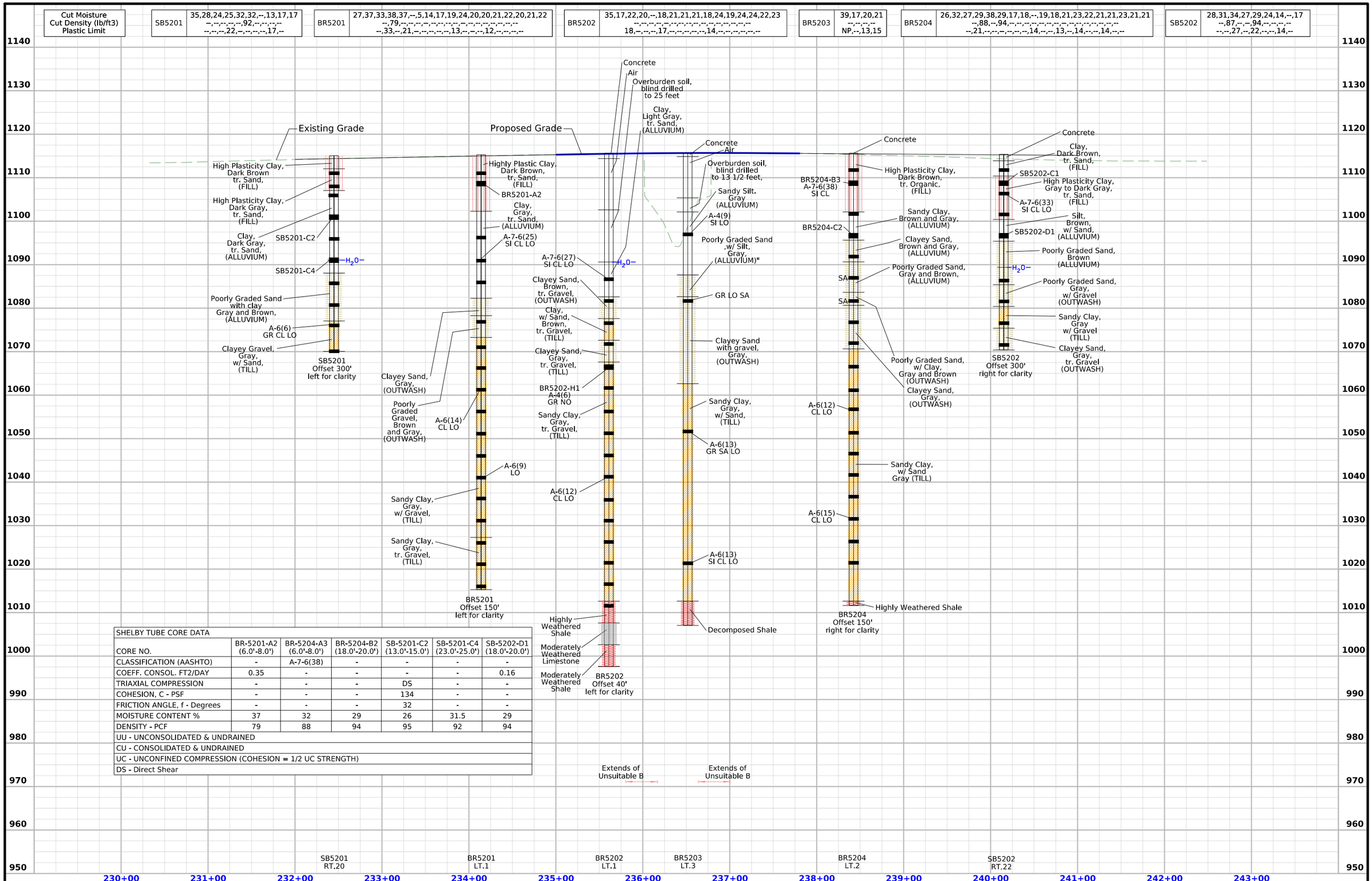
THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.



FILE NO. 0726	ENGLISH	DESIGN TEAM Iowa DOT/Braun Intertec	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER Q.2	

9:46:41 AM 5/21/2025 DRivers pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Soils\Q sheets\SHT_78059052_Q02.dgn

Cut Moisture Cut Density (lb/ft3) Plastic Limit	SB5201	35,28,24,25,32,32,--,13,17,17 --,--,--,--,--,92,--,--,--,-- --,--,--,22,--,--,--,--,17,--
	BR5201	27,37,33,38,37,--,5,14,17,19,24,20,20,21,22,20,21,22 --,79,--,--,--,--,--,--,--,--,--,--,--,--,--,-- --,33,--,21,--,--,--,--,--,13,--,--,--,12,--,--,--,--
	BR5202	35,17,22,20,--,18,21,21,21,18,24,19,24,24,22,23 --,--,--,--,--,--,--,--,--,--,--,--,--,--,--,-- 18,--,--,--,17,--,--,--,--,--,--,14,--,--,--,--,--,--
	BR5203	39,17,20,21 --,--,--,-- NP,--,13,15
	BR5204	26,32,27,29,38,29,17,18,--,19,18,21,23,22,21,21,23,21,21 --,88,--,94,--,--,--,--,--,--,--,--,--,--,--,--,--,--,-- --,21,--,--,--,--,--,--,14,--,--,13,--,14,--,--,14,--,--
	SB5202	28,31,34,27,29,24,14,--,17 --,87,--,--,94,--,--,--,-- --,--,27,--,22,--,--,14,--



SHELBY TUBE CORE DATA						
CORE NO.	BR-5201-A2 (6.0'-8.0')	BR-5204-A3 (6.0'-8.0')	BR-5204-B2 (18.0'-20.0')	SB-5201-C2 (13.0'-15.0')	SB-5201-C4 (23.0'-25.0')	SB-5202-D1 (18.0'-20.0')
CLASSIFICATION (AASHTO)	-	A-7-6(38)	-	-	-	-
COEFF. CONSOL. FT2/DAY	0.35	-	-	-	-	0.16
TRIAXIAL COMPRESSION	-	-	-	DS	-	-
COHESION, C - PSF	-	-	-	134	-	-
FRICTION ANGLE, f - Degrees	-	-	-	32	-	-
MOISTURE CONTENT %	37	32	29	26	31.5	29
DENSITY - PCF	79	88	94	95	92	94

UU - UNCONSOLIDATED & UNDRAINED
CU - CONSOLIDATED & UNDRAINED
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)
DS - Direct Shear

FILE NO. 0726	ENGLISH	DESIGN TEAM Iowa DOT/Braun Intertec	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER Q.3

9:46:43 AM 5/21/2025 DRivers pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7805903021\Soils\Q sheets\SHT_78059052_Q02.dgn

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 08/30/2026 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 - 12; RR.1 - 3

FILE NO. **0726**	ENGLISH	DESIGN TEAM **HARRIS/POHLEN/VAN DUONG**	**POTTAWATTAMIE** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **RC.1**	

10:05:22 AM 6/30/2026 ovanduo pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Roadside\78059052_Sign_RC01.dgn

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Item no.	Item Code	Item	Unit	Quantities Estimated Roadside Items	Estimate Reference Notes
1	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	SQ	119.4	Refer to Tab. 100-22 for locations. Refer to Standard Road Plan EC-103. Prepare seedbed according to Article 2601.03, B, 4, of the Standard Specifications prior to seeding and fertilizing under the slope protection.
2	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT	SQ	46.5	Refer to Tab. 100-22 for locations. Refer to Standard Road Plan EC-101. Prepare seedbed according to Article 2601.03, B, 4 of the Standard Specifications. Install Special Ditch Control according to Article 2601.03, H, 2, of the Standard Specifications. Seed according to Article 2601.03, H, 2, of the Standard Specifications.
3	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION	MGAL	33.2	Estimate for watering Special Ditch Control, Slope Protection Areas, Turf Reinforcement Mat, or Transition Mat is based on a total of four waterings at a rate of 50 gallons maximum per square, per watering. The first watering should be done no later than the day following placement of the materials with 3 additional watering at intervals of 5 to 8 calendar days. The amount of water used should be sufficient to saturate the seedbed to a depth of approximately 2 inches.
4	2601-2643300	MOBILIZATION FOR WATERING	EACH	3	
5	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	200	Refer to Standard Road Plan EC-303.
6	2602-0000212	FLOATING SILT CURTAIN (HANGING)	LF	500	Refer to Tab 100-10 for locations. Refer to Standard Road Plan EC-202.
7	2602-0000240	MAINTENANCE OF FLOATING SILT CURTAIN	LF	250	
8	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	1,470	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	
9	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	1,470	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.
10	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	3,120	
11	2602-0000362	DITCH CHECK SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	90	Refer to Tab. 100-19 for locations. Refer to Standard Road Plan EC-204. The tabulation includes estimated locations for placement of "Ditch Check 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.
12	2602-0000370	DITCH CHECK SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	90	Refer to Standard Road Plan EC-204. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control for Ditch Checks" to address erosion to be encountered during construction. Item may be used in addition to, or as a direct replacement for "Perimeter and Slope Sediment Control Device for Ditch Checks, 12 in. dia." upon Engineer approval.
13	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
14	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

232_03A
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

232_03C
8/28/24

EROSION CONTROL (NATIVE GRASS SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the Contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed and mulch on the disturbed area lying 8 feet or more beyond the shoulder as follows:

SEED MIX:

Big bluestem (Andropogon geradii)	6 lbs. PLS/Acre (7.0 kg/ha)
Indiangrass (Sorghastrum nutans)	6 lbs. PLS/Acre (7.0 kg/ha)
Little bluestem (Schizachyrium scoparium)	6 lbs. PLS/Acre (7.0 kg/ha)
Partridge Pea (Chamaecrista fasciculata)	4 lbs. PLS/Acre (4.5 kg/ha)
Sideoats grama (Bouteloua curtipendula)	4 lbs. PLS/Acre (4.5 kg/ha)
Canada wildrye (Elymus canadensis)	2 lbs. PLS/Acre (2.2 kg/ha)
Switchgrass (Panicum virgatum)	1 lbs. PLS/Acre (1.1 kg/ha)
Oats (Avena sativa)	32 lbs./Acre (36.0 kg/ha)

Furnish Big bluestem, Indiangrass, Canada wildrye and Little bluestem that is debearded or equal to facilitate the application of seed.

Furnish seed certified as Source Identified Class (Yellow Tag) Source G0-Iowa. Oats are excluded from this requirement. Place seed according to the requirements of Article 4169.02 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed and mulch are incidental to mobilization and will not be paid for separately.

232_11
6/21/23

EROSION CONTROL (STABILIZING CROP SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

If outside of permanent seeding dates in Section 2601 of the Standard Specifications, or if required by a storm water permit, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are incidental to mobilization and will will not be paid for separately.

281_01
9/28/22

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.

281_03
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: Perimeter and Slope Sediment Control Devices, Slope Protection, Special Ditch Control, and Seeding.

282_03
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.

111_25
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_22	ROLLED EROSION CONTROL	RC.9
100_34	STORMWATER DRAINAGE BASIN	RC.10
110_12	POLLUTION PREVENTION PLAN	RC.11 - RC.12

7/3/2026 6:48:22 AM nathan.pohlen@iowadot.us

105_04
10/20/26

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
EC-202	10-21-14	Floating Silt Curtain
EC-101	04-19-16	Wood Excelsior Mat for Ditch Protection
EC-303	10-19-21	Stabilized Construction Entrance
EC-502	04-21-15	Seeding in Rural Areas
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
EC-103	04-21-15	Wood Excelsior Mat for Slope Protection
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices

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
236+36.00	250.0			125.0	
236+43.00	250.0			125.0	
	500.0			250.0	

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
232+76.00	235+15.00	Left	Perimeter and Slope	12 inch	240.00	
235+23.00	235+61.00	Left	Perimeter and Slope	12 inch	40.00	
232+76.00	235+15.00	Right	Perimeter and Slope	12 inch	240.00	
235+23.00	235+80.00	Right	Perimeter and Slope	12 inch	60.00	
233+49.00		Right	Ditch Check	12 inch	20.00	
234+72.00		Right	Ditch Check	12 inch	20.00	
235+82.00		Right	Ditch Check	12 inch	30.00	
237+07.00	237+53.00	Left	Perimeter and Slope	12 inch	50.00	
237+60.00	240+10.00	Left	Perimeter and Slope	12 inch	250.00	
237+29.00	237+57.00	Right	Perimeter and Slope	12 inch	30.00	
237+64.00	239+05.00	Right	Perimeter and Slope	12 inch	160.00	
239+36.00	240+10.00	Right	Perimeter and Slope	12 inch	100.00	
					1240.00	

ROLLED EROSION CONTROL

Refer to EC-101, EC-103 and EC-104.

Road Identification	Station From	Station To	Side	Length (FT)	Width (FT)	TRM Type (EC-104)	TRM Quantity (Squares)	Slope Protection (EC-103) (Squares)	Special Ditch Control (EC-101) (Squares)	Remarks
US 59	232+76.00	235+15.00	Right	240.5	34.5			82.5		
US 59	235+22.00	235+82.00	Right	60.0	39.5			23.6		
US 59	232+76.00	235+82.00	Right	308.0	15.0				46.5	
US 59	237+17.00	237+57.00	Right	41.5	32.0			13.3		
							0	119.4	46.5	

STORMWATER DRAINAGE BASIN

Refer to EC Standards and 570s Details.

Basin No.	Station From	Station To	Direction of Traffic	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	232+75.00	236+21.00		Left	23621.00	N	0.3	0.3				1080.0	No	
2	232+75.00	236+27.00		Right	23627.00	N	0.5	0.5				1800.0	No	
3	236+46.00	240+10.00		Left	23646.00	S	0.3	0.3				1080.0	No	
4	236+54.00	240+10.00		Right	23654.00	S	0.3	0.3				1080.0	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.

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-CCS in Pottawattamie County.
B. This PPP covers approximately 5.73 acres with an estimated 2.41 acres being disturbed. The portion of the PPP covered by this contract has 1.36 acres disturbed.
C. The PPP is located in an area of Marshall - Shelby soil association. The estimated weighted average runoff coefficient number for this PPP after completion will be 0.27.

110_12
1/13/23

POLLUTION PREVENTION PLAN

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 tributary to the West Branch East Nishnabotna River, to the West Nishnabotna River, to the Nishnabotna River, to the Missouri 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.

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

POLLUTION PREVENTION PLAN

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
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

PLAN VIEW CELL LEGEND

CELL	Design Element
	Clearing & Grubbing

CELL LEGEND OF EROSION CONTROL

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

CELL LEGEND OF LANDSCAPING

CELL	Design Element	Plant Diameter
Overstory-#	Overstory Tree	30 FT
Evergreen-#	Evergreen Tree	18 FT
Understory-#	Understory Tree	12 FT
Shrub-# Shrub-#	Shrub	6 FT

PLAN VIEW PATTERN LEGEND

PATTERN	Design Element	PATTERN	Design Element
	Seeding and Fertilizing		Turf Reinforcement Mat Type 1
R	Seeding and Fertilizing (Rural)		Turf Reinforcement Mat Type 2
U	Seeding and Fertilizing (Urban)		Turf Reinforcement Mat Type 3
N	Native Grass Seeding		Turf Reinforcement Mat Type 4
ST	Salt Tolerant Seeding		Slope Protection, Wood Excelsior Mat
WL	Wetland Grass Seeding		Transition Mat
WF	Wildflower Seeding		Rock Features, Permanent
SOD	Sodding		Rock Features, Temporary

PLAN VIEW COLOR LEGEND

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and 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%

HATCHING	Design Color No.	
Red	(3)	Delineates Restricted Areas
Yellow	(4)	Brush Clearing
Yellow	(4)	Clearing & Grubbing
Orange	(228)	Spray Area

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

LINE STYLE LEGEND OF LANDSCAPE SHEETS

LINESTYLE	Design Element
	Living Snow Fence Single Row
	Living Snow Fence Double Row
	Mechanical Edge

LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)

230+00

235+00

240+00

Basin 1
0.3 ac.

Basin 3
0.3 ac.

59

1

2

3

4

Basin 2
0.5 ac.

Basin 4
0.3 ac.

0 50
FEET

FILE NO. 0726	ENGLISH	DESIGN TEAM HARRIS/POHLEN/VAN DUONG	POTTAWATTAMIE COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER RR.2	

11:11:26 AM 6/30/2026 ovanduo pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Roadside\78059052_Basin_SHT.dgn

© 2026 Microsoft Corporation © 2026 Maxar ©CNES (2026) Distribution Airbus DS © Mapbox © Maxar

230+00

235+00

240+00

59

Floating Silt Curtain

Floating Silt Curtain

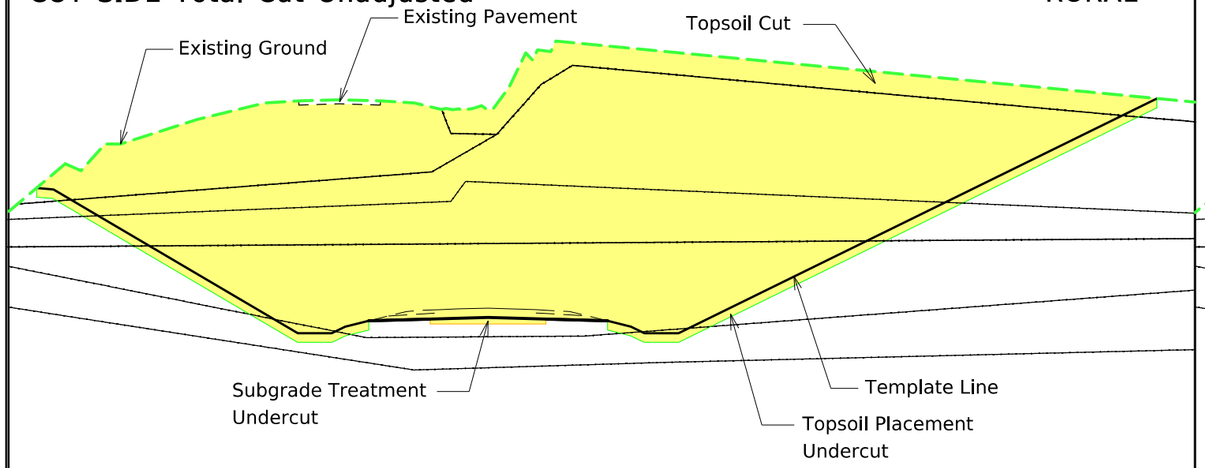
0 50
FEET

FILE NO. 0726	ENGLISH	DESIGN TEAM HARRIS/POHLEN/VAN DUONG	POTTAWATTAMIE COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER RR.3	

10:43:13 AM 6/30/2026 ovanduo pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Roadside\78059052_Siteplan_SHT.dgn

© 2026 Microsoft Corporation © 2026 Maxar ©CNES (2026) Distribution Airbus DS © Mapbox © Maxar

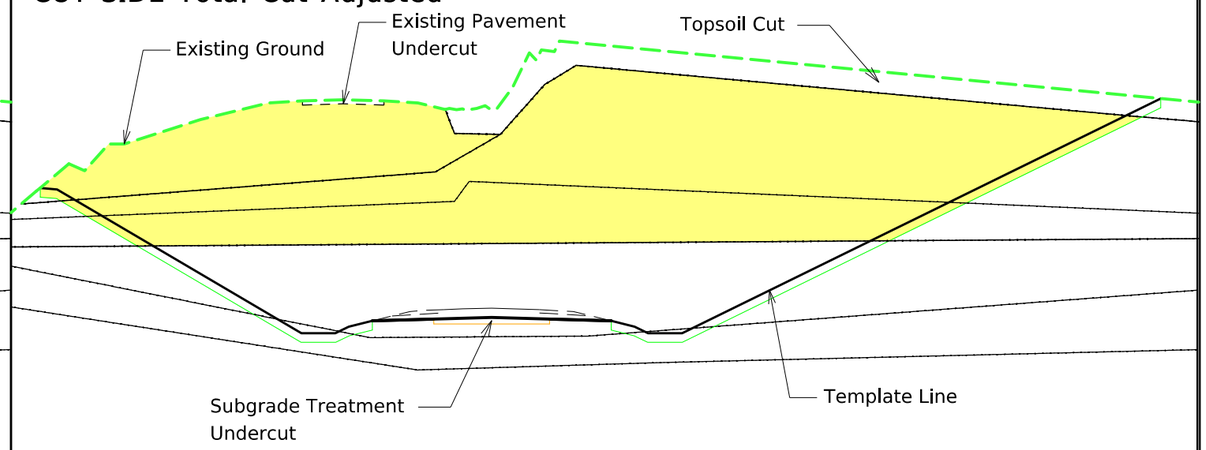
CUT SIDE Total Cut Unadjusted — RURAL



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.

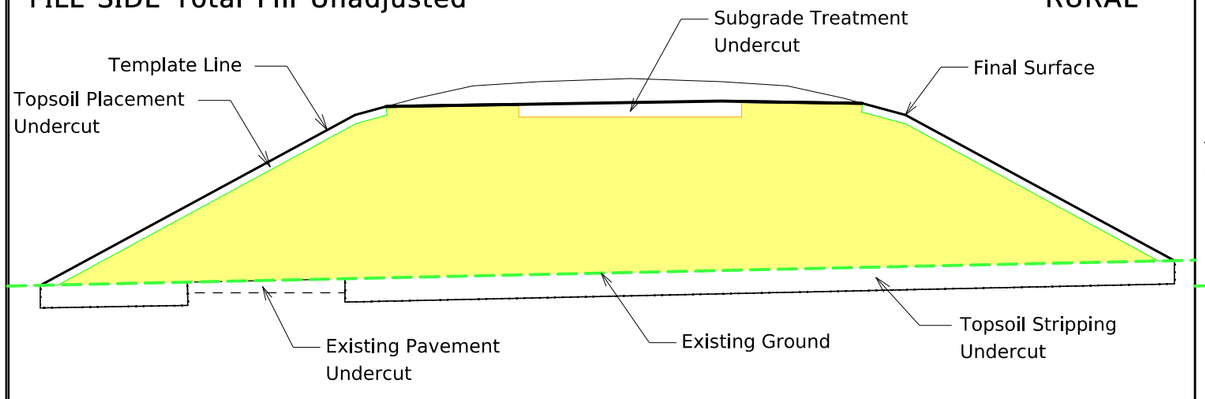
CUT SIDE Total Cut Adjusted



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.

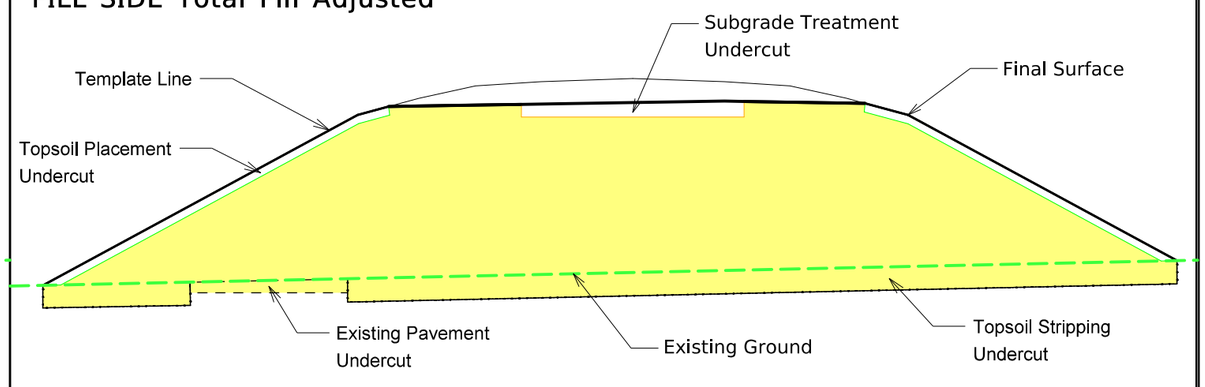
FILL SIDE Total Fill Unadjusted — RURAL



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.

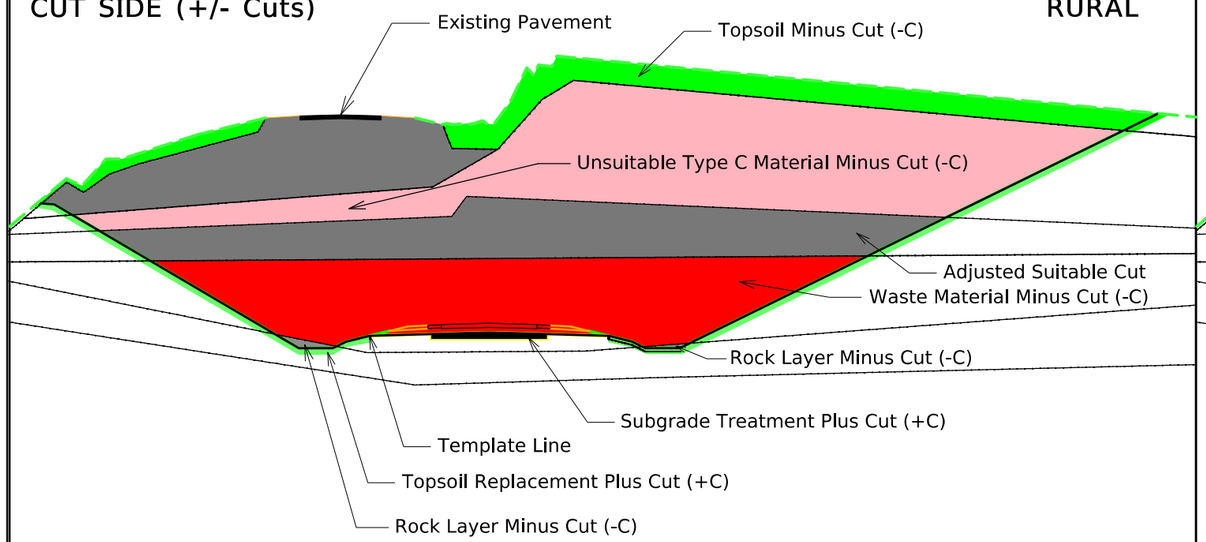
FILL SIDE Total Fill Adjusted



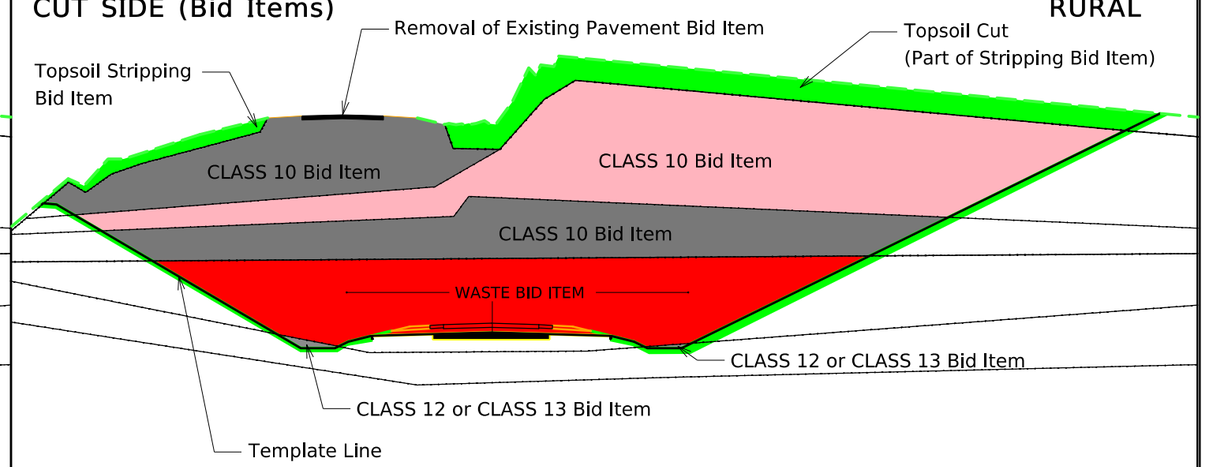
Notes:

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

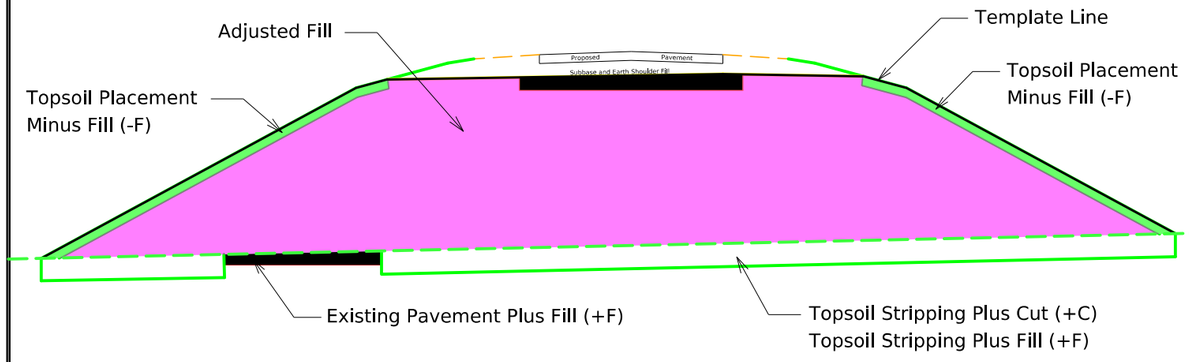
CUT SIDE (+/- Cuts) — RURAL



CUT SIDE (Bid Items) — RURAL



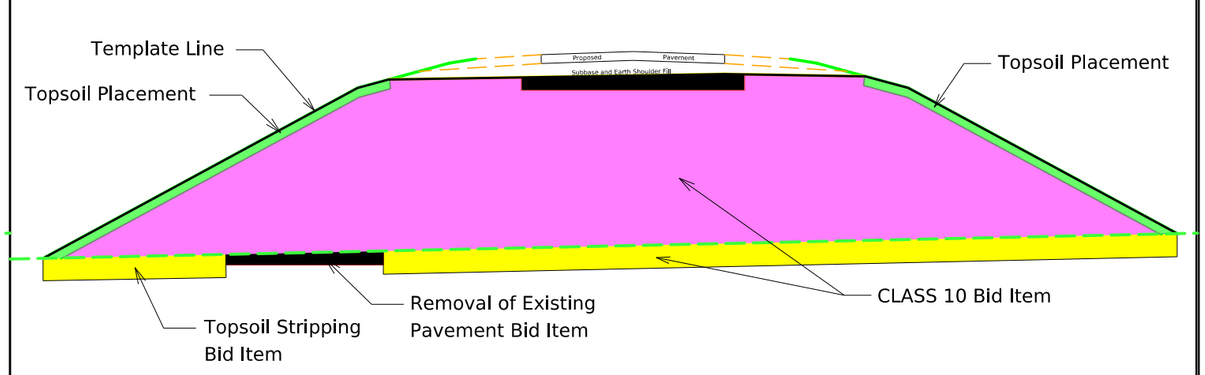
FILL SIDE (+/- Fills) — RURAL



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. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **T.2**

7:31:28 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_D01.dgn

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

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

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							
US59South																						
232+75.00																						
233+00.00	88	31	54	2	31	2	2	3	29	0	0	54	24	34	20							
233+25.00	91	32	56	3	32	2	2	3	29	0	0	56	25	35	21							
233+50.00	83	28	52	3	28	3	3	4	24	0	0	52	26	37	15							
233+75.00	75	19	52	3	19	17	17	23	-3	0	0	52	29	41	12							
234+00.00	83	15	65	3	15	56	56	72	-57	0	0	65	34	47	18							
234+25.00	92	16	73	3	16	77	77	100	-85	0	0	73	36	51	22							
234+50.00	94	14	73	7	14	56	56	73	-59	0	0	73	37	52	21							
234+75.00	94	13	72	9	13	28	28	37	-24	0	0	72	38	53	18							
235+00.00	93	10	72	11	10	16	16	20	-11	0	0	72	39	55	17							
235+25.00	132	36	73	23	36	10	10	14	23	0	0	73	38	53	20							
235+50.00	181	72	77	32	72	10	10	13	59	0	0	77	37	52	26							
235+75.00	201	89	83	29	89	49	49	63	26	0	0	83	33	47	37							
236+00.00	222	117	84	21	117	121	121	157	-40	0	0	84	15	21	64							
236+10.00	66	32	31	3	32	59	59	77	-45	0	0	31	0	0	32							
236+20.00	30	6	25	0	6	44	44	57	-51	0	0	25	0	0	25							
236+25.00	8	0	8	0	0	11	11	15	-15	0	0	8	0	0	8							
236+27.88	2	0	2	0	0	2	2	3	-3	0	0	2	0	0	2							
US59South																						
Totals:	1,635	531	953	153	531	564	564	733	-203	0	0	953	412	577	377							

#

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							
US59North																						
236+46.24																						
236+50.00	2	0	2	0	0	0	0	1	-1	0	0	2	0	0	2							
236+60.00	35	20	14	0	20	1	1	2	19	0	0	14	0	0	14							
236+70.00	76	53	23	0	53	1	1	2	51	0	0	23	0	0	23							
236+75.00	58	45	13	0	45	1	1	1	44	0	0	13	0	0	13							
237+00.00	344	272	56	16	272	2	2	3	269	0	0	56	0	0	56							
237+25.00	239	164	47	29	164	19	19	25	139	0	0	47	3	4	43							
237+50.00	140	69	39	32	69	22	22	29	41	0	0	39	8	12	27							
237+75.00	131	65	32	34	65	9	9	12	53	0	0	32	11	16	16							
238+00.00	85	32	28	25	32	12	12	16	16	0	0	28	10	14	14							
238+25.00	46	10	24	12	10	17	17	22	-12	0	0	24	8	11	13							
238+50.00	45	11	27	7	11	23	23	30	-19	0	0	27	8	11	16							
238+75.00	45	10	31	4	10	30	30	39	-29	0	0	31	8	11	20							
239+00.00	47	14	30	3	14	36	36	46	-32	0	0	30	7	10	20							
239+25.00	43	19	21	3	19	25	25	32	-13	0	0	21	7	10	11							
239+50.00	32	18	11	3	18	6	6	8	10	0	0	11	4	6	5							
239+75.00	26	13	9	3	13	1	1	1	13	0	0	9	1	2	7							
240+00.00	24	12	9	3	12	1	1	1	11	0	0	9	1	1	8							
240+10.00	6	5	0	1	5	0	0	1	4	0	0	0	0	0	0							
US59North																						
Totals:	1,425	833	416	177	833	207	207	270	563	0	0	416	78	110	307							

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum\Janus	POTTAWATTAMIE COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER T.4

7/13/2026 2:09:46 PM ajanus2 c:\pw_work\pwmain\ajanus2\d1174769\SHT_78059052_T03.xlsm

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:																						
US59South	1,635	531	953	153	531	564	564	733	-203	0	0	953	412	577	377							
US59North	1,425	833	416	177	833	207	207	270	563	0	0	416	78	110	307							
Project Totals:	3,060	1,364	1,369	330	1,364	771	771	1,003	360	0	0	1,369	490	687	684							

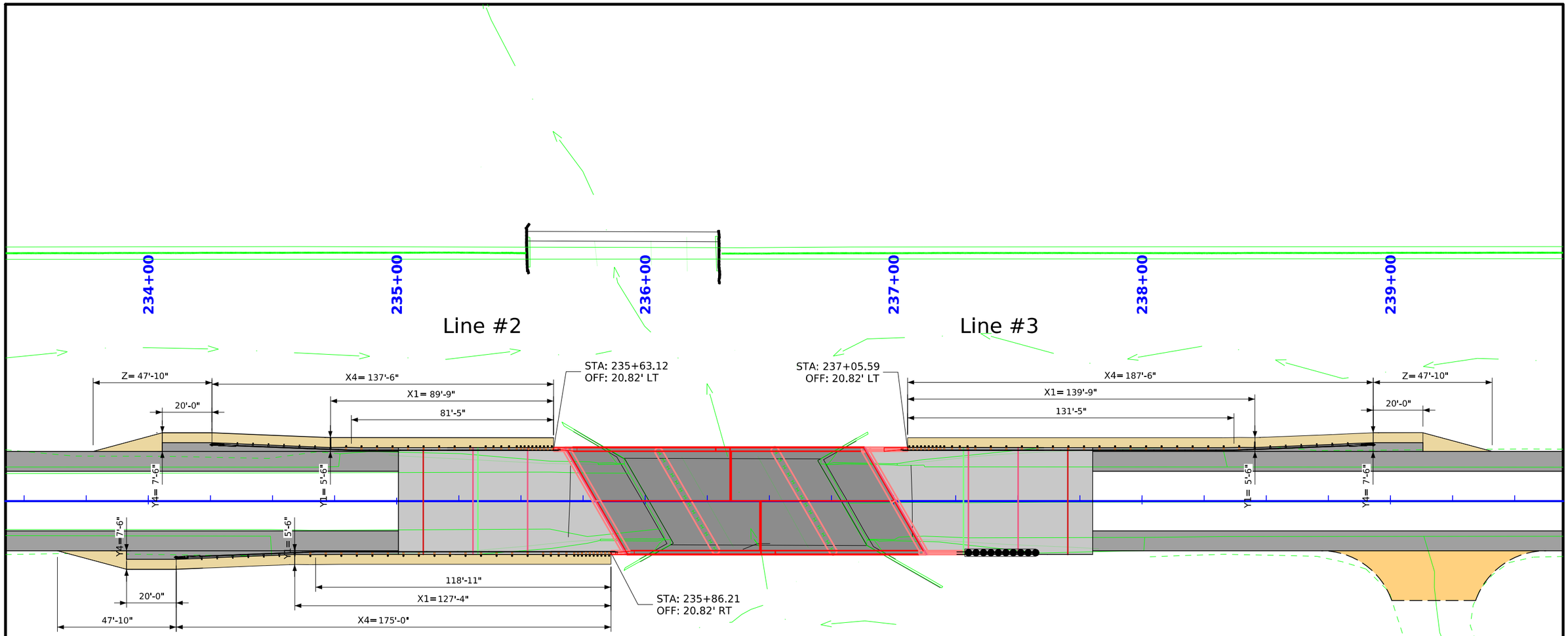
Excavation Class 10, Roadway and Borrow [8] 1,003

Excavation Class 10 Waste [9] 360

Topsoil strip, Salvage and Spread [12] 1,369

Compaction with Moisture Control [7] 771

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum\Janus	POTTAWATTAMIE COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER T.5



Grading for Guardrail

	Direction of Travel	Station	Side	X1 FT	Y1 FT	X2 FT	Y2 FT	X3 FT	Y3 FT	X4 FT	Y4 FT	Z FT
1	NB	235+86.21	Out	127.3	5.5	-	-	-	-	175.0	7.5	47.8
2	SB	235+63.12	Out	89.7	5.5	-	-	-	-	137.5	7.5	47.8
3	SB	237+05.59	Out	139.9	5.5	-	-	-	-	187.5	7.5	47.8

X and Y dimensions are for grading only, not for guardrail placement

0 FEET 20

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER U.1

12:33:09 PM 7/8/2026 jstrum pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_U01.dgn

230+00

235+00

240+00

STA: 235+96.66
OFF: 45.00' LT

STA: 235+77.03
OFF: 45.00' LT

STA: 236+39.44
OFF: 30.90' LT

STA: 236+59.36
OFF: 42.40' LT

0.06 acre

STA: 236+96.71
OFF: 22.29' RT

STA: 234+00.00
OFF: 26.00' RT

STA: 236+15.45
OFF: 21.54' RT

STA: 235+83.21
OFF: 21.54' RT

0.07 acre

STA: 235+83.21
OFF: 60.03' RT

STA: 236+11.01
OFF: 60.03' RT

STA: 236+22.16
OFF: 49.86' RT

STA: 236+32.17
OFF: 16.50' RT

STA: 237+28.68
OFF: 22.29' RT

STA: 237+28.68
OFF: 38.58' RT

STA: 236+79.56
OFF: 38.58' RT

STA: 232+50.00
OFF: 26.00' RT

STA: 232+50.00
OFF: 70.00' RT

STA: 234+00.00
OFF: 70.00' RT

0.15 acre

59

430th St

0 50
FEET

Clearing and Grubbing

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER U.2	

3:50:53 PM 8/31/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_U02.dgn

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
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular
Existing	
(0)	Existing Pavement
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
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 Substrata
(48)	Broken Weathered Substrata
(3)	Core Out Substrata
(203)	Existing Pavement Substrata
(6)	Loam Substrata
(80)	Rock Substrata
(4)	Select Sand Substrata
(3)	Shale Substrata
(10)	Topsoil Substrata
Unsuitable / Waste	
(3)	Unsuitable Type A
(13)	Unsuitable Type B
(11)	Unsuitable Type C
(3)	Waste

NOTES:

Text

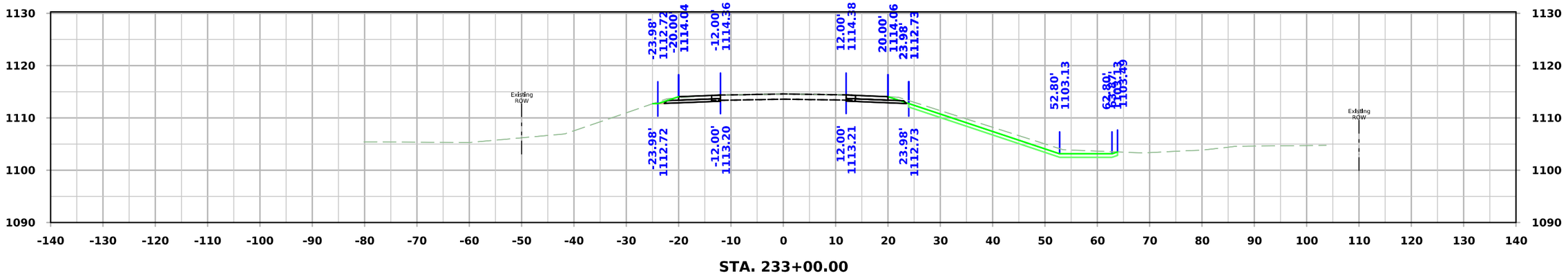
NOTES:

Text

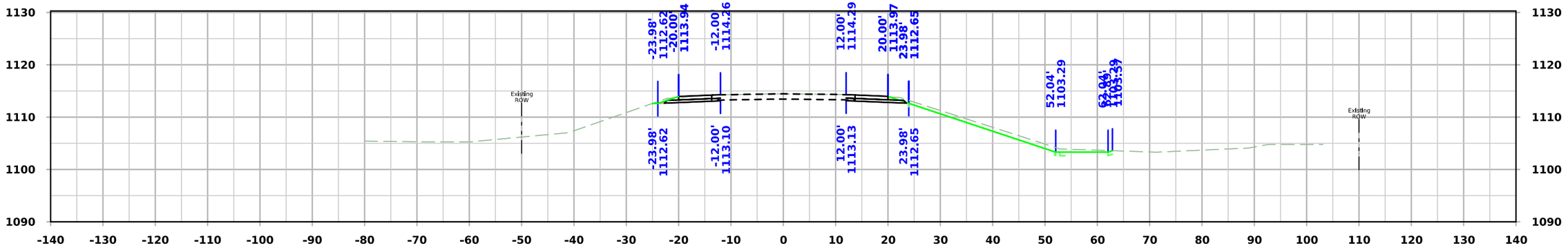
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

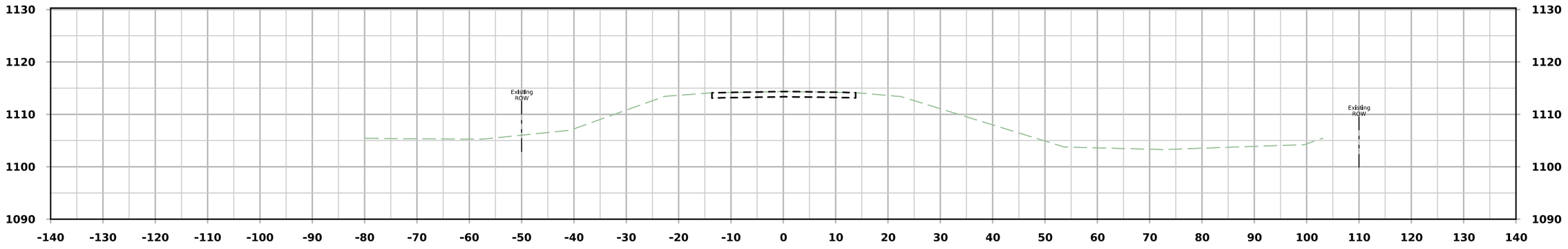
US 59



STA. 233+00.00



STA. 232+75.00

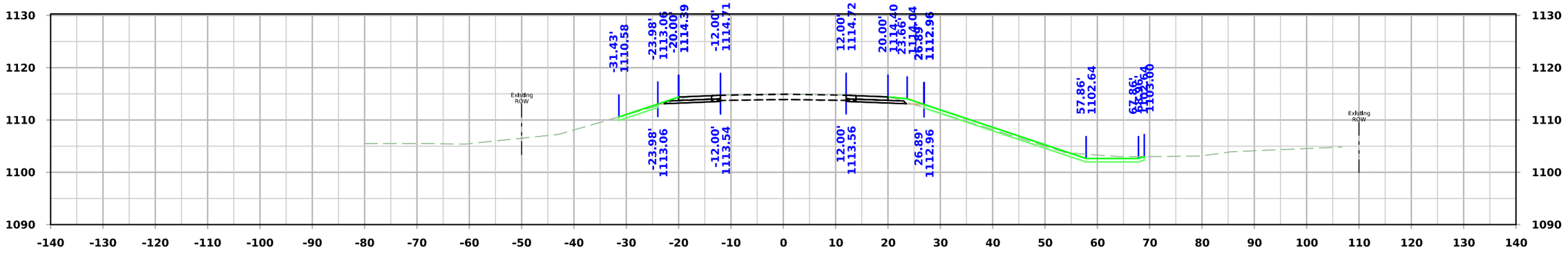


STA. 232+50.00

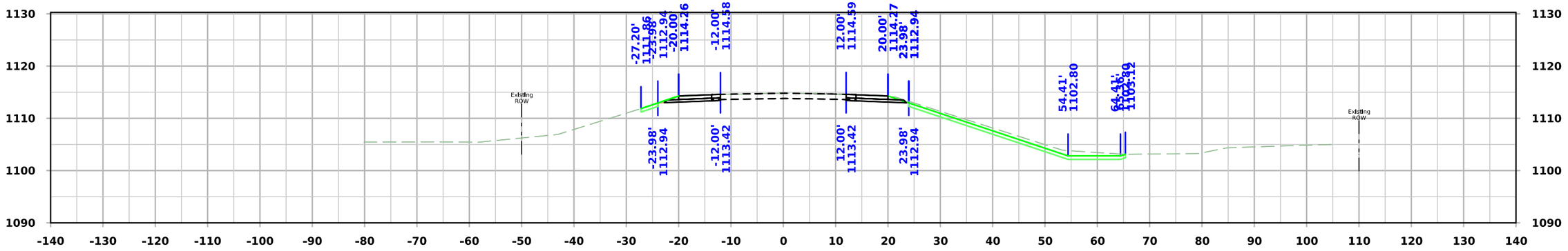
FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.2

7:24:40 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

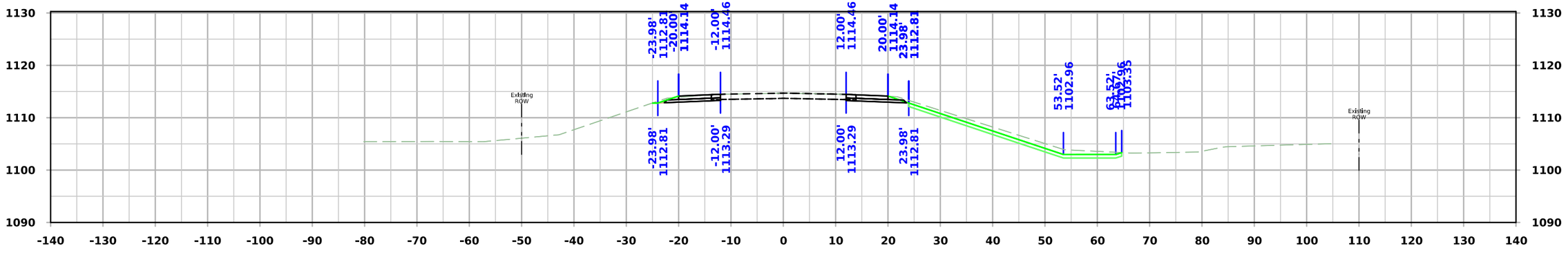
US 59



STA. 233+75.00



STA. 233+50.00

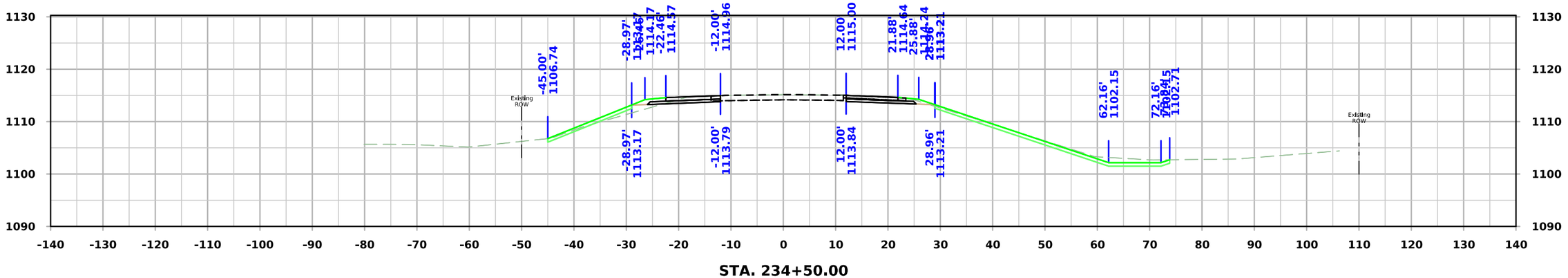


STA. 233+25.00

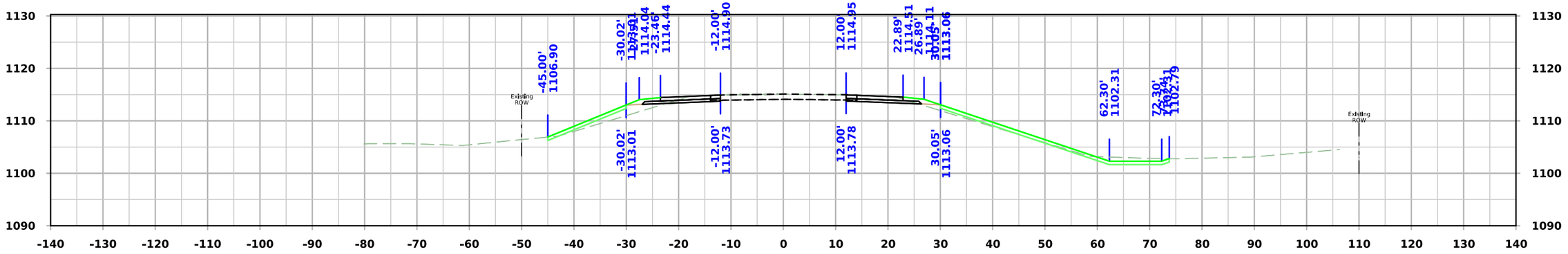
FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.3

7:24:41 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

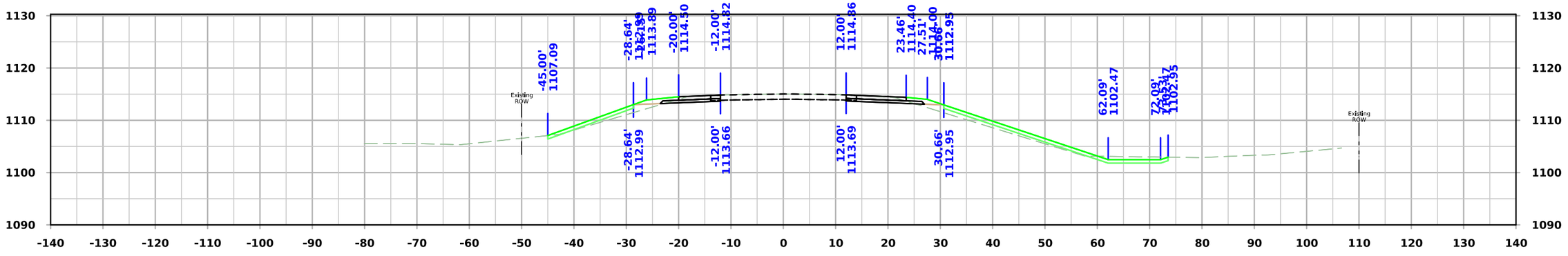
US 59



STA. 234+50.00



STA. 234+25.00

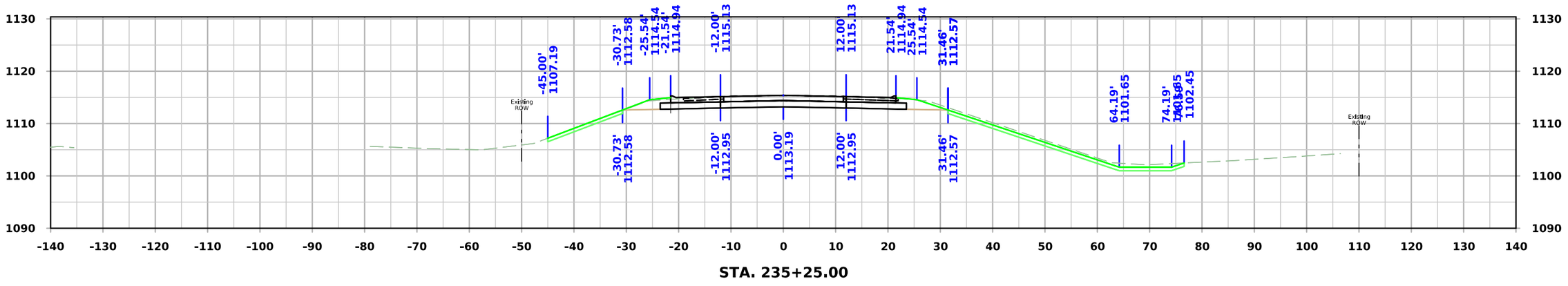


STA. 234+00.00

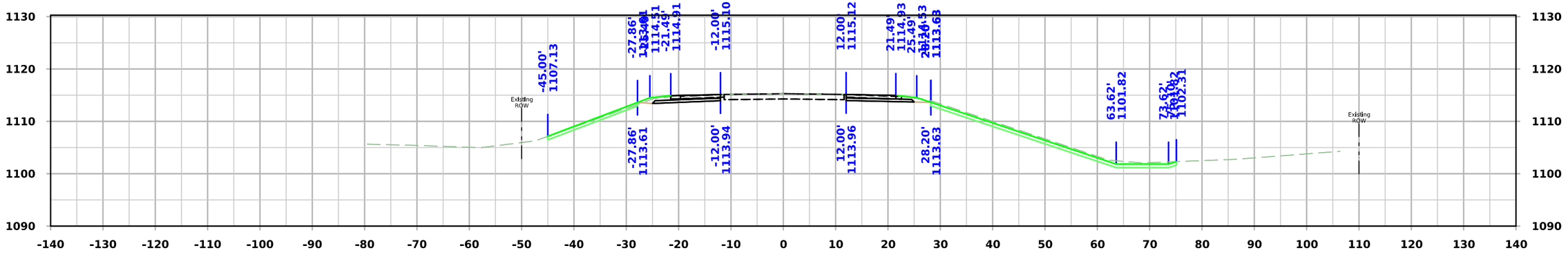
FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.4

7:24:42 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

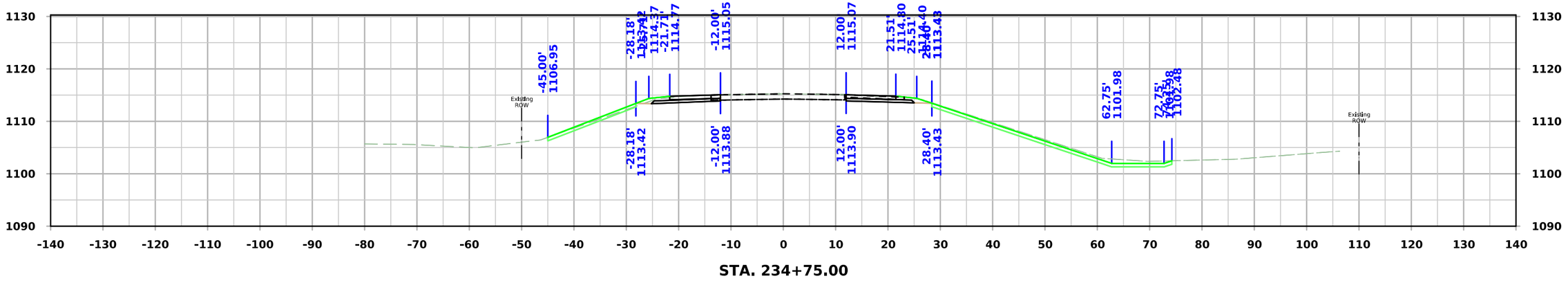
US 59



STA. 235+25.00



STA. 235+00.00

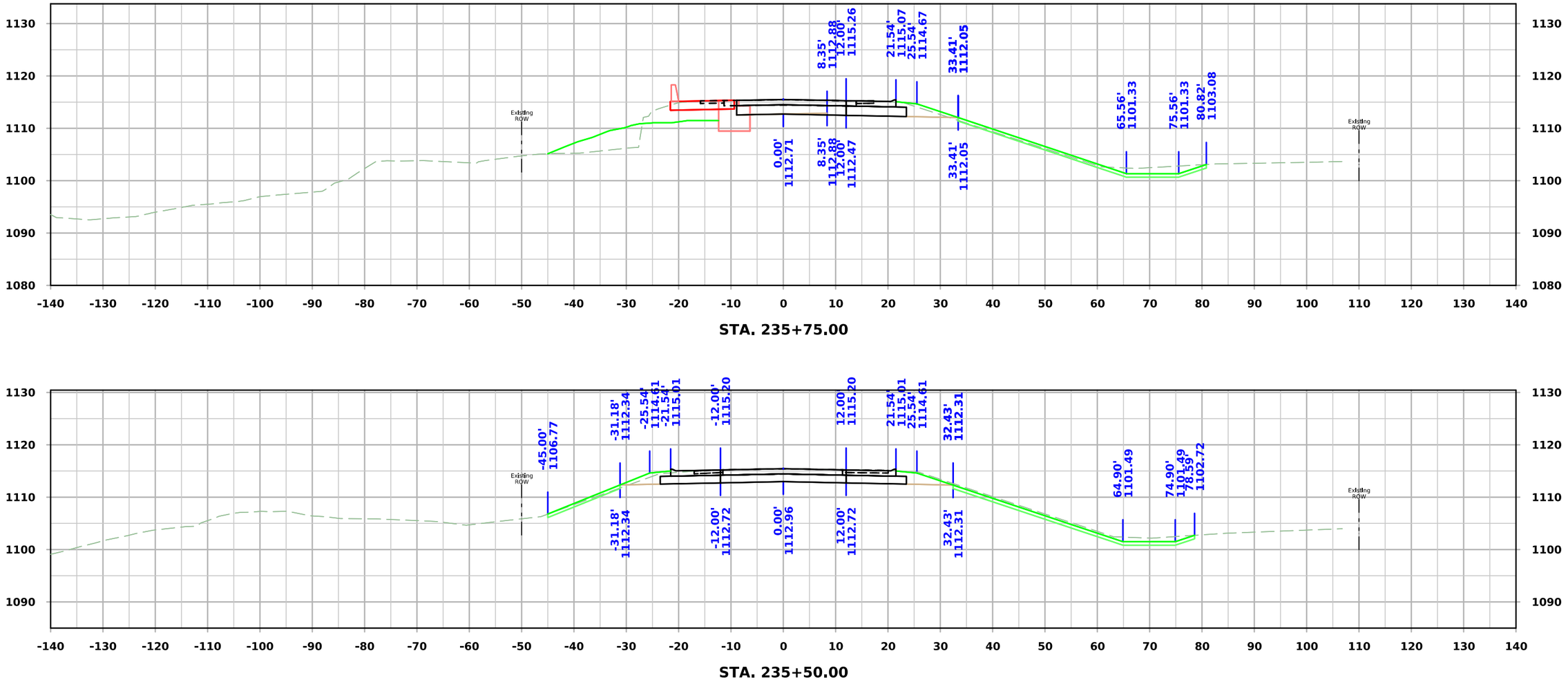


STA. 234+75.00

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.5

7:24:43 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

US 59



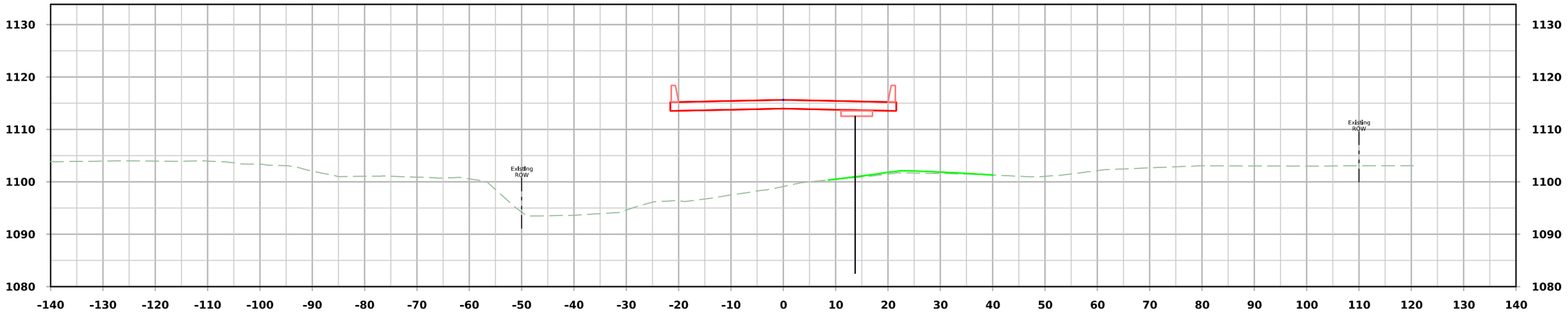
STA. 235+75.00

STA. 235+50.00

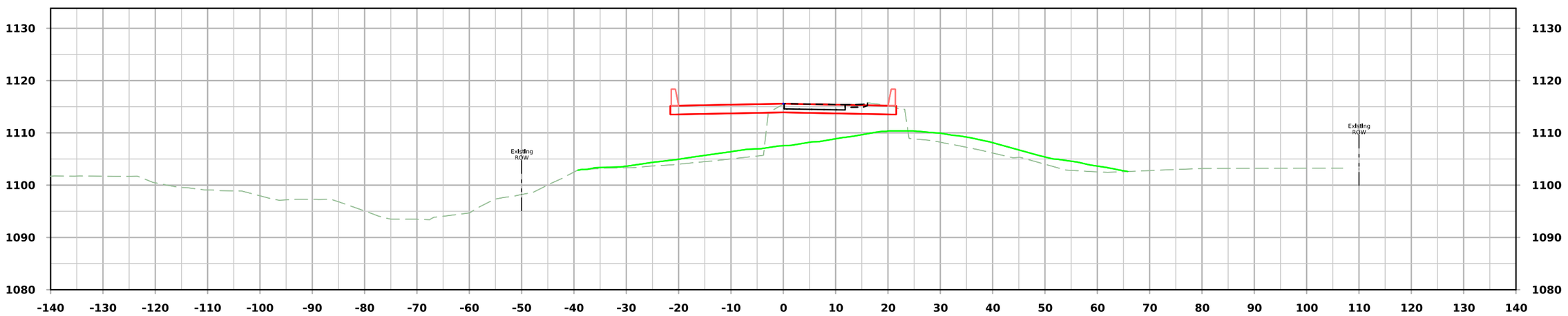
FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.6

7:24:44 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

US 59



STA. 236+25.00

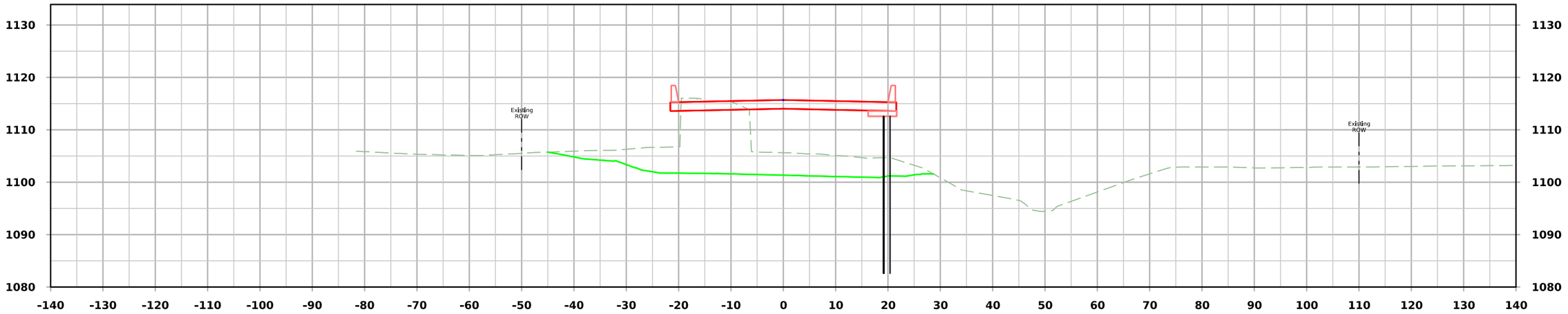


STA. 236+00.00

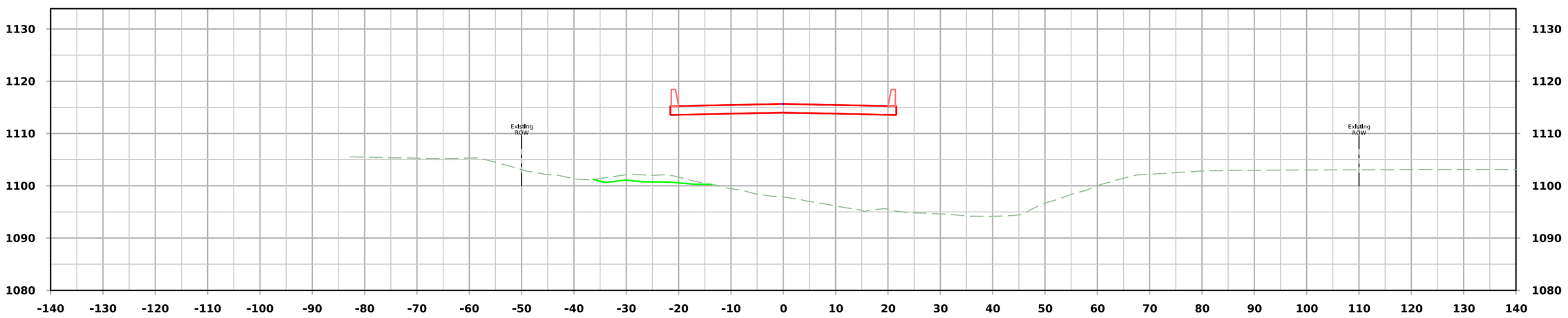
FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **W.7**

7:24:45 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

US 59



STA. 236+75.00

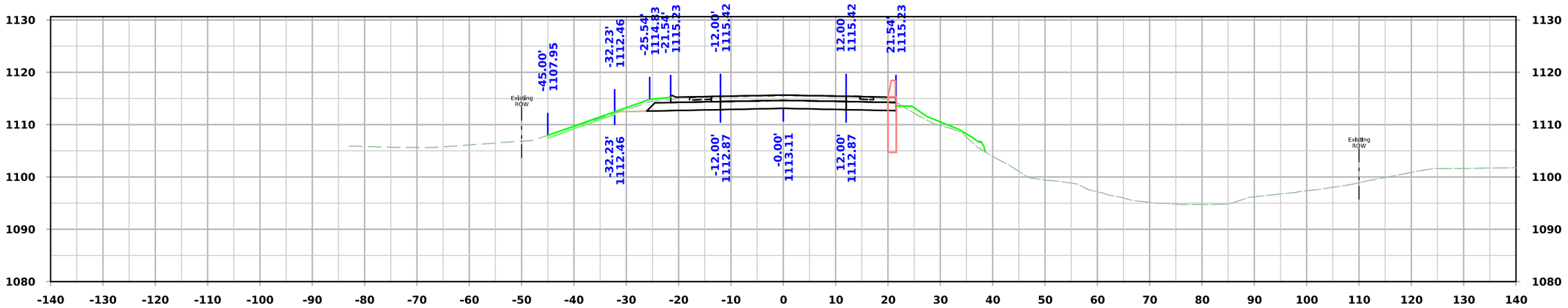


STA. 236+50.00

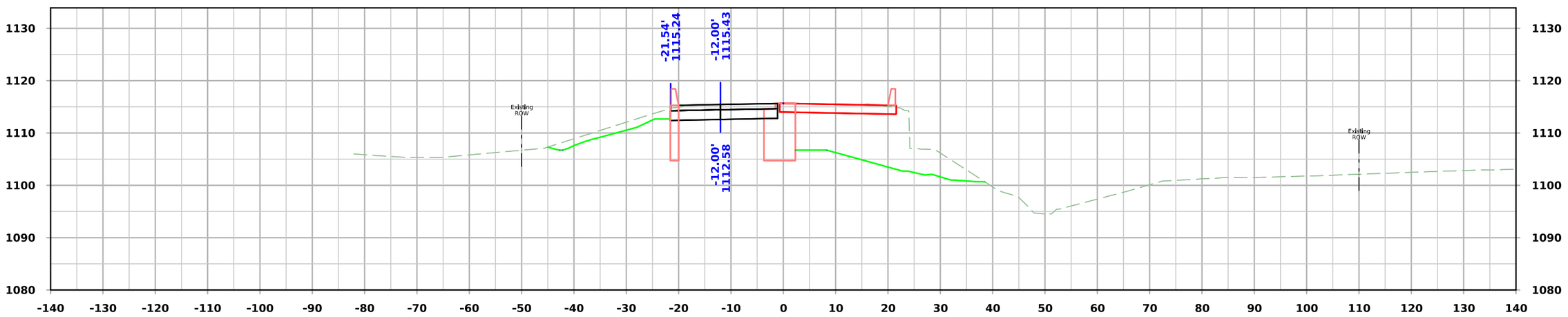
FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **W.8**

7:24:46 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

US 59



STA. 237+25.00

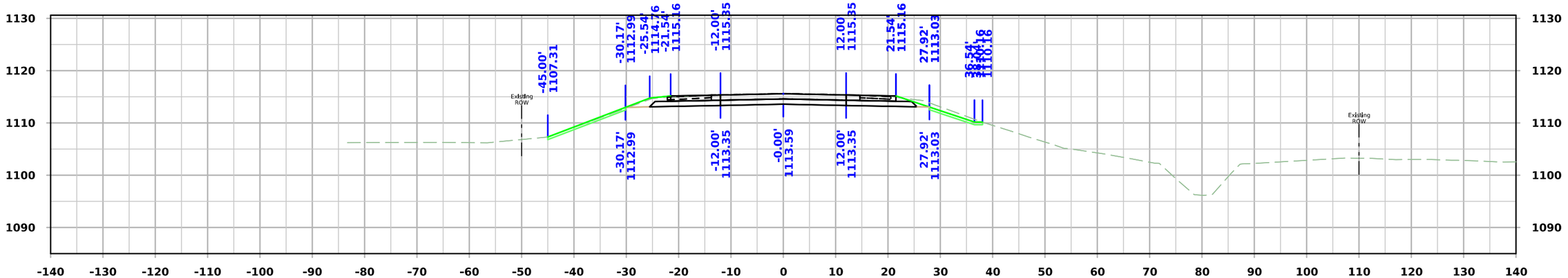


STA. 237+00.00

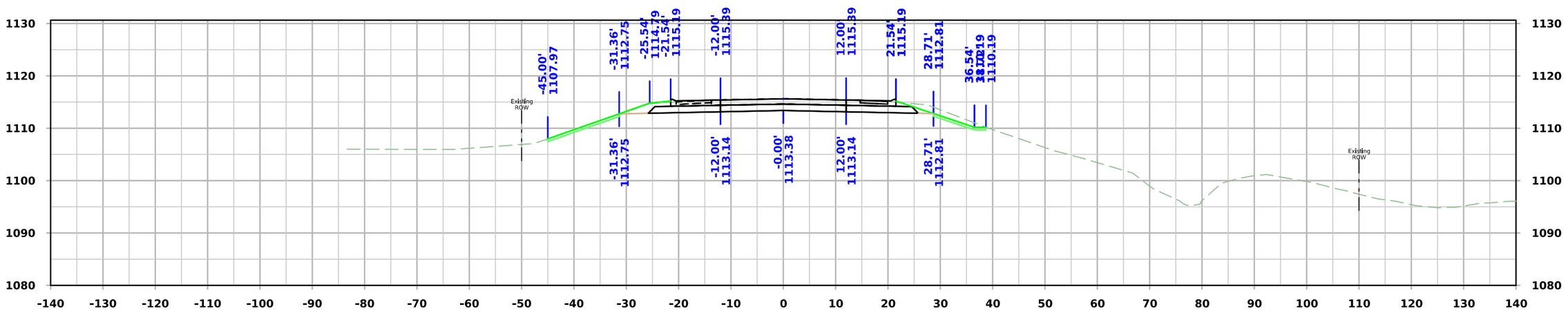
FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **W.9**

7:24:47 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

US 59



STA. 237+75.00

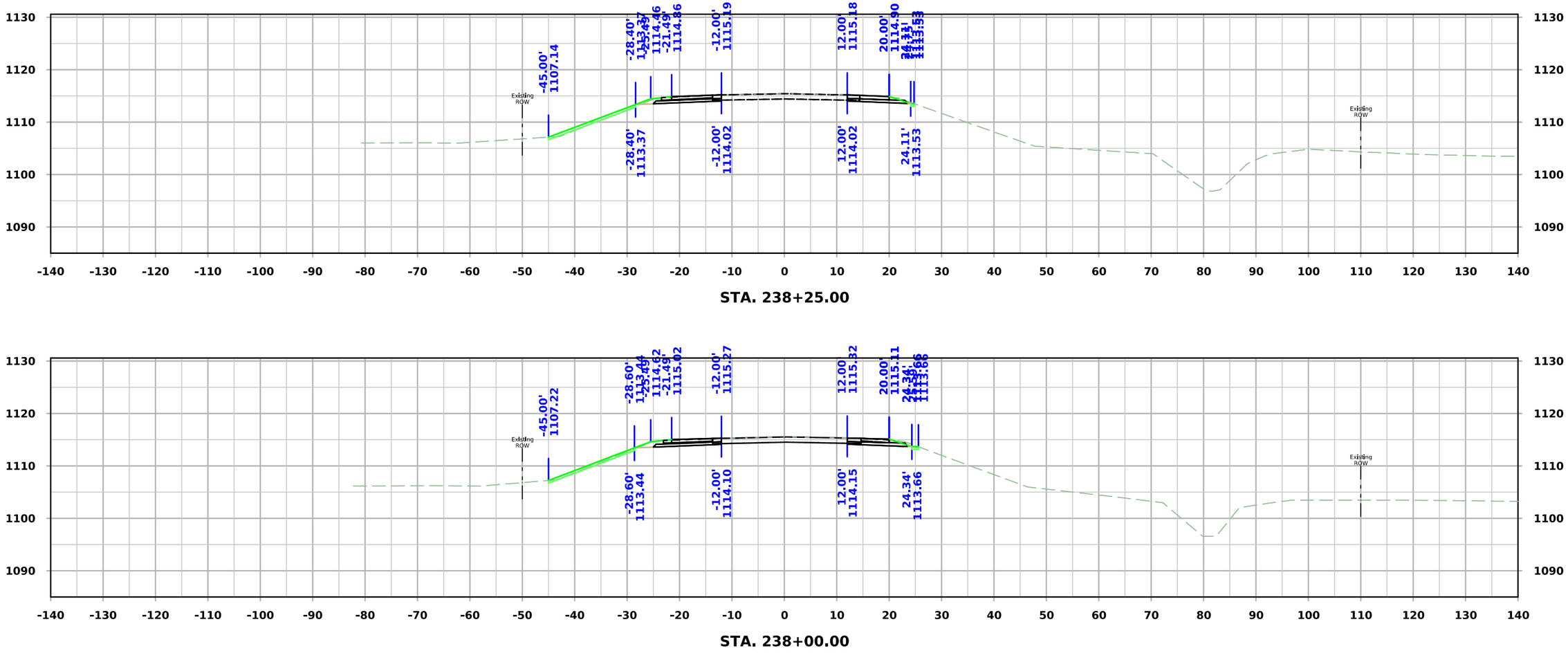


STA. 237+50.00

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.10

7:24:48 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

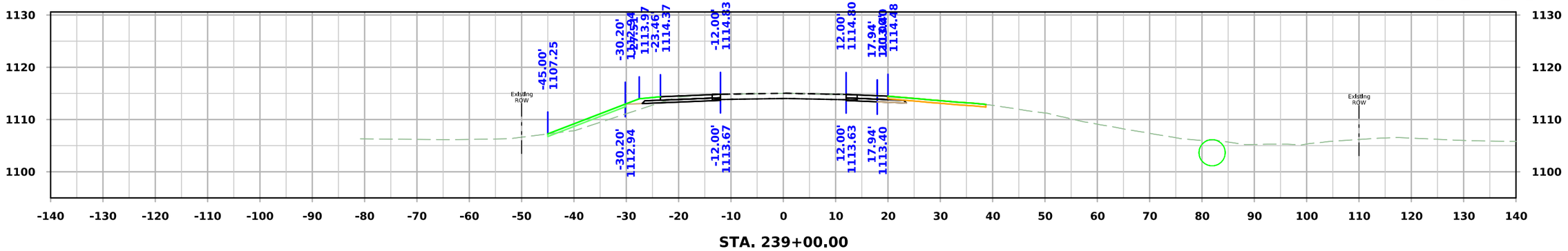
US 59



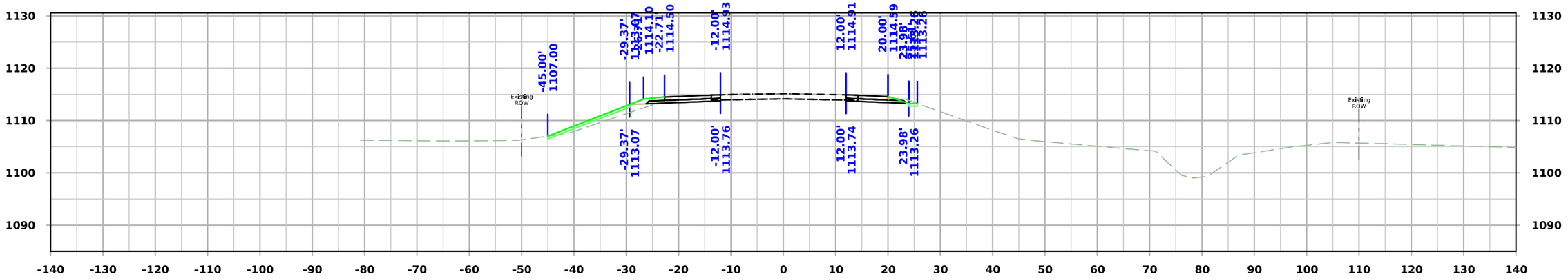
FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.11

7:24:49 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

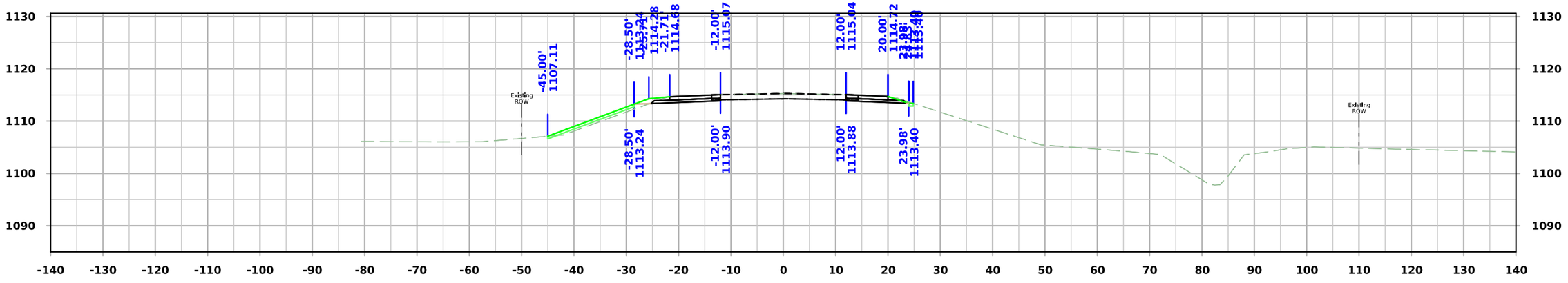
US 59



STA. 239+00.00



STA. 238+75.00

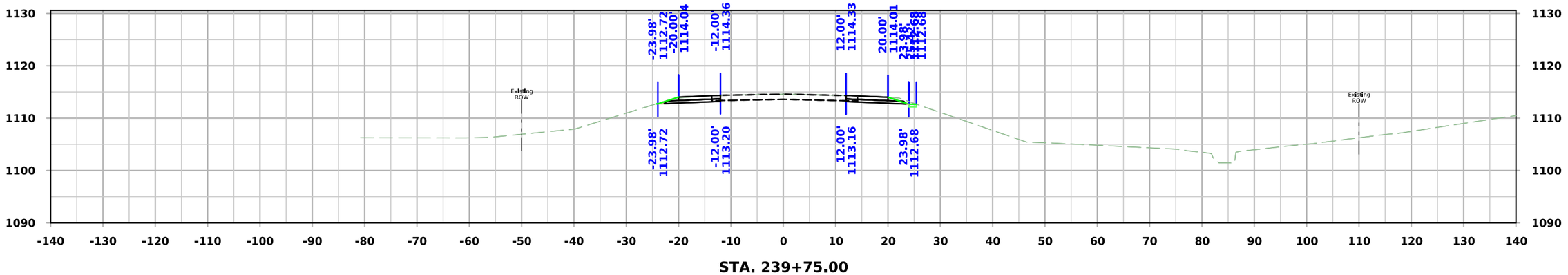


STA. 238+50.00

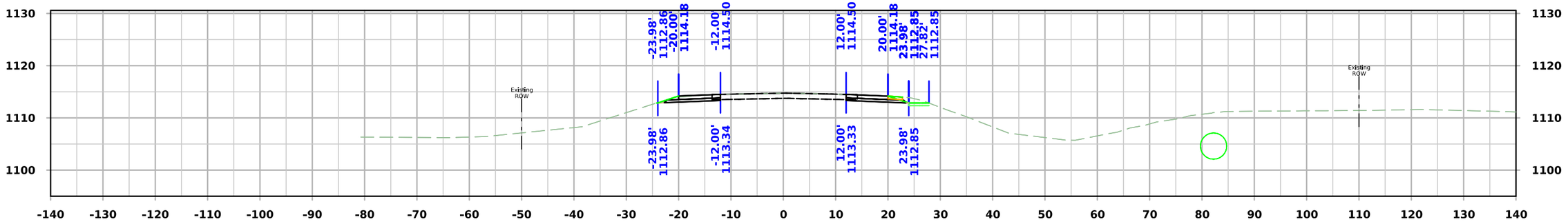
FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **W.12**

7:24:50 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

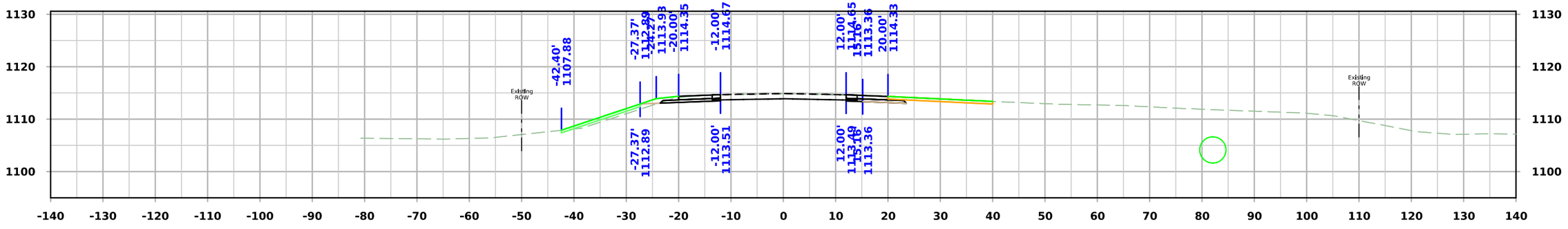
US 59



STA. 239+75.00



STA. 239+50.00

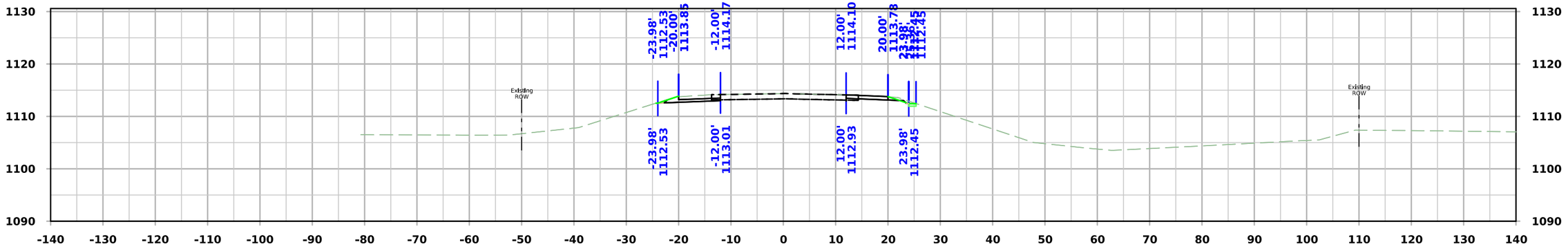


STA. 239+25.00

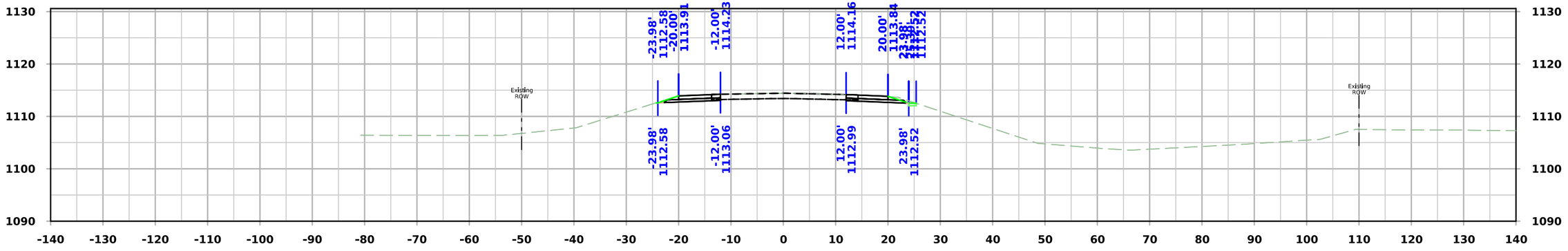
FILE NO. **32300**	ENGLISH	DESIGN TEAM **Strum/Janus**	**Pottawattamie** COUNTY	PROJECT NUMBER **BRF-059-3(52)--38-78**	SHEET NUMBER **W.13**

7:24:51 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn

US 59



STA. 240+10.00



STA. 240+00.00

FILE NO. 32300	ENGLISH	DESIGN TEAM Strum/Janus	Pottawattamie COUNTY	PROJECT NUMBER BRF-059-3(52)--38-78	SHEET NUMBER W.14

7:24:53 AM 7/8/2026 ajanus2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\7805903021\Design\CADD_Files\Sheet_Files\SHT_78059052_W01.dgn