

Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design No. 126
V.1 - V.39	Design No. 126
SPS Sheets	Bridge Plan Soils Sheet
SPS.1-SPS.3	Bridge Plan Soils Sheet
Road Sheets	Road Plan
A.3-U.9	Road Plans
C.1	Estimated Quantities - Road
C.4	Standard Plans - Road



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
MONONA COUNTY
Bridge Replacement - PPCB
IA 175 over I-29
I-29/IA 175 Interchange near Onawa

Refer to the Plan Sheets for list of applicable specifications.

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

Revisions

	TOTAL
	64
PROJECT IDENTIFICATION NUMBER	
21-67-175-020	
CONTRACT ID NUMBER	
67-1751-096	
PROJECT NUMBER	
STP-175-1(96)--2C-67	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
6717502021	

Standard Road Plans

Standard Road Plans are listed on Sheet C.4.

Design Data Rural (I-29)	
2023 AADT	12,700 V.P.D.
2046 AADT	13,500 V.P.D.
2046 DHV	1,400 V.P.H.
TRUCKS	35 %
Total Design ESALs	---
(Includes NB & SB lanes)	

Design Data Rural (IA 175)	
2026 AADT	3,700 V.P.D.
2046 AADT	4,600 V.P.D.
2046 DHV	480 V.P.H.
TRUCKS	16 %
Total Design ESALs	---

Index Of Seals		
Sheet No.	Name	Type
A.1	Sean E. Connor	Structural Design
SPS.1	Zachary A. Bonzer	Geotechnical Design
A.3	Jason Lastovica	Roadway Design

Structural Design

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

Sean E. Connor

Date

10/2/2025

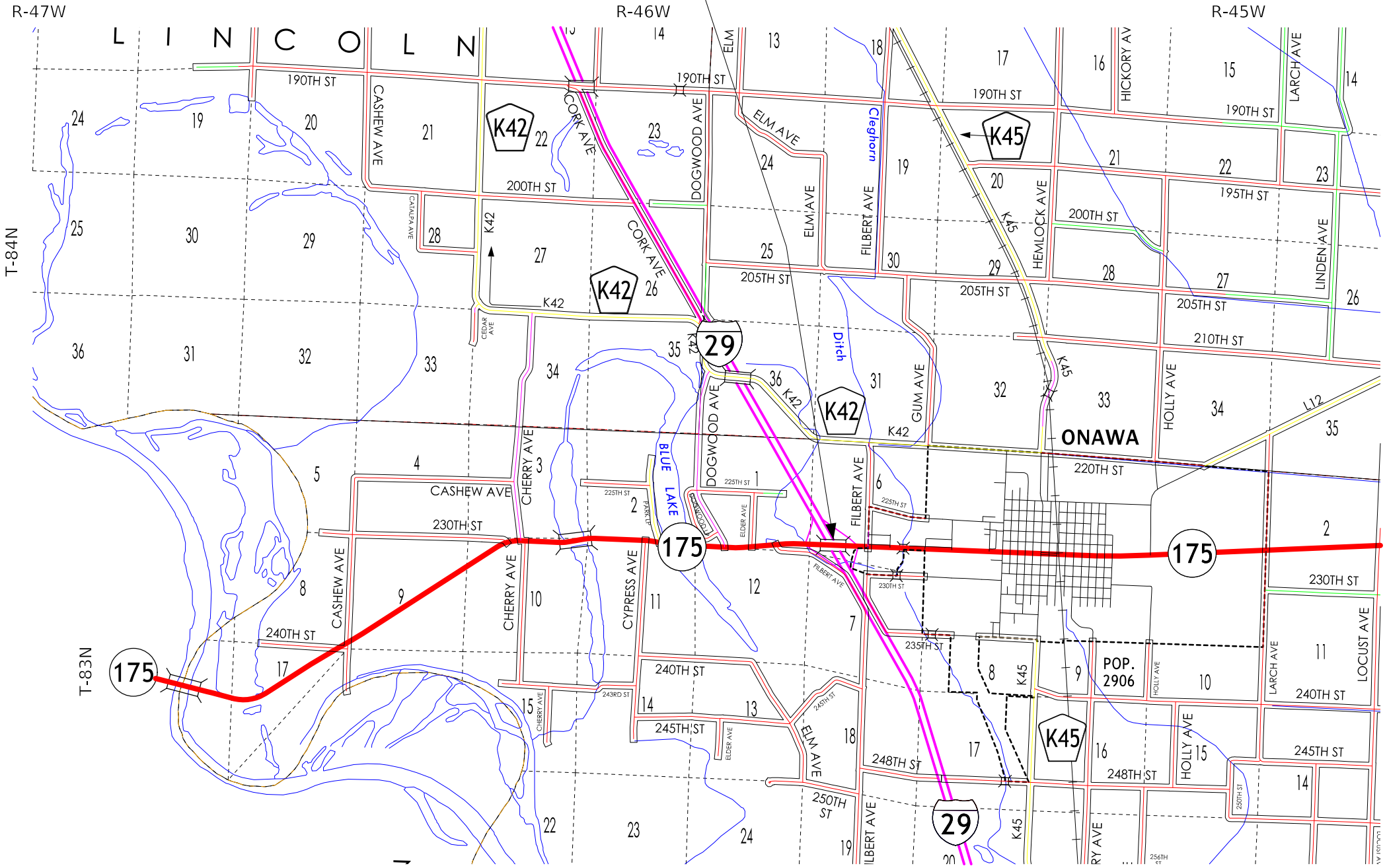
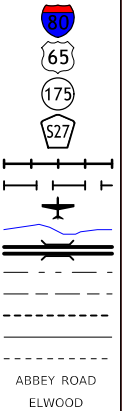
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1 Thru A.2, V.1 Thru V.39

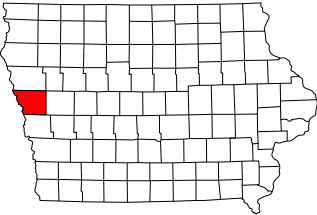
LEGEND

- 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
- UNINCORPORATED PLACE



Monona County Location Map

Not To Scale



Estimated Bridge Quantities - Design No. 126					
Item No.	Item Code	Item	Unit	Total	As Built Quantities
1	2401-6745625	Removal of Existing Bridge	L.S.	1.00	
2	2402-2720000	Excavation, Class 20	C.Y.	710	
3	2403-0100010	Structural Concrete (Bridge)	C.Y.	329.9	
4	2403-1000005	Fiber Reinforcement for Structural Concrete	C.Y.	702.7	
5	2403-1000010	Trial Batch and Test Placement (Fiber Reinforced Concrete)	L.S.	1.00	
6	2403-7000210	High Performance Structural Concrete	C.Y.	783.0	
7	2404-7775000	Reinforcing Steel	Lbs.	16,363	
8	2404-7775005	Reinforcing Steel, Epoxy Coated	Lbs.	237,053	
9	2404-7775009	Reinforcing Steel, Stainless Steel	Lbs.	5,456	
10	2407-0564135	Beams, Pretensioned Prestressed Concrete, BTD135	Each	18	
11	2408-7800000	Structural Steel	Lbs.	10,553	
12	2414-6424038	Concrete Barrier Railing , 3'-8"	L.F.	304.0	
13	2414-6425410	Concrete Barrier, Reinforced, Separation	L.F.	275.5	
14	2414-6444100	Steel Pipe Pedestrian Hand Railing	L.F.	347.8	
15	2499-2300001	Deck Drains	L.S.	1.00	
16	2501-0201274	Piles, Steel, HP 12x74	L.F.	6,380	
17	2501-0201473	Piles, Steel, HP 14x73	L.F.	6,600	
18	2501-6335010	Prebored Holes	L.F.	660	
19	2501-8400172	Temporary Shoring	L.S.	1.00	
20	2507-2638620	Macadam Stone Slope Protection	S.Y.	974	
21	2507-2638660	Bridge Wing Armoring - Macadam Stone	S.Y.	27	
22	2519-1002072	Fence, Chain Link, 72 in. Height	L.F.	303.0	
23	2526-8285000	Construction Survey	L.S.	1.00	
24	2533-4980005	Mobilization	L.S.	1.00	
25	2536-6745045	Removal of Asbestos	L.S.	1.00	

Item No.	Estimated Reference Information
1	Contractor to add the following information when submitting the Iowa DNR "Notification of Demolition" form: Name of Asbestos Inspector: Brad Azeltine Date Inspected: 03-02-2020 IA License Number: Iowa DOT Contact: Don Johnson; Phone: 515-239-1938 Procedure used to detect the presence of asbestos materials: Polarized Light Microscopy (PLM)
3	Includes cost of furnishing and placing splash basins (including excavation, erosion stone or Class E revetment, and engineering fabric). 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. Includes furnishing and placing 3 inch diameter PVC plastic pipe and expanding foam in the abutment wings.
4	Includes the cost of fiber reinforcement for 702.7 CY of concrete. The concrete is to be paid for in the bid item "High Performance Structural Concrete". Refer to "Developmental Specifications for Fiber Reinforcement for Structural Concrete" for additional information.
5	Refer to "Developmental Specifications for Fiber Reinforcement for Structural Concrete" for additional information.
6	This bid item includes the concrete for the deck, trail slab, abutment and pier diaphragms, and wingwalls. Refer to the Developmental Specification for High Performance Concrete for Structures for additional information.
10	Includes pier and abutment bearing material. See Materials IM 570 Appendix I for allowable bearing substitutes at integral abutments. Includes Contractor filling out beam numbers by location and beam seat elevations in "PPC Beam Data Spreadsheet" and forwarding electronic spreadsheet to the Engineer.
11	Includes intermediate steel diaphragms.
12 & 13	Includes material and labor associated with providing and installing the rigid steel conduit, junction boxes and fittings. Includes 910 L.F. of 2" diameter rigid steel conduit and 6 junction boxes. 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.
15	Includes all new deck drains. Refer to Design Sheets 17 & 24 for location, materials and the details of their construction. Measurement will be the lump sum for all deck drains required as specified in the plans. The payment shall be full compensation for furnishing all material, equipment and labor and for performance of all work necessary for fabricating and installing the deck drains as per plan. Includes cost of furnishing and placing splash basins (including excavation, erosion stone or Class E revetment, and engineering fabric).

Item No.	Estimated Reference Information
19	Includes all costs for designing, furnishing, and installing all temporary shoring necessary for construction and for removal of shoring as necessary. See the Temporary Shoring general notes for more information.
20	Includes furnishing and placing engineering fabric, macadam stone, 4" x 6" treated timbers, 1/2" diameter steel pins (or rebars), porous backfill or granular subbase backfill at front face of abutment footing, and all required excavating, shaping and compacting.
21	Includes furnishing and placing engineering fabric, macadam stone, 4" x 6" treated timbers, 1/2" diameter steel pins (or rebars), and all required excavating, shaping and compacting for wing armoring.
25	An inspection for the presence of asbestos containing materials was completed. The lighter-gray tar sealant in concrete slope protection pad joints was found to contain asbestos. Asbestos materials shall be removed prior to bridge demolition operations. The lump sum bid for "Removal of Asbestos" shall include removal and disposal of the asbestos containing material. A complete report of the materials tested can be obtained from the Contracts Bureau. If additional materials suspected of containing asbestos are discovered during demolition of the bridge, work shall be stopped immediately and the Engineer notified.

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Ed, Series of 2017, except as noted in the current Iowa Bridge Design Manual.

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

Concrete in accordance with AASHTO LRFD Section 5, f'c = 4.0 ksi, except prestressed beam concrete as noted.

Prestressed concrete beams, see Design Sheet 21.

Bridge deck concrete f'c = 4.0 ksi

Structural steel in accordance with AASHTO LRFD Section 6. ASTM A709 Grade 36, Grade 50 and Grade 50W (AASHTO M270 Grade 36, Grade 50 and Grade 50W).

Specifications:

Design:
AASHTO LRFD 8th Ed, Series of 2017, 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. Including the following:

-Developmental Specification for "High Performance Concrete for Structures"
-Developmental Specification for "Fiber Reinforcement for Structural Concrete"
-Developmental Specification for "Electronic Ticketing"

Roadway quantities are included elsewhere in these plans and in tied road plans, project No. STP-171-1(95)--2C-67.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Estimated Quantities
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 1 of 39 FHWA No. 36831

General Notes:

It is the intent of this design to construct a 272'-0" x 58'-0" Pretensioned Prestressed Concrete Beam (PPCB) replacement bridge with a 10'-3" Multi-Use Path, skewed 32°, on IA 175 over I-29.

This design is for the replacement of the existing 244'-0" x 30'-0" Continuous I-Beam bridge, Design No. 4458, with a year of construction of 1959. 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:
- IA 175 over I-29, FHWA No. 36830
- Partial removal of 30" RCP as required to build north pier footing. The RCP will be filled and abandoned as part of the tied project STP-175-1(95)--2C-67.

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

Faint lines on plans indicate the existing structure.

The City and 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 construction starting date.

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

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

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 millimeters.

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

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.

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

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

Bridge approach pavement shall not be constructed for a minimum of 60 days following the completion of the approach fills.

Intermediate Foundation Improvement (IFI) remediation will be installed below both abutments as part of the Tied (95) PCC Pavement- Grade and Replace project. Coordinate with the IFI Vendor to avoid conflicts with abutment steel piling.

The Contractor shall be responsible for ensuring stability of prestressed concrete beams during erection and construction up through the concrete bridge deck reaching its full 28-day strength. The Contractor shall provide sufficient temporary anchor bracing at beam ends and temporary intermediate bracing as needed to ensure prestressed beam stability. Partially or fully installed permanent bracing as shown in these design plans shall not be assumed sufficient to brace prestressed beams during erection and construction. Temporary bracing shall not be welded to prestressed beam stirrups.

A scrape sample was taken from an area of this bridge to get an indication of the existence of and level of total levels of total lead and total chromium. Analysis of total lead on this sample was <50 parts per million (PPM). Analysis of total chromium on this sample was 325 PPM. These analyses shown 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 should 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.



General Notes (Cont.):

Laboratory analysis has identified asbestos at this site. Asbestos shall be removed prior to bridge demolition operations. Removal, transport, and disposal shall be in accordance with Section 2536, of the Standard Specifications. Required DNR information includes:

Year Constructed	1959
Asbestos Location	Lighter-gray tar sealant in concrete slope protection pad joints
FHWA number (existing)	Information provided elsewhere in plan
Road/Rout (city)	Information provided elsewhere in plan
County	Information provided elsewhere in plan
Directions to Bridge	Information provided elsewhere in plan
Bridge Size	Information provided elsewhere in plan
Number of Decks	1
Asbestos Inspection/Amounts	Information provided by Engineer

All dimensions and details shown on these plans pertinent to new construction in relation to existing portions of the structure shall be verified in the field by the Contractor before starting construction.

The Bridge Contractor shall prebore holes for abutment piles. Holes shall be bored to the elevations shown on the "Longitudinal Section Along C IA-175" on Design Sheet No. 4. Piles shall be driven through the holes to at least the specified design bearing.

During construction of this project, the Bridge Contractor will be required to coordinate operations with those of other Contractors working within the same area. Other work in progress during the same period of time will include, but is not limited to, construction of the projects listed on the J Sheets of the tied project STP-175-1(95)--2C-67.

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

Guardrail is to be placed as part of the tied project STP-175-1(95)--2C-67.

Longitudinal grooving is included elsewhere in these plans.

Note that when approach pavement is to be placed, the temporary paving blocks shall be removed and a proper joint for expansion shall be provided between the bridge and the approach paving.

All plan dimensions are horizontal unless noted otherwise.

Temporary Shoring Notes:

Temporary shoring (sheet pile or other) shall be required as necessary to construct the proposed bridge abutments adjacent to the existing bridge. Temporary shoring is not required for the construction of the pier footing but can be included at the Contractor's option with approval by the Engineer.

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 Bureau. 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 locations 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.

To prevent damage to the pavement that can be caused by voids in the soil by extracting piling, all temporary shoring (sheet piling, H-Piles, or other) shall be removed prior to pouring new pavement within 6' of the shoring location. In addition no temporary shoring can be driven within 6' of pavement that is to remain in place after construction.

Traffic Control Plan

The roadway will be open to thru traffic for the duration of the project. Refer to the traffic control plans included in the tied STP-175-1(95)--2C-67 roadway plans.

Note:
The Pollution Prevention Plan is included in the tied STP-175-1(095)--2C-67 roadway plans.

Design History at This Site	
Des. No.	Type of Work
4458	Original Design
268	Bridge Deck Overlay
295	Backwall Repair
101	Overlay / Joint Replacement
221	Beam Repair
325	Beam Repair
126	Bridge Replacement

Bridge Deck Dimensions Table

No.	Item	Unit	Quantity
1	Deck Length	L.F.	276.1
2	Minimum Deck Width	L.F.	72.2
3	Maximum Deck Width	L.F.	72.2
4	Deck Area	S.F.	19,934.4

- Deck length is measured from face-to-face of paving notches along the centerline of roadway.
3. Deck widths are measured from out-to-out of deck perpendicular to the centerline of roadway.
- Deck area is to be based on the face-to-face paving notch distance and out-to-out deck dimensions.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

General Notes

STA. 1745+86.46 (IA 175)Turn-in Date: October 2025

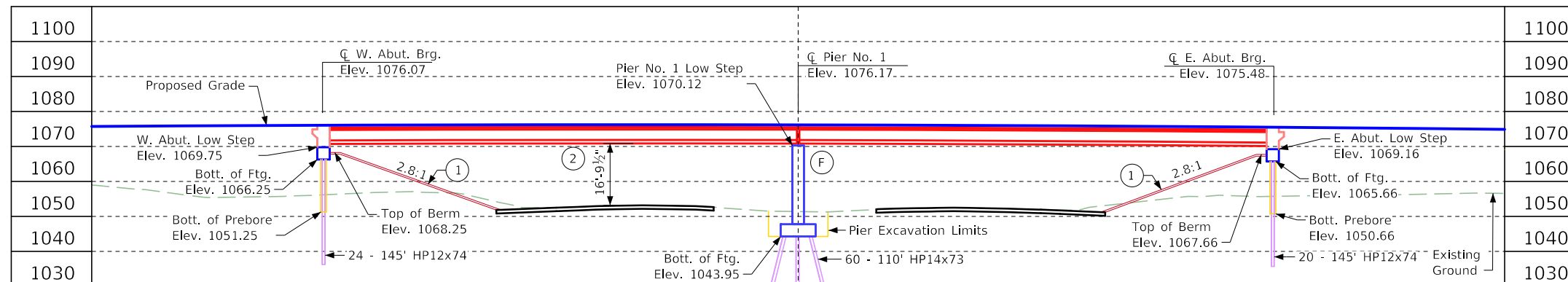
Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126Design Sheet No. 3 of 39FHWA No. 36831

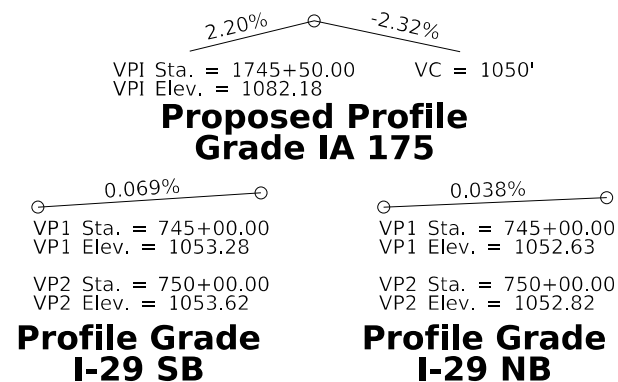
Working Drawing and Calculation Submittals			
Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)			
Submittal requirements 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 absense 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	Intermediate Diaphragm Details	(96)_Monona_Design126_Intdiaphragms.pdf	No
2	Deck Drains	(96)_Monona_Design126_Deckdrains.pdf	No
3	Temporary Shoring	(96)_Monona_Design126_Tempshoring.pdf	Yes
4	Steel Pipe Pedestrian Hand Railing	(96)_Monona_Design126_Pedrailling.pdf	No
5	Chain Link Fencing	(96)_Monona_Design126_Fencing.pdf	No
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
6	Temporary Shoring Calculations	(96)_Monona_Design126_TempShoringCalcs.pdf	Yes

Control Point: CP-1; N=7246812.81, E=16392085.34, Elev. 1047.76, CP FD ½" Rebar 20" Deep 1080' S. of IA 175 in Median of I-29



Section A-A (Longitudinal Section Along C_1 Approach Roadway)

- ① Macadam Stone Slope Protection - 6" thickness 2.5:1 max. slope normal to abutment
- ② Minimum Vertical Clearance
- ③ Minimum Horizontal Clearance - Measured from edge of traveled way to face of pier



Minimum Vertical Clearance

S.B. I-29
Overhead Station = 1745+19.16, 38.08' Lt.
Overhead Elevation = 1075.56
Depth of Superstructure = 5.31' (8.5" deck, 1¼" haunch, 4.5' beam)
Underpass Station = 747+60.23, 37' Lt.
Underpass Elevation 1053.46
Minimum Vertical Clearance = 16.79'

N.B. I-29
Overhead Station = 1746+46.91, 27.08' Rt.
Overhead Elevation = 1075.35
Depth of Superstructure = 5.31' (8.5" deck, 1¼" haunch, 4.5' beam)
Underpass Station = 746+37.39, 37' Rt.
Underpass Elevation 1052.68
Minimum Vertical Clearance = 17.36'

Utilities Note:

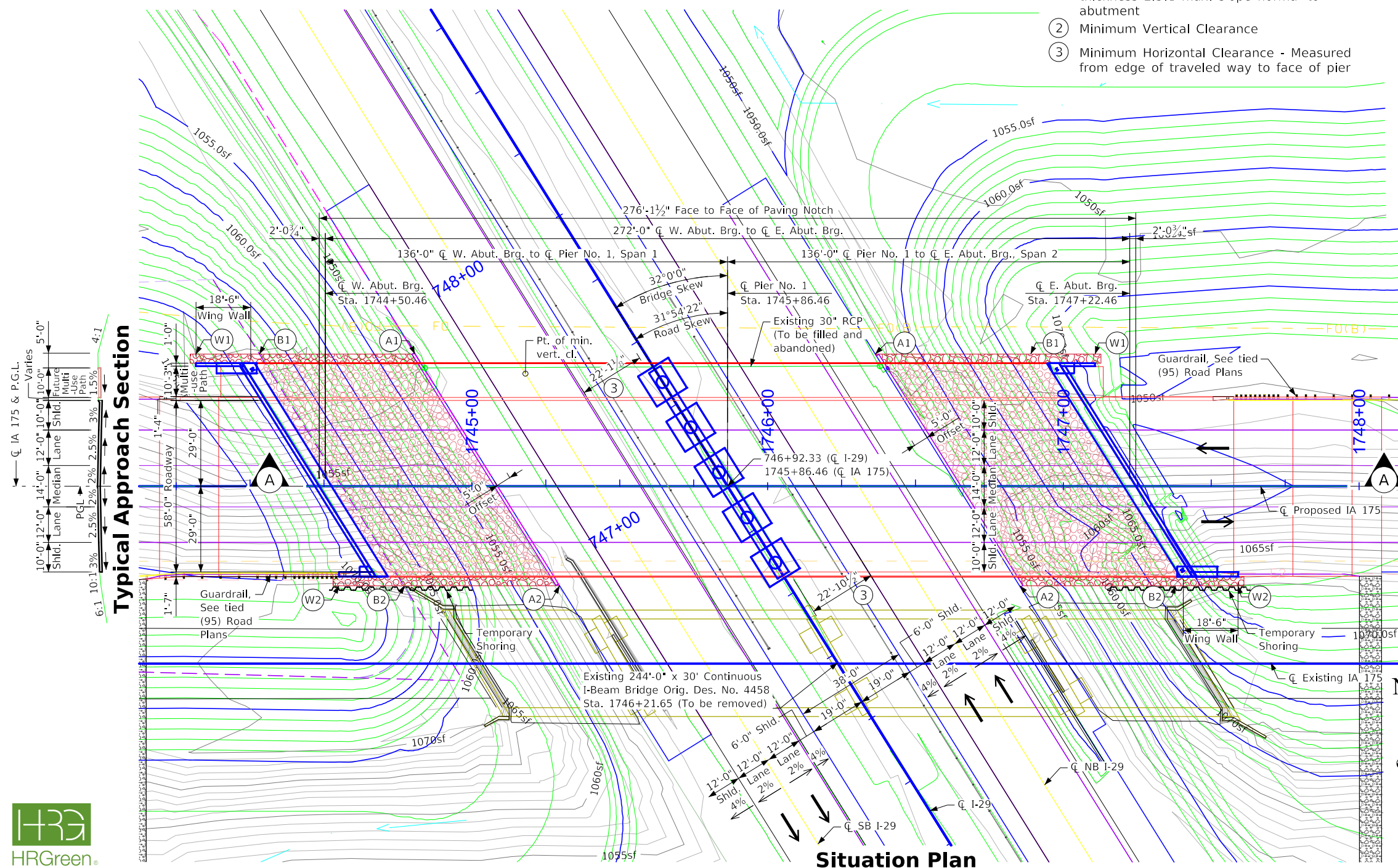
Utilities shown on this sheet are for information only. See Road Design Project No. STP-175-1(95)-2C-67 for final utility information.

Utility Symbols:

- FO - Fiber Optic Line
- T1 - Telephone Line
- E2 - Electric Line

Location

IA 175 Over I-29
T-83N R-45W
Sections 6
Franklin Township
Monona County
Maint. No. 6705.5S175
FHWA No. 036831
Latitude 42.027171°
Longitude -96.132711°



Situation Plan

Plan Notes:

1. 2-Span Grading Shown (see EW 204 - 5' offset)
2. Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for parabolic crown.
3. All dimensions are horizontal unless noted otherwise.
4. All units are in feet unless noted otherwise.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

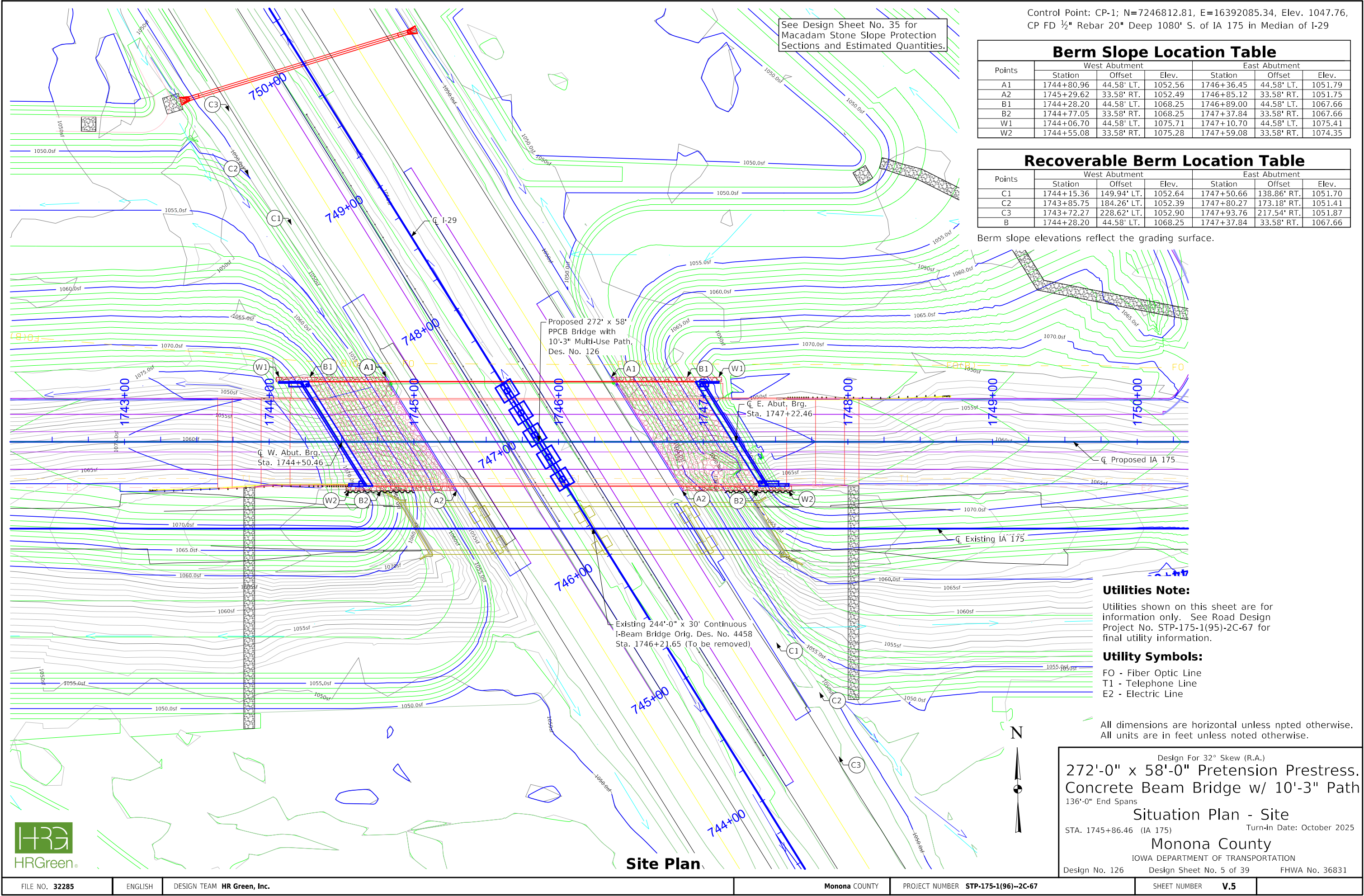
Situation Plan

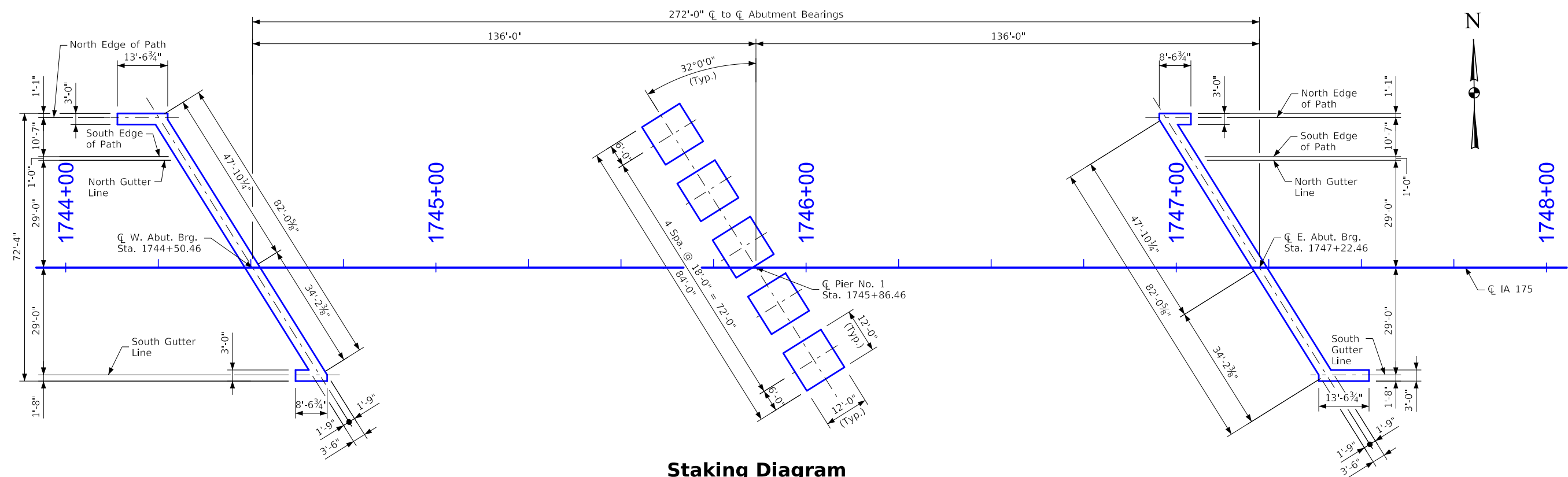
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 4 of 39 FHWA No. 36831





Staking Diagram

* Measured with respect to a line perpendicular to CL IA 175 & P.G.L. local tangent.

Bridge Coordinates			
Location	CL W. Abut. Brg.	CL Pier No. 1	CL E. Abut. Brg.
Left Edge of Deck	E=16391329.352 N=7247844.176	E=16391465.337 N=7247842.165	E=16391601.322 N=7247840.155
CL IA 175 & P.G.L.	E=16391354.718 N=7247802.213	E=16391490.703 N=7247800.203	E=16391626.688 N=7247798.192
Right Edge Deck	E=16391373.375 N=7247771.351	E=16391509.360 N=7247769.340	E=16391645.345 N=7247767.330

Note: An electronic file containing the bridge coordinate data 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 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

Staking Diagram

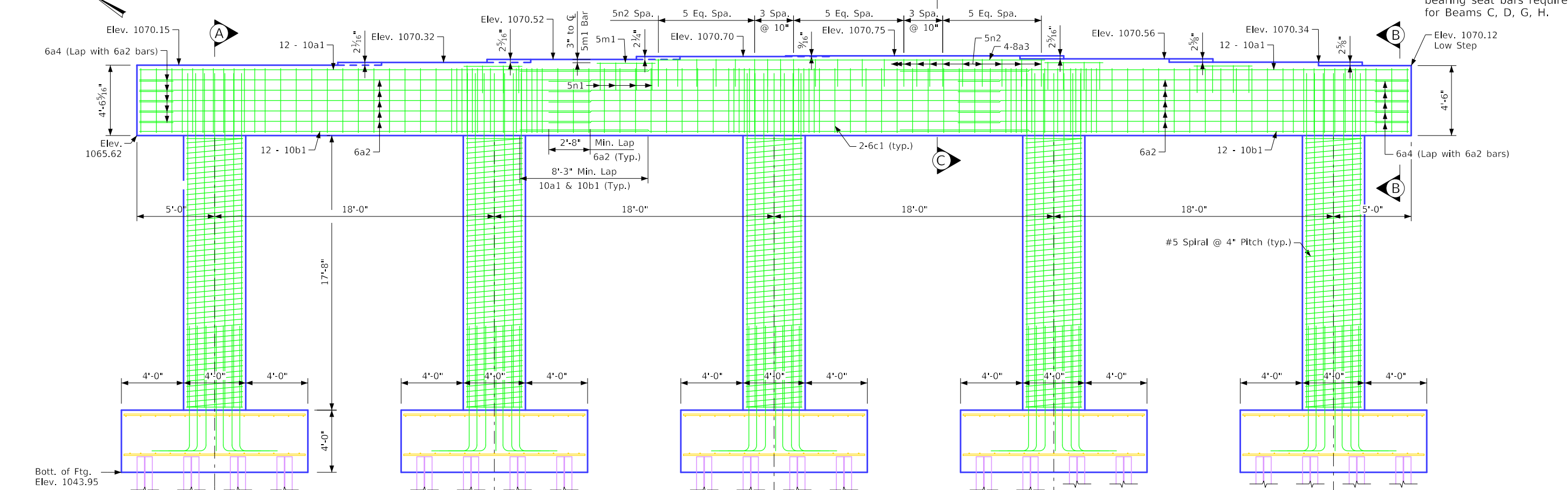
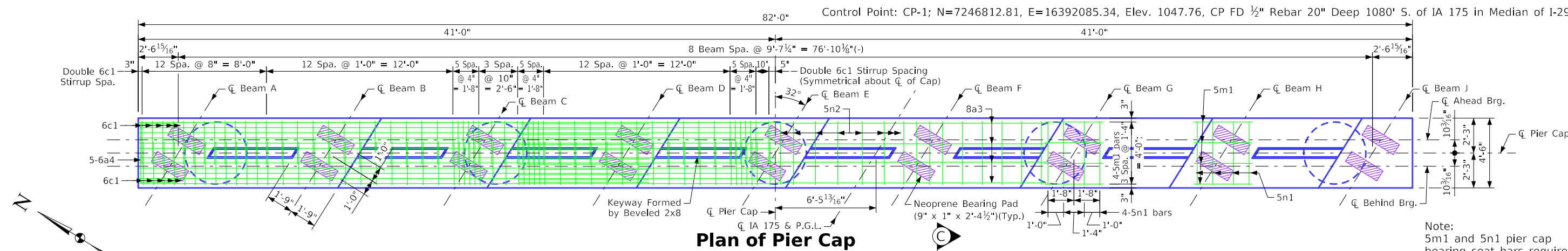
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 6 of 39 FHWA No. 36831





Pier Notes:

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

Reinforcing is to be securely wired in place before concrete is poured.

All exposed corners 90° or sharper to be filleted with 3/4" dressed and beveled strip.

All battered piles shall be trimmed to a horizontal line to aid in the placement of reinforcing.

Piles should be battered at the slope and in the direction shown on Pier Reinforcing - Elevation View & Pier Section A-A on Design Sheet 8.

The 10d2 footing to column dowels are to be in place before footing concrete is placed.

Spiral Reinforcing is to be No. 5 bar with 3'-8" diameter, 4" pitch, with 4 equally placed L7/8"x7/8"x1/8" spacers punched to hold spirals. Spirals are to have 1 1/2 extra turns at top and bottom of the columns. Individual ties shall not be substituted.

See Design Sheet 8 for Sections, A-A, B-B, and C-C, footing details, typical section thru column, and pier quantities.



Pier Piling Notes:

The contract length of 110 feet for the Pier 1 is based on a non-cohesive soil classification, a total factored axial load per pile (pu) of 176 kips, and a geotechnical resistance factor (phi) of 0.55. Piles were designed for a factored tension force of 20 kips.

The nominal axial bearing resistance of construction control was determined from a non-cohesive soil classification and a geotechnical resistance factor (phi) of 0.55 for soil. Piles are assumed to be driven from a start elevation at the bottom of footing.

The required nominal axial bearing resistance for Pier 1 piles is 160 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. In no case shall a pile be embedded less than 20 feet. Construction control requires a WEAP analysis with bearing graph.

Note: Forms for pier caps may be removed with the approval of the engineer when the following two conditions have been met:

- Pier cap concrete has been in place for a minimum of 2 calendar days excluding days that the concrete surface is subjected to temperatures at or below 40°F and
- The pier cap concrete compressive strength is at least 2500 psi.

Minimum concrete compressive strength of 2500 psi shall be verified by flexural strength according to Materials I.M. 316 with a minimum flexural strength of 450 psi or by the maturity method according to Materials I.M. 383. Curing of pier cap concrete shall be in accordance with the Standard Specifications. Pier cap concrete shall be subjected to exterior loads in accordance with Article 2403.03, N, 2, of the Standard Specifications.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.

Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

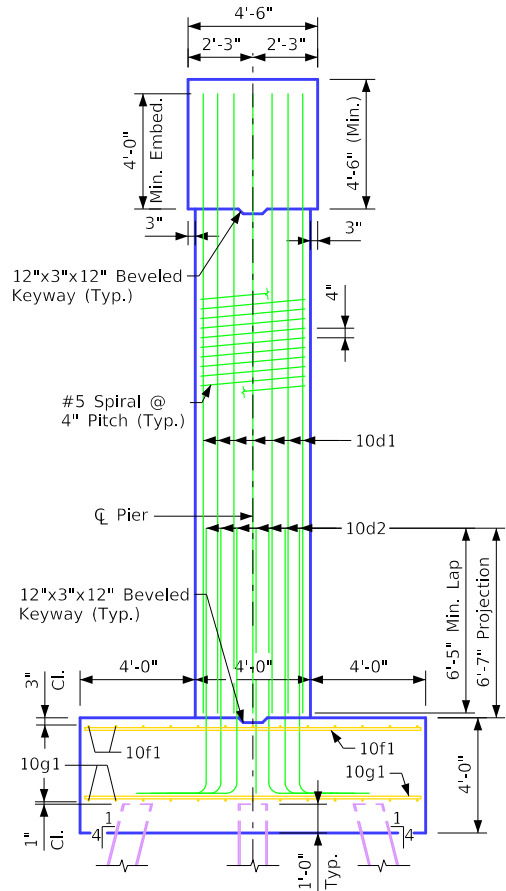
Pier - Details - Plan & Elevation

STA. 1745+86.46 (IA 175) Turn-In Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

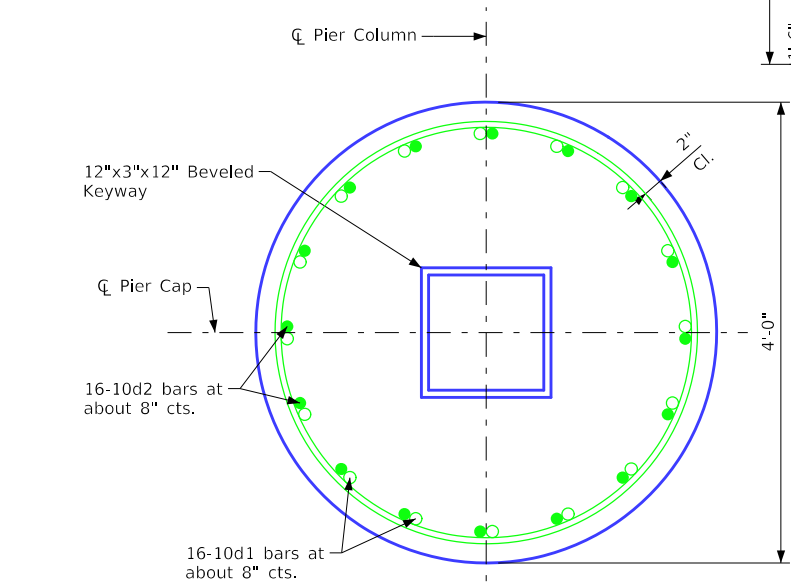
Design No. 126 Design Sheet No. 7 of 39 FHWA No. 36831



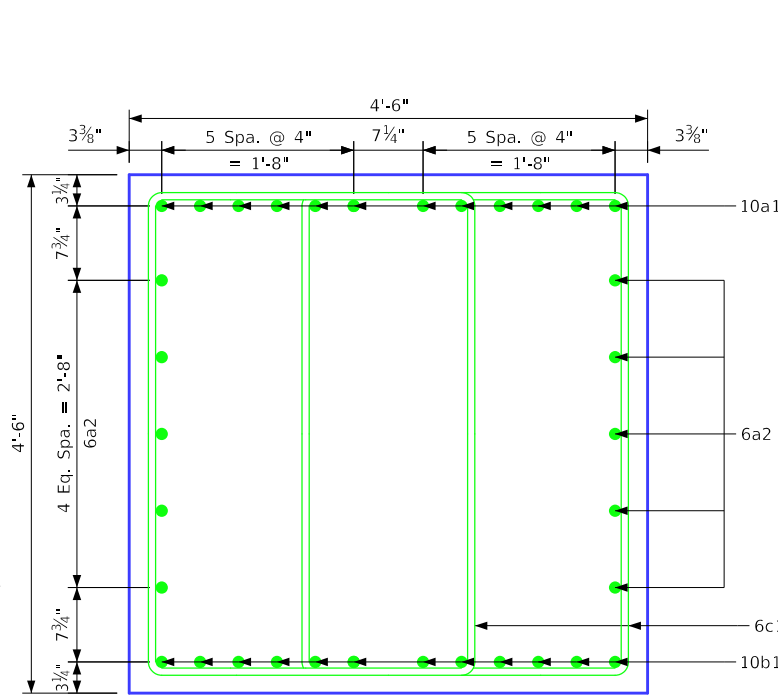
Section A-A

All battered piles shall be trimmed to a horizontal line to aid placement of reinforcing.

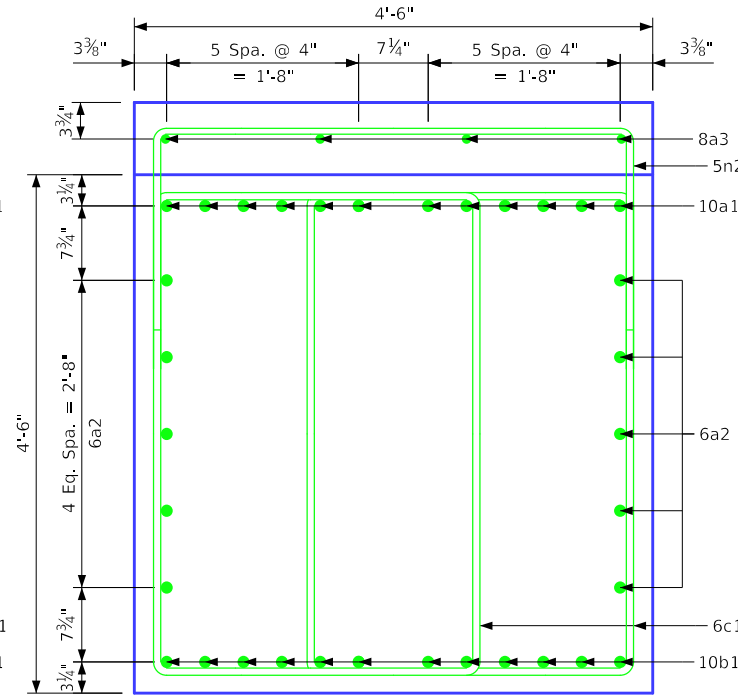
Pile dimensions are shown at the bottom of the footing. Batter piles 1:4 in direction shown.



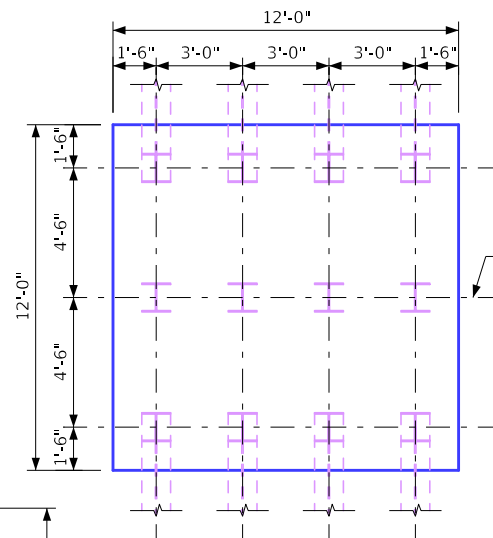
Typical Section Through Column



Section B-B

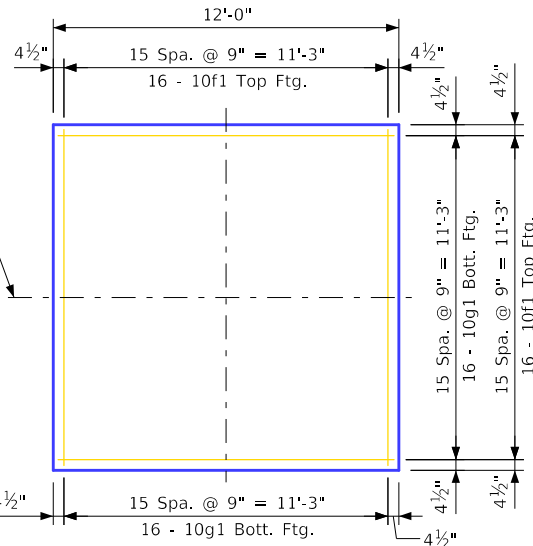


Section C-C

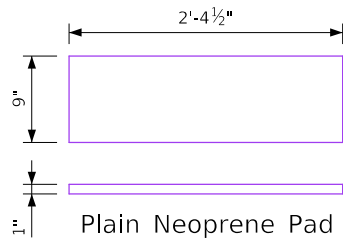


Pile Layout

Note: 60 - HP14x73
Steel Bearing Piling Required



Typical Footing Reinforcing Layout



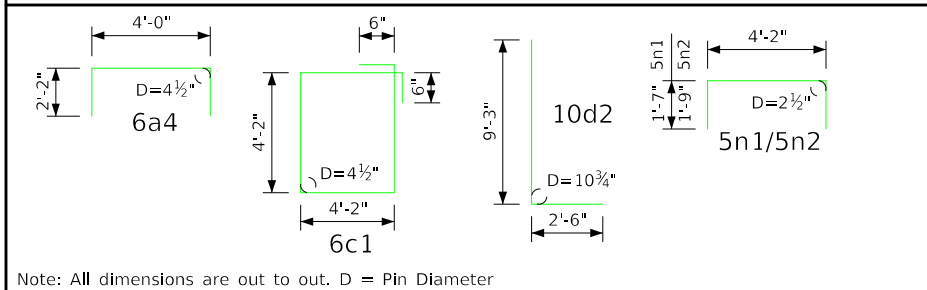
Pier Bearing Details

Note: Cost of Neoprene Pads shall be included in the price bid for "Pretensioned Prestressed Concrete Beams".

Reinforcing Steel - Pier No. 1

Epoxy Coated Bars	Bar	Location	Shape	No.	Length	Weight
	10a1	Cap, Longitudinal, Top		36	32'-9"	5,073
	6a2	Cap, Longitudinal, Sides		30	29'-0"	1,307
	8a3	Cap, Longitudinal, Step		4	24'-0"	256
	6a4	Cap, Ends		10	8'-4"	125
	10b1	Cap, Longitudinal, Bottom		36	32'-9"	5,073
	6c1	Cap, Hoops		224	17'-8"	5,944
	10d1	Column, Vertical		80	21'-8"	7,459
	10d2	Column to Footing Dowels		80	11'-9"	4,045
	5m1	Cap, Step, Longitudinal		16	4'-0"	67
Non-Coated Bars	5n1	Cap, Step, Transverse		16	7'-4"	122
	5n2	Cap, Step, Transverse		22	7'-8"	176
	#5	Column, Spiral		5	634'-0"	3,306
		Spiral Spacers, L 1/8" x 3/8" x 3/8" x 0.70		20	17'-0"	238
Epoxy Reinforcing Total Weight (Lbs.)						33,191
Non-Coated Bars	Bar	Location	Shape	No.	Length	Weight
	10f1	Footing, Top		160	11'-6"	7,918
	10g1	Footing, Bott.		160	11'-6"	7,918
Non-Coated Reinforcing Total Weight (Lbs.)						15,836

Bar Bend Details



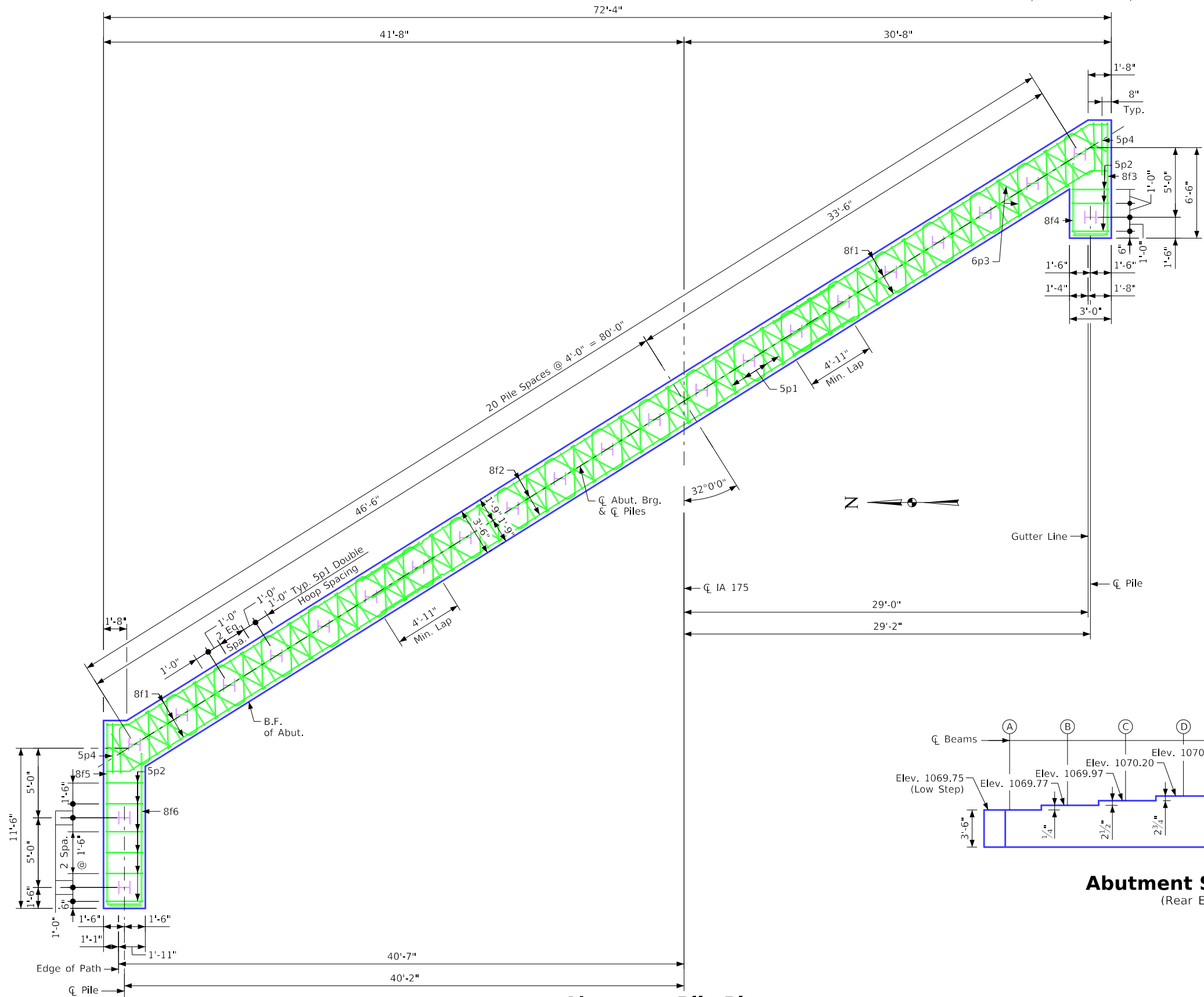
Concrete Placement Quantities

Location	Total
Cap	66.1
Columns	41.1
Footings	106.7
Total (Cu. Yds.)	213.9

Note: Concrete and Reinforcing Steel Quantities are included on the Summary Quantities Sheet.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Pier - Details - Quantities/Notes
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 8 of 39 FHWA No. 36831





Abutment Pile Plan

Note: 24 - HP12x74 Steel Bearing Piling Required.

W. Abut. Pile Design Notes:

The contract length of 145 feet for the west abutment piles is based on a non-cohesive soil classification, a total factored axial load per pile (pu) of 165 kips, and a geotechnical resistance factor (phi) of 0.55. To account for soil consolidation under the new fill, the factored axial load includes a factored downdrag load of 31 kips.

The nominal axial bearing resistance for construction control was determined from a non-cohesive soil classification and a geotechnical resistance factor (phi) of 0.55. Piles are assumed to be driven from a start elevation at the bottom of prebore.

W. Abut. Pile Driving Note:

The required nominal axial bearing resistance for west abutment piles is 166 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

West Abutment Concrete Quantity

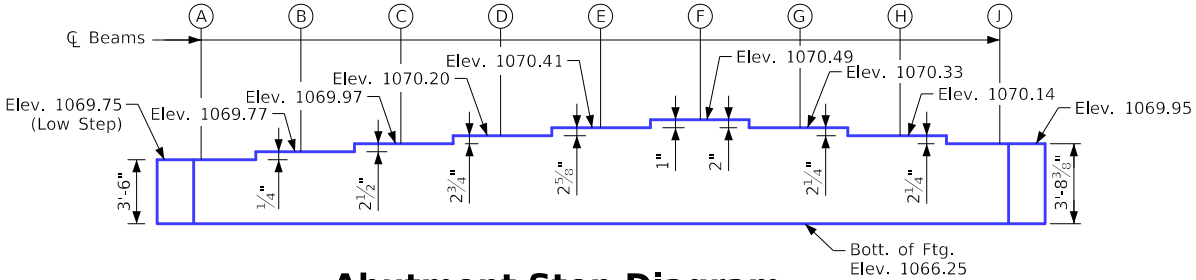
Location	Quantity
West Abutment Footing	48.7
Total (Cu. Yds.)	48.7

Note: Concrete Quantities are included on the Summary Quantities Sheet.

Abutment Notes:

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

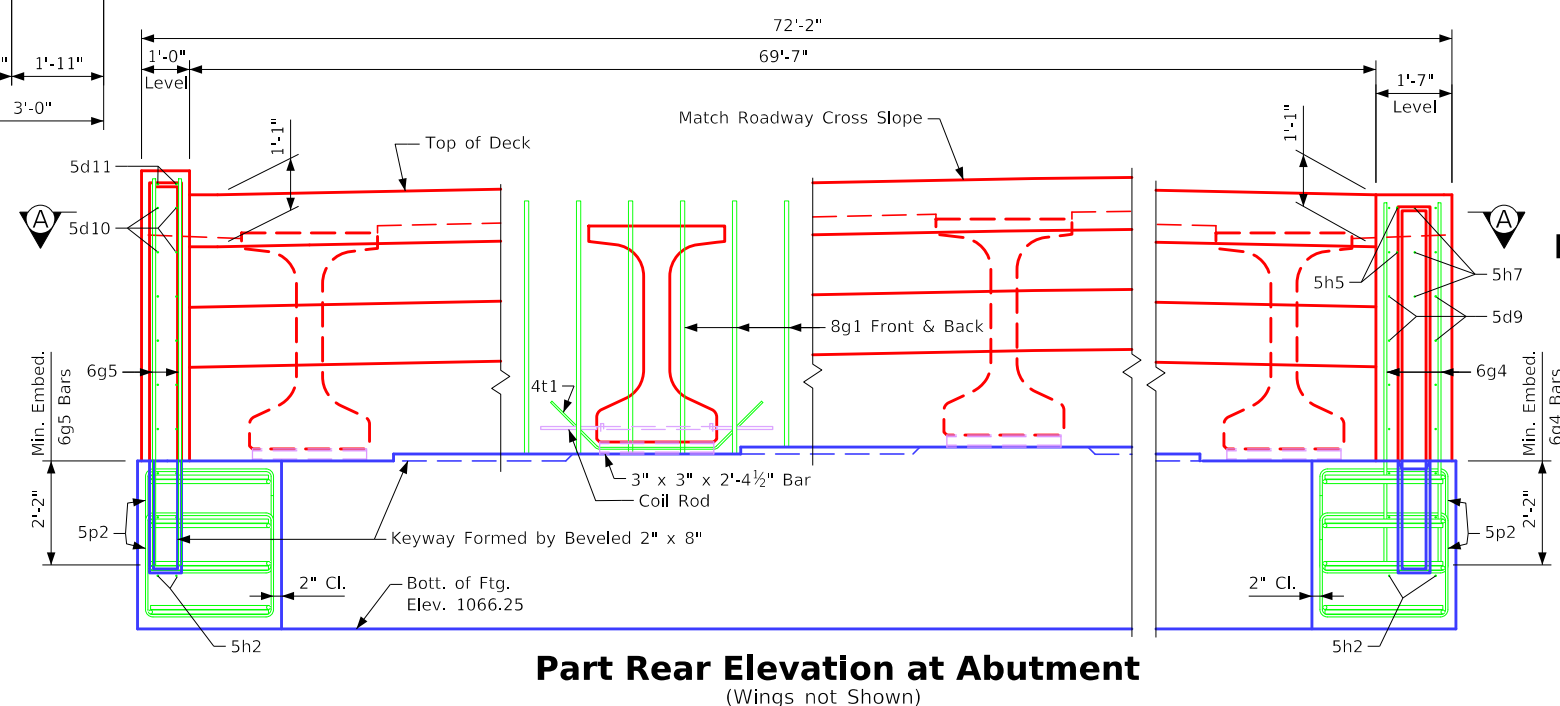
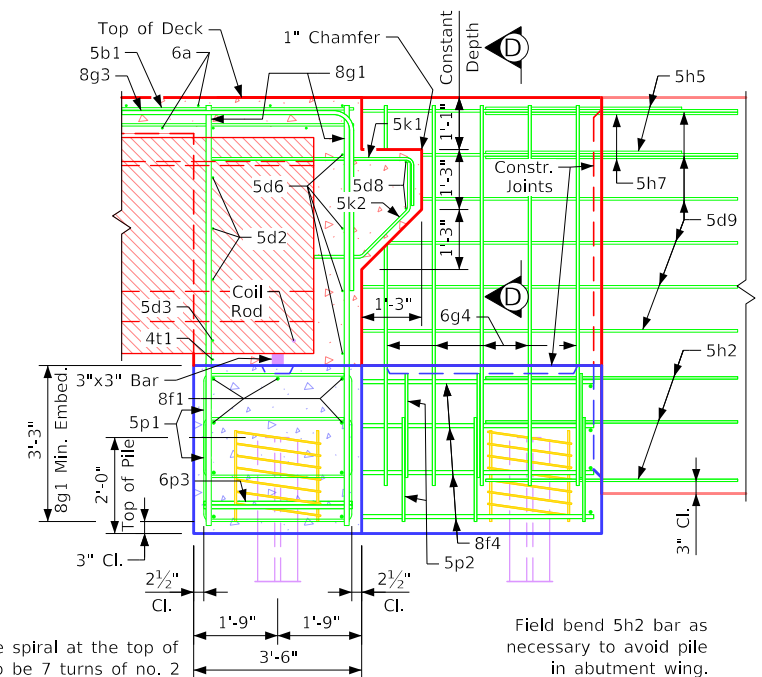
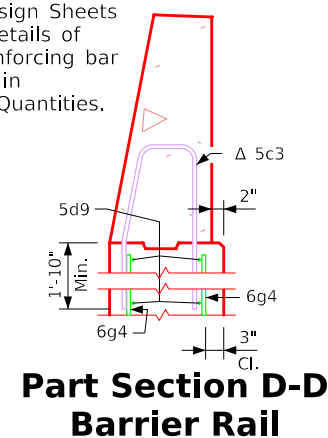
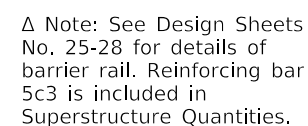
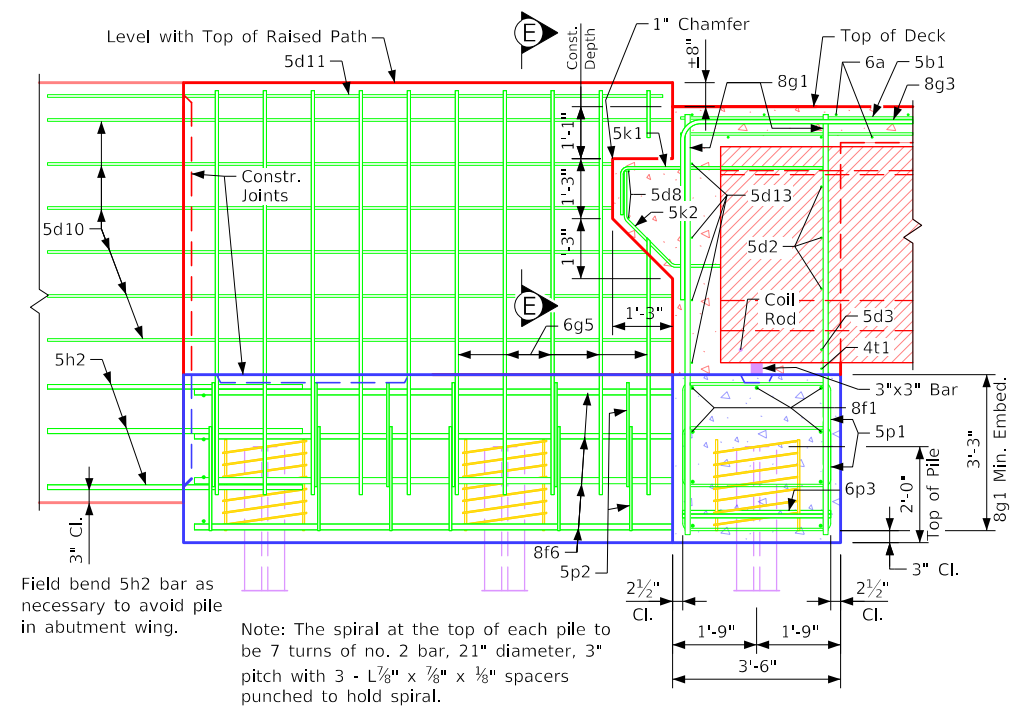
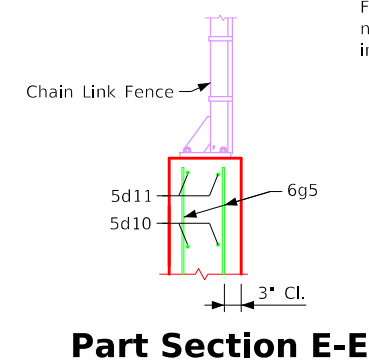
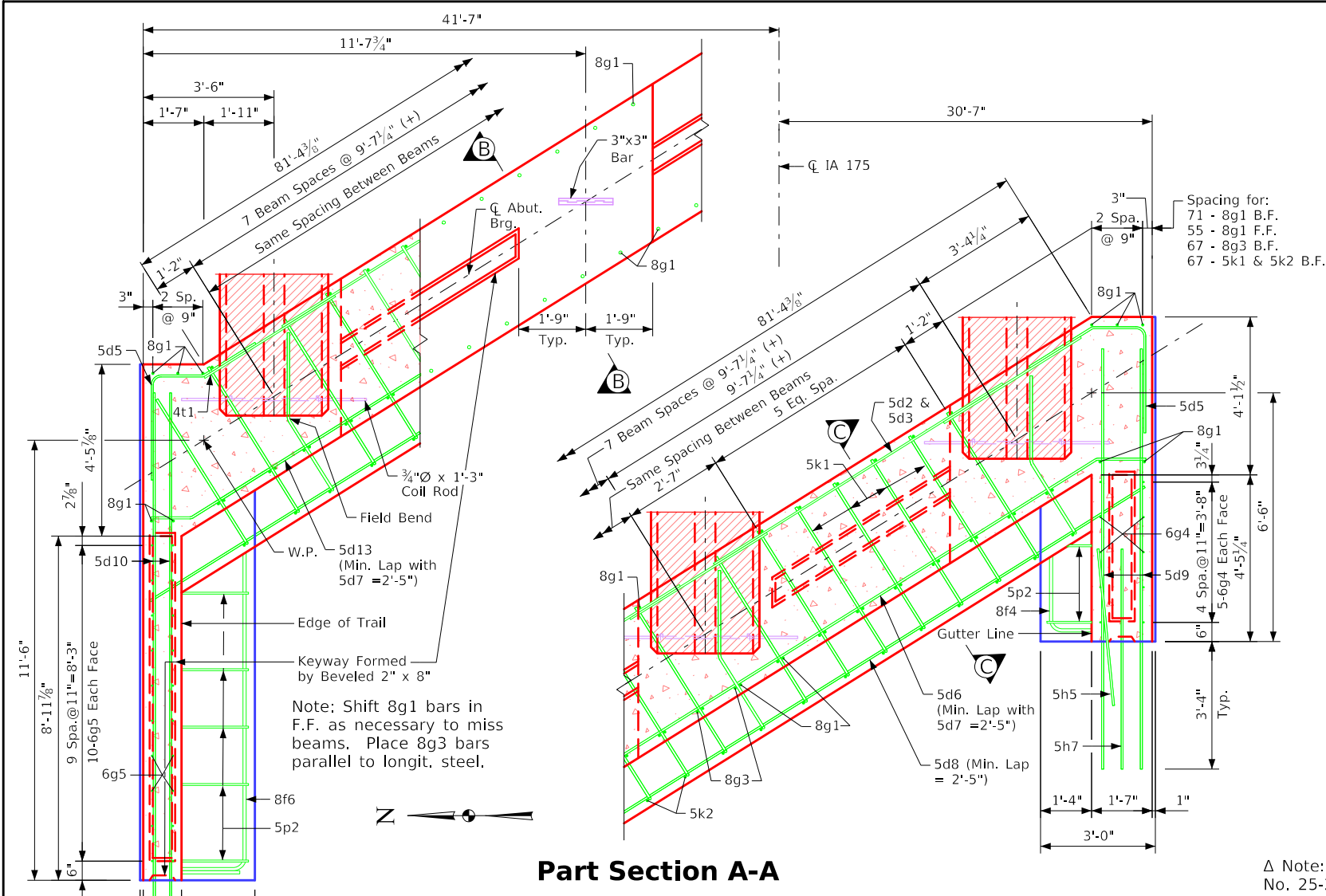
If necessary to prevent damage to the end of the bridge deck and backwall from construction equipment, an appropriate method of protection approved by the Engineer shall be provided by the bridge contractor at no extra cost to the State.



Abutment Step Diagram
(Rear Elevation)

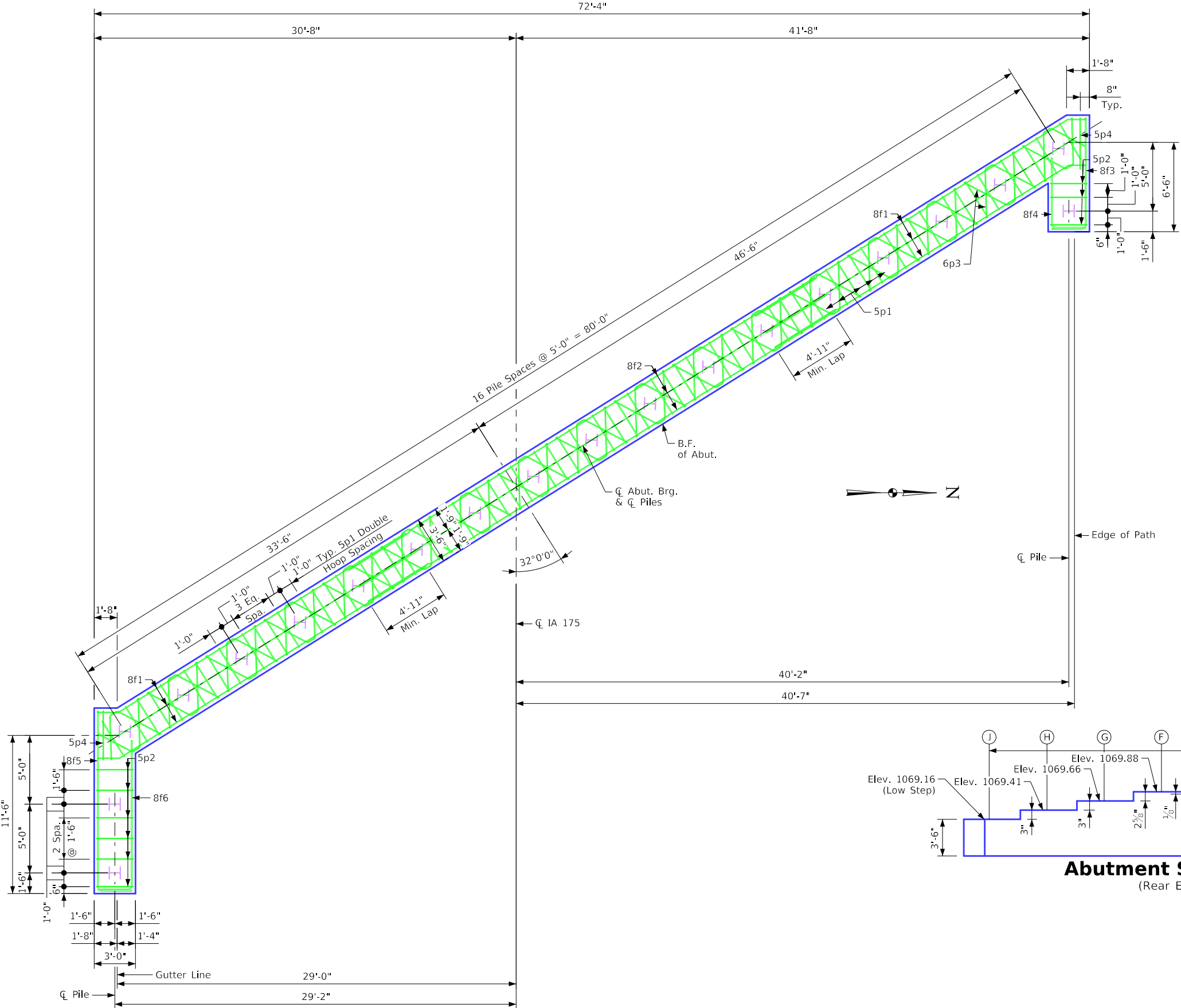
Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
West Abutment Footing Details
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 9 of 39 FHWA No. 36831





Note: Barrier rail not shown in details.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
West Abutment Details
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 10 of 39 FHWA No. 36831



Abutment Pile Plan

Note: 20 - HP12x74 Steel Bearing Piling Required.

E. Abut. Pile Design Notes:

The contract length of 145 feet for the east abutment piles is based on a non-cohesive soil classification, a total factored axial load per pile (pu) of 175 kips, and a geotechnical resistance factor (phi) of 0.55. To account for soil consolidation under the new fill, the factored axial load includes a factored downdrag load of 9 kips.

The nominal axial bearing resistance for construction control was determined from a non-cohesive soil classification and a geotechnical resistance factor (phi) of 0.55. Piles are assumed to be driven from a start elevation at the bottom of prebore.

E. Abut. Pile Driving Note:

The required nominal axial bearing resistance for east abutment piles is 163 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a WEAP analysis with bearing graph.

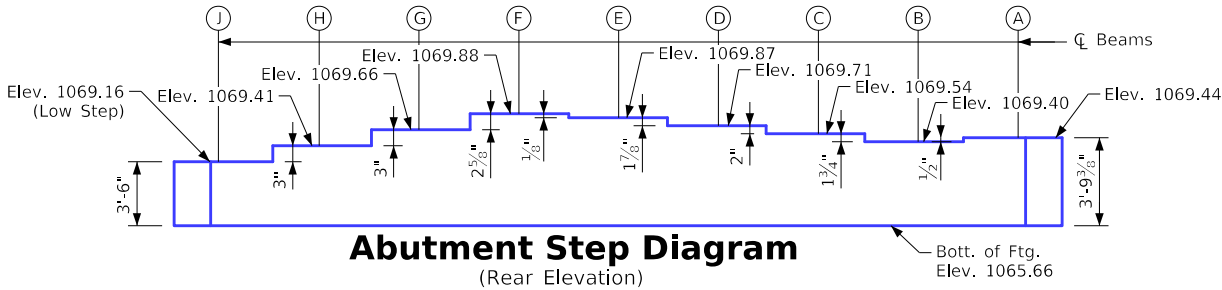
East Abutment Concrete Quantity

Location	Quantity
East Abutment Footing	49.1
Total (Cu. Yds.)	49.1

Note: Concrete Quantities are included on the Summary Quantities Sheet.

Abutment Notes:

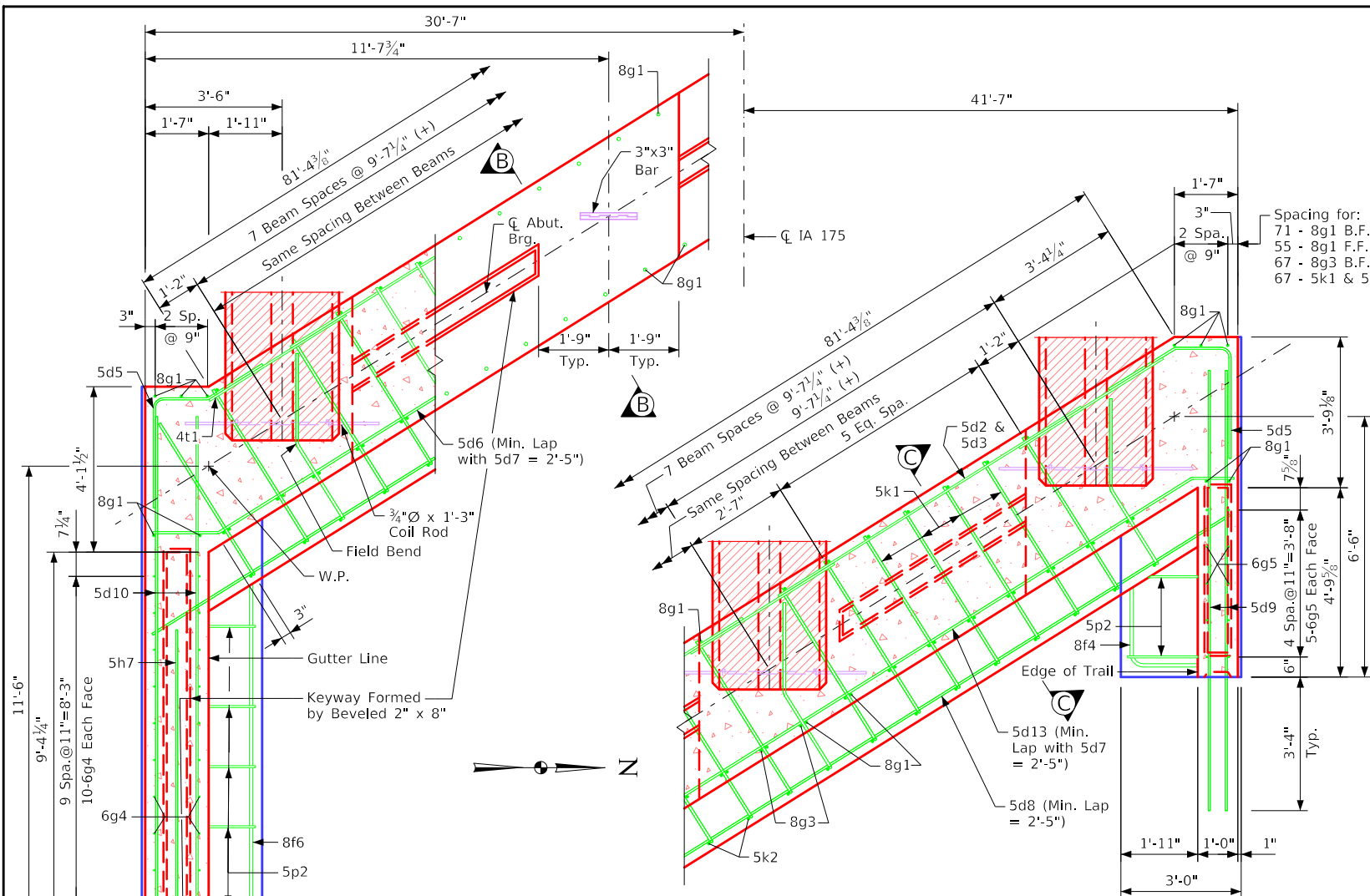
See Design Sheet 9 for Abutment Notes.



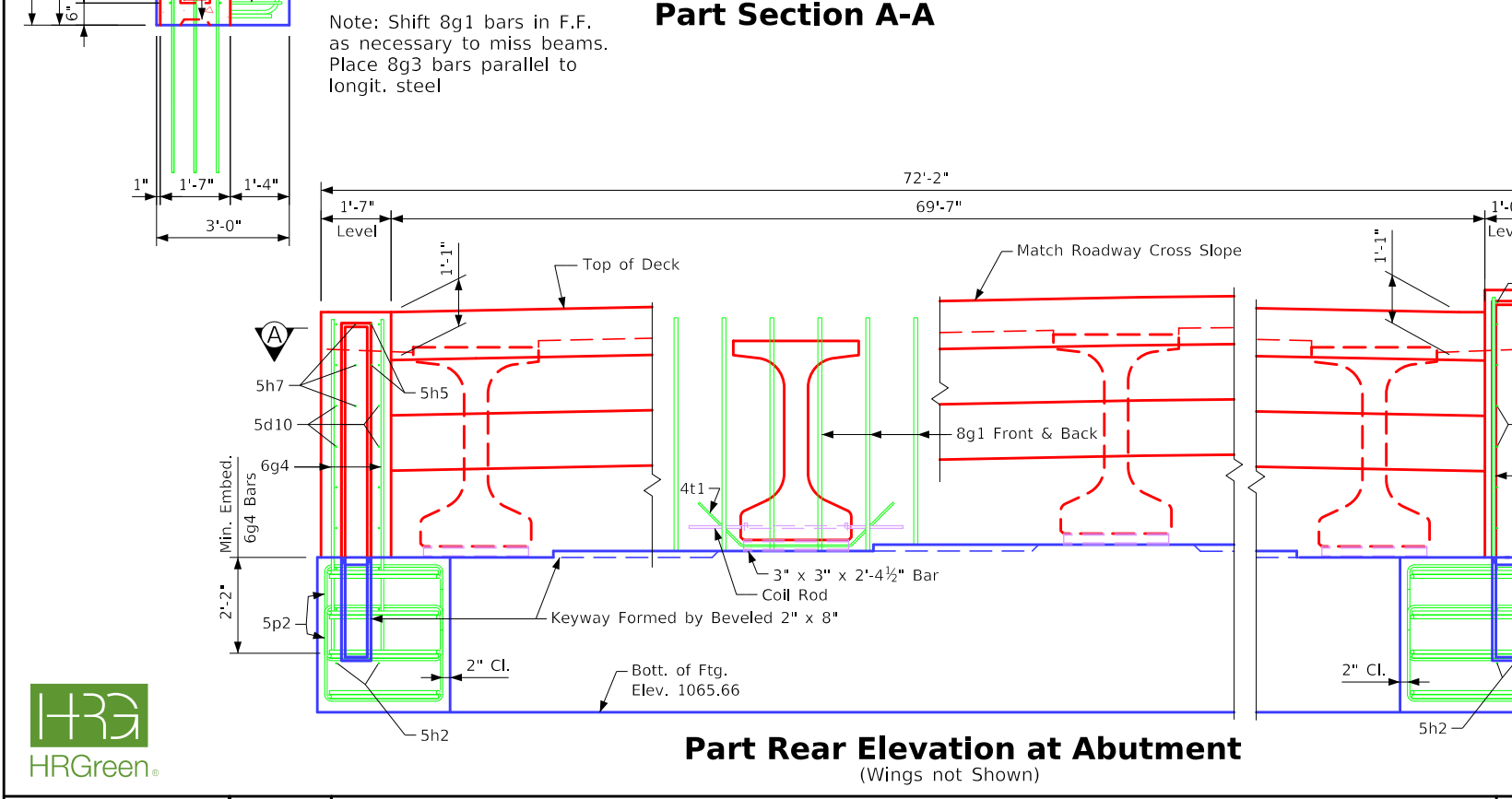
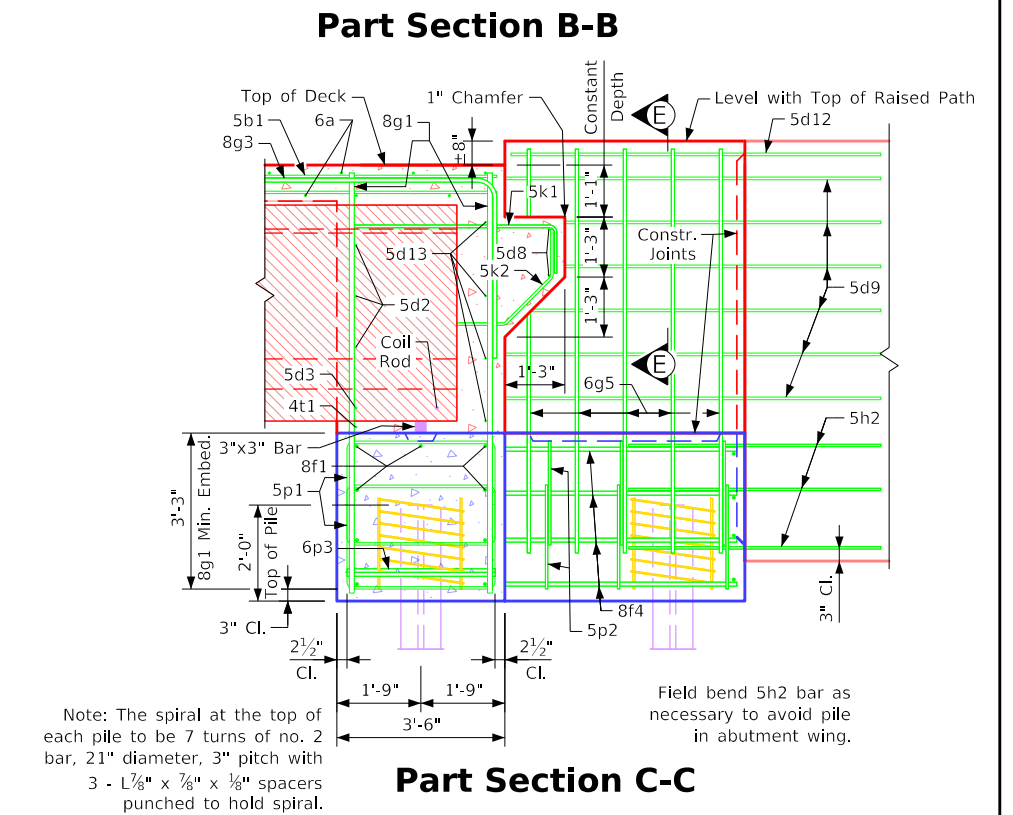
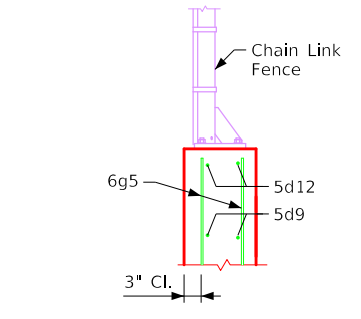
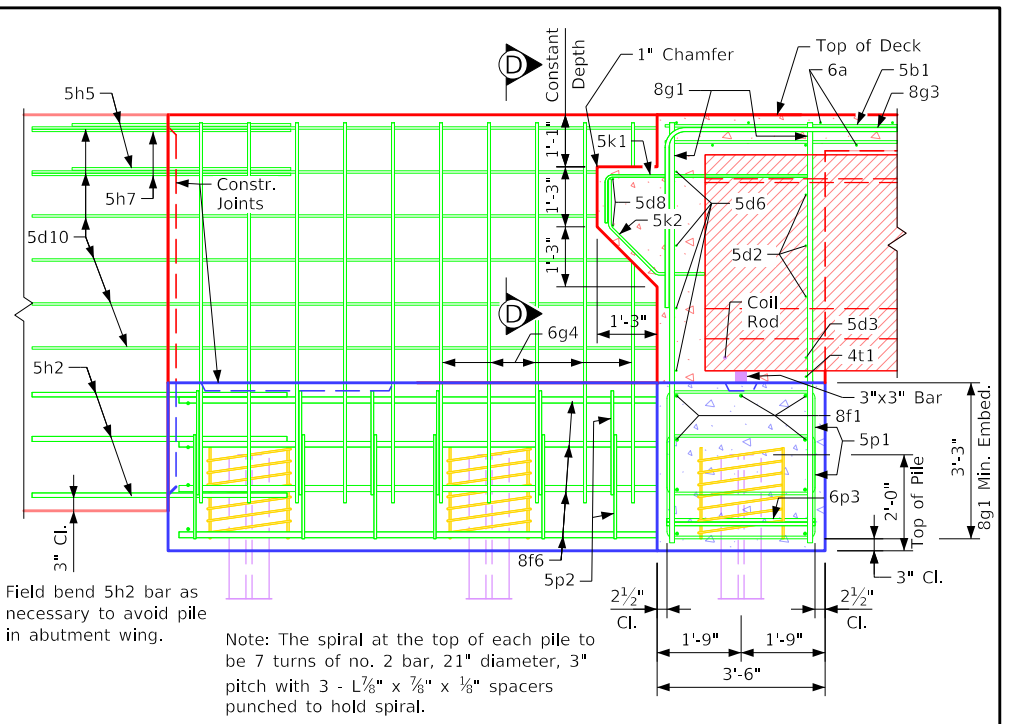
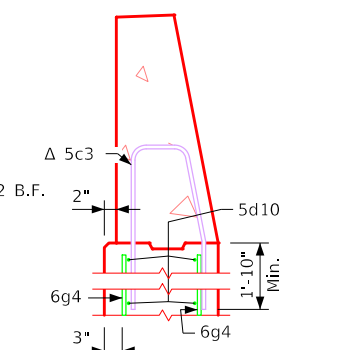
Abutment Step Diagram
(Rear Elevation)

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
East Abutment Footing Details
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 11 of 39 FHWA No. 36831





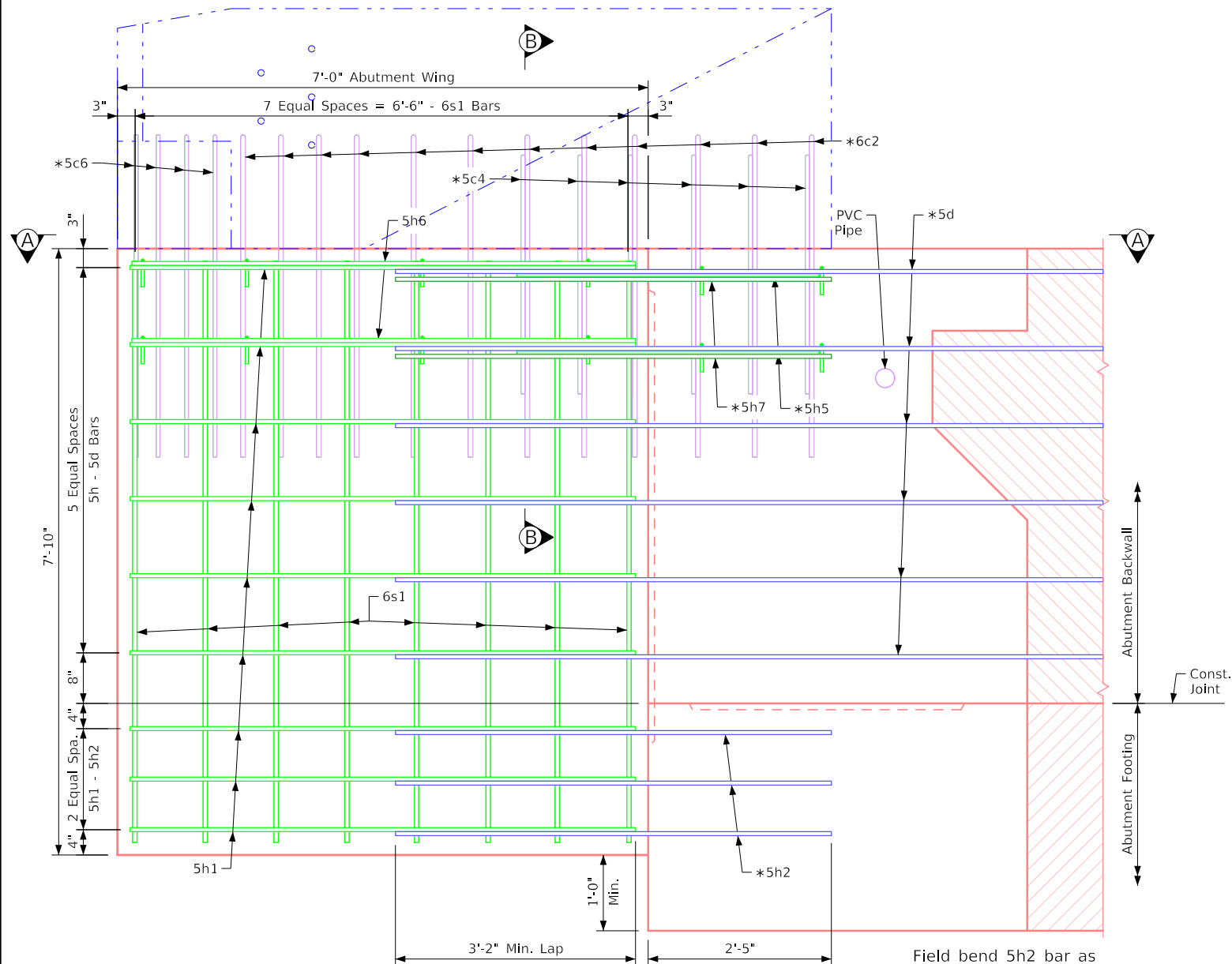
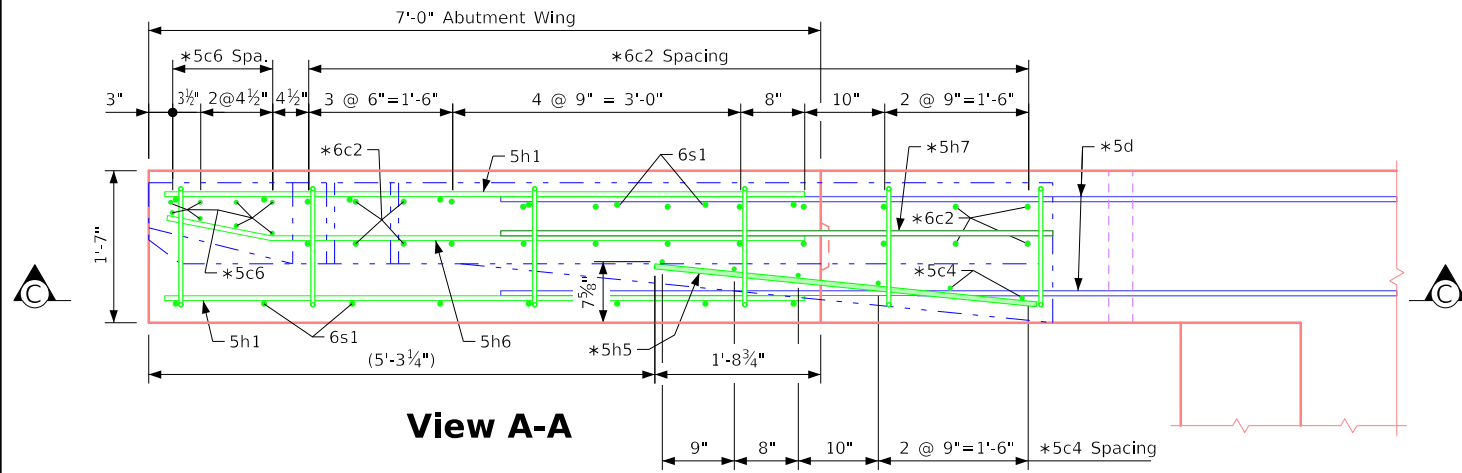
Δ Note: See Design Sheets No. 25-28 for details of barrier rail. Reinforcing bar 5c3 is included in Superstructure Quantities.



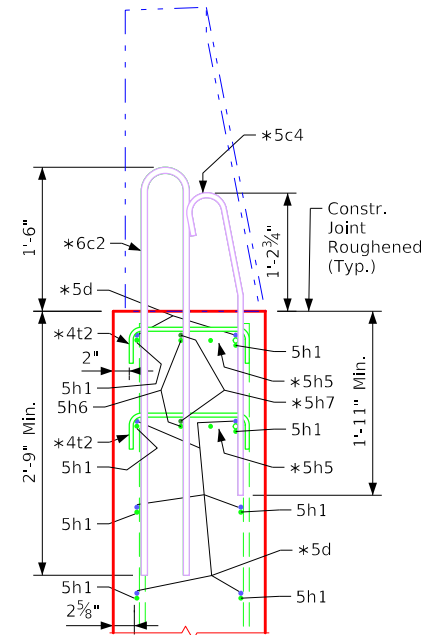
Note: Barrier rail not shown in details.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
 136'-0" End Spans
East Abutment Details
 STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
Monona County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 126 Design Sheet No. 12 of 39 FHWA No. 36831

Revised 08-2024: Removed improperly placed bar label 6c1 in "Section B-B" details.
Revised 06-2025: Changed 5h6 bar length and quantity (was 6'-0" and 3 bars). Flipped/switched orientation of horizontal and vertical bars in outside face of wingwall.
MiscellaneousBridges.dgn - 2113 - This Sheet Re-Issued 11-2023. Sheet Format Updated.



Section C-C Abutment Wing - Elevation

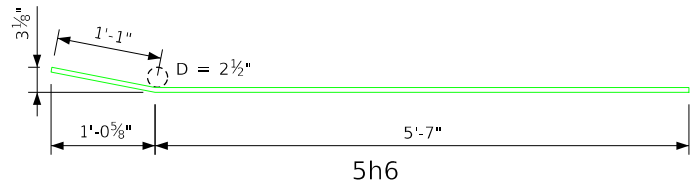


Section B-B

*Barrier rail end section bars to be placed with abutment wing and abutment.




See Barrier Rail End Section Sheet
on Design Sheet No. 27-28 for
details of reinforcing bars 6c2,
5c4, 5c6 and 4t2.

See Abutment Details Sheet on Design Sheet No. 9-12 for details of reinforcing bars 5d, 5h2, 5h5 and 5h7.



Bent Bar Details

Note: All Dimensions are out to out. D = Pin Diameter

Reinforcing Bar List - One Abut. Wing					
Bar	Location	Shape	No.	Length	Weight
5h1	Horizontal Both Faces		18	6'-8"	125
5h6	Horizontal Wingwall		2	6'-8"	14
6s1	Vertical Both Faces		16	7'-6"	180
Epoxy Reinforcing Total Weight (lbs.)					319

The diagram illustrates the dimensions for a bent bar assembly. The bar is bent at an angle. The dimensions are as follows:

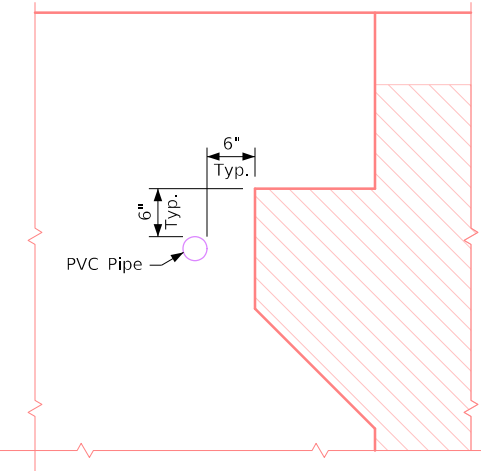
- Vertical dimension on the left: $3\frac{1}{8}"$
- Horizontal dimension from the left edge to the bend: $1'-0\frac{5}{8}"$
- Horizontal dimension from the bend to the right edge: $5'-7"$
- Angle of the bend: $1'-1"$
- Pin diameter: $D = 2\frac{1}{2}"$
- Bar specification: 5h6

Bent Bar Details

Note: All Dimensions are out to out. D = Pin Diameter

Concrete Placement Summary	
Section	Total
One Abutment Wing	3.2
Total (cu. yds.)	3.2

Note: Concrete and reinforcing steel quantities are included on the Summary Quantities Sheet.



PVC Pipe Location

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

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

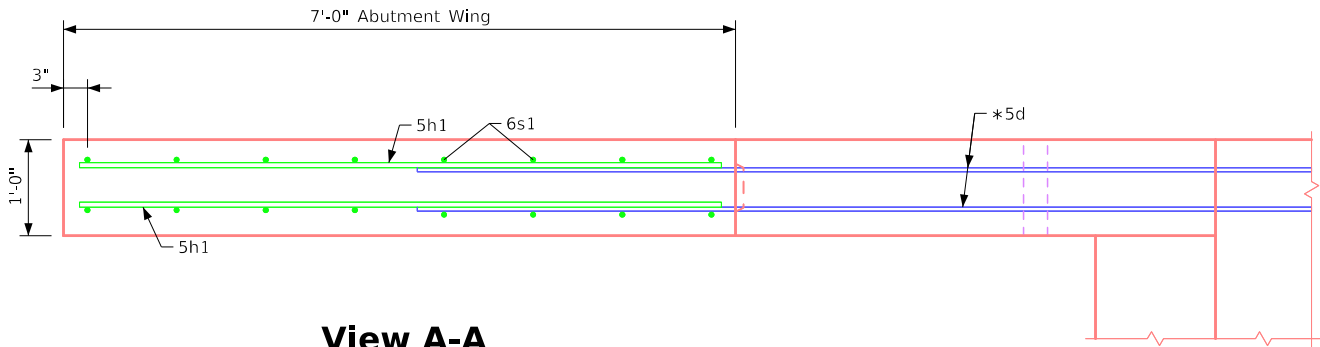
South Wingwall Details

STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

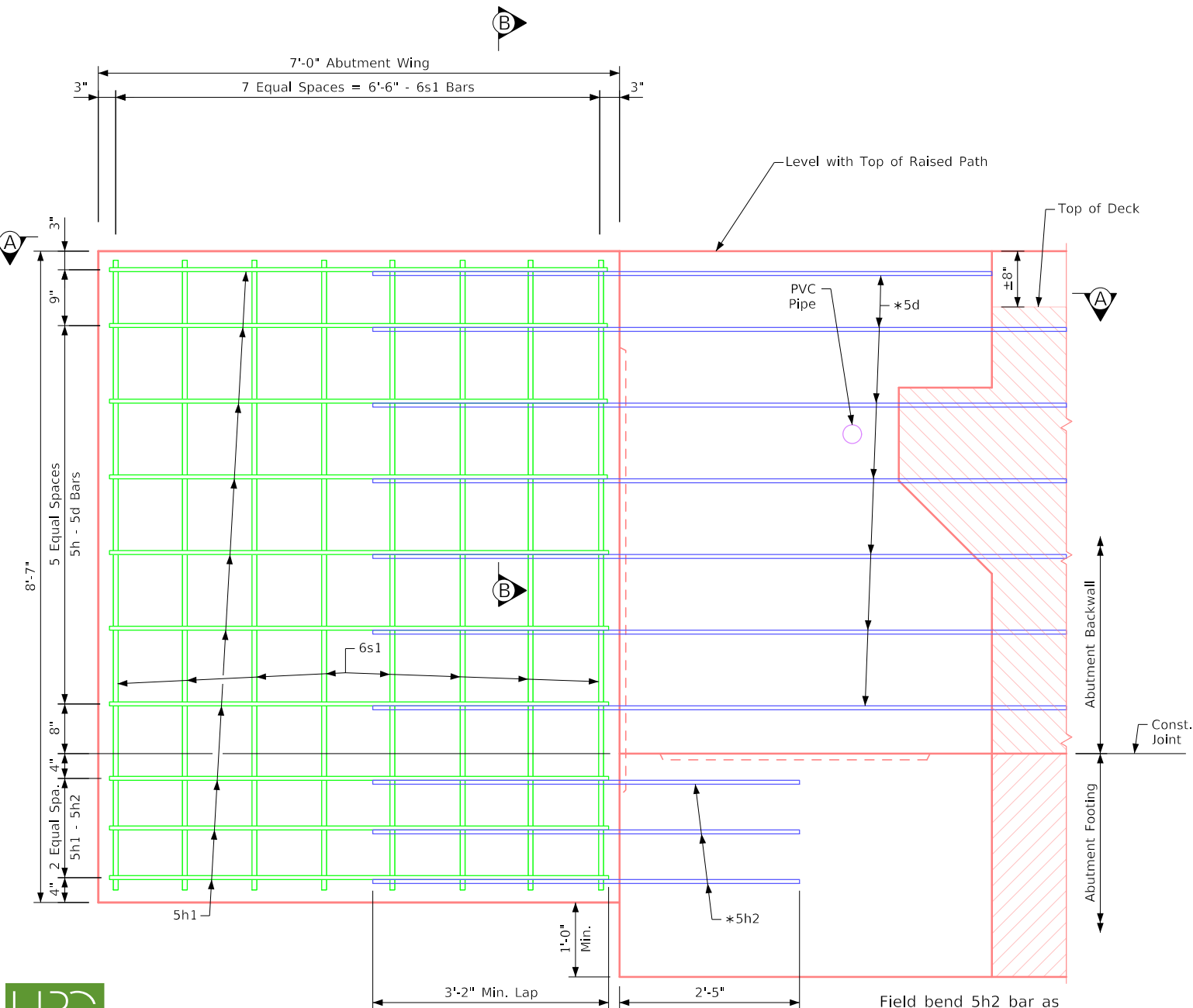
Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 13 of 39 FHWA No. 36831

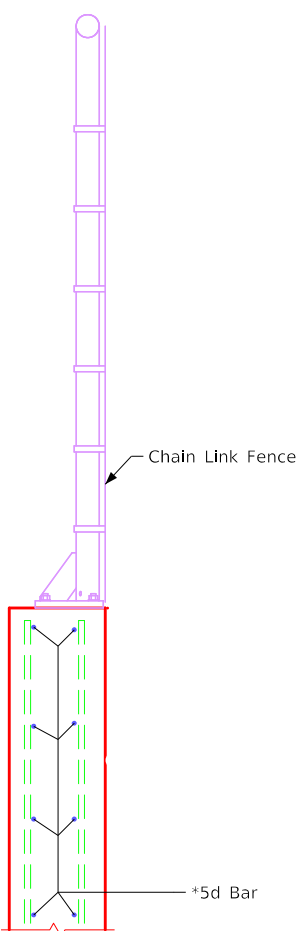


View A-A



Abutment Wing - Elevation View

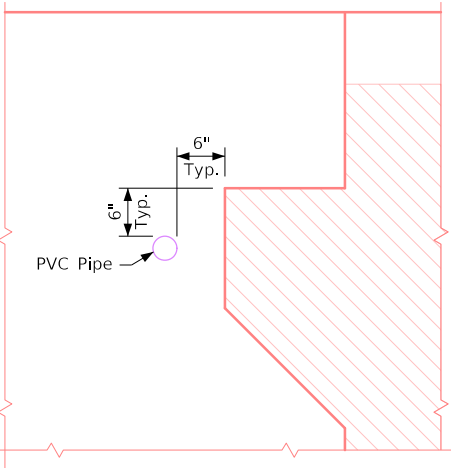
Field bend 5h2 bar as necessary to avoid pile in abutment wing.



Section B-B

*See Abutment Details Sheet on Design Sheets No. 10 and 12 for details of reinforcing bars 5d and 5h2.

See Design Sheet No. 32 for Fencing Details.



PVC Pipe Location

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

Reinforcing Bar List - One Abut. Wing

Bar	Location	Shape	No.	Length	Weight
5h1	Horizontal Both Faces		20	6'-8"	139
6s1	Vertical Both Faces		16	8'-3"	198
Epoxy Reinforcing Total Weight (lbs.)					337

Concrete Placement Summary

Section	Total
One Abutment Wing	2.2
Total (cu. yds.)	2.2

Note: Concrete and reinforcing steel quantities are included on the Summary Quantities Sheet.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.

Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

North Wingwall Details

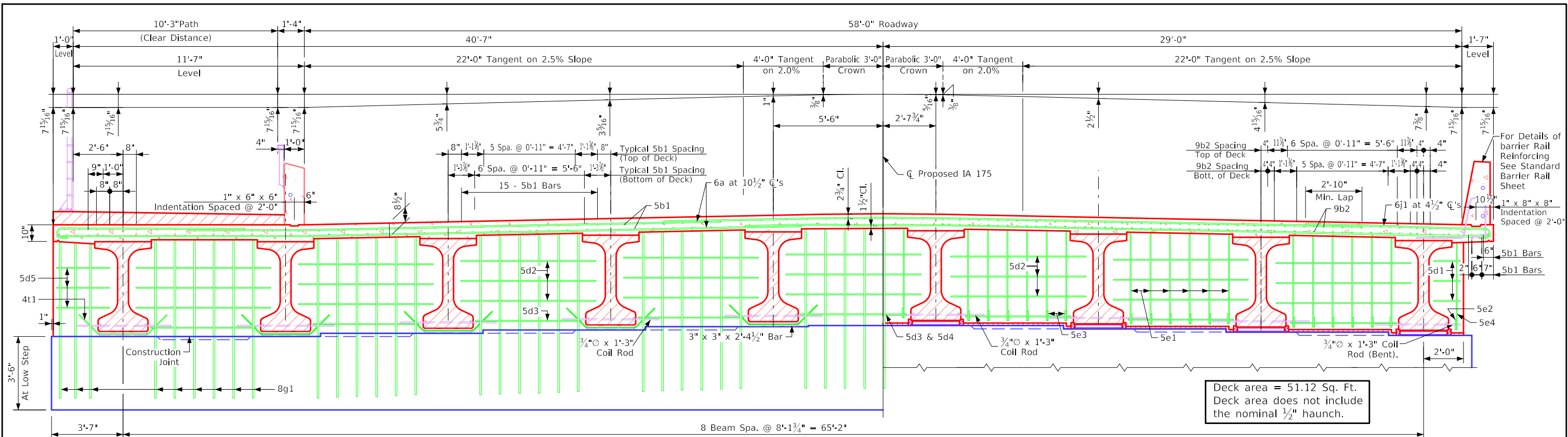
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

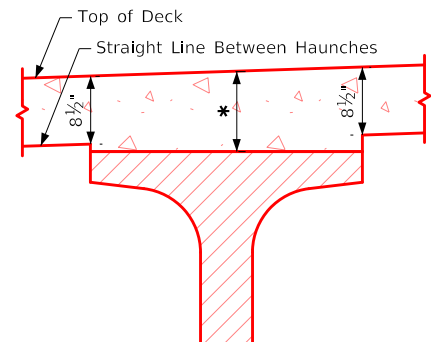
Design No. 126 Design Sheet No. 14 of 39 FHWA No. 36831



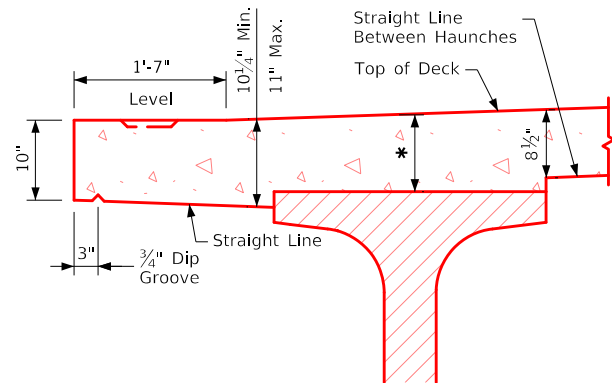


Half Section Near Abutment

Half Section Near Pier



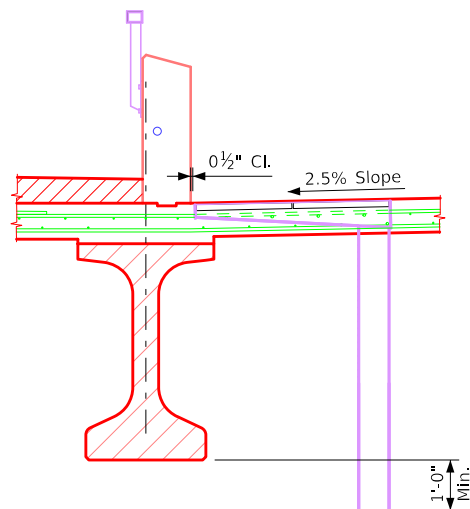
Interior Beams



Exterior Beams

Typical Deck and Haunch Detail

* For Deck Thickness Over Beams See "Haunch And Camber Details" on Design Sheet No. 20.



Drain at Separation Rail Detail

(See Design Sheet 24 for more information.)

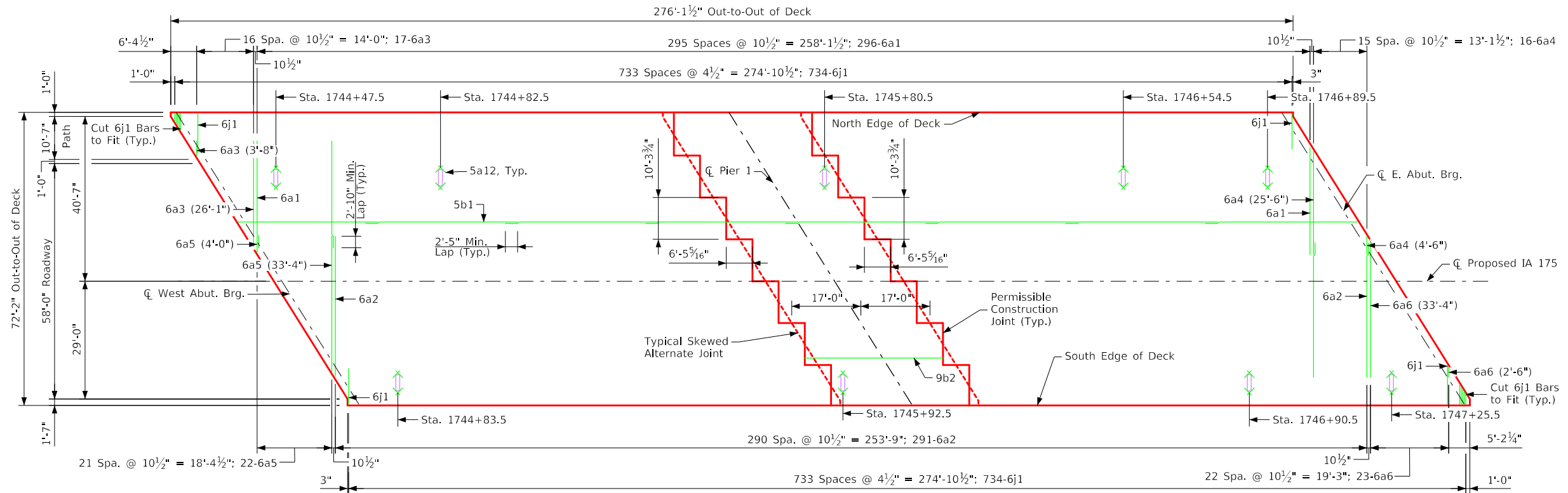
Note: For details of Intermediate Diaphragm see Design Sheet No. 23.

Superstructure Notes:

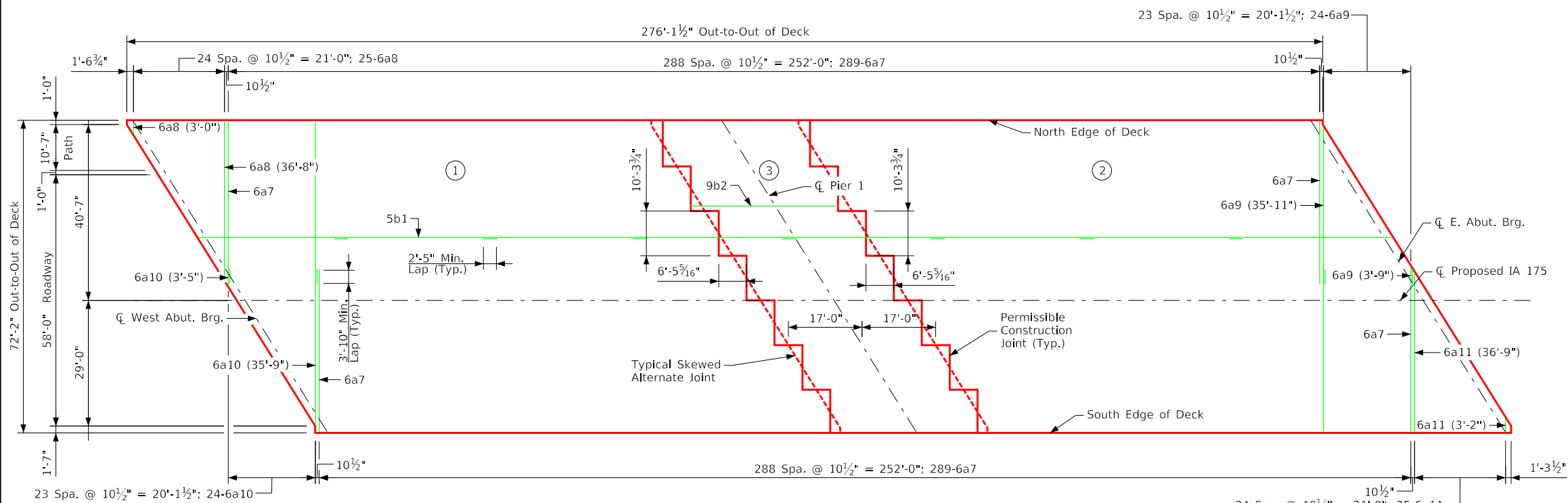
- The bridge deck as shown includes 3/4" integral wearing surface.
- The pier and abutment diaphragm concrete is to be placed monolithically with the bridge deck.
- Cost of all resilient joint filler material is to be included in the price bid for "Structural Concrete (Bridge)".
- All beams are to be set vertical.
- Forms for the deck and barrier rail are to be supported by the prestressed concrete beams.
- Clear distance from face of concrete to near reinforcing bar shall be 2" unless otherwise noted or shown.
- All deck and diaphragm reinforcing is to be wired in place and adequately supported before concrete is placed.
- Top transverse reinforcing steel is to be parallel to and 2 3/4" clear below top of deck. Bottom transverse reinforcing steel is to be parallel to and 1 1/2" clear above bottom of deck. Top and bottom reinforcing steel is to be supported by individual bar chairs spaced at not more than 3'-0" centers longitudinally and transversely, or by continuous rows of bar high chairs or deck bolsters spaced 4'-0" apart. I.M. 451.01 requirements shall apply for bar chairs, bar high chairs, and deck bolsters.
- Transverse deck reinforcing may be spliced with one lap located as follows:
 - Top bar - lap midway between beams (min. lap = 2'-10").
 - Bottom bars - lap over beams (min. lap = 3'-7").
- Payment for reinforcing bars shall be based on no splices, and no allowance shall be made for the additional length of bar required for the use of splices.
- Cost for bearing material is to be included in the price bid for "Prestressed Concrete Beams".



Design For 32° Skew (R.A.)
 272'-0" x 58'-0" Pretension Prestress.
 Concrete Beam Bridge w/ 10'-3" Path
 136'-0" End Spans
 Superstructure Details
 STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
 Monona County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 126 Design Sheet No. 15 of 39 FHWA No. 36831



Deck Top Reinforcing Diagram



Deck Bottom Reinforcing & Concrete Placement Diagram

Concrete Placement Notes:

Concrete deck shall be placed in sections and sequences indicated. Placing the concrete deck in one continuous pour is prohibited and will not be considered for approval as an alternate procedure due to volume of deck concrete exceeds maximum allowed for continuous pour from end to end. Alternate procedures for placing deck concrete may 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. The Bridge Engineer shall review any alternate procedures. The cost of any additional analysis and plan modification shall be paid for by the Contractor. The Engineer shall determine if a retarding admixture is required to maintain plasticity of the concrete deck during placement.

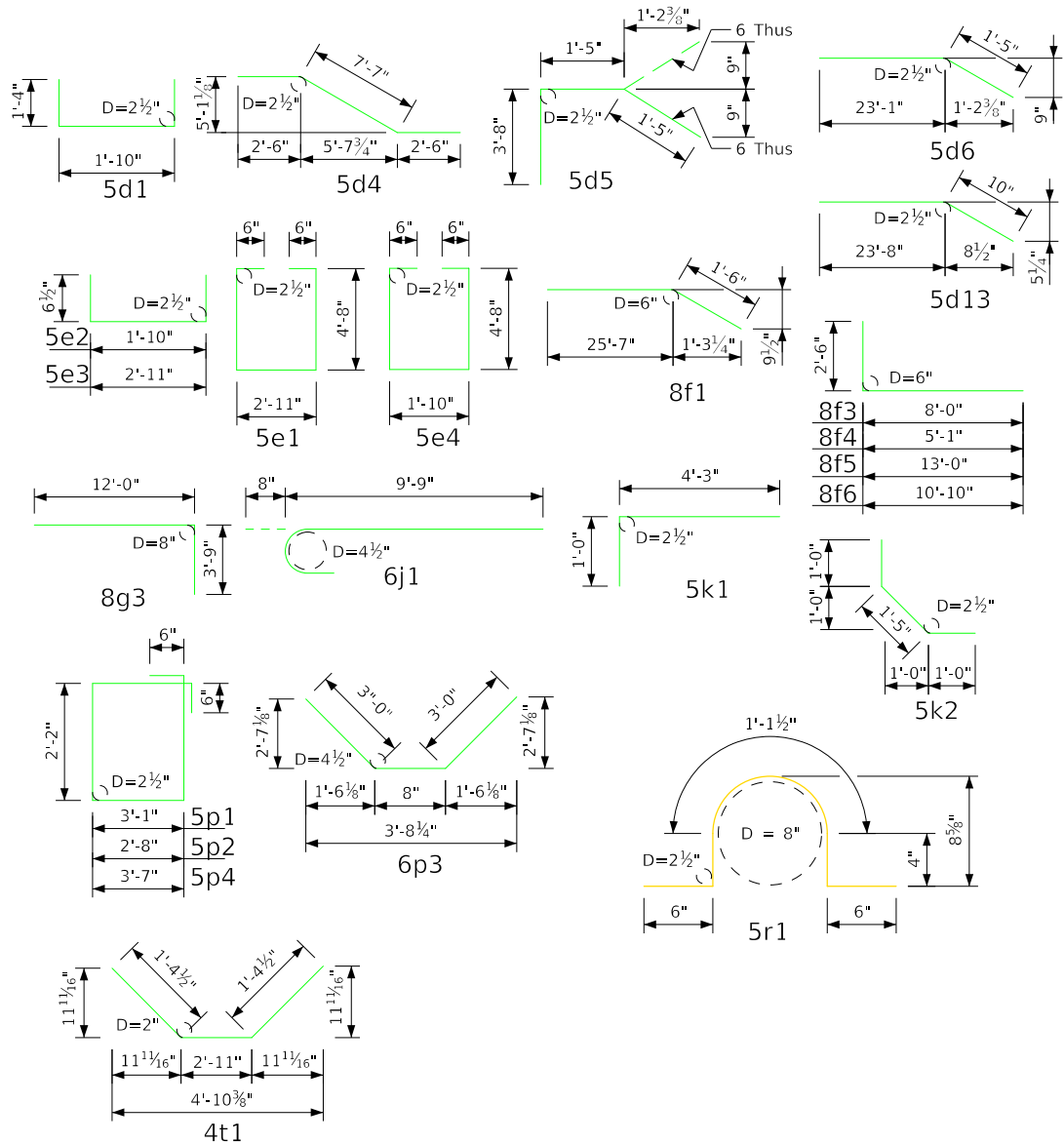
Deck concrete sections shall cure for a minimum of 48 hours and shall achieve a minimum strength of 75% of the 28 day deck concrete strength prior to removing deck header and beginning an adjacent pour.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Conc. Placement / Reinf. Layout
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 17 of 39 FHWA No. 36831

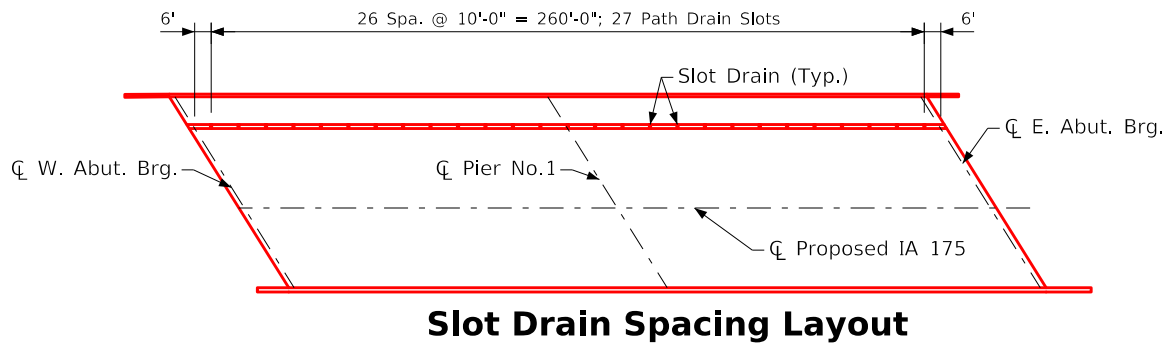


Revised 07-15: Changed Concrete Placement Note to Account for the Possible Addition of a Retarding Admixture to the Concrete.
Issued 02-08.
BTIntegralBridges.dgn - 451-BTCD - This Sheet Re-Issued 11-2023. Sheet Format Update.

Bent Bar Details



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



Epoxy Coated Reinforcing Steel Deck, Abutment & Diaphragm

Bar	Location	Shape	No.	Length	Weight
6a1	Deck, Transv., Top, Left		296	26'-4"	11,708
6a2	Deck, Transv., Top, Right		291	34'-6"	15,079
6a3	Deck, Transv., Top, Left		17	Varies	380
6a4	Deck, Transv., Top, Left		16	Varies	360
6a5	Deck, Transv., Top, Right		22	Varies	617
6a6	Deck, Transv., Top, Right		23	Varies	619
6a7	Deck, Transv., Bott.		578	37'-9"	32,773
6a8	Deck, Transv., Bott., Left		25	Varies	745
6a9	Deck, Transv., Bott., Left		24	Varies	715
6a10	Deck, Transv., Bott., Right		24	Varies	706
6a11	Deck, Transv., Bott., Right		25	Varies	749
5a12	Aesthetic Deck Drain		36	3'-0"	113
5b1	Deck, Longit., Top & Bott.		1160	37'-6"	45,371
9b2	Deck, Longit., Top & Bott. at Piers		156	33'-8"	17,857
5d1	Pier Diaph. Ends		6	4'-6"	28
5d2	Pier & Abut. Diaph. Longit.		96	8'-7"	859
5d3	Pier & Abut. Diaph. Longit.		32	5'-11"	197
5d4	Pier Diaph. Longit.		8	12'-7"	105
5d5	Abut. Diaph. Ends		12	6'-6"	81
5d6	Abut. Diaph. Longit. B.F.		8	24'-6"	204
5d7	Abut. Diaph. Longit. B.F.		8	40'-0"	334
5d8	Paving Notch Longit.		8	43'-9"	365
5d9	Abut. Diaph. Wing Longit.		24	11'-4"	284
5d10	Abut. Diaph. Wing Longit.		24	16'-0"	401
5d11	Abut. Diaph. Longit. B.F. Path		2	13'-2"	27
5d12	Abut. Diaph. Longit. B.F. Path		2	7'-2"	15
5d13	Abut. Diaph. Longit. B.F. Path End		8	24'-6"	204
5e1	Pier Diaph. Hoops		48	13'-3"	663
5e2	Pier Diaph. Tie Ends		2	2'-11"	6
5e3	Pier Diaph. Ties		48	4'-0"	200
5e4	Pier Diaph. Hoops Ends		2	12'-2"	25
8f1	Abut. Footing Longit. Both F.		36	27'-1"	2,603
8f2	Abut. Footing Longit. Both F.		18	40'-0"	1,922
8f3	Abut. Extension Longit.		8	10'-6"	224
8f4	Abut. Extension Longit.		8	7'-7"	162
8f5	Abut. Extension Longit.		8	15'-6"	331
8f6	Abut. Extension Longit.		8	13'-4"	285
8g1	Abut. Vert. Both F.		252	8'-7"	5,775
8g3	Abut. Diaph. Vert. B.F.		134	15'-9"	5,635
6g4	Abut. Diaph. Wing Ext. Vert.		30	8'-7"	387
6g5	Abut. Diaph. Wing Ext. Vert.		30	9'-3"	417
5h2	Abut. to Wing Anchor		24	5'-9"	144
5h5	Abut. to Wing Anchor		4	4'-0"	17
5h7	Abut. to Wing Anchor		4	5'-9"	24
6j1	Top of Deck Transv. (at Rail)		1468	10'-5"	22,968
5k1	Paving Notch Longit.		134	5'-3"	734
5k2	Paving Notch Longit.		134	3'-5"	478
5p1	Abut. Hoops		256	11'-6"	3,071
5p2	Abut. Extension Hoops		36	10'-8"	401
6p3	Abut. Bott. At Piles		76	6'-8"	761
5p4	Abut. Hoops at Ends		8	12'-6"	104
4t1	Under Beams at Abutments		18	5'-8"	68

Reinforcing Steel - Epoxy Coated - Total (Lbs.) 178,301

Non - Coated Reinforcing Steel - Deck, Abutment & Diaphragm

Bar	Location	Shape	No.	Length	Weight
#2	Pile Spiral		44	38'-6"	288
	Spiral Spacers, L $\frac{7}{8}$ " x $\frac{7}{8}$ " x $\frac{1}{8}$ " x 0.70		132	1'-10"	169
5r1	Temporary Paving Block Lifting Hoops		24	2'-10"	70
Non-Coated Reinforcing Steel Total Weight (lbs.)				527	

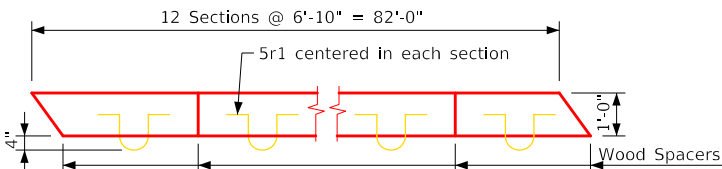
Concrete Placement Quantities

Location	Total
Section 1, Deck & Abut. Diaph.	297.4
Section 2, Deck & Abut. Diaph.	297.5
Section 3, Deck & Pier Diaph.	107.8
Total (Cu. Yds.)	702.7

Note: Concrete and Reinforcing Steel Quantities are included on the Summary Quantities Sheet.

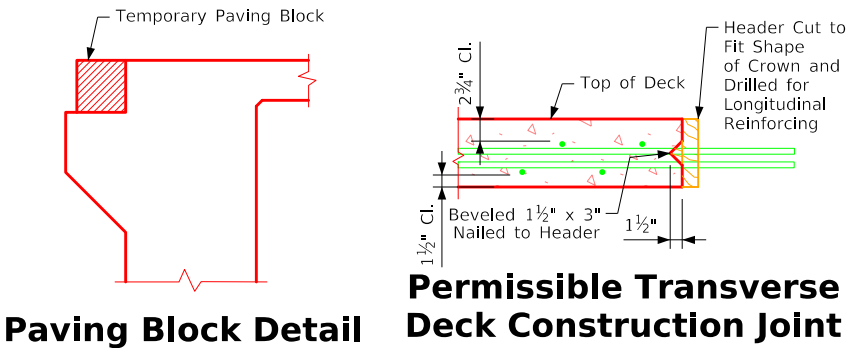
Concrete Placement Quantities

Location	Total
Temporary Paving Block - West Abutment	3.3
Temporary Paving Block - East Abutment	3.3
Structural Concrete (Bridge) - Total (Cu. Yds.)	6.6

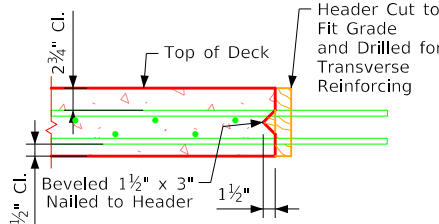


Plan of Temorary Paving Block

Note: Line paving notch with tar paper before placing the temporary paving block.



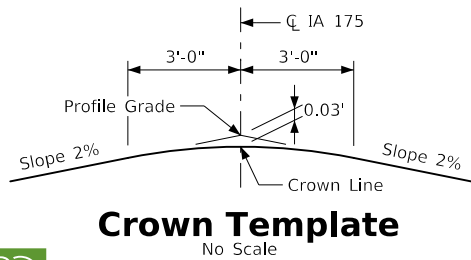
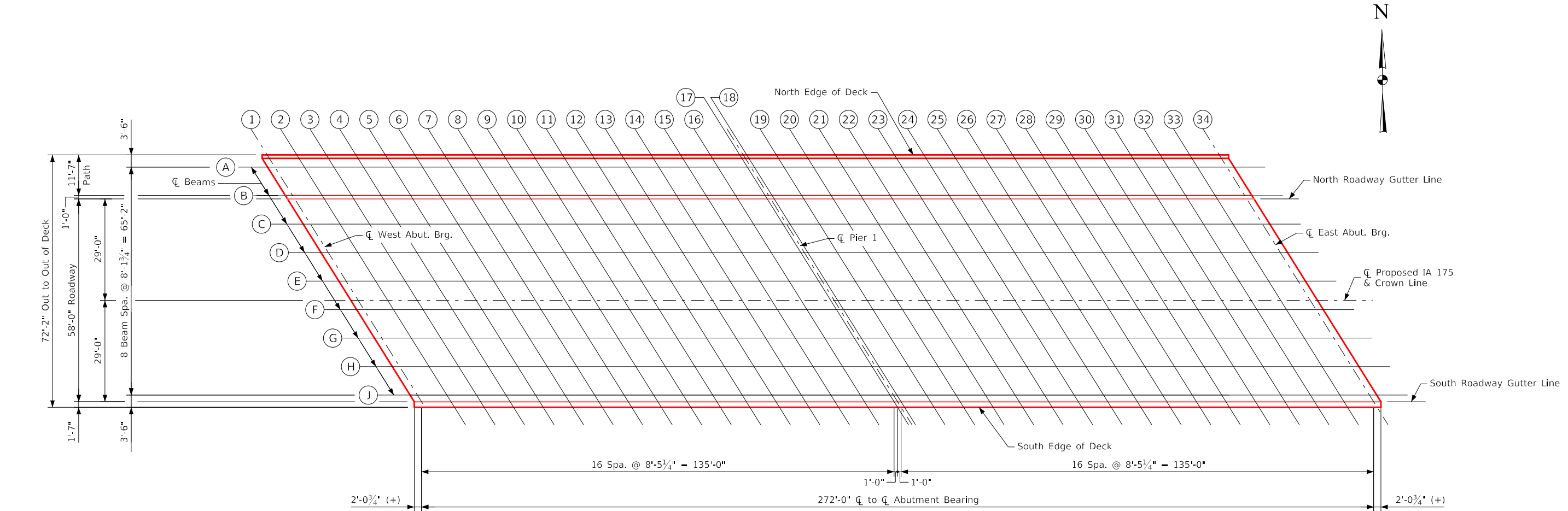
Permissible Transverse Deck Construction Joint



Permissible Longitudinal Deck Construction Joint

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Deck, Abut., & Diaph. Quantities
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 18 of 39 FHWA No. 36831

Top of Deck Elevations																																			
Location	℄ West Abut. Brg.																	℄ Pier No. 1 Bearings																	℄ East Abut. Brg.
	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	Line 13	Line 14	Line 15	Line 16	Line 17	Line 18	Line 19	Line 20	Line 21	Line 22	Line 23	Line 24	Line 25	Line 26	Line 27	Line 28	Line 29	Line 30	Line 31	Line 32	Line 33	Line 34	
North Edge of Deck	1075.30	1075.34	1075.37	1075.41	1075.44	1075.46	1075.49	1075.51	1075.53	1075.54	1075.55	1075.56	1075.57	1075.57	1075.57	1075.56	1075.56	1075.55	1075.54	1075.53	1075.51	1075.49	1075.47	1075.44	1075.41	1075.38	1075.35	1075.31	1075.27	1075.22	1075.18	1075.12	1075.07	1075.01	
Beam Line A	1075.31	1075.35	1075.38	1075.42	1075.44	1075.47	1075.49	1075.51	1075.53	1075.54	1075.55	1075.56	1075.57	1075.57	1075.57	1075.56	1075.55	1075.55	1075.54	1075.53	1075.51	1075.49	1075.46	1075.44	1075.41	1075.37	1075.34	1075.30	1075.26	1075.21	1075.16	1075.11	1075.06	1075.00	
Beam Line B	1075.33	1075.37	1075.40	1075.43	1075.46	1075.48	1075.51	1075.52	1075.54	1075.55	1075.56	1075.56	1075.57	1075.57	1075.57	1075.56	1075.55	1075.54	1075.53	1075.52	1075.50	1075.47	1075.45	1075.42	1075.39	1075.35	1075.31	1075.27	1075.23	1075.18	1075.13	1075.08	1075.02	1074.96	
North Gutter Line	1075.34	1075.37	1075.41	1075.44	1075.46	1075.49	1075.51	1075.52	1075.54	1075.55	1075.56	1075.57	1075.57	1075.57	1075.56	1075.55	1075.54	1075.53	1075.51	1075.49	1075.47	1075.45	1075.42	1075.38	1075.35	1075.31	1075.27	1075.23	1075.18	1075.13	1075.08	1075.02	1074.96		
Beam Line C	1075.54	1075.57	1075.60	1075.63	1075.66	1075.68	1075.70	1075.71	1075.73	1075.74	1075.74	1075.75	1075.75	1075.75	1075.74	1075.73	1075.72	1075.70	1075.68	1075.66	1075.64	1075.61	1075.58	1075.55	1075.51	1075.47	1075.43	1075.38	1075.33	1075.28	1075.23	1075.17	1075.11		
Beam Line D	1075.76	1075.79	1075.82	1075.85	1075.87	1075.89	1075.91	1075.93	1075.94	1075.94	1075.95	1075.95	1075.95	1075.95	1075.94	1075.93	1075.92	1075.91	1075.90	1075.87	1075.85	1075.83	1075.80	1075.76	1075.73	1075.69	1075.65	1075.60	1075.56	1075.51	1075.45	1075.39	1075.33	1075.27	
Beam Line E	1075.98	1076.01	1076.04	1076.06	1076.08	1076.10	1076.12	1076.13	1076.14	1076.14	1076.15	1076.15	1076.14	1076.13	1076.12	1076.10	1076.10	1076.08	1076.06	1076.03	1076.00	1075.97	1075.94	1075.90	1075.86	1075.82	1075.77	1075.72	1075.67	1075.61	1075.55	1075.49	1075.43		
Crown	1076.07	1076.10	1076.13	1076.15	1076.17	1076.19	1076.20	1076.21	1076.22	1076.23	1076.23	1076.23	1076.22	1076.22	1076.21	1076.19	1076.18	1076.17	1076.15	1076.13	1076.10	1076.07	1076.04	1076.00	1075.97	1075.92	1075.88	1075.83	1075.78	1075.73	1075.67	1075.61	1075.55	1075.48	
Beam Line F	1076.05	1076.08	1076.11	1076.13	1076.15	1076.17	1076.18	1076.19	1076.20	1076.20	1076.20	1076.20	1076.19	1076.18	1076.17	1076.15	1076.14	1076.12	1076.10	1076.07	1076.04	1076.01	1075.97	1075.93	1075.89	1075.85	1075.80	1075.75	1075.69	1075.64	1075.58	1075.51	1075.44		
Beam Line G	1075.89	1075.92	1075.94	1075.96	1075.98	1075.99	1076.01	1076.01	1076.02	1076.02	1076.02	1076.02	1076.01	1076.00	1075.99	1075.97	1075.96	1075.95	1075.93	1075.90	1075.87	1075.84	1075.81	1075.77	1075.73	1075.68	1075.64	1075.59	1075.53	1075.48	1075.42	1075.36	1075.29	1075.22	
Beam Line H	1075.70	1075.73	1075.75	1075.77	1075.78	1075.80	1075.81	1075.81	1075.82	1075.82	1075.82	1075.81	1075.80	1075.79	1075.78	1075.76	1075.74	1075.73	1075.71	1075.68	1075.65	1075.62	1075.58	1075.54	1075.50	1075.45	1075.40	1075.35	1075.30	1075.24	1075.18	1075.11	1075.05	1074.97	
Beam Line J	1075.51	1075.54	1075.56	1075.58	1075.59	1075.60	1075.61	1075.61	1075.62	1075.61	1075.60	1075.59	1075.58	1075.56	1075.54	1075.52	1075.49	1075.46	1075.43	1075.39	1075.35	1075.31	1075.27	1075.22	1075.17	1075.11	1075.06	1075.00	1074.93	1074.87	1074.80	1074.73			
South Gutter Line	1075.47	1075.49	1075.51	1075.53	1075.54	1075.55	1075.56	1075.57	1075.57	1075.57	1075.56	1075.55	1075.54	1075.53	1075.51	1075.49	1075.47	1075.46	1075.44	1075.41	1075.37	1075.34	1075.30	1075.26	1075.21	1075.16	1075.11	1075.06	1075.00	1074.94	1074.88	1074.81	1074.74	1074.67	
South Edge of Deck	1075.47	1075.50	1075.51	1075.53	1075.54	1075.56	1075.56	1075.57	1075.57	1075.57	1075.56	1075.55	1075.54	1075.53	1075.51	1075.49	1075.47	1075.46	1075.43	1075.40	1075.37	1075.33	1075.29	1075.25	1075.21	1075.16	1075.11	1075.05	1074.99	1074.93	1074.87	1074.80	1074.73	1074.66	



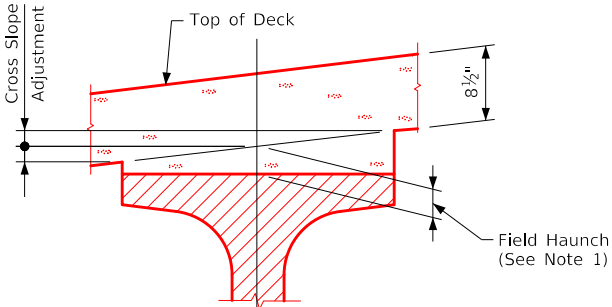
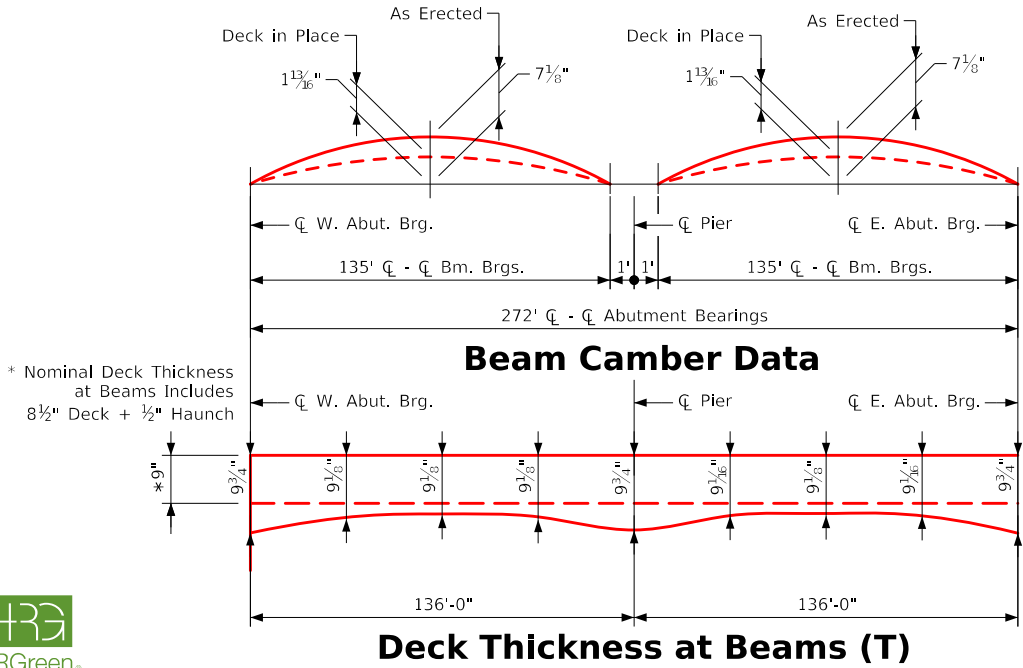
Top of Deck Elevation Locations

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Top of Deck Elevations
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 19 of 39 FHWA No. 36831

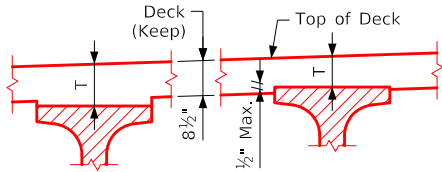
Beam Line Deck Haunch Elevations																																			
	℄ West Abut. Brg.																	℄ Pier No. 1 Bearings																	℄ East Abut. Brg.
Location	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	Line 13	Line 14	Line 15	Line 16	Line 17	Line 18	Line 19	Line 20	Line 21	Line 22	Line 23	Line 24	Line 25	Line 26	Line 27	Line 28	Line 29	Line 30	Line 31	Line 32	Line 33	Line 34	
Beam Line A	1074.60	1074.73	1074.85	1074.96	1075.05	1075.13	1075.20	1075.24	1075.27	1075.27	1075.26	1075.23	1075.18	1075.11	1075.03	1074.94	1074.85	1074.84	1074.92	1074.99	1075.05	1075.10	1075.13	1075.14	1075.14	1075.11	1075.07	1075.00	1074.92	1074.82	1074.70	1074.58	1074.44	1074.29	
Beam Line B	1074.63	1074.75	1074.87	1074.98	1075.07	1075.15	1075.21	1075.25	1075.28	1075.28	1075.26	1075.23	1075.18	1075.11	1075.03	1074.94	1074.84	1074.84	1074.91	1074.98	1075.04	1075.08	1075.11	1075.12	1075.12	1075.09	1075.04	1074.98	1074.89	1074.79	1074.67	1074.54	1074.40	1074.26	
Beam Line C	1074.83	1074.95	1075.07	1075.17	1075.27	1075.34	1075.40	1075.44	1075.46	1075.47	1075.45	1075.41	1075.36	1075.29	1075.21	1075.11	1075.01	1075.01	1075.08	1075.15	1075.20	1075.25	1075.27	1075.28	1075.28	1075.25	1075.20	1075.13	1075.05	1074.94	1074.82	1074.69	1074.55	1074.40	
Beam Line D	1075.05	1075.17	1075.29	1075.39	1075.48	1075.56	1075.62	1075.65	1075.67	1075.67	1075.65	1075.62	1075.56	1075.49	1075.40	1075.31	1075.21	1075.20	1075.28	1075.34	1075.39	1075.43	1075.46	1075.47	1075.46	1075.43	1075.38	1075.31	1075.22	1075.11	1074.99	1074.86	1074.71	1074.56	
Beam Line E	1075.27	1075.39	1075.50	1075.60	1075.69	1075.76	1075.82	1075.86	1075.88	1075.87	1075.85	1075.81	1075.75	1075.68	1075.59	1075.50	1075.39	1075.39	1075.46	1075.52	1075.57	1075.61	1075.64	1075.64	1075.63	1075.60	1075.55	1075.48	1075.39	1075.28	1075.16	1075.02	1074.87	1074.72	
Beam Line F	1075.34	1075.46	1075.57	1075.67	1075.76	1075.83	1075.89	1075.92	1075.94	1075.93	1075.91	1075.87	1075.81	1075.73	1075.64	1075.55	1075.44	1075.44	1075.50	1075.56	1075.62	1075.65	1075.67	1075.68	1075.66	1075.63	1075.58	1075.50	1075.41	1075.30	1075.18	1075.04	1074.89	1074.74	
Beam Line G	1075.18	1075.30	1075.41	1075.50	1075.59	1075.66	1075.71	1075.74	1075.76	1075.75	1075.73	1075.68	1075.62	1075.54	1075.45	1075.35	1075.25	1075.24	1075.31	1075.37	1075.42	1075.45	1075.47	1075.47	1075.46	1075.42	1075.37	1075.29	1075.20	1075.09	1074.96	1074.82	1074.67	1074.51	
Beam Line H	1074.99	1075.11	1075.21	1075.31	1075.39	1075.46	1075.51	1075.54	1075.56	1075.55	1075.52	1075.48	1075.41	1075.33	1075.24	1075.14	1075.03	1075.03	1075.09	1075.15	1075.19	1075.23	1075.24	1075.25	1075.23	1075.19	1075.13	1075.06	1074.96	1074.85	1074.72	1074.58	1074.43	1074.27	
Beam Line J	1074.81	1074.92	1075.02	1075.12	1075.20	1075.26	1075.31	1075.34	1075.35	1075.34	1075.31	1075.27	1075.20	1075.12	1075.03	1074.92	1074.81	1074.81	1074.87	1074.92	1074.97	1075.00	1075.02	1075.02	1075.00	1074.96	1074.90	1074.82	1074.72	1074.61	1074.48	1074.33	1074.18	1074.02	

Miscellaneous Data Table																																								
	Beam Line		℄ West Abut. Brg.																℄ Pier No. 1 Bearings																					℄ East Abut. Brg.
			Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Line 11	Line 12	Line 13	Line 14	Line 15	LINE 16	Line 17	Line 18	Line 19	Line 20	Line 21	Line 22	Line 23	Line 24	Line 25	Line 26	Line 27	Line 28	Line 29	Line 30	Line 31	Line 32	Line 33	Line 34				
Anticipated Deflection Due to Deck (in.)	All		0	1½ ₁₆	2½ ₁₆	3	3 ¹³ ₁₆	4 ⁷ ₁₆	4 ¹⁵ ₁₆	5¼	5¾	5¼	4 ¹⁵ ₁₆	4 ⁷ ₁₆	3 ¹³ ₁₆	3	2½ ₁₆ "	1½ ₁₆	0	0	1½ ₁₆	2½ ₁₆	3	3 ¹³ ₁₆	4 ⁷ ₁₆	4 ¹⁵ ₁₆	5¼	5¾	5¼	4 ¹⁵ ₁₆	4 ⁷ ₁₆	3 ¹³ ₁₆	3	2½ ₁₆	1½ ₁₆	0				
Cross Slope Adjustments (in.)	A		0" (0.000)																																					
	B		⅓ ₁₆ " (0.010)																																					
	C, D		⅔ ₁₆ " (0.036)																																					
	E, F		⅝ ₁₆ " (0.026)																																					
	G, H, J		⅔ ₁₆ " (0.036)																																					
Allowable Field Haunch (in. & ft.)	Max.	All	2½" (0.208)																																					
	Min.	A	-½" (-0.042)																																					
		B	-¾ ₁₆ " (-0.030)																																					
		C, D	-⅓ ₁₆ " (-0.006)																																					
		E, F	-¾ ₁₆ " (-0.013)																																					
		G, H, J	-⅓ ₁₆ " (-0.006)																																					

Note: Haunch locations are at the same location as the encircled letters and numbers shown on deck elevations sheet.



Hauch Detail



Deck Thickness Details

Note: The deck thickness (T) at beams is based on the anticipated beam camber and deflections. These values are used by the Designer to set beam elevations and estimate concrete quantities. Refer to the haunch data details sheet for additional information to aid the Contractor in setting the field haunches required for construction.

Note: Bridge seat elevations are set based on theoretical camber and beam deflections. These bridge seats will provide a theoretical beam haunch within design parameters. Field haunches are determined using surveyed top of beam elevations and "Beam Line Haunch Elevation" data. Allowable maximum and minimum "Field Haunch" values are given in inches and decimals of feet in the "Miscellaneous Data" table. "Cross slope adjustment" values will aid the Contractor in determining actual formed haunch dimensions at the edges of the top flange.

Note 1: To calculate field haunch required at each location, survey the beam tops consistent with the spacings shown on the "Top of Deck Elevations Layout". Subtract the surveyed beam shot from the "Beam Line Haunch Elevation". This value will be the haunch needed (see "Field Haunch" in haunch detail). The "Beam Line Haunch Elevation" includes adjustments for deck thicknesses and anticipated deflections. No additional calculations are required. If the field haunch exceeds the maximums and minimums shown in inches and decimals of feet in the miscellaneous data table, adjustments to the grade or additional haunch reinforcement will be required.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.

Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

Deck Haunch Data Details

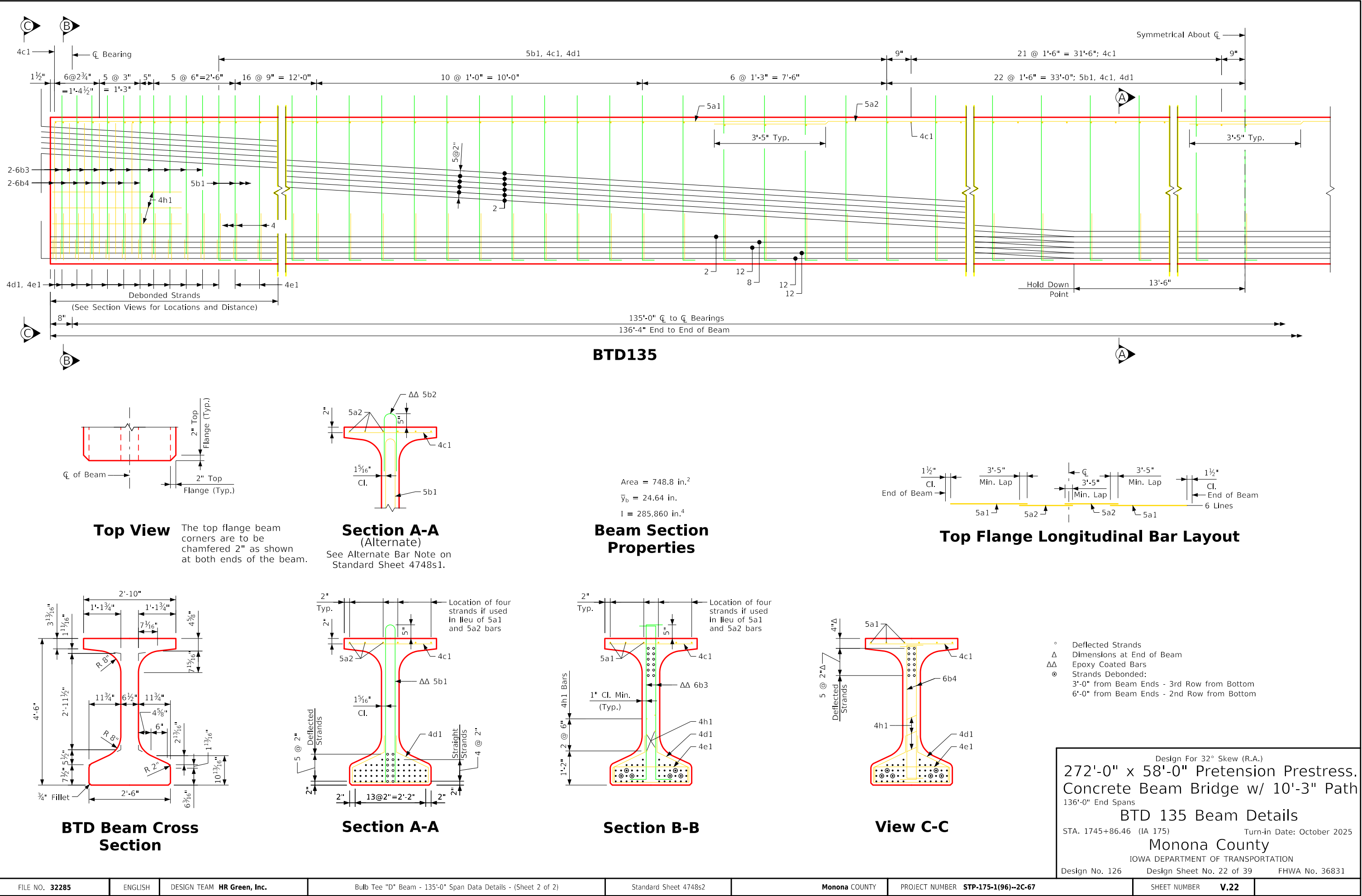
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 20 of 39 FHWA No. 36831

Revision 10-07: 5b2 Bar Deleted. 5b1 Bar Lengthened to Extend 5 Inches Above Beam Top.
Revised 10-2024: Revised strand pattern moving 2 straight strands from row 4 up to row 5 from the bottom of the beam. Added 4 debonded strands to row 2 and 2 debonded strands to row 3 for a total of 6 debonded strands. Removed one set of 6b4, 4d1, and 4e1 bars from each end and revised spacing.
Issued 05-04.
Beams.dgn - 4748s2 - This Sheet Re-Issued 04-2024. Sheet Format Update.



Bulb Tee "D" Beam Intermediate Diaphragm Structural Steel			
One Beam Connection (Detail "F")			Weight
		No. of Beam Connections	
Two - $\frac{7}{8}" \varnothing \times 9\frac{1}{4}"$ H.S. Bolts with Nuts & Washers = 4.8 Lbs.		64	307
One Detail "F"	One - Backing $\overline{P} \ 6" \times \frac{3}{8}" \times 1'-1\frac{3}{8}"$ = 8.5 Lbs.	64	544
	One - Bent $\overline{P} \ 9" \times 6" \times \frac{1}{2}" \times 1'-1\frac{3}{8}"$ = 28.5 Lbs.	64	1,824
One Diaphragm			
		Number of Diaphragms	
Eight - $\frac{7}{8}" \varnothing \times 2\frac{3}{4}"$ H.S. Bolts with Nuts & Washers = 10.3 Lbs.		32	330
	Length of Member		
One - C15 x 33.9 = 33.9 Lbs./Ft.	$6'-11\frac{1}{2}"$	32	7,548
Intermediate Diaphragm Structural Steel - Total (Lbs.)			10,553



Note: Only one set of holes required at exterior beams.

All diaphragm materials, including bolts, nuts and washers shall be galvanized.

Shop drawings of the steel diaphragms showing layout and details of the diaphragms shall be submitted for approval.

All costs for furnishing and installing steel intermediate diaphragms shall be included in the price bid for Structural Steel.

The 1½"Ø holes for the 7/8"Ø H.S. bolts shall be cast into the web. Drilling is not allowed.

The $\frac{7}{8}$ " Ø H.S. bolts through the web shall have a thread length of 3" min. and 4" max. and shall meet the requirements of ASTM A449.

All bolts are to be tightened prior to placing bridge deck concrete.



STRUCTURAL STEEL	
Weight	10,553 lbs.
NOTE: Structural Steel weight is included on the Summary Quantities Sheet.	

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

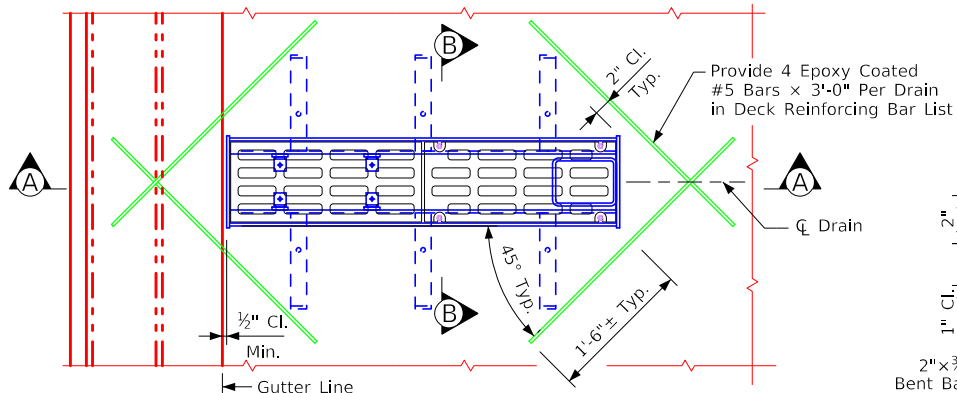
Steel Intermediate Diaphragm - BTD Beam

STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

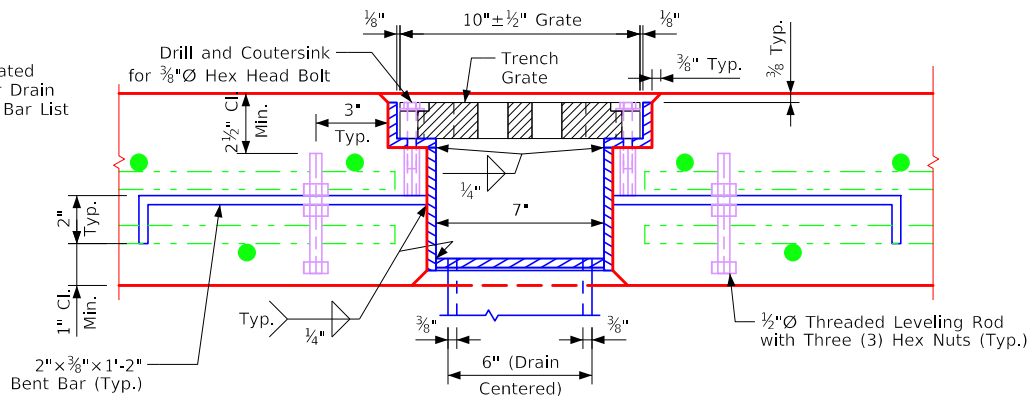
Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 23 of 39 FHWA No. 36831



Part Plan At Drain



Part Section B-B - Showing Detail B Option

Detail is Shown Using 10" Wide Grate

Drain Notes

The drains shall be 3/8" thick steel. The drain assemblies shall be galvanized after fabrication. The bid item "Deck Drain" shall include all costs associated with fabricating and installing the deck drains as per plan.

The drain trench grates shall be ferrous castings. Metal used in the manufacture of castings shall conform to ASTM A48-83 Class 35B or better gray iron castings in accordance with current Iowa D.O.T. Standard Specifications. Finish of castings shall be smooth and free of defects. Trench grates shall be capable of carrying AASHTO HL-93 loading. Galvanizing of the trench grates is not required.

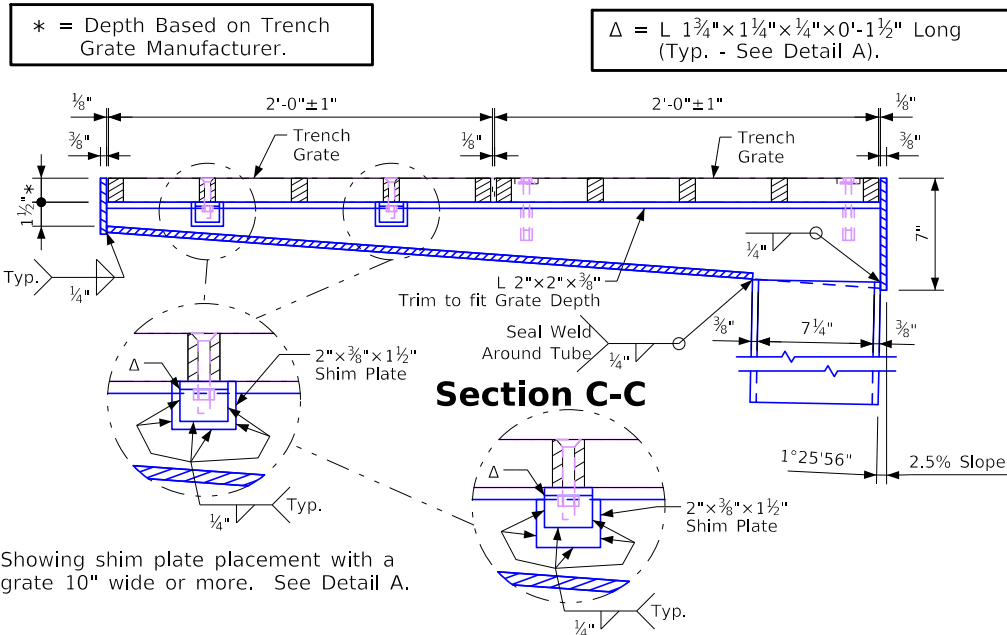
Drains shall be centered over the nearest bottom transverse deck reinforcing bar from the location designated on the situation plan. The bottom transverse deck reinforcing bar shall be cut off to provide 1" clearance from the drain. The top transverse deck reinforcing bars on each side of the drain, shall be spaced as necessary to provide 1" clearance from the drain. Longitudinal deck reinforcing bars that conflict with the drain shall be cut off to provide 2" clearance from the drain. All cut ends of bars shall be coated with epoxy patching material supplied by the Manufacturer of the epoxy coating. Longitudinal deck reinforcing bars shall be shifted as necessary to accommodate anchor bars.

Materials

Plates, bars, threaded rods and angles shall meet the requirements ASTM A709 Grade 36. The tube steel shall meet the requirements ASTM A500 Grade B.

3/8" mechanically galvanized steel flat head screw shall meet the requirements of ASTM B695-04 (2009) and ASTM F835-12.

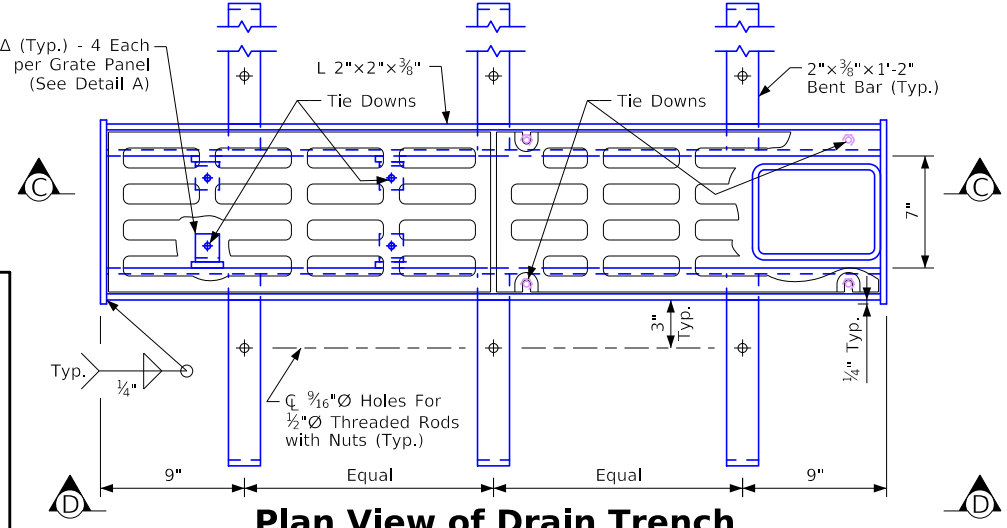
3/8" mechanically galvanized steel hex head bolt and hex nut shall meet the requirements of ASTM B695-04 (2009) and ASTM A307-12 Grade A.



Section C-C

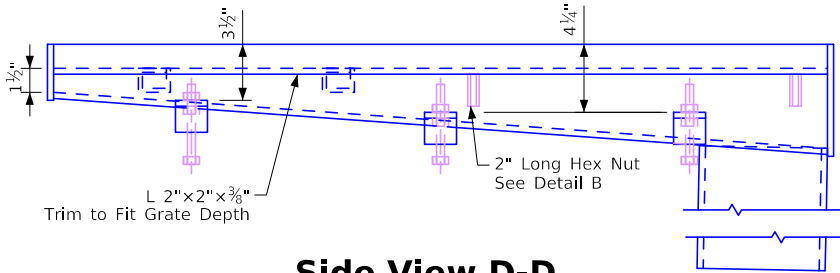
Showing shim plate placement with a grate 10" wide or more. See Detail A.

Showing shim plate placement with a grate less than 10" wide. See Detail A.

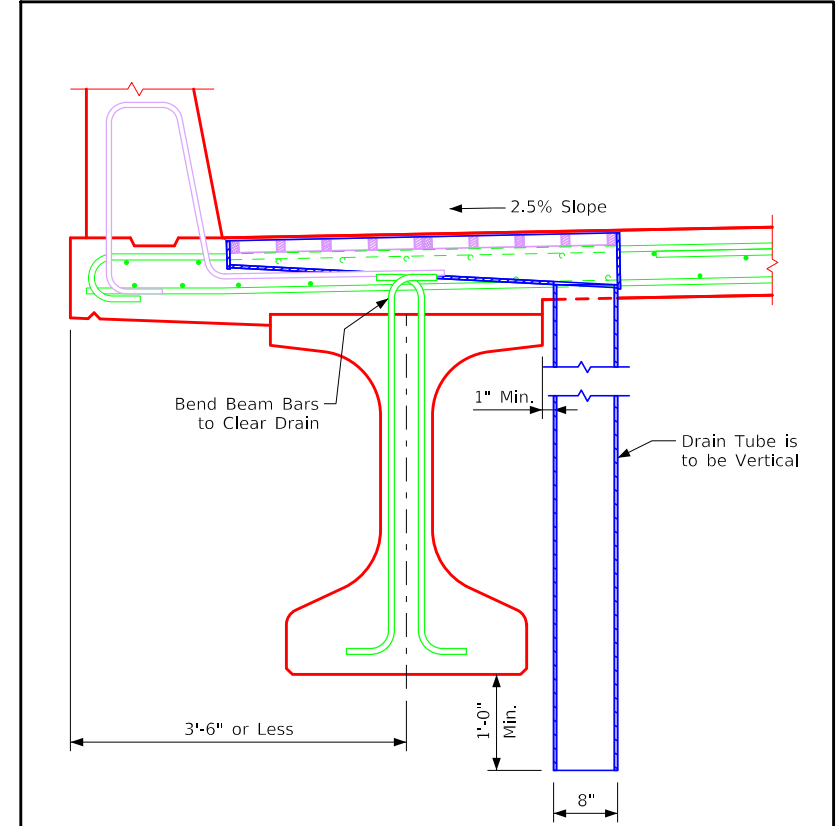


Plan View of Drain Trench

Grate Tie Downs Show Both Detail A and Detail B

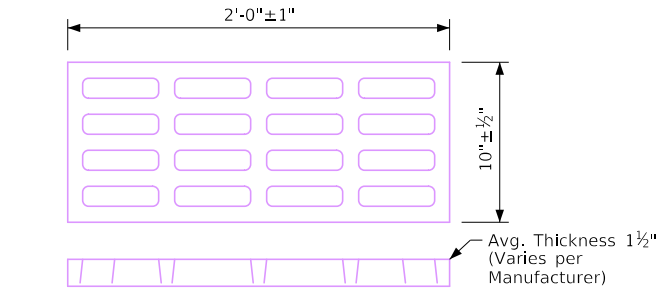


Side View D-D



Part Section A-A

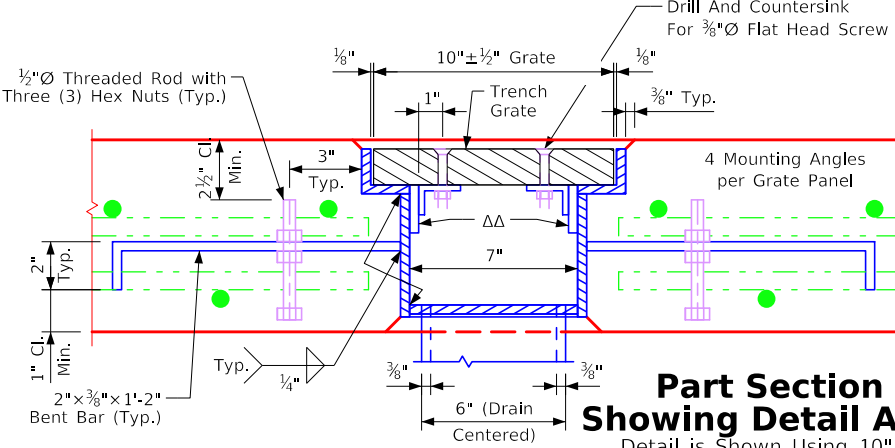
(Drains at South Barrier Rail Shown. Drains at Separation Rail Similar, see Design Sheet 15 for more information.)



Drain Trench Grate Details

2 Grates Required Per Drain

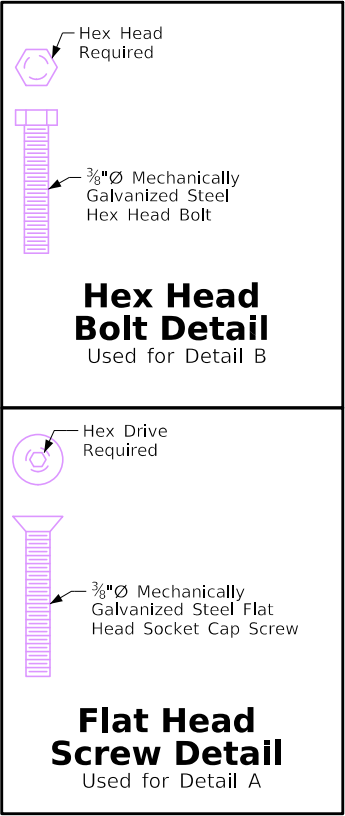
Note: Pattern and direction of grate openings shall be similar to the pattern shown.



Part Section B-B
Showing Detail A Option

Detail is Shown Using 10" Wide Grate

ΔΔ = Adjust shim plate according to width of grate.



Hex Head Bolt Detail

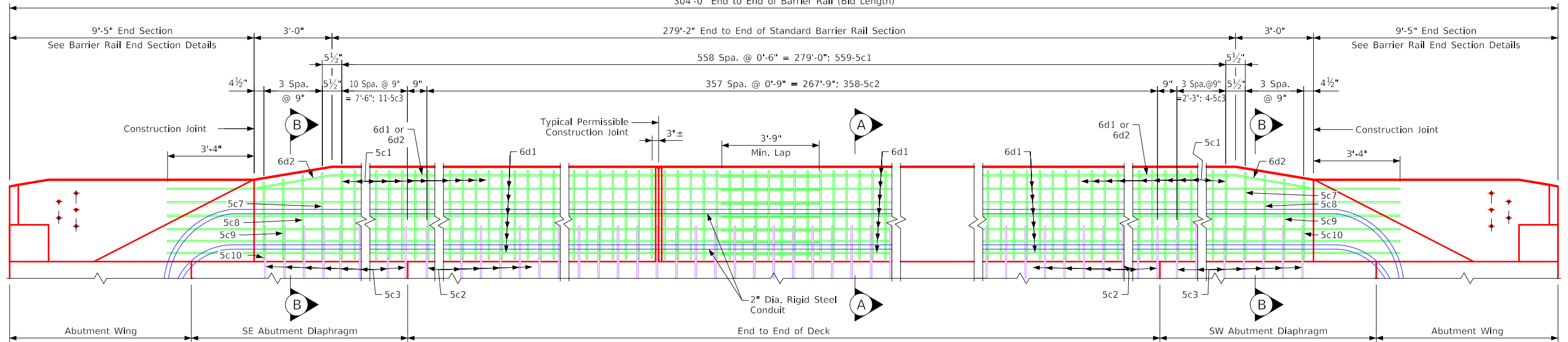
Used for Detail B

Flat Head Screw Detail

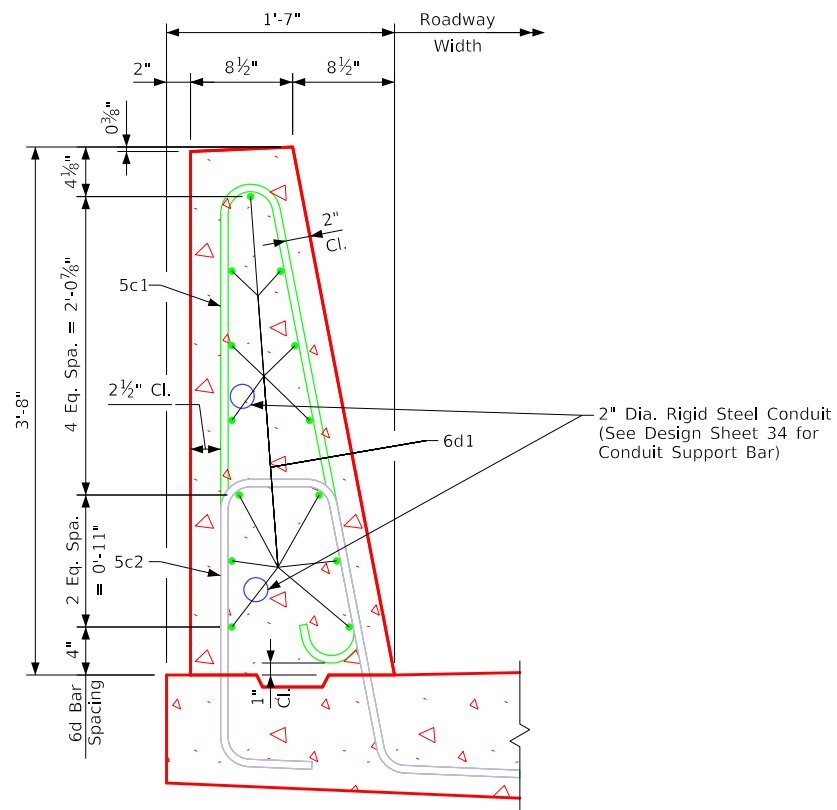
Used for Detail A

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Aesthetic Deck Drains
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 24 of 39 FHWA No. 36831

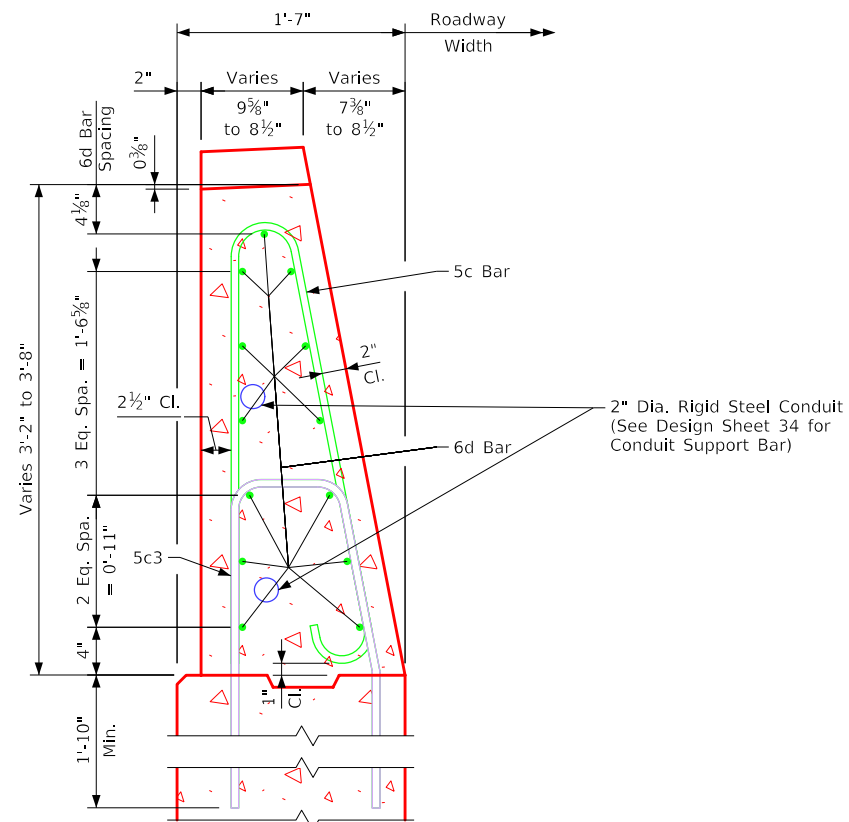
Revised 09-16: Changed 5c1 Bar Length to 7'-5" (It was 5'-11" in Error).
Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c



Elevation of South Barrier Rail



Part Section A-A



Part Section B-B

See Barrier Rail Details on Design Sheet No. 26 for notes,
reinforcing steel details, and quantities.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
South Barrier Rail Details
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 25 of 39 FHWA No. 36831

DeckRailBridges.dgn - 10205F-2 -This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 10205F).

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.

All barrier rail reinforcing steel is to be either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

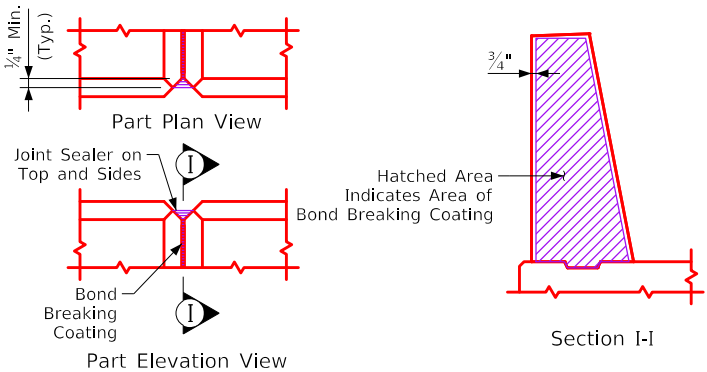
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. The rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

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

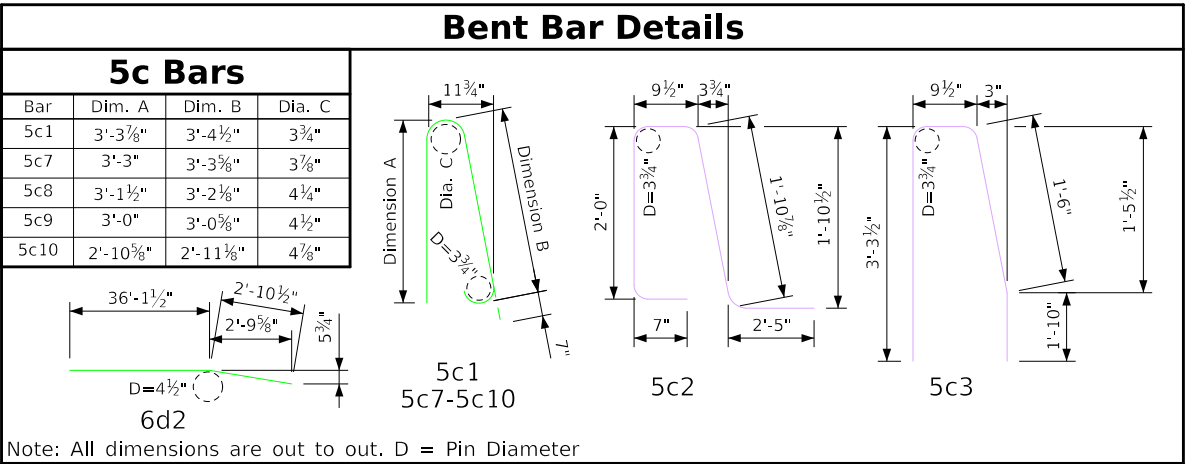
Top of the barrier rail is to be parallel to the theoretical \overline{C} grade.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a $\frac{3}{4}$ " dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.90 square feet, except the 3'-0" sloped ends at the end sections.



Barrier Rail Joint Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Epoxy Coated Reinf. Steel - One Rail

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		559	7'-6"	4,373
	5c7	Rail, Vertical, Sloped Ends		2	7'-4"	15
	5c8	Rail, Vertical, Sloped Ends		2	7'-1"	15
	5c9	Rail, Vertical, Sloped Ends		2	6'-10"	14
	5c10	Rail, Vertical, Sloped Ends		2	6'-7"	14
	6d1	Rail, Longitudinal		102	38'-11"	5,962
	6d2	Rail, Longitudinal, Top		2	39'-0"	117

Epoxy Reinf. Total Weight (lbs.) 10,510

Stainless Steel Reinf. Steel - One Rail

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		358	7'-8"	2,863
	5c3	Rail, Vertical		23	7'-5"	178

Stainless Steel Reinf. Total Weight (lbs.) 3,041

Concrete Placement Summary

Section	Total
Δ Standard Section 304' at 0.144 cu. yd. per ft.	43.7
Total (cu. yd.)	43.7
Note: Δ Deduct 0.021 cu. yd. for one sloped end.	

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing, 3'-8"	L.F.	304.0

See Barrier Rail Details on Design Sheet No. 25 for details and sections.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.

Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

South Barrier Rail Details (Cont.)

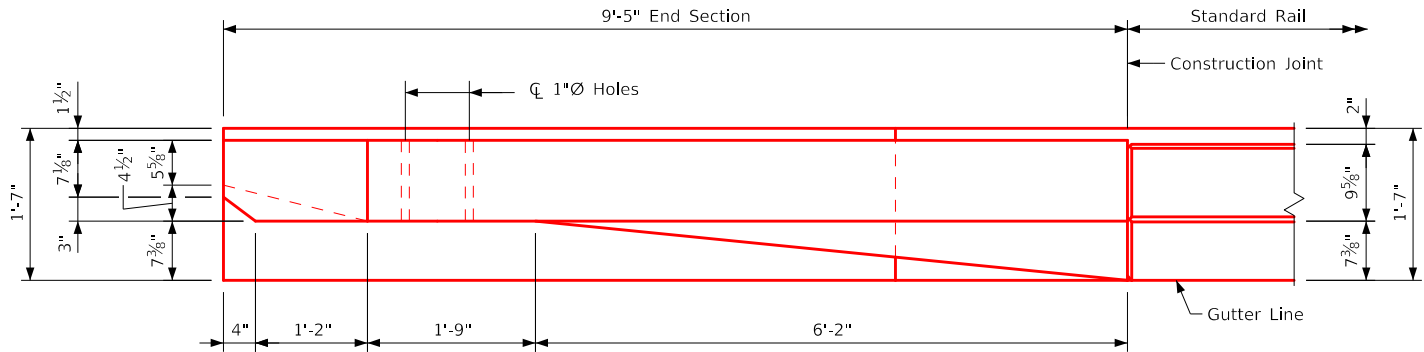
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

Monona County

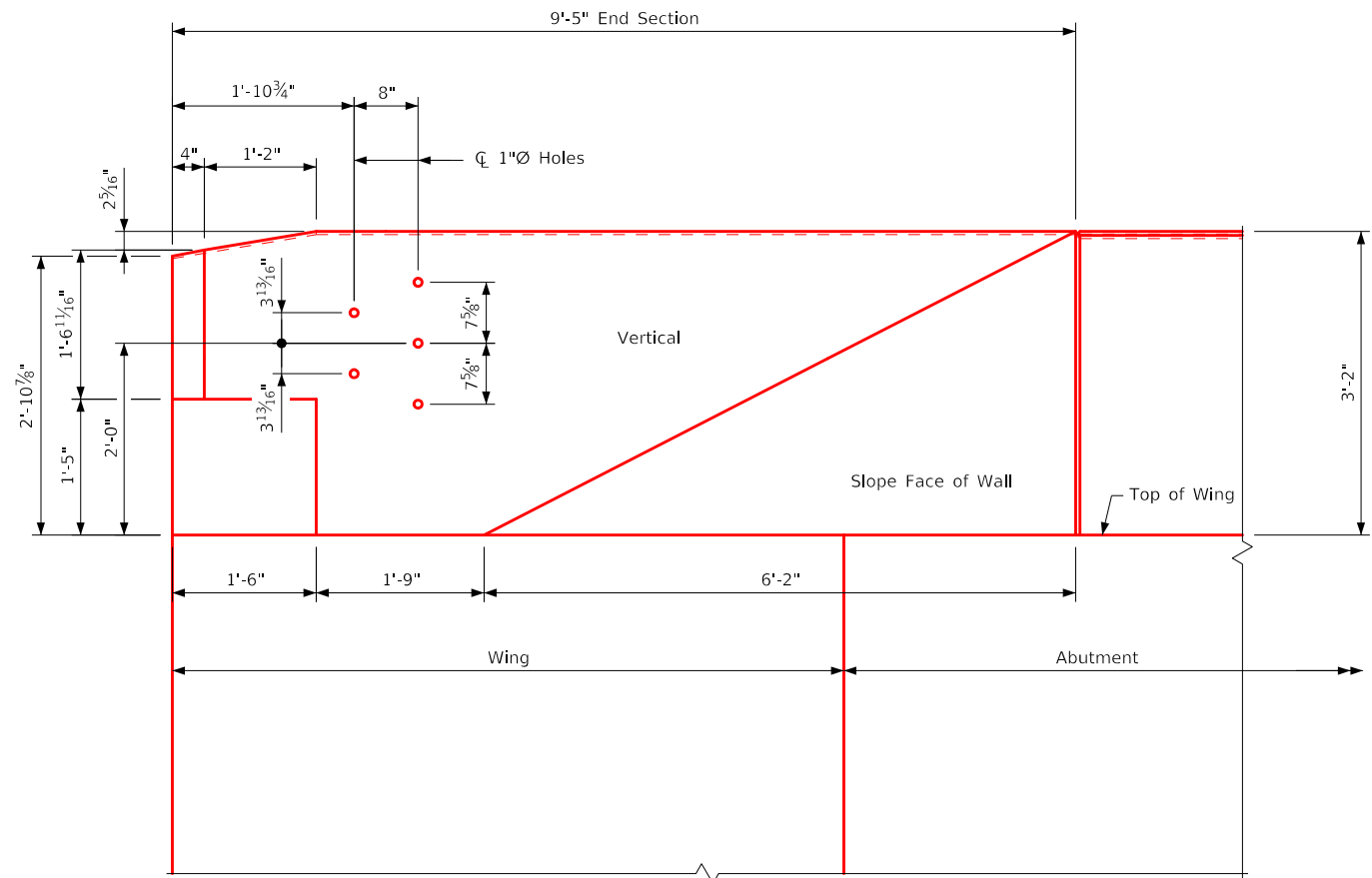
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 26 of 39 FHWA No. 36831

Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 6c3, 6c4 & 5c5-10 Bars to Stainless Steel.
DeckRailBridges.dgn - 10175-1 - This Sheet Re-Issued 05-2024. Sheet Format Update Number was Originally 10175-1.

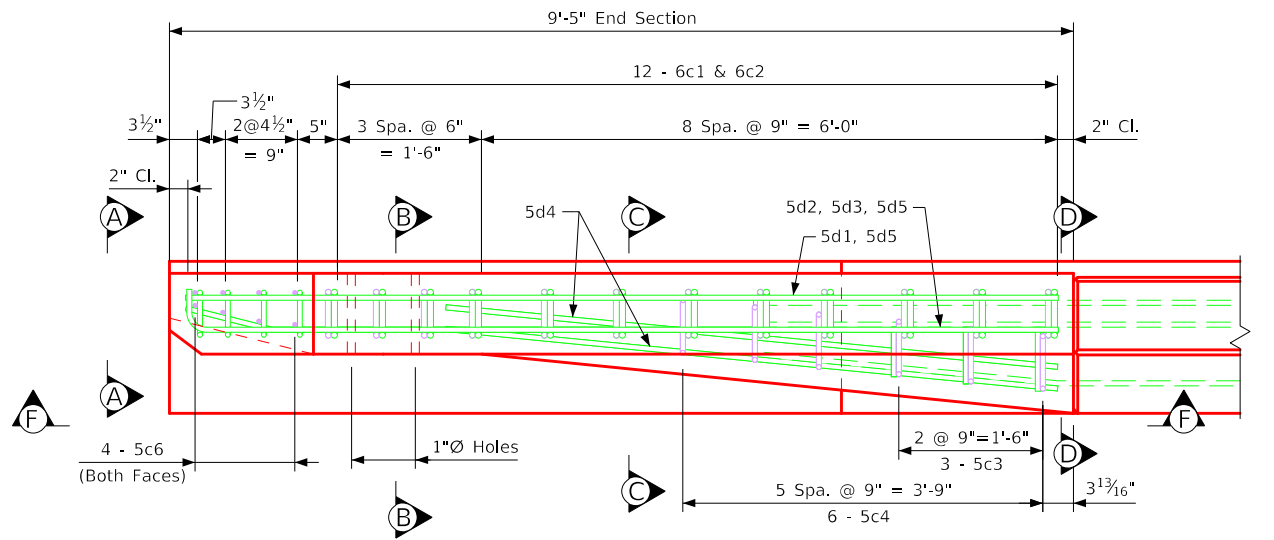


Part Plan View

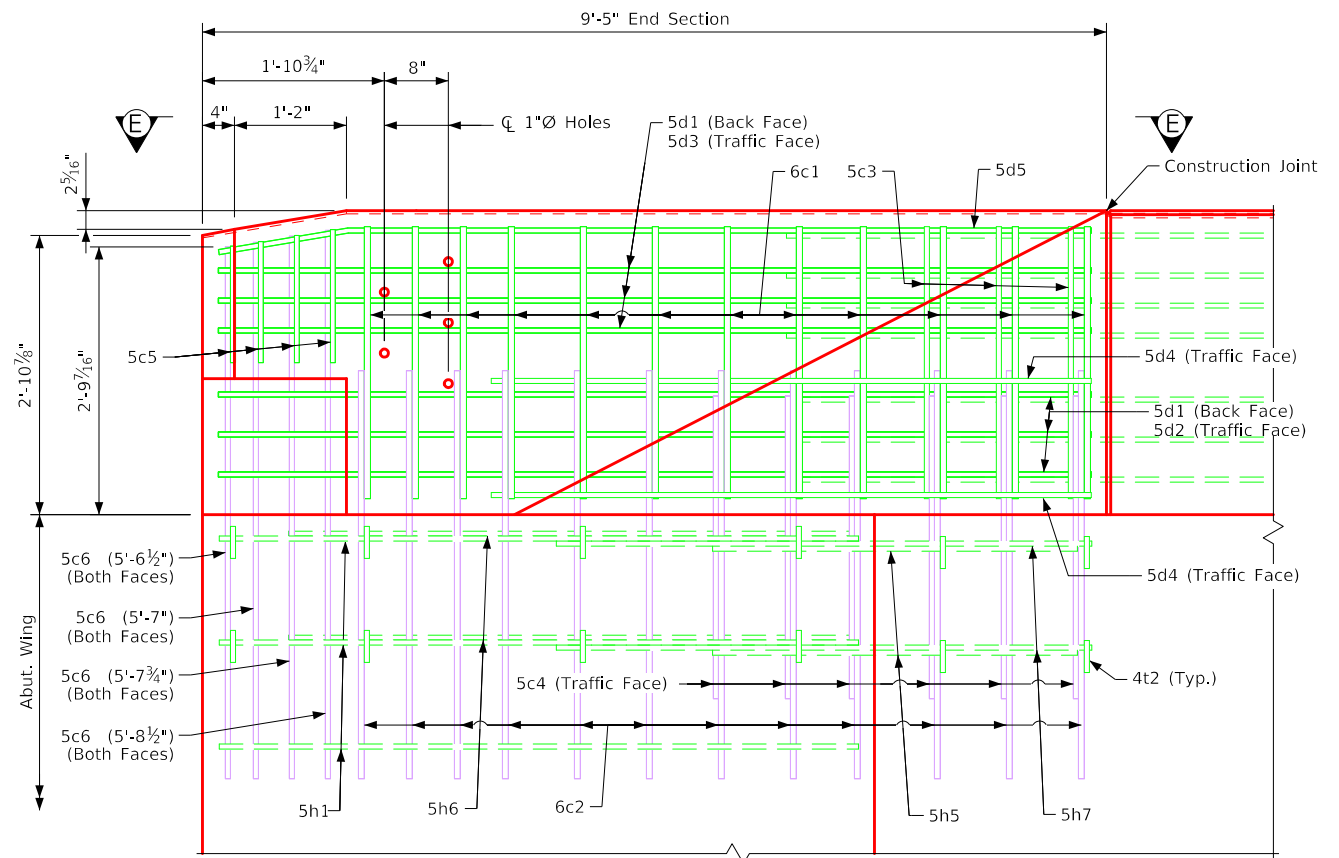


Part Elevation View

Provide 5 holes formed with 1"Ø plastic conduit.
Cost to be included in price of bid for Concrete Barrier Railing.



Part View E-E



Part View F-F

Notes: 4t2 placement - 6 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.
Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.
The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.
Dashed lines below the top of wing are the abutment wing reinforcing steel. See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.
For Bar List, Bent Bar Details, View A-A, Sections B-B, C-C, and D-D see Design Sheet No. 28.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.

Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

Barrier Rail End Section (Stainless)

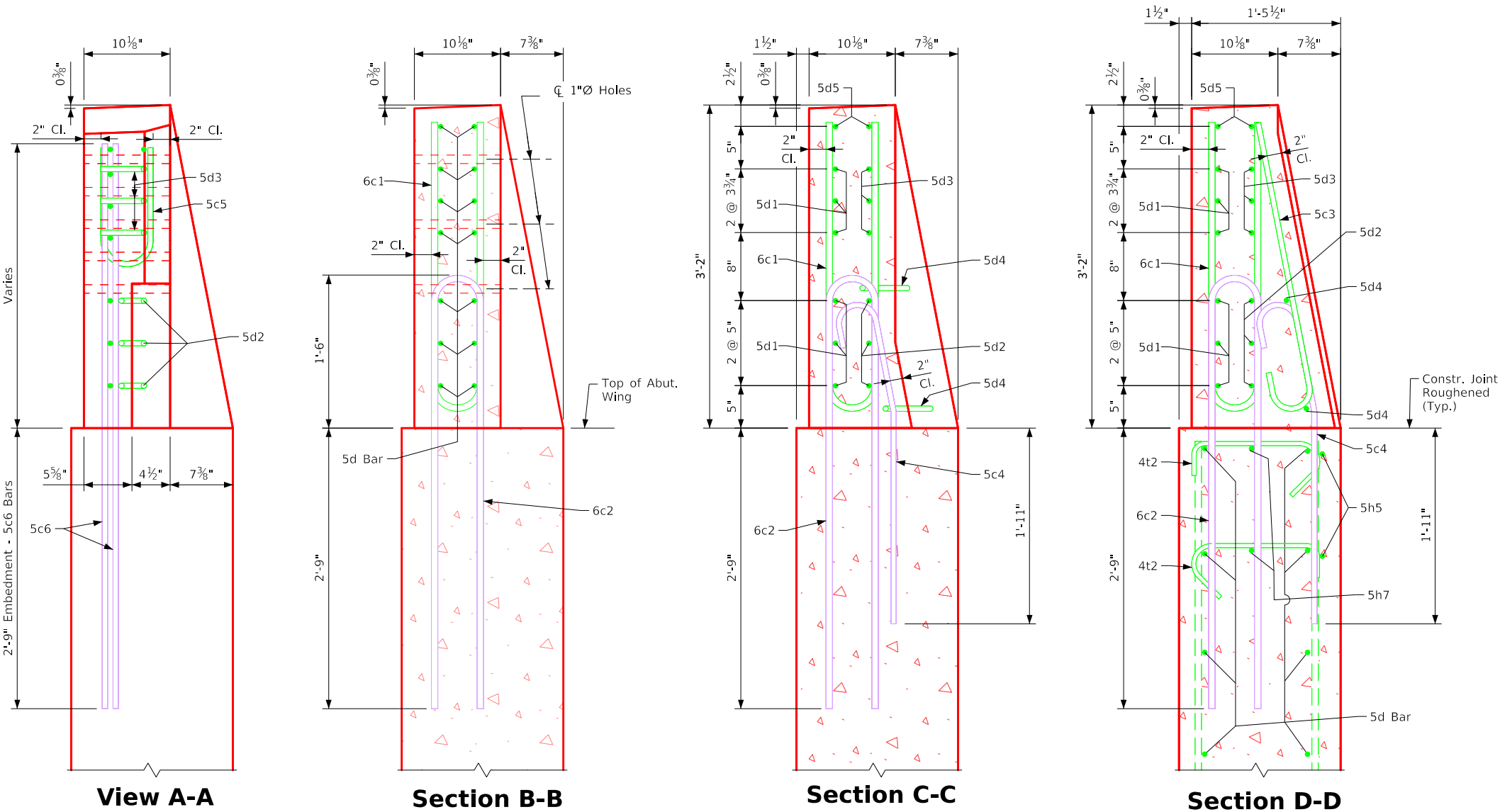
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 27 of 39 FHWA No. 36831

DeckRailBridges.dgn - 10175-2 - This Sheet Issued 05-2024. Revised to Single Slope Barrier Shape. Additional Sheet for Clarity. (Sheet Number was Originally 10175).



Notes: 4t2 placement - 6 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.
Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.
The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.
Dashed lines below the top of wing are the abutment wing reinforcing steel. See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.
For Plan and Elevation see Design Sheet No. 27.

Epoxy Coated Reinforcing Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c1	Rail, Vertical		12	5'-11"	107
5c3	Rail, Vertical (Traffic Face)		3	3'-5"	11
5c5	Rail, Vertical (End)		4	Varies	14
5d1	Rail, Horizontal (Back Face)		6	9'-1"	57
5d2	Rail, Horizontal (Traffic Face)		3	9'-1"	28
5d3	Rail, Horizontal (Traffic Face)		3	9'-7"	30
5d4	Rail, Horizontal (Traffic Face)		2	6'-3"	13
5d5	Rail, Horizontal (Top)		2	9'-1"	19
4t2	Rail, Abutment Wing Tie Bars		12	2'-0"	16
Epoxy Reinforcing Total Weight (lbs.)					295

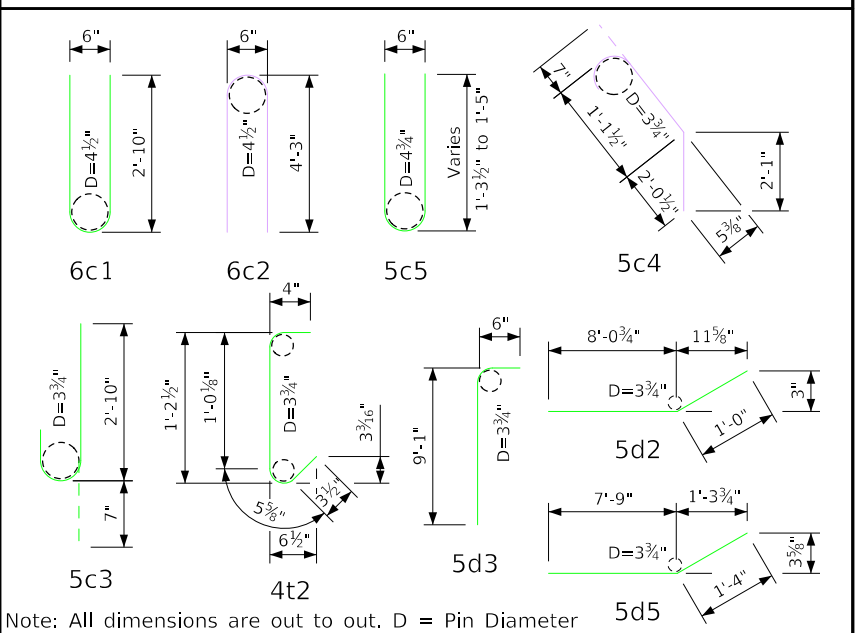
Stainless Steel Reinforcing Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c2	Rail, Vertical		12	8'-9"	158
5c4	Rail, Vertical (Traffic Face)		6	3'-10"	24
5c6	Rail, Vertical (End)		8	Varies	47
Stainless Steel Reinforcing Total Weight (lbs.)					229

Concrete Placement Summary

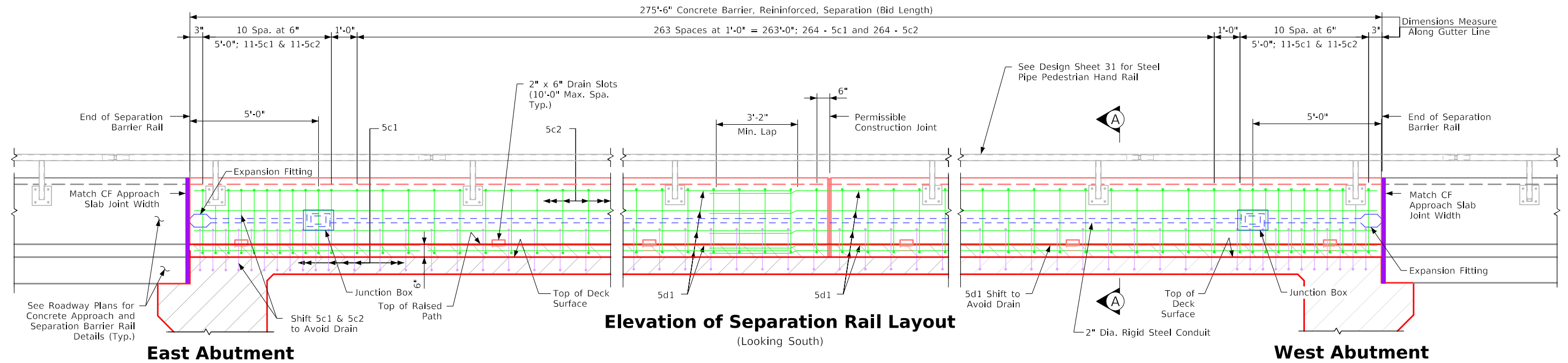
Section	Total
Barrier Rail, One End Section	1.0 cu. yd.

Bent Bar Details

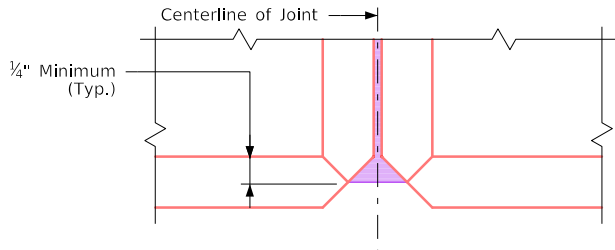


Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

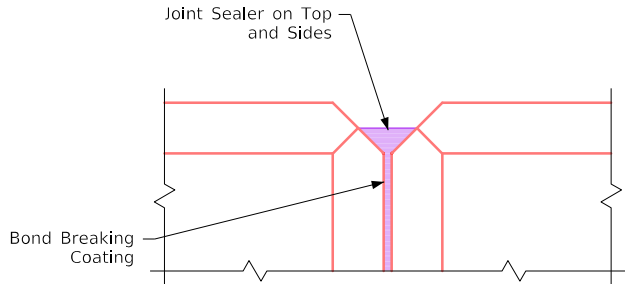
Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Barrier Rail End Section (Stainless) (Cont.)
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 28 of 39 FHWA No. 36831



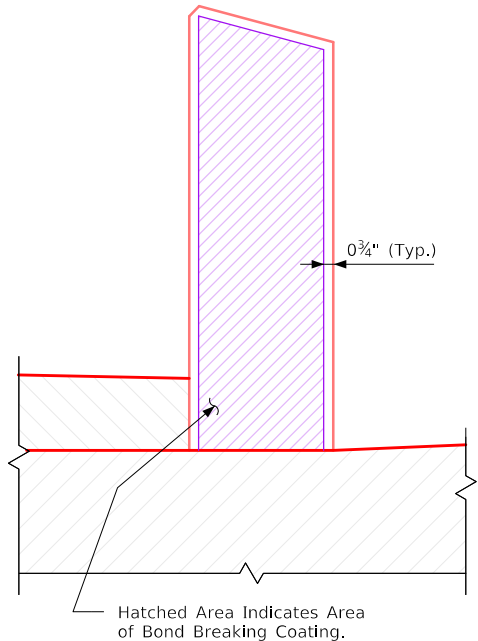
DeckRailBridges.dgn - 1028SA-2 -This Sheet Issued 05-2024.. Additional Sheet for Clarity. (Sheet Number was Originally 1028SA).



Part Plan View



Part Elevation View



Part Section

Separation Barrier Rail Joint Details

(Permissible Construction Joint)

Epoxy-Coated Reinforcing Steel
One Separation Barrier

Bar	Location	Shape	No.	Length	Weight
5c2	Separation Barrier, Vertical		286	7'-6"	2,237
5d1	Separation Barrier, Longitudinal		64	37'-2"	2,481

Epoxy-Coated Reinforcing Steel Total (lbs)

4,718

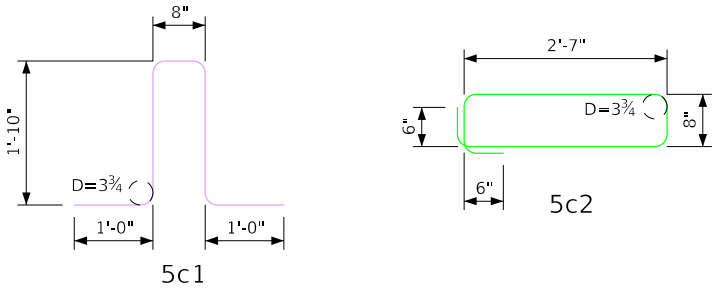
Stainless Steel Reinforcing
One Separation Barrier

Bar	Location	Shape	No.	Length	Weight
5c1	Separation Barrier, Vertical		286	6'-4"	1,889

Stainless Steel Reinforcing Total (lbs)

1,889

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Summary

Section	Total
Standard Section	275.5' @ 0.110 cu. yd. per ft. 30.3

Concrete Separation Barrier Quantity

Section	Unit	Total
Concrete Barrier, Reinforced, Separation	L.F.	275.5

Separation Barrier Notes:

Maintain a minimum clear distance of 2" from the concrete face to the nearest reinforcing bar, unless otherwise specified.

Construct permissible construction joints between vertical bars with a minimum spacing of 20 feet, ensuring a minimum distance of 1'-0" from the centerline of any handrail post. Apply an approved bond breaker on construction joint contact surfaces.

The cost of joint sealer and bond breaker is considered incidental to overall construction expenses.

All barrier rail reinforcing steel to be epoxy coated or stainless steel as shown.

Bid for Concrete Barrier, Reinforced, Separation on a lineal foot basis.

Payment will be made at the contract priced per linear foot based on plan quantities. The bid includes all material, equipment, and labor for concrete rail construction, including conduit if shown in these plans. Reinforcing steel quantity not included and bid separately.

Use a light gray nonsag latex caulking sealer designed for outdoor use as the joint sealer. No testing or certification is required.

Ensure the top of the barrier rail aligns parallel to the theoretical centerline grade.

Fillet all exposed corners with a 3/4" dressed and beveled strip for corners with a 90 degree or sharper angle.

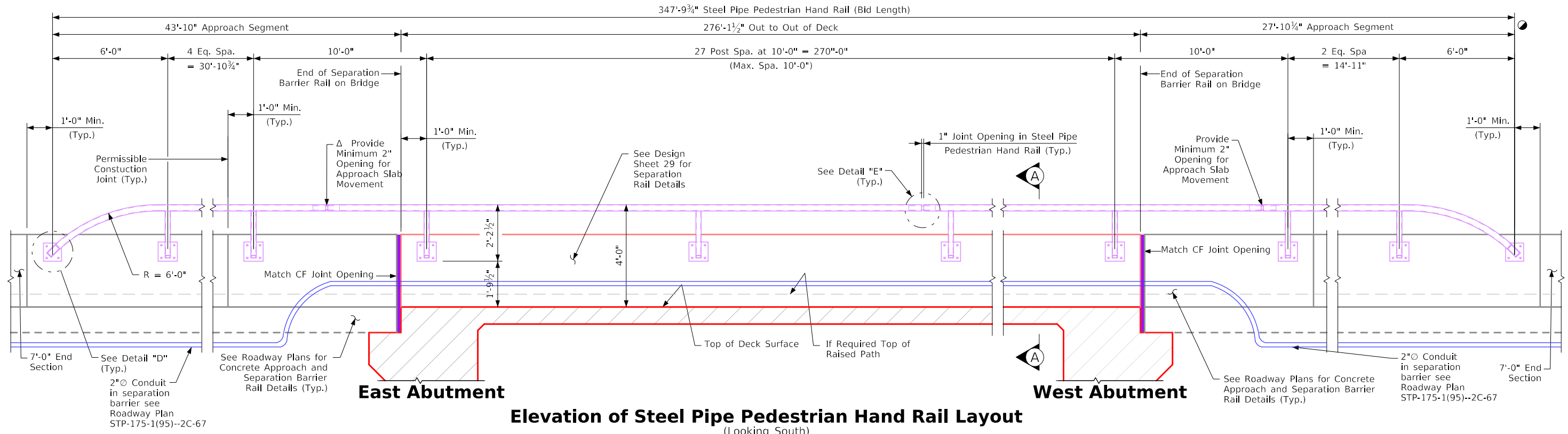
The cross-sectional area of the separation barrier is 2.96 square feet.

Note:

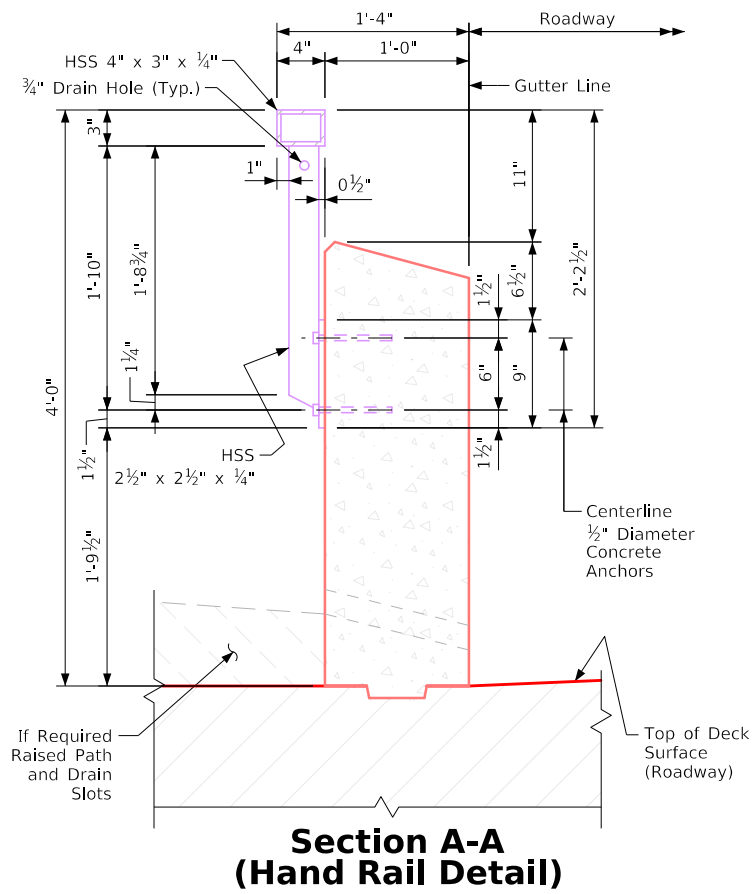
Reinforcing Steel quantities are included on the "Summary Quantities Sheet"

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
North Separation Rail Details (Cont.)
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 30 of 39 FHWA No. 36831

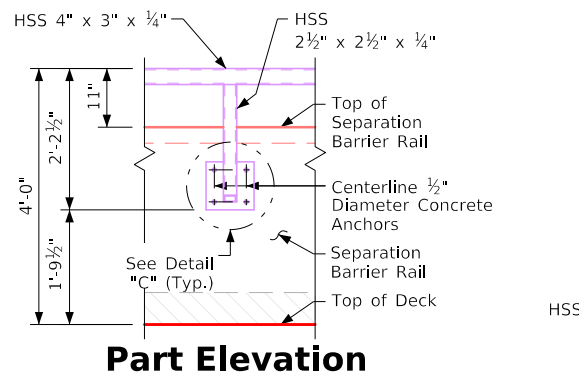
Pedestrian Handrail Placement Quantity		
Item	Unit	Total
Steel Pipe Pedestrian Hand Rail	L.F.	347.8



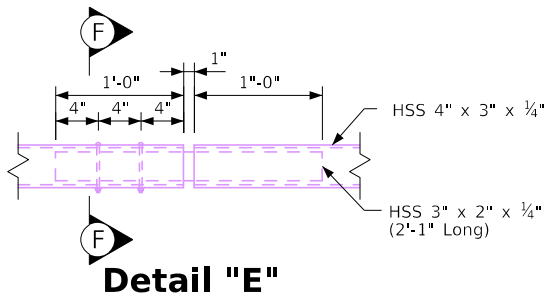
Elevation of Steel Pipe Pedestrian Hand Rail Layout
(Looking South)



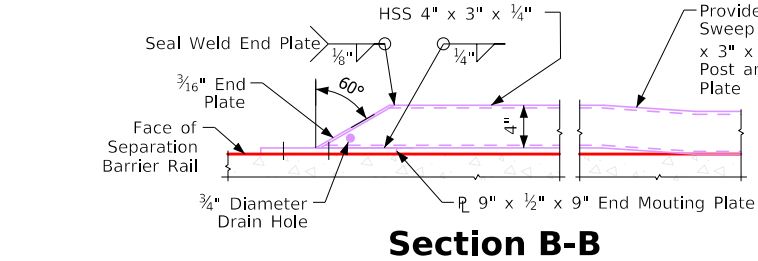
Section A-A
(Hand Rail Detail)



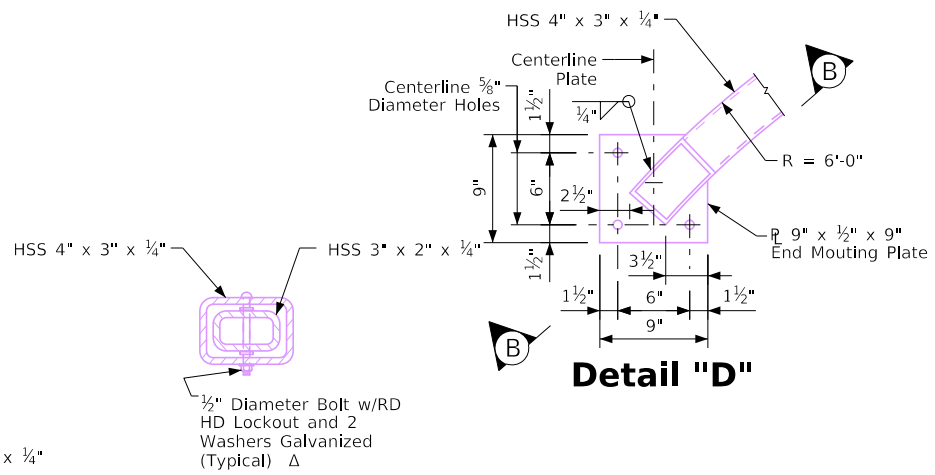
Part Elevation



Detail "E"



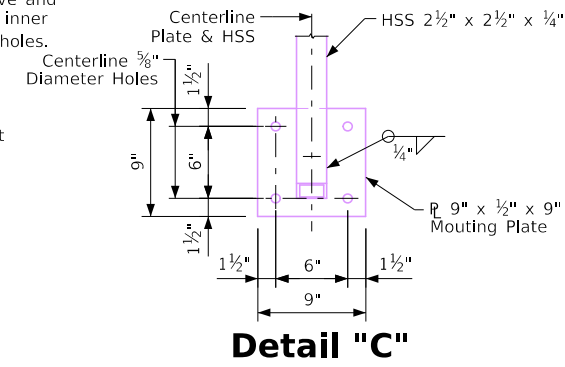
Section B-B



Detail "D"

Note:
Δ Space inner sleeve from outer tube with tack weld standard washer above and below sleeve at each bolt. Holes in inner sleeve to be 3/4" diameter oversized holes.

Section F-F



Detail "C"

Steel Pipe Pedestrian Hand Rail Notes

The Steel Pipe Pedestrian Hand Rail is to be bid on a lineal foot basis measured end to end of rail. The price bid for Steel Pipe Pedestrian Hand Rail shall be full compensation for furnishing all material, including anchor bolts and shims, and all of the equipment and labor required to erect the rail in accordance with these plans and specifications.

Hollow structural sections must meet the requirements of ASTM A500 Grade B. Steel plates and shims must meet ASTM A-36. Panels, splice sections, and end sections are to be galvanized after fabrication in accordance with ASTM A123 specifications.

Ends of rail sections are to be sawed or milled. All cut ends are to be true, smooth, and free of burrs or ragged edges. No painting will be required.

The stud concrete anchors shall be galvanized and have a minimum pull out strength of 8000 pounds based on 4000 psi concrete.

Dimensions provided are along the back face of the separation barrier rail (Path Side) and are in the horizontal plane only. The Contractor must adjust for slope and vertical curve to align with the horizontal and vertical alignment of the bridge. Posts shall be set normal to the bridge grade.

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.

Concrete Beam Bridge w/ 10'-3" Path

136'-0" End Spans

North Separation Rail Hand Rail

STA. 1745+86.46 (IA 175)

Turn-in Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126

Design Sheet No. 31 of 39

FHWA No. 36831

DeckRailBridges.dgn - 1029-BHR - This Sheet Issued 05-2024.



Typical Section

Looking East



Looking towards Traffic (Maximum Post Spacing 10'-0"



Post and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123.

Chain Link Fence Notes:

The chain link fence is to be bid on a linear foot basis measured from centerline to centerline of end posts. The price bid for "Fence, Chain Link, 72 in. Height" shall be full compensation for furnishing all material, including concrete anchors and shims, and all of the equipment and labor required to erect the fence in accordance with these Plans and Specifications.

The chain link fence shall be either zinc or aluminum coated fabric, 2" mesh, no. 9 wires, 72" height with knuckled selvages top and bottom.

The stud concrete anchors shall be galvanized and have a minimum pullout strength of 8000 pounds based on 4000 psi concrete.

The material for posts, braces and rails shall be steel pipe in accordance with Article 4154.10, A, of the Standards Specifications. As an alternate, ASTM A500 Grade B pipe material may be substituted for the posts. Base plates and shims shall meet the requirements of ASTM A36. Posts and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123. Special fittings shall be in accordance with Article 4154.11, of the Standard Specifications, unless otherwise noted.

The fence shall be true to line, taut, and comply with the best practice for fence construction of this type. All ends of wires shall be turned so that they extend away from the path side of the fence.

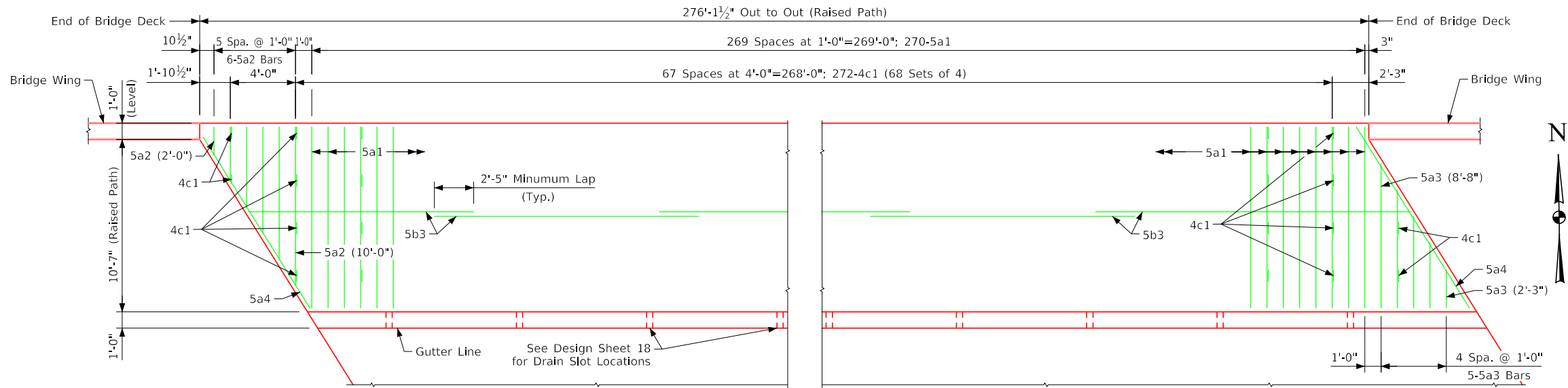
Do not attach signs, company advertising, or other insignia to the completed fence.

DeckRailBridges.dgn - 1029-F2 - This Sheet Issued 05-2024.

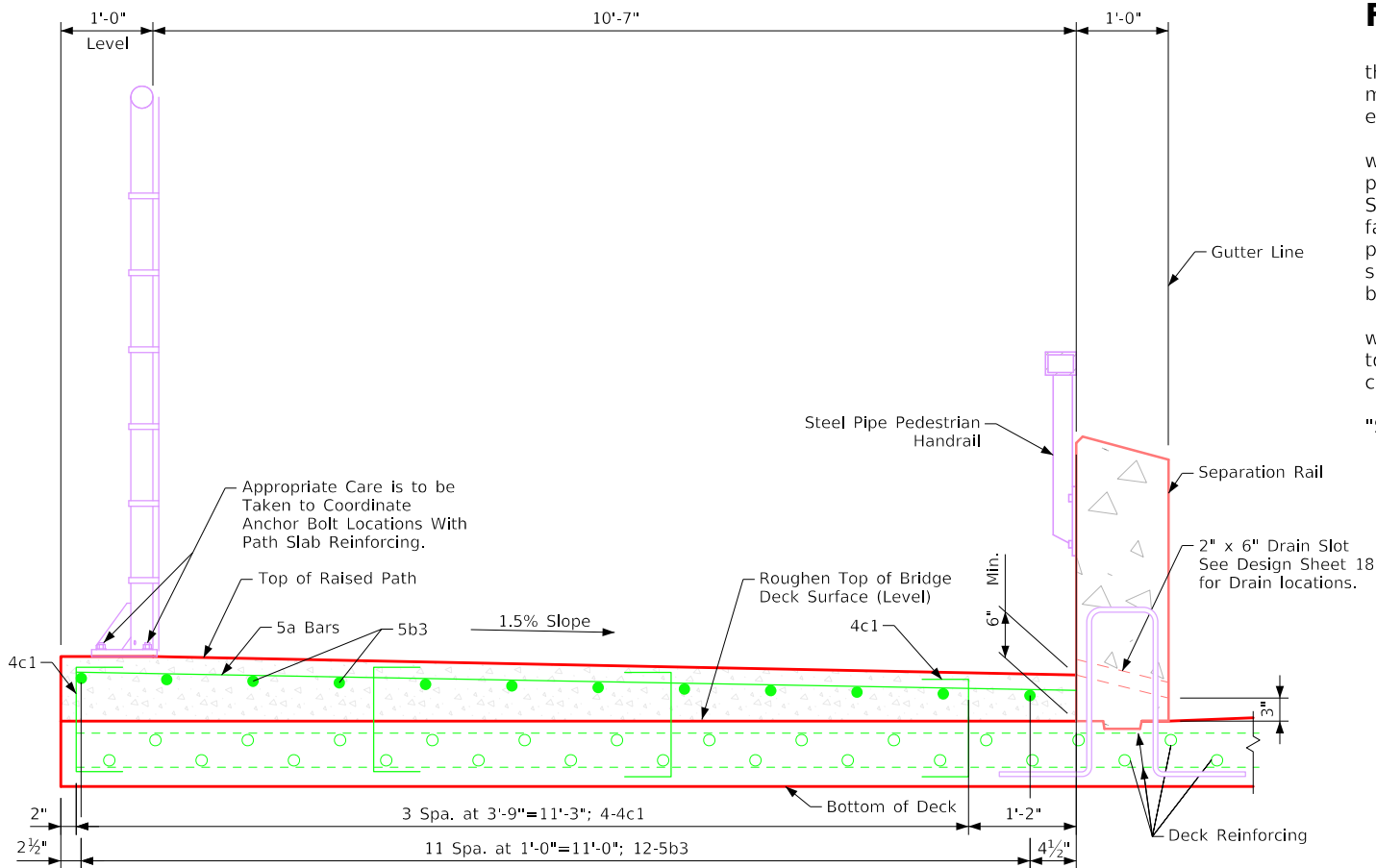
2:48:50 PM 10/1/2025 mallenb pw:\\projectwise.dot.int.lan:PWMMain\Documents\Projects\6717502021\Bridge\096 Bridge-Unspecified\SHT 67175096 HRG 0126 036831 Miscellaneous Z06.dgn

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
North Edge of Deck Fencing Details
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 32 of 39 FHWA No. 36831

DeckRailBridges.dgn - 1029-S - This Sheet Issued 05-2024.



Raised Path Reinforcing Plan View



Typical Section thru Raised Path

Path Concrete Placement and Finishing Notes:

Position screed, and finish the path concrete to match the cross slope figure(s) specified in the plans. The maximum allowable cross slope on the path shall not exceed 2%.

After broom finishing the path surface, administer a white-pigmented liquid curing compound to the path as per Section 2301.03, K, 2 of the Standard Specifications. Avoid additional curing methods involving fabric, plastic, or other covers during the initial curing period. Coverings shall be applied only after the surface has adequately set to prevent damage to the broom finish.

The Contractor is responsible for all costs associated with correcting path surface cross slope or any damage to the surface finish, and shall be made at no additional cost to the project.

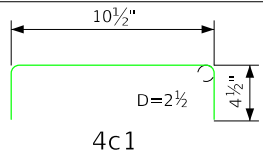
The reinforcing for the path slab is included on the "Summary Quantity Sheet".

Epoxy-Coated Reinforcing Steel Raised Path

Bar	Location	Shape	No.	Length	Weight
5a1	Path Transverse		270	11'-3"	3,168
5a2	Path Transverse		6	Varies	38
5a3	Path Transverse		5	Varies	28
5a4	Path Transverse, Ends		2	13'-3"	28
5b3	Path Longitudinal		96	36'-8"	3,672
4c1	Path Tie		276	1'-8"	307

Epoxy-Coated Reinforcing Steel Total (lbs) 7,241

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Concrete Placement Quantity

Item	Unit	Total
Structural Concrete (Bridge)	cu. yd.	69.5

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

Raised Path Details

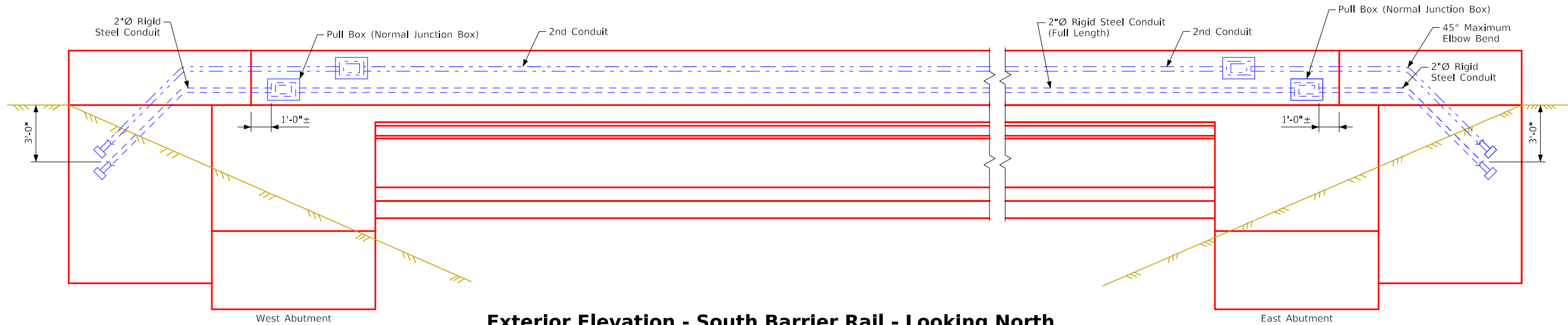
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 33 of 39 FHWA No. 36831

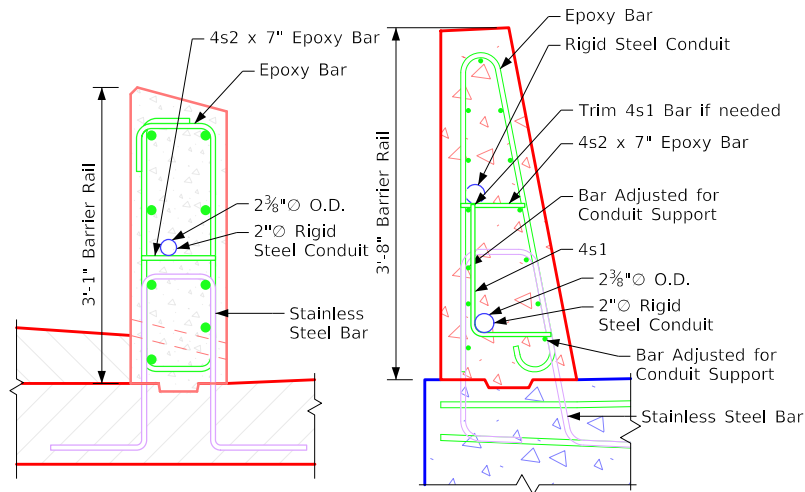
Revised 09-16: Added Conduit Support Rail Detail to Keep Conduit Isolated from the Stainless Steel Reinforcing.
Issued 09-03.
DeckRailBridges.dgn - 1030As2 -This Sheet Re-Issued 05-2024. Sheet Format Update.



Exterior Elevation - South Barrier Rail - Looking North

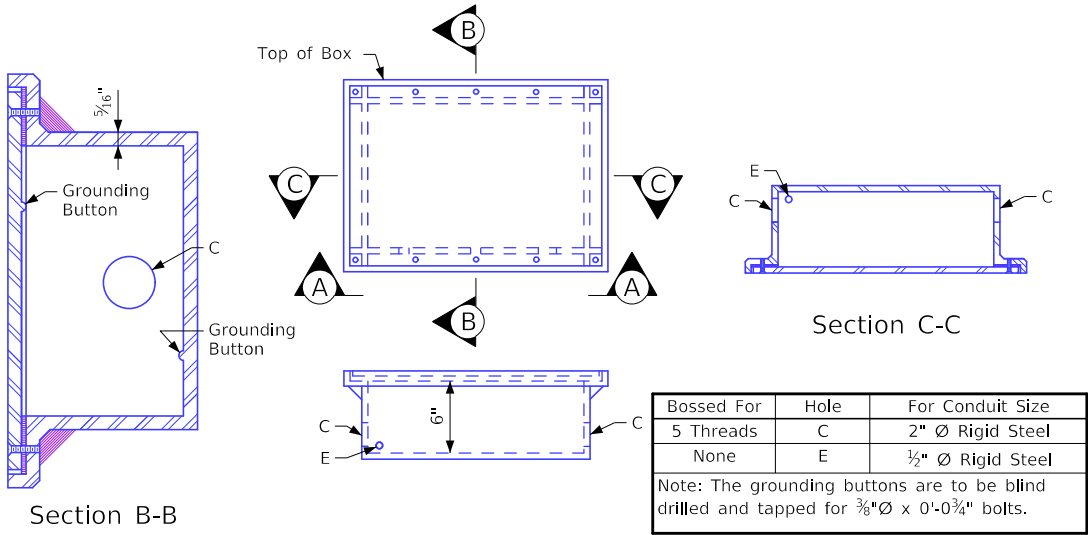
Conduit Notes:

See LI-104 Standard Road Plan for additional information on junction boxes.
Construction shall conform to the current Iowa D.O.T. Standard and Supplements Specifications and Special Provisions.
Conduit installation shall be in accordance with Article 2523.03, N, of the Standard Specifications.
All "C" entrance holes in junction boxes shall be drilled and tapped for the specified conduit size. All other holes shall have a concrete-tight slip fit. Conduit ends shall be flush with inside surface of box. Grounding buttons shall be located approximately 3" from the inside surface of the box wall, and not closer than 3" to the edge of any hole in the box floor. Holes for drain pipe shall be placed in the low corner of the box, with a minimum clearance of 1" between the edge of the hole and the inside surface of the box wall. Typical details are shown on this sheet.
The rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.
All reinforcing steel is to be epoxy coated and grade 60.
Stainless-steel reinforcement shall not be allowed to be in contact with the uncoated reinforcement, bare metal forming hardware, or to galvanized attachments or galvanized conduit.

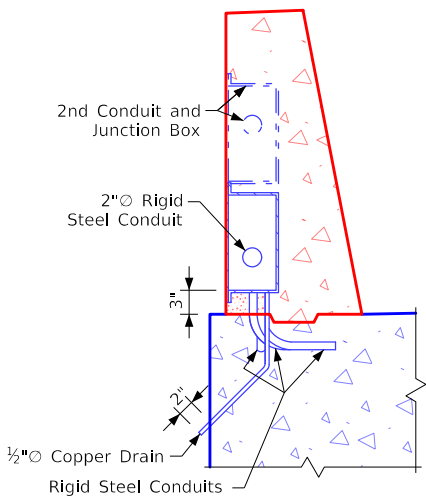


Section B-B - Conduit Support

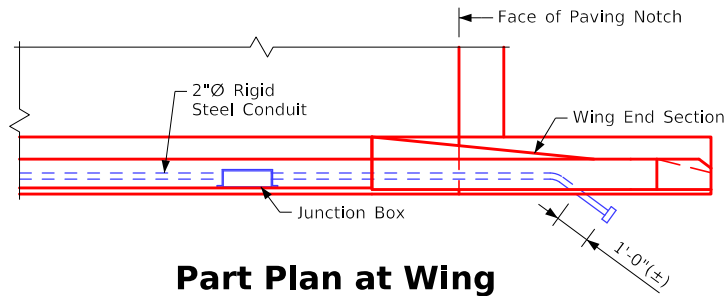
Only used in rail with conduit, use 3'-0" spacing. Galvanized conduit shall not come into contact with the stainless steel reinforcing. lower conduit can only be 2" diameter.



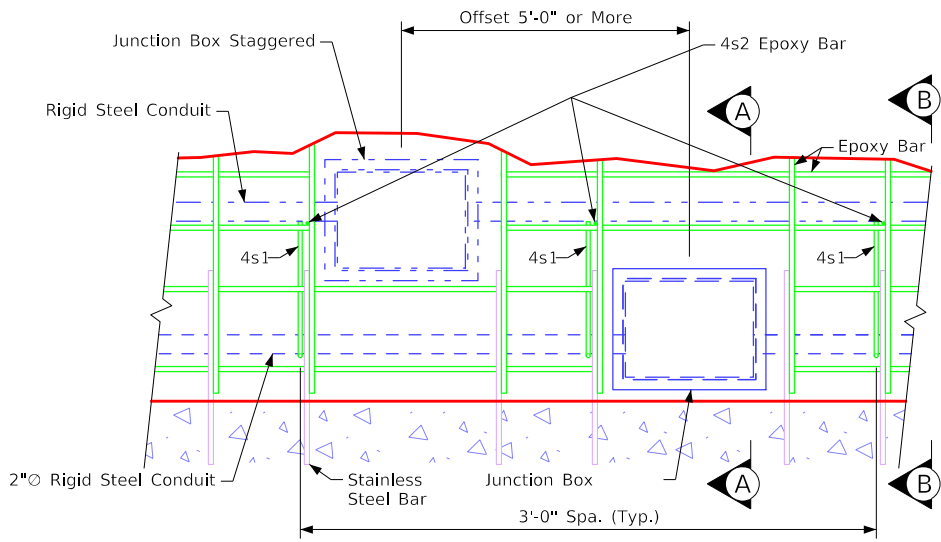
View A-A
LI-104 Junction Box



Section A-A
Thru Junction Box



Part Plan at Wing



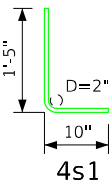
Conduit Support - Rail Elev. Detail

Two Junction Box Detail - Adjust reinforcing to clear junction box. Junction boxes are to be placed no further than 300'-0" apart.

Epoxy Coated Reinf. Steel - Both Rails

Bar	Location	Shape	No.	Length	Weight
4s1	Rail Conduit		93	2'-3"	140
4s2	Rail Conduit		186	7"	72
Epoxy Reinforcing Total Weight (lbs.)					212

Bent Bar Details

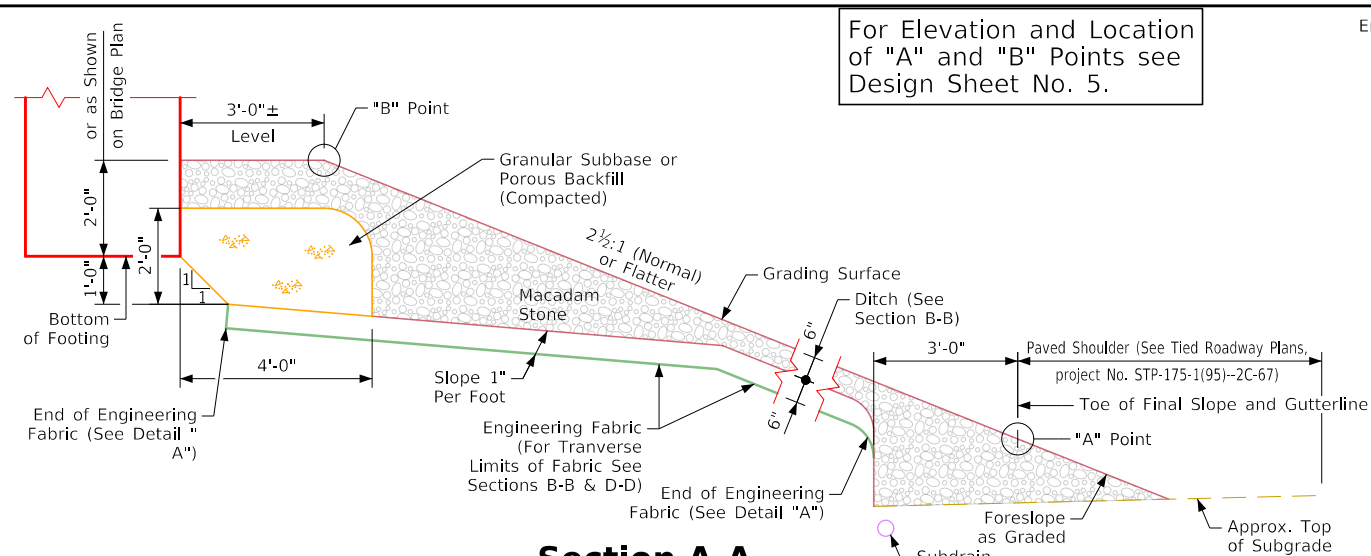


Note: All Dimensions are out to out. D = Pin Diameter

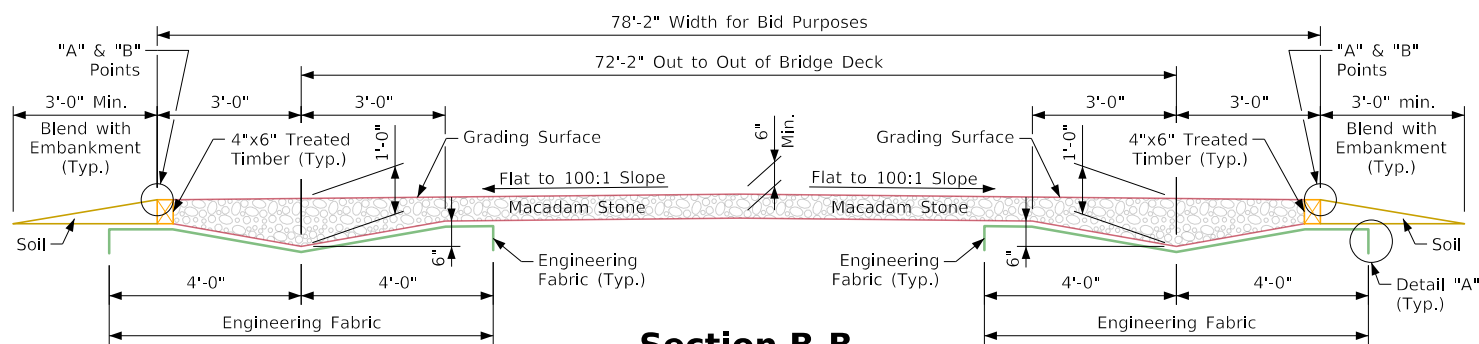
Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Conduit Layout & Details
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 34 of 39 FHWA No. 36831

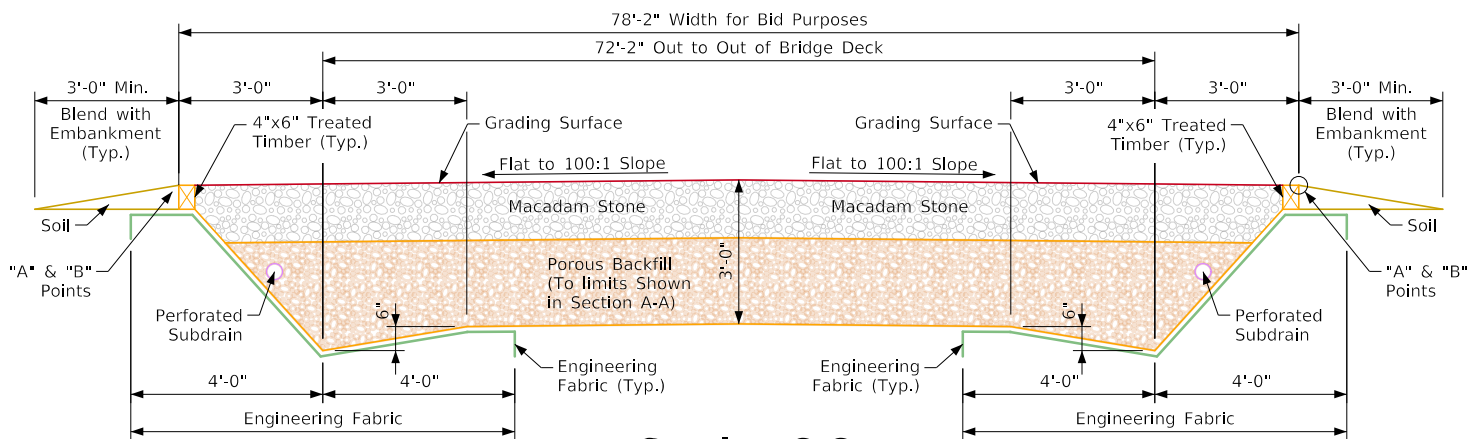
Revised 10-12 - Located the "A" and "B" Points in Section A-A & Final Construction Section A-A Details.



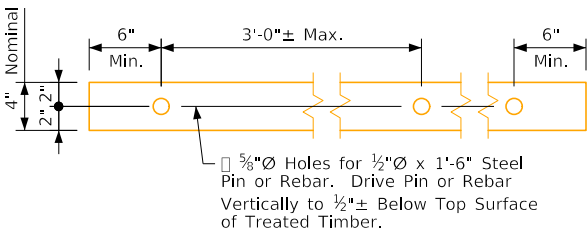
Section A-A



Section B-B

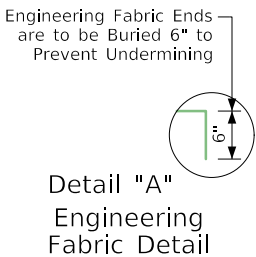


Section C-C

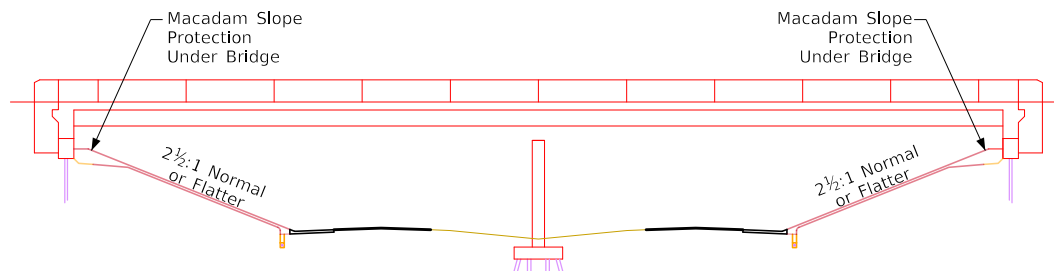


4"x6" Treated Timber Edging Details

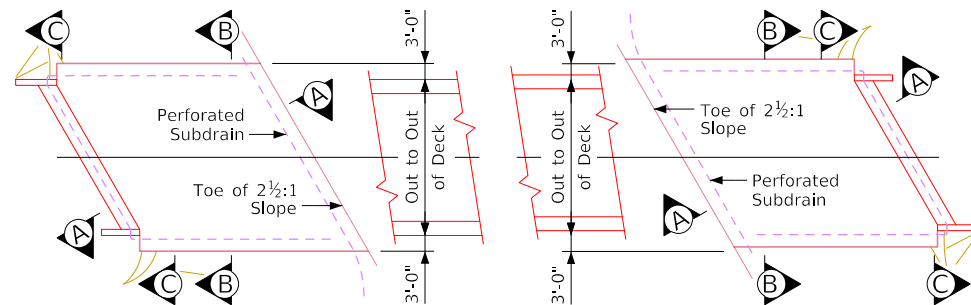
For Elevation and Location
of "A" and "B" Points see
Design Sheet No. 5.



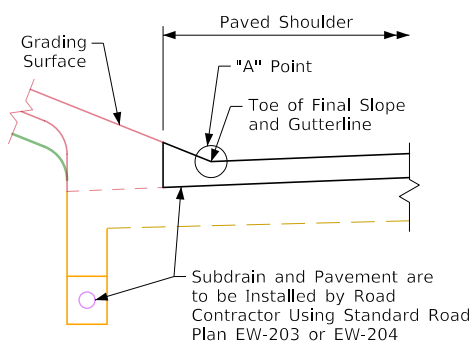
Detail "A"
Engineering
Fabric Detail



Longitudinal Section Along C Roadway



Slope Protection Layout



Final Construction Section A-A

General Notes:

This plan sheet shows details for placing a macadam stone slope protection under overhead structures.

The bridge berm foreslope shall be compacted and shaped as shown on this sheet. Shaping will include excavation from the grading surface shown on the situation plan and as directed by the Engineer. The berm foreslope shall be firm when the engineering fabric and macadam stone are placed.

The engineering fabric shall be in accordance with Article 4196.01, B, 3, of the Standard Specifications. If the engineering fabric is lapped, the laps shall be a minimum of 1 ft in length, shingle fashion with up slope lap piece on top and stapled for continuity.

The macadam stone shall be in accordance with Section 4122, of the Standard Specifications, coarse material (no choke stone is allowed).

Wood preservative treatment for the timber edging shall meet the requirements for guardrail posts, sawed four sides, in accordance with Section 4161, of the Standard Specifications.

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

Payment for bid item "Macadam Stone Slope Protection" will be made on a square yard basis for slope protection constructed. The unit price bid per square yard shall include all costs for material and labor required to construct the slope protection shown on these plans.

The berm foreslope shaping and compacting and the disposal of excess soil from shaping or trenching shall be considered incidental to placing the slope protection.

Where erosion control work is completed, the Contractor shall be responsible for any plant materials destroyed adjacent to the slope protection area. The Contractor shall replant, reseed and remulch all

disturbed areas, designated by the Engineer, in accordance with Section 2601, of the Standard Specifications, at the Contractor's expense.

The Bridge Contractor is to install subdrains as detailed on the Subdrain Details Sheet on Design Sheet No. 38.

Estimated Quantities		
Description	Location	Quantity
Macadam Slope Protection	West Abut.	487 Sq. Yds.
Macadam Slope Protection	East Abut.	487 Sq. Yds.
Total		974 Sq. Yds.

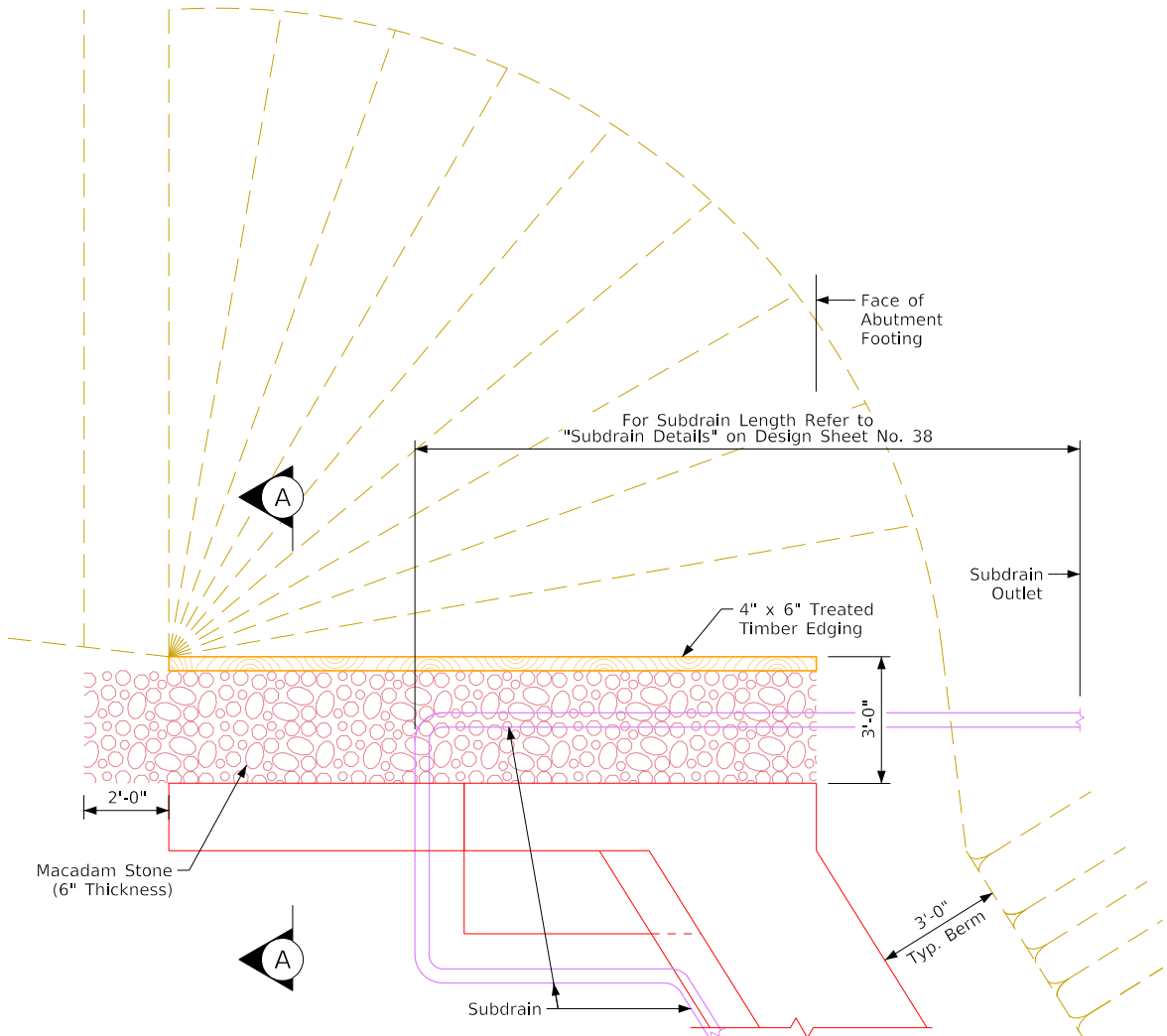
Items to be included in "Macadam Stone Slope Protection":

Excavating, Shaping and Compacting
Engineering Fabric
Macadam Stone
4"x6" Treated Timber Edging
4"Ø Steel Pins (or Rebar)
Porous Backfill or Granular Subbase Backfill at
Front Face Abutment Footing

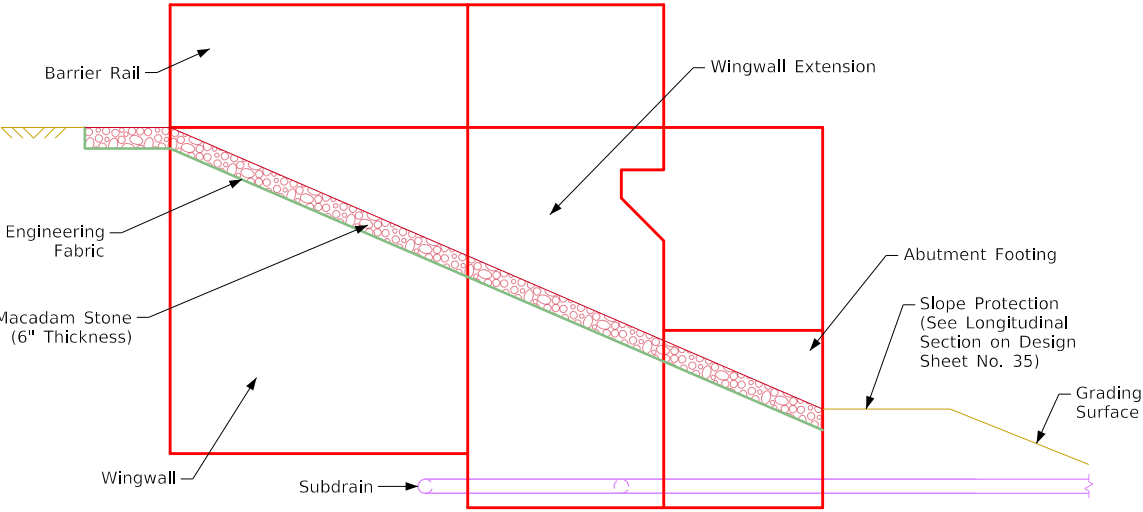
Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

Macadam Stone Slope Protection
STA. 1745+86.46 (IA 175) Turn-In Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 35 of 39 FHWA No. 36831

Revised 06-14 - Added 2 Feet Of Length Of Macadam Stone In Front Of The Bridge Wing.
ForeSlopeProtectionBridges.dgn - 1005 - This Sheet Issued 06-02.
ForeSlopeProtectionBridges.dgn - 1005 - This Sheet Issued 07-23.

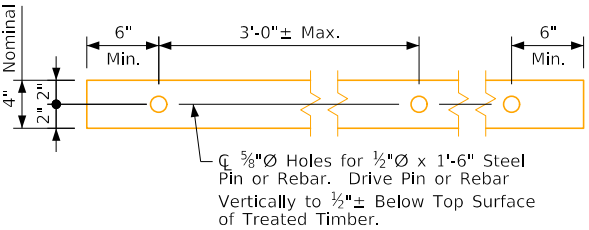


Top View of Wing Armoring with Wing Extension

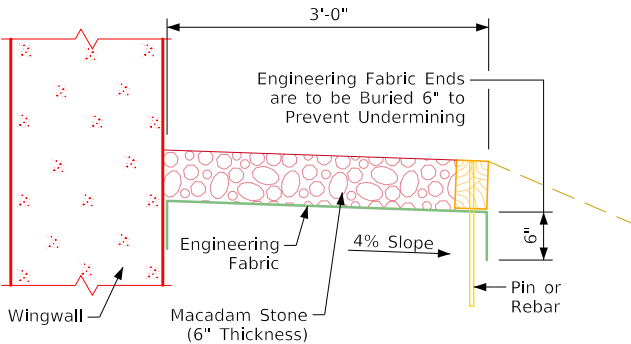


Profile View of Wing Armoring with Wing Extension

A Check Shall be Made at the Subdrain Outlet to Insure that it is Draining Properly During the Backfill Flooding Process.



4"x6" Treated Timber Edging Details



Section A-A

General Notes:

Macadam stone shall be placed along the sides of the wing 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 macadam stone at these locations shall be underlayed with engineering fabric in accordance with Article 4196.01, B, 3, of the Standard Specifications.

The macadam stone shall be in accordance with Section 4122, of the Standard Specifications, coarse material (no choke stone is allowed).

Wood preservative treatment for the timber edging shall meet the requirements for guardrail posts, sawed four sides, in accordance with Section 4161, of the Standard Specifications.

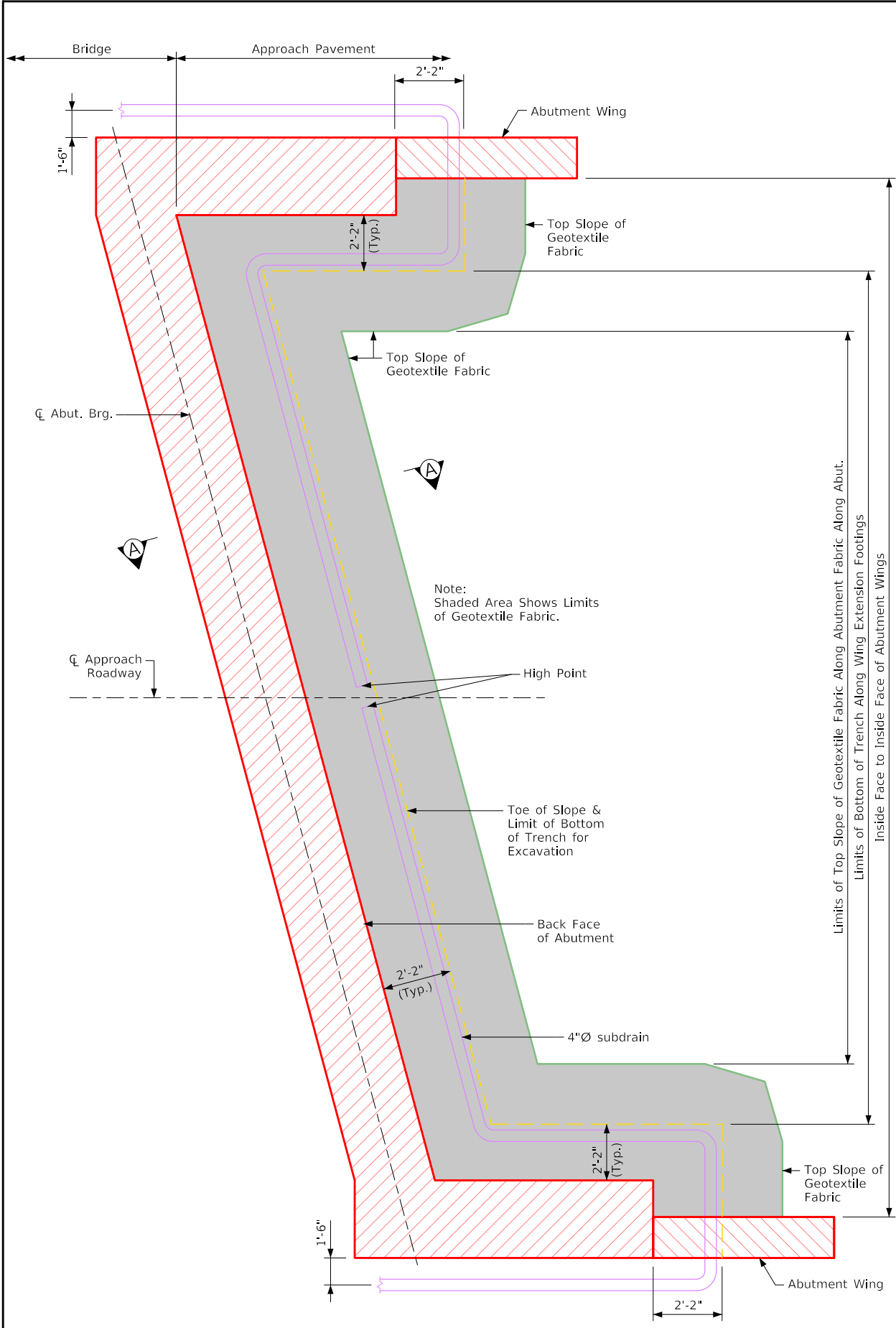
The macadam stone shall be deposited, spread, consolidated and shaped by mechanical or hand methods that will provide uniform 6 inch depth and density and provide uniform surface appearance.

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

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Bridge Wing Armoring
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 36 of 39 FHWA No. 36831

FILE NO. 32285	ENGLISH	DESIGN TEAM HR Green, Inc.	Bridge Wing Armoring for Slope Protection	Standard Sheet 1005	Monona COUNTY	PROJECT NUMBER STP-175-1(96)--2C-67	SHEET NUMBER V.36
2:48:55 PM	10/1/2025	mallenb	pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\6717502021\Bridge\096_Bridge-Unspecified\SHT_67175096_HRG_0126_036831_Miscellaneous_Z06.dgn				

Revised 09-14 - The Technical Data Information Table was Removed and is Located in the Standard Specifications. Changed Surface Flooding Time to 5 Minute Increments.
Revised 09-2016 - Changed the Bridge Approach Pavement Standard to "BR" (WAS "RK").
ForeSlopeProtectionBridges.dgn - 1007E - This Sheet Issued 08-07.
ForeSlopeProtectionBridges.dgn - 1007E - This Sheet Redrawn 07-23.



Abutment Plan with Wing Extensions

Abutment Backfill Process:

The base of the excavation subgrade behind the abutment is to be graded with a 4% slope away from the abutment footing and a 2% cross slope in the direction of the subdrain outlet. This excavation shaping is to be done prior to beginning installation of the geotextile and backfill material.

After the subgrade has been shaped, the geotextile fabric shall be installed in accordance with the details shown. The fabric is intended to be installed in the base of the excavation and extended vertically up the abutment backwall, abutment wing walls, and excavation face to a height that will be approximately 1 to 2 ft higher than the height of the porous backfill placement as shown in the "Backfill Details" on this sheet. The strips of the fabric placed shall overlap approximately 1 ft and shall be pinned in place. The fabric shall be attached to the abutment by using lath folded in the fabric and secured to the concrete with shallow concrete nails. The fabric placed against the excavation face shall be pinned.

When the fabric is in place, the subdrain shall be installed directly on the fabric at the toe of the rear excavation slope. A slot will need to be cut in the fabric at the point where the subdrain exits the fabric near the end of the abutment wing wall.

Porous backfill is then placed and leveled, no compaction is required. The remaining work involves backfilling with floodable backfill, surface flooding, and vibratory compaction. The floodable backfill material shall be in accordance with the Standard Specifications. The floodable backfill shall be placed in individual lifts, surface flooded, and compacted with vibratory compaction to ensure full consolidation. Limit the loose lifts to no more than 2 ft of thickness.

Start surface flooding for each floodable backfill lift at the high point of the subdrain and progress to the low point where the subdrain exits the fabric. To ensure uniform surface flooding, water running full in a 2"Ø hose should be sprayed in successive 6 ft to 8 ft increments for 5 minutes within each increment.

Floodable backfill lift placement, flooding, and compaction shall progress until the required full thickness of the abutment backfill has been completed.

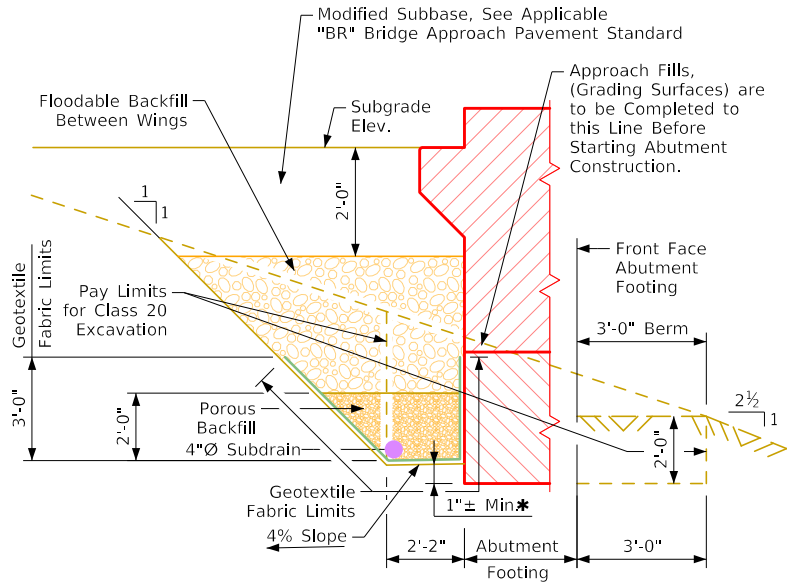
Water required for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric furnished at the bridge abutments will not be measured separately for payment.

The cost of water required for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric furnished at the bridge abutments shall be included in the contract unit price bid for "Structural Concrete".

Note:

Subdrain shall slope downward 2% from ∇ approach roadway when outletting both sides 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 1 ft in length, shingle fashion with up slope lap piece on top and stapled for continuity.



Section A-A

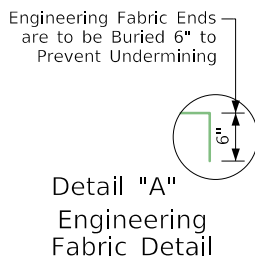
Backfill Details

Note: Geotextile Fabric will be Attached to Face of Abutment Footing and Wings.

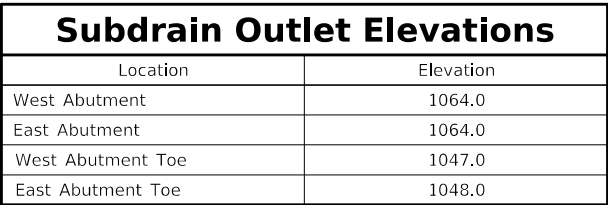
* Dimension Varies Due to 2% Subdrain Slope.

Note:
For Details not Shown on this Sheet which are Pertinent to this Structure See Subdrain Details Sheet on Design Sheet No. 38.

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans
Abutment Backfill Details
STA. 1745+86.46 (IA 175) Turn-in Date: October 2025
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 37 of 39 FHWA No. 36831



Section B-B



Subdrain Notes:

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

The subdrains shall be 4"Ø and shall be in accordance with Article 4143.01, B, of the Standard Specifications.

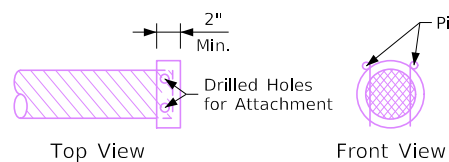
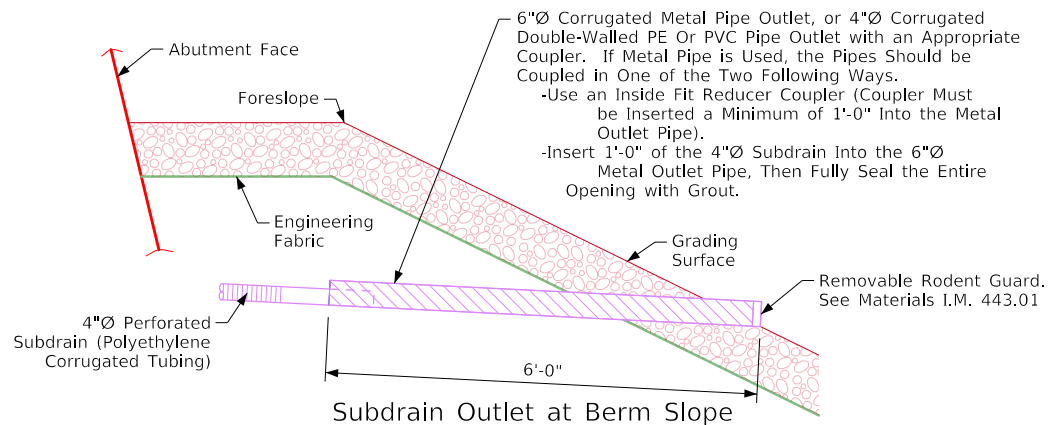
The subdrain outlet shall consist of 6'-0" length of pipe with a removable rodent guard as detailed on this sheet.

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.

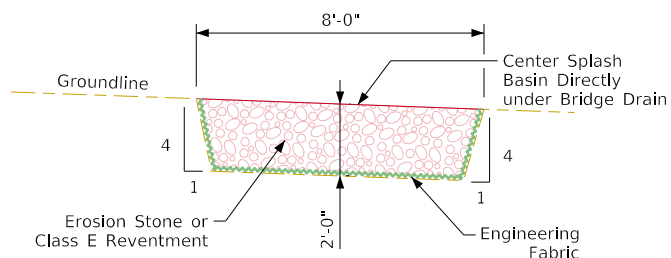
The uphill end of the perforated subdrain at the toe of slope protection shall be capped as approved by the Engineer.

The porous backfill and subdrain are to be carried around pier columns if the column placement interferes with alignment of subdrain as shown on this sheet.



Removable Rodent Guard Details

Outlet Details



Splash Basin Under Bridge Drain Typical Section for Existing Grades

Splash Basin Notes:

The cost of furnishing and placing splash basins (Including excavation, erosion stone or Class E Revestment, and engineering fabric) is to be included in the price for "Deck Drains". No extra payment will be made. Total number of splash basins = 2.

Subdrain Outlet Elevations	
Location	Elevation
West Abutment	1064.0
East Abutment	1064.0
West Abutment Toe	1047.0
East Abutment Toe	1048.0

Design For 32° Skew (R.A.)
272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

Subdrain Details

STA. 1745+86.46 (IA 175)

Turn-in Date: October 2025

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126

Design Sheet No. 38 of 39

FHWA No. 36831

SHEET NUMBER **V.38**

V.38

Revised 07-11 - The Berm Slope is Identified as the Grading Surface.
 Revised 09-2023; Added pattern shapes in details to show backfill and subbase materials.
 Revised 06-2024; Corrected leader line locations to Engineering Fabric in Section A-A, Changed Control Point text (was Bench Mark).
 ForeSlopeProtectionBridges.dgn - 1007B - This Sheet Issued 06-02.
 ForeSlopeProtectionBridges.dgn - 1007B - This Sheet Redrawn 07-23.



The 5j1 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. The dowels shall be installed in accordance with the Manufacturer's recommendations. The following systems shall be used as a bonding agent for the dowels:

- A. Polymer grout system in accordance with Article 2301.03, E, of the Standard Specifications.
- B. Hydraulic cement grout systems. Drilled holes are to be $2\frac{1}{2}$ times the dowel diameter and are to be blown clean with compressed air immediately prior to placing grout. The hydraulic cement grout shall be one of those approved in Materials I.M. 491.13 and shall be used in accordance with the Manufacturer's recommendations.

5j1 dowels shall be deformed bar Grade 60, Type 316 LN in accordance with Standard Specifications 4151.03.E.



Note:
Reinforcing Steel and Structural Concrete (Bridge) quantities
are included on the "Summary Quantities Sheet"

Design For 32° Skew (R.A.)

272'-0" x 58'-0" Pretension Prestress.
Concrete Beam Bridge w/ 10'-3" Path
136'-0" End Spans

Reinforced Approach Path Slab

STA. 1745+86.46 (IA 175) Turn-in Date: October 2025

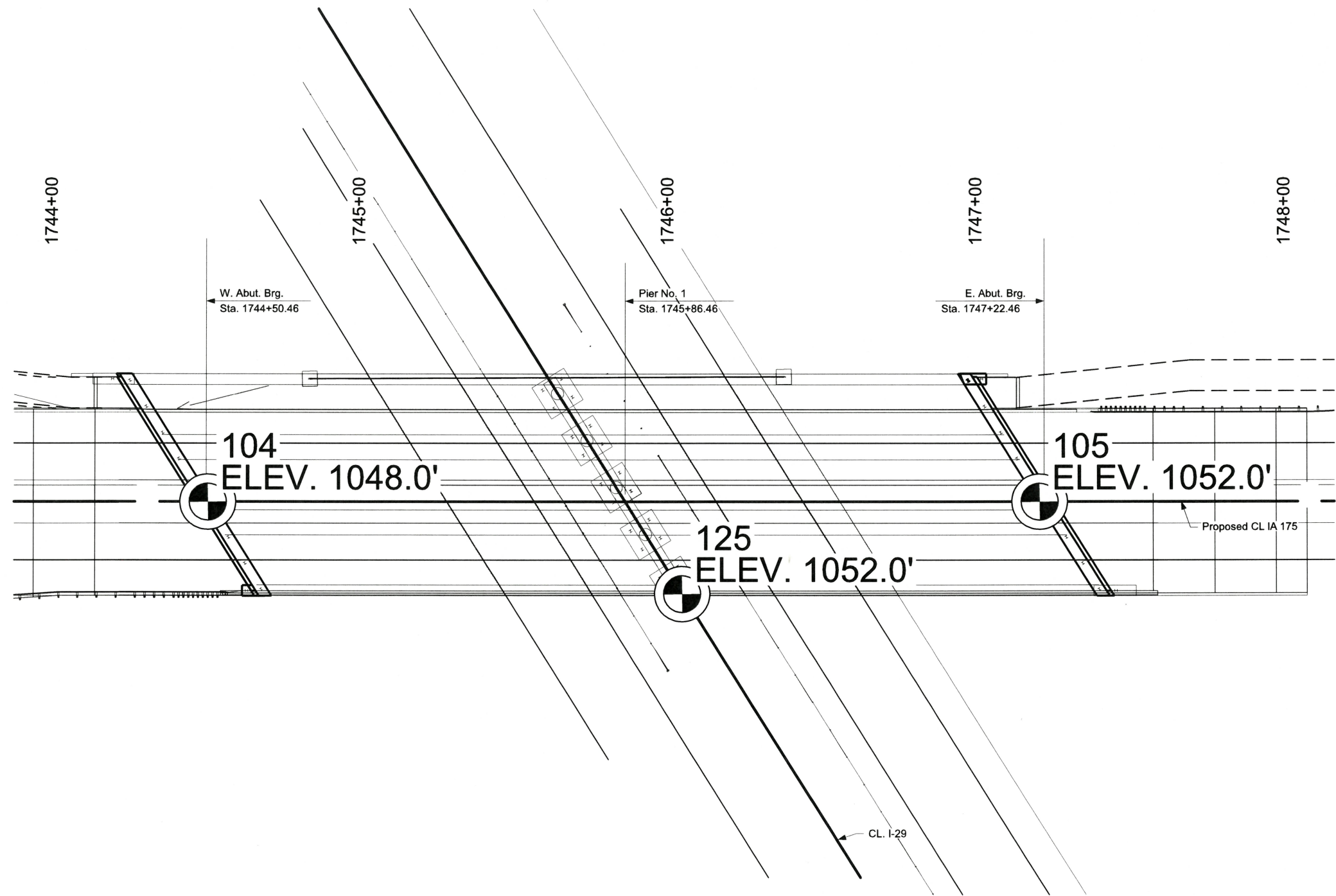
Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 126 Design Sheet No. 39 of 39 FHWA No. 36831

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

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



GEOTECHNICAL DESIGN

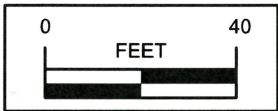


I hereby certify that this engineering document was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Signature: *Zachary A. Bonzer* Date: *9-22-2025*

Printed or Typed Name: ZACHARY A. BONZER
License Number P23811
My license renewal date is December 31, 2026

Pages or sheets covered by this seal: SPS.1 - SPS.3



Location

IA 175 Over I-29
T-83N R-45W
Sections 6
Franklin Township
Monona County
Maint. No. 6705.5S175
Latitude 42.027171°
Longitude -96.132711°

Design For 32° Skew (R.A.)
272'-0" x 58'-0" P.P.C.B. Bridge
w/ 10'-3" Multi-Use Path
(BTD Beams)
136'-0" End Spans
Soil Profile Sheet
STA. 1745+86.46 (IA 175)
Monona County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0126 Design Sheet No. 1 of 3 FHWA No. 036831

SHELBY TUBE CORE DATA

CORE NO.	104 B2	104 B4	105 B2
DEPTH IN FEET	6-8	11-13	5-7
CLASSIFICATION (AASHTO)	A-7-6(71)	-	A-7-6(63)
COEFF.CONSOL. (SQ. FT /DAY)	-	-	-
TRIAXIAL COMPRESSION	CU	UC	-
COHESION - PSF	775	295	-
FRICTION COEFF.	-	-	-
MOISTURE CONTENT %	40.3	37.3	25.0
DRY DENSITY - PCF	81	81	87
CU-CONSOLIDATED UNDRAINED			
UU-UNCONSOLIDATED UNDRAINED			
UC-UNCONFINED COMPRESSION (c=1/2 Qu)			

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

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

Water Level Observations (Ft.)				
Boring No.	Date Drilled	While Drilling	End of Drilling	Delayed Water Level
104	10/19/23	14'	16'	-
105	10/18/23	NONE*	-	-
125	09/04/24	NONE*	-	-

* None observed prior to wash boring methods

BORING	104	105	125
LAYER	THICKNESS	THICKNESS	THICKNESS
A	0.5	0.3	0.4
B	12.5	6.7	5.6
C	20.5	15.0	6.0
D	8.5	9.0	7.0
E	4.0	25.0	20.0
F	17.0	10.0	15.0
G	43.0	64.0	8.0
H	6.0	-	51.0
I	18.0	-	5.0
J	-	-	17.0

Design For 32° Skew (R.A.)

272'-0" x 58'-0" P.P.C.B. Bridge

w/ 10'-3" Multi-Use Path

136'-0" End Spans (BTD Beams)

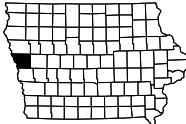
Situation Plan

STA. 1745+86.46 (IA 175)

Monona County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0126Design Sheet No. 3 of 3FHWA No. 036831



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.3	Title Sheet
C Sheets	Quantities and General Information
C.1	Estimated Project Quantities & Reference Notes
C.2 - 8	Quantity Tabulations
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.2	Coordinated Operations
U Sheets	500 Series, Mod.Stds. and Detail Sheets
U.1 - 2	Bridge Approach Geometry Detail
U.3 - 8	Modified Standards and Detail Sheets
U.9	Roadway Separation Rail Details

ROADWAY DESIGN

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.

10/02/2025

JASON A. LASTOVICA, P.E.

DATE

License Number: 19543

My license renewal date is December 31, 2026.

Pages or sheets covered by this seal:

A.3, C.1-8, J.1-2, U.1-9

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2301-0690203	BRIDGE APPROACH, BR-203	SY	1,127	Refer to Tab 112_06 and U sheets for more details.
2	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK	SY	2,494.3	Refer to Tab 100_28 for more details.
3	2414-6425410	CONCRETE BARRIER, REINFORCED, SEPARATION	LF	73.7	Refer to Tab 108_18B and U sheets for more details. 50 LF of 2" dia. rigid steel conduit is considered incidental to this item.
4	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	2	Refer to Tab 104_08A for more details.
5	2513-0001070	CONCRETE BARRIER RAIL, BA-107	EACH	2	Refer to Tab 108_18B and BA-107 Modified in the U sheets for more details.
6	2528-2518000	SAFETY CLOSURE	EACH	2	Refer to Tab 108_13A for more details.

LONGITUDINAL GROOVING				100_28 8/15/22
Line No.	Location	Total (SY)	Remarks	
1.0	1745+86.46	409.6	West Approach	
2.0	1745+86.46	1680.6	Bridge Deck	
3.0	1745+86.46	404.1	East Approach	
Total:		2494.3		

<div>SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN</div> <div>Refer to Standard Road Plan DR-401 and DR-402</div>											104_08A 8/15/22
Line No.	Bridge Station	Bridge Corner	Distance DI-1 or DI-2 (FT)	Bridge End Drain Type	Special Ditch Control, Wood Excelsior Mat EC-101 (SQ)	Turf Reinforced Mat (TRM) Type 2 EC-104 (SQ)	Transition Mat EC-105 (SF)	Macadam Stone Base (TONS)	Engineering Fabric (SY)	Erosion Stone (TON)	Remarks
1.0	1745+86.46	SW	81.5	DR-402				1.463	220.0	146.700	
2.0	1745+86.46	SE	61.2	DR-402				1.463	196.0	129.600	
Total:								2.926	416	276.3	

<div>105_04 10/21/25</div> <div>STANDARDS</div> <div>The following Standards apply to construction work on this project.</div>		
Number	Date	Title
BR-213	10-19-21	Bridge Approach (Abutting Pavement)
DR-306	10-17-23	Precast Concrete Headwall for Subdrain Outlets
DR-402	04-16-24	Rock Flume for Bridge End Drain
LI-104	10-21-14	Junction box (cast Iron)
PV-101	10-21-25	Joints
PV-102	10-21-25	PCC Curb Details

<div><div>108_13A 3/27/25</div><div><div><div>SAFETY CLOSURES</div><div>Refer to Section 2528 of the Standard Specifications</div></div></div></div>			
Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
1743+00.00		1	West side of bridge
1749+00.00		1	East side of bridge

108_188

10/23/24

CONCRETE BARRIER AT SIDE LOCATIONS

Refer to BA-102, BA-103, BA-104, BA-105, BA-106, BA-107, BA-108 and BA-150.

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

2. Refer to the Shoulders tabulation (112-9) for quantities.

* Bid Item

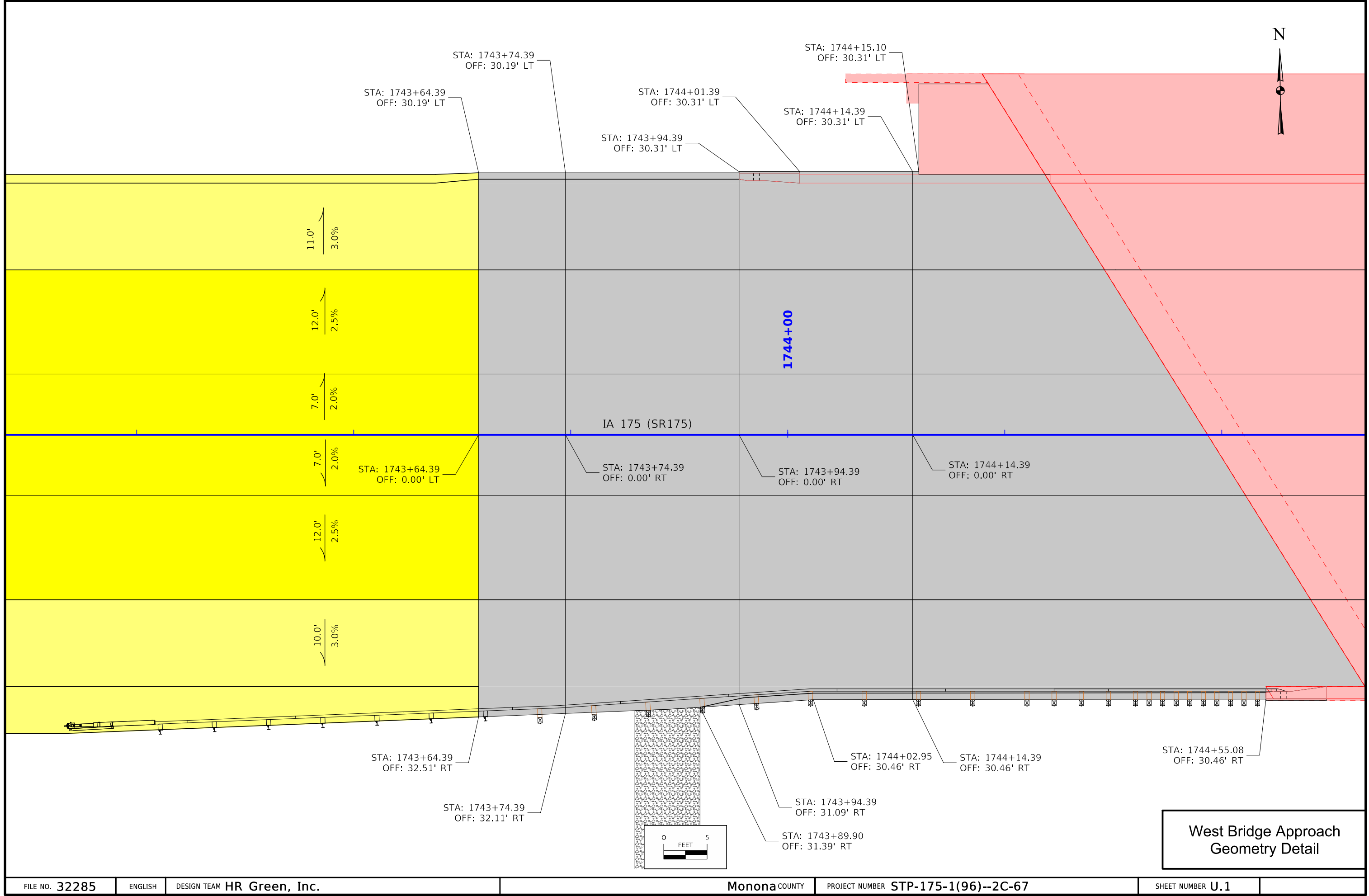
Line No.	Item No.	Direction of Traffic (1)	Station From	Station To	Side	L2 Offset (FT)	Side Barrier Type	L Barrier Length* (LF)	BA-105 Transition Section* (No.)	BA-107 End Section* (No.)	BA-108 Tapered End Section* (No.)	Reinforced Paved Shoulder Required?(2)	Remarks	Expansion Joint Station	Expansion Joint Side	Expansion Joint Remarks
1.0		EB	1743+94.39	1744+30.24	Left	10.0		28.9		1			Refer to U sheets for more details			
2.0		WB	1747+05.81	1747+57.64	Right	10.0		44.8		1			Refer to U sheets for more details			
Total:								73.7	2							

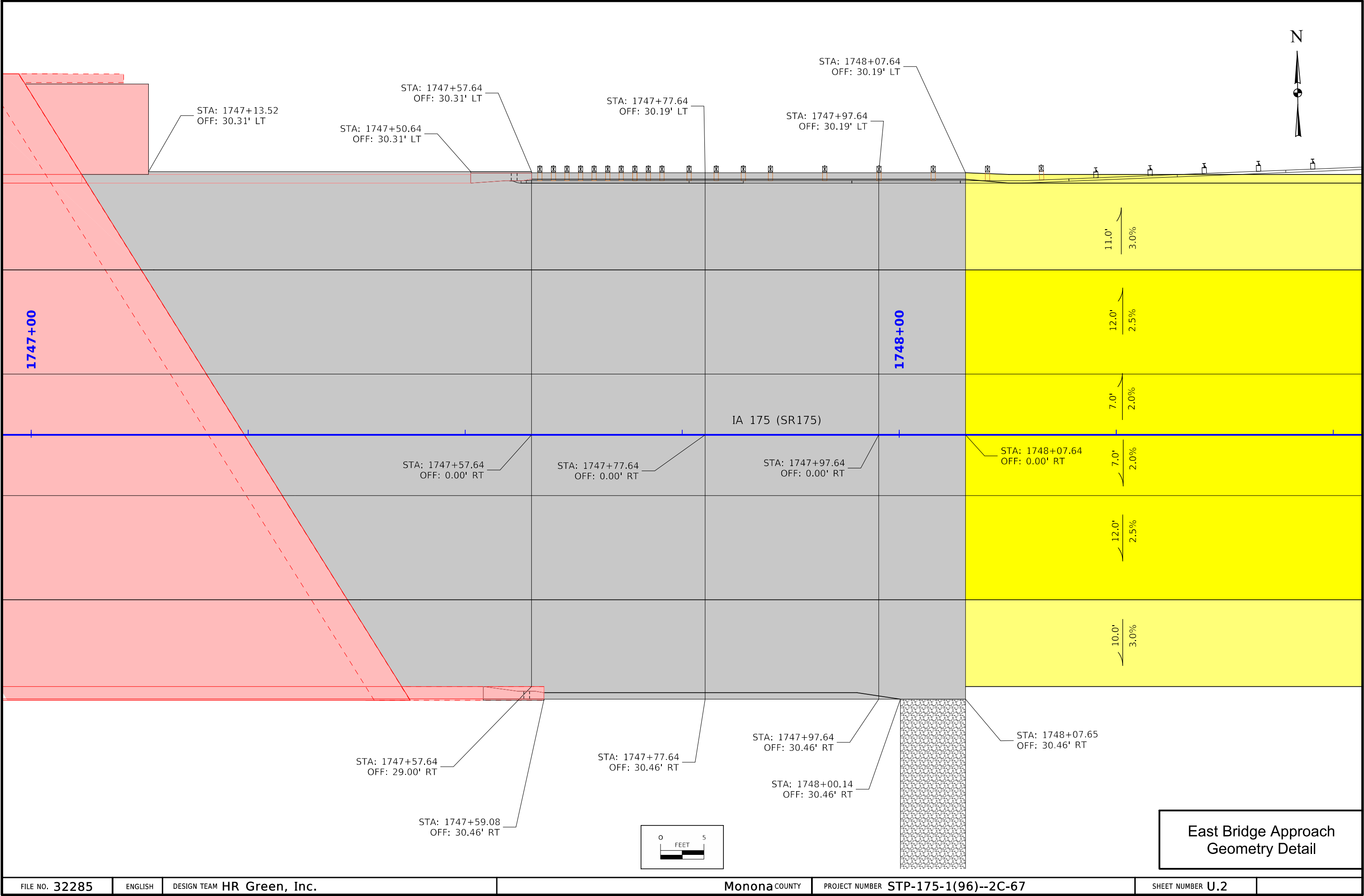
INDEX OF TABULATIONS				111_25 4/30/25
Line No.	Tabulation	Tabulation Title	Sheet No.	
1.0	100_28	LONGITUDINAL GROOVING	C.2	
2.0	104_08A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	C.3	
3.0	105_04	STANDARD ROAD PLANS	C.4	
4.0	108_13A	SAFETY CLOSURES	C.5	
5.0	108_18B	CONCRETE BARRIER AT SIDE LOCATIONS	C.6	
6.0	111_25	INDEX OF TABULATIONS	C.7	
7.0	112_06	BRIDGE APPROACH SECTION	C.8	
8.0	108_23A	TRAFFIC CONTROL PLAN	J.1	
9.0	111_01	COORDINATED OPERATIONS	J.2	

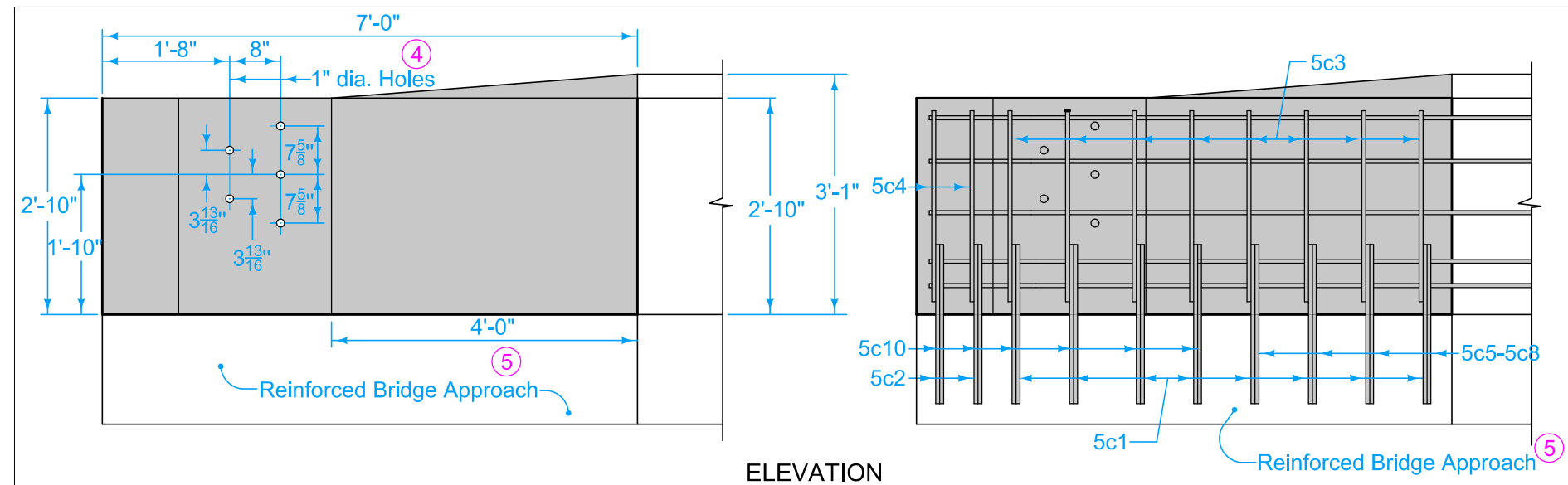
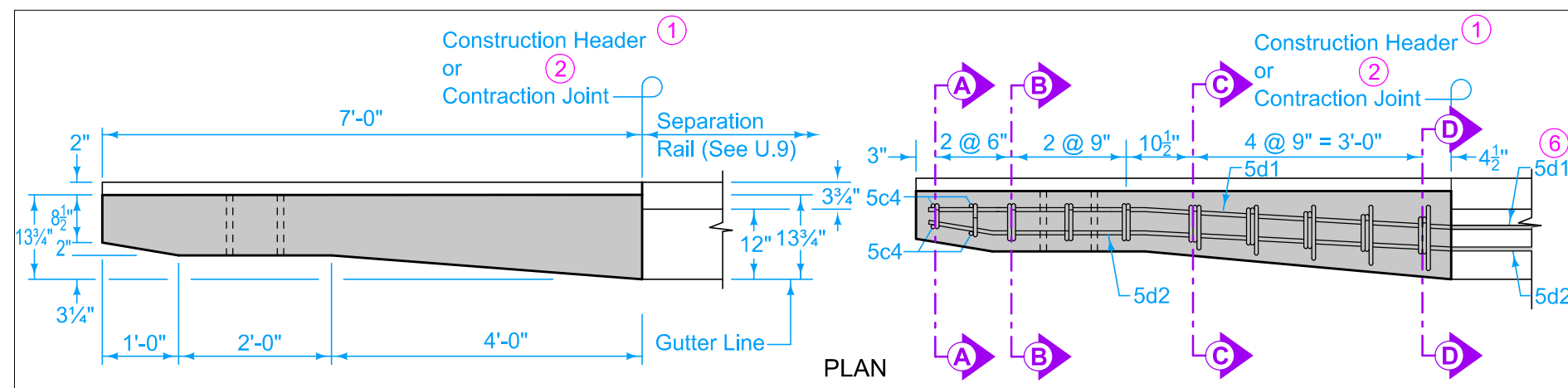
<div>BRIDGE APPROACH SECTION</div> <div>Refer to the BR Series.</div> <div>* Not a bid item</div>																					112_06 2/22/24
Line No.	Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Class 'A' * Crushed Stone Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
1.0	1745+86.46	W		32.0	12.0	84.0	206.9	110.3	252.6	BR-203	Movable	BR-231	78.0	1743+74.39	Right	2.6		544.840	601.2		
2.0	1745+86.46	E		32.0	12.0	83.0	202.2	134.5	220.5	BR-203	Movable	BR-231	76.0	1747+97.64	Right	2.5		533.820	588.8		
Total:							409.1	244.8	473.1												

TRAFFIC CONTROL PLAN	108_23A 8/15/22
Refer to Tab. 108-23A Traffic Control Plan of project STP-175-1(95)--2C-67.	

<div>111_01 10/14/22</div> <div>COORDINATED OPERATIONS</div> <div>Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.</div>	
Project	Type of Work
STP-175-1(95)--2C-67	PCC Pavement - Grade and Replace
STP-175-1(97)--2C-67	Traffic Signs
STP-175-1(98)--2C-67	Lighting

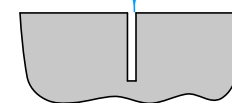






BAR	"X"
5c5	5 7/8"
5c6	6 1/4"
5c7	6 7/8"
5c8	7 1/2"

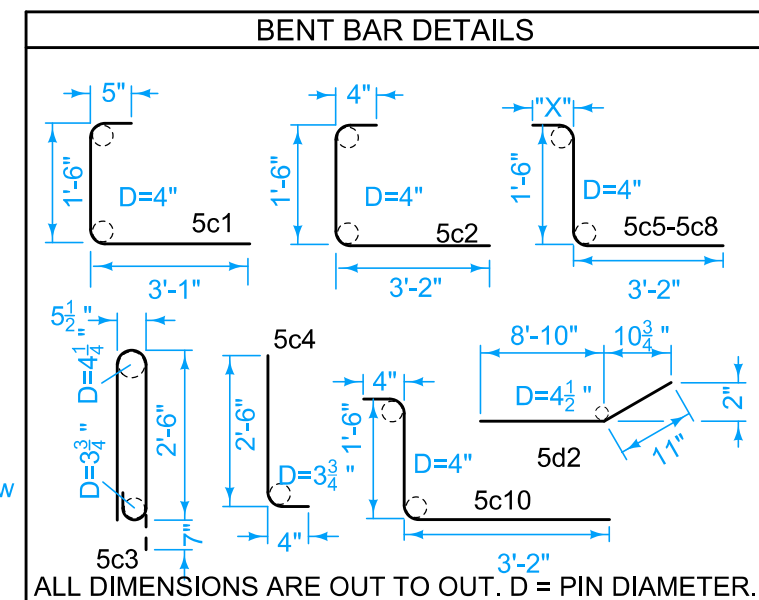
$\frac{1}{8}$ " min. wide x 1" deep saw cut. No sealing required.










SAWED CONTRACTION JOINT

Saw cut top and front face.
Saw cut back if exposed.

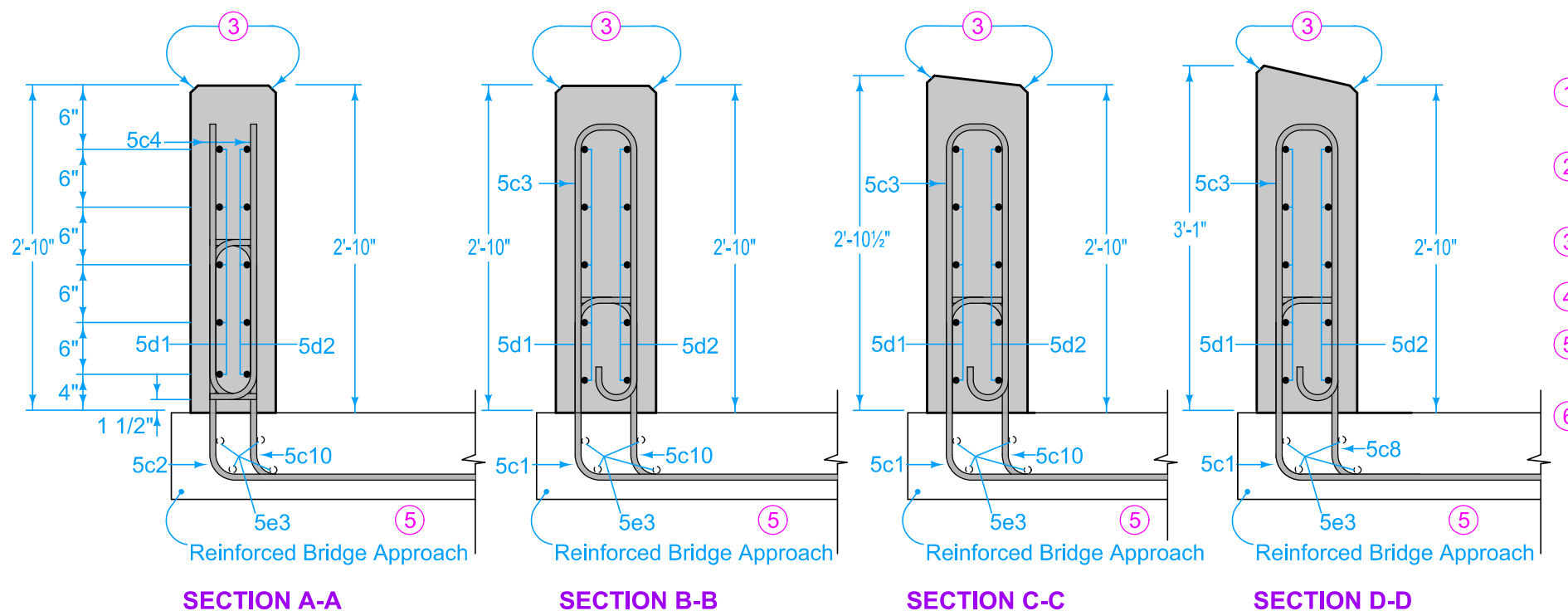
CONCRETE QUANTITIES
Per End Section
0.7 cy



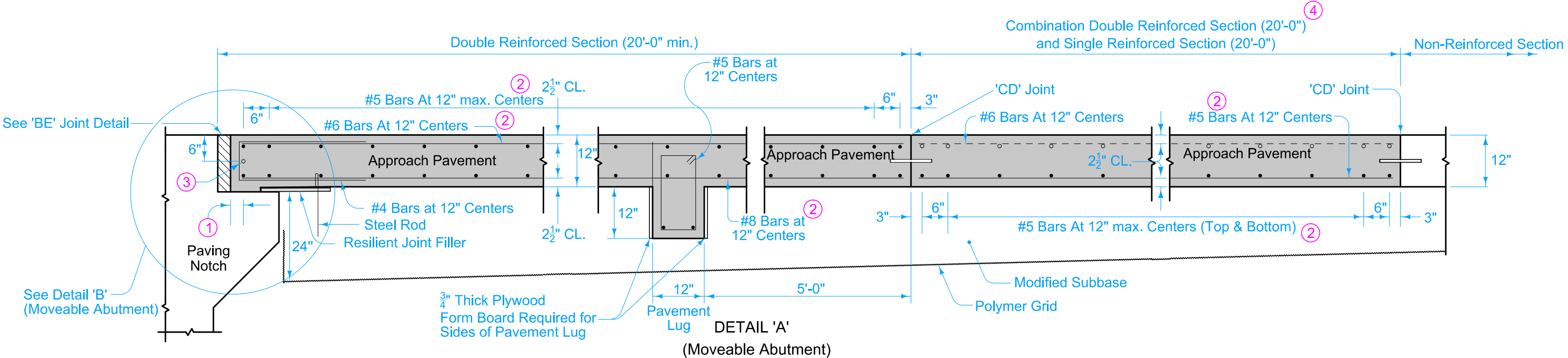
REINFORCING BAR LIST					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5c1	VERTICAL		8	5'-0"	42
5c2	VERTICAL		2	5'-0"	10
5c3	VERTICAL		8	6'-1"	51
5c4	VERTICAL		4	2'-10"	12
5c5-5c8	VERTICAL		4	VARIES	22
5c10	VERTICAL		6	5'-0"	31
5d1	HORIZONTAL		5	10'-0"	52
5d2	HORIZONTAL		5	10'-0"	52
5e3	HORIZONTAL		4	6'-6"	27
TOTAL WEIGHT (LBS.)					299

Use Grade 60 epoxy - coated reinforcing bars. Provide 2 inches minimum cover. Anchor all reinforcement to prevent movement. Secure each section at the front, back, and at 3'- 6' intervals using a method approved by the Engineer.

- ① Expansion joints are necessary only where specifically required by project plans. Conform expansion material to the shape of the barrier. No sealer is required.
- ② Where abutting sections are placed as separate pours, a butt joint may be used. Extend longitudinal reinforcement into the abutting section a minimum of 3 feet.
- ③ Fillet all exposed corners with a $\frac{3}{4}$ inch dressed and beveled strip.
- ④ Form holes using 1 inch diameter plastic conduit.
- ⑤ See BR-203 Modified and BR-231 Modified.
- ⑥ Field bend to maintain cover.



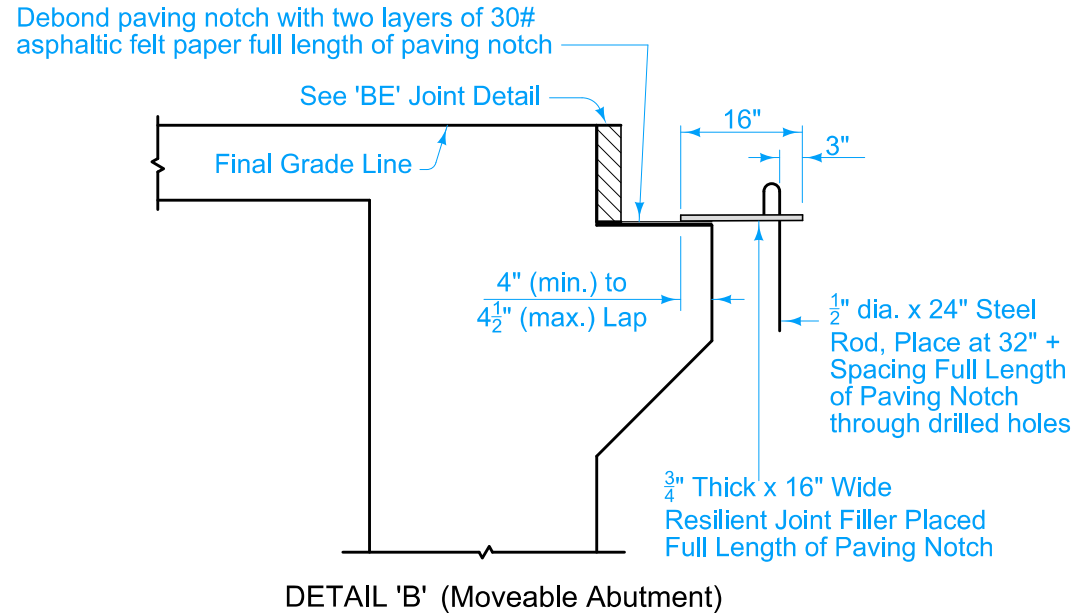
<div> <div>MODIFIED</div> <div>STANDARD ROAD PLAN</div> </div>	REVISION	
	4	10-18-2
	BA-107	
	SHEET 1 of 1	
MODIFICATIONS: Changed to Match Separation Barrier Width.		
<div>APPROVED BY DESIGN METHODS ENGINEER</div>		
<div>CONCRETE BARRIER</div> <div>END SECTION</div>		



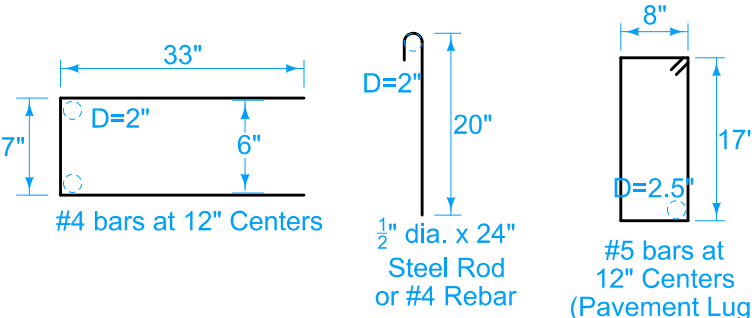
See 'BE' Joint Detail

See Detail 'B' (Moveable Abutment)

DETAIL 'A' (Moveable Abutment)



DETAIL 'B' (Moveable Abutment)



- BENT BAR SHAPES**
- ① 2" min. to 2 1/2" max. clear to bent bar.
 - ② Minimum lap length: #5 Bars - 18" #6 Bars - 27" #8 Bars - 48"
 - ③ If bridge is skewed, place additional #5 bar parallel to skewed face.
 - ④ See BR-231 Modified for details.

For joint details, refer to PV-101.

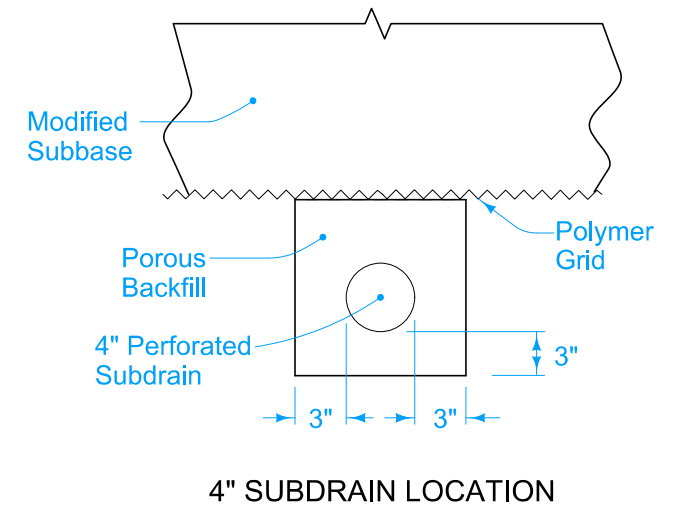
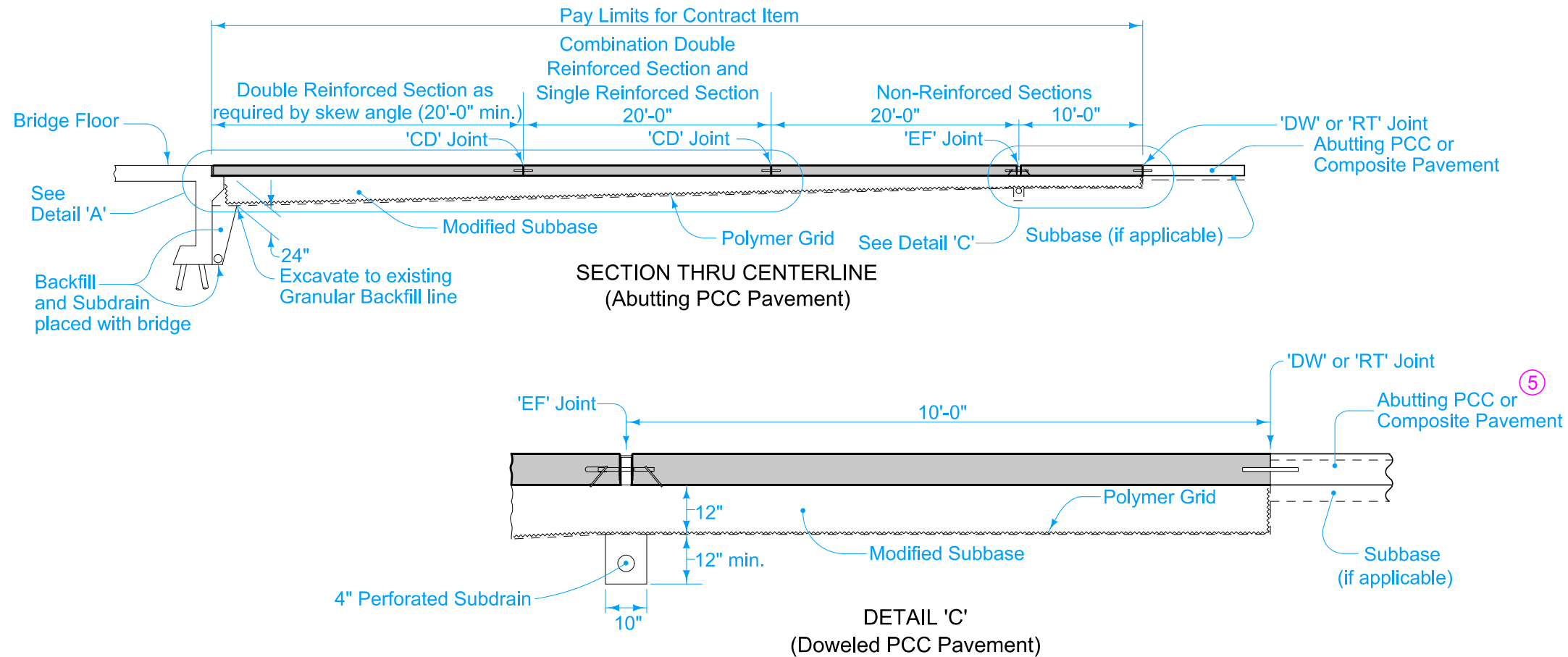
For curb details, see Detail 'G' and 'J'.

All transverse bars are #5.

Possible Contract Item:
Bridge Approach, BR-203
Longitudinal Grooving in Concrete, Bridge Deck
Longitudinal Grooving in Concrete, Pavement

Possible Tabulation:
112-6

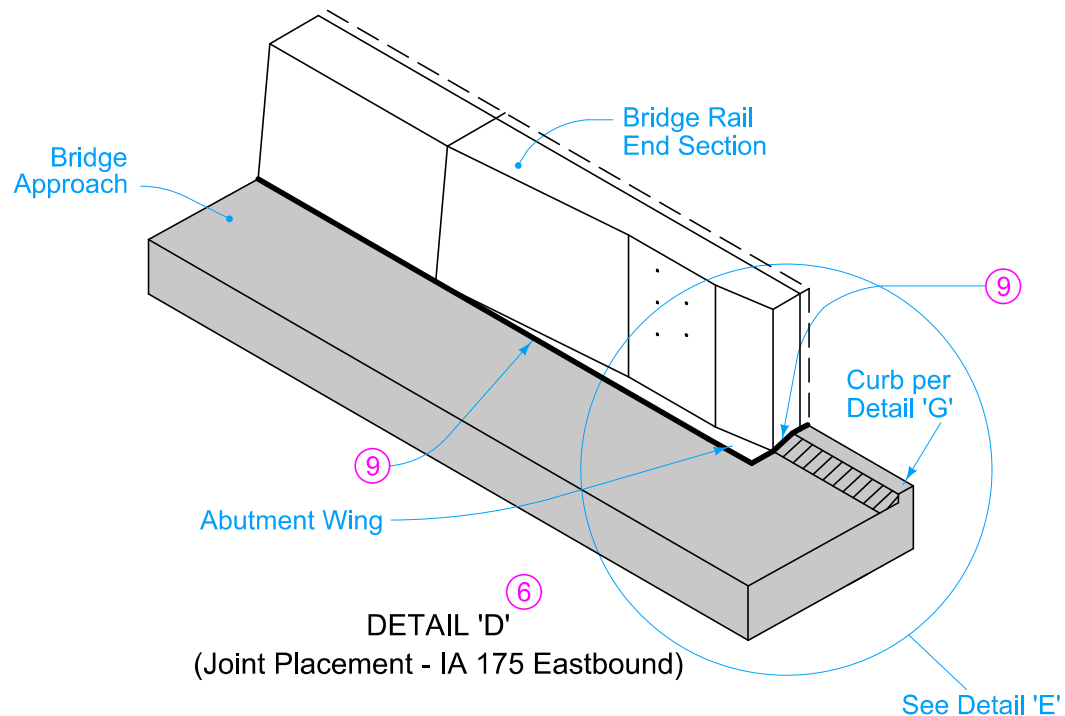
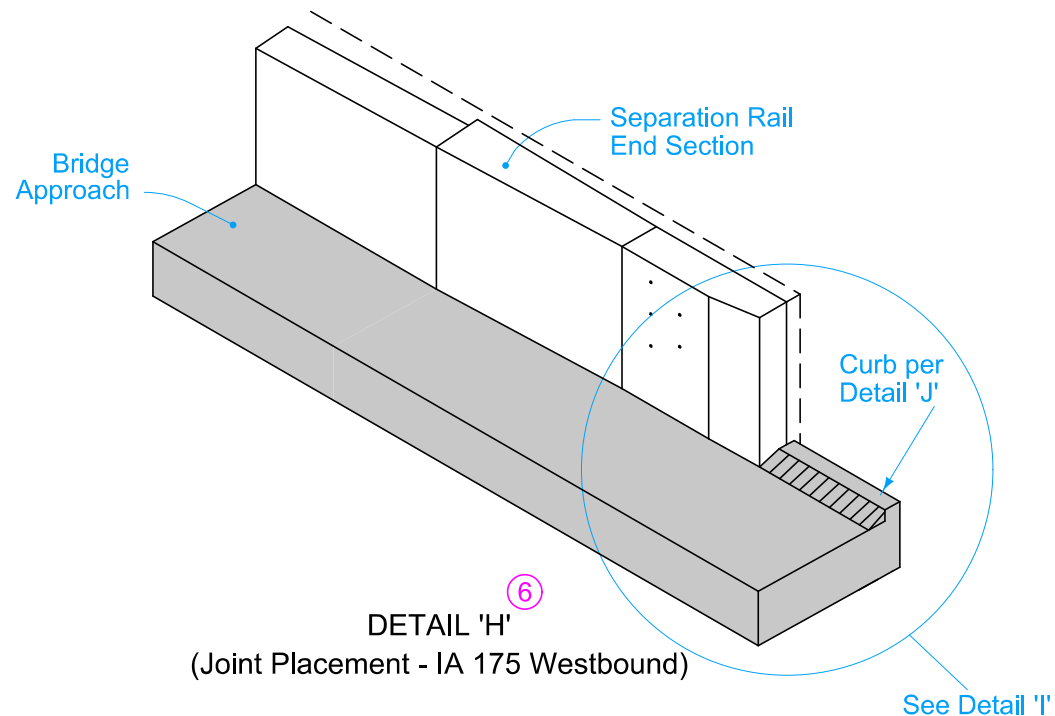
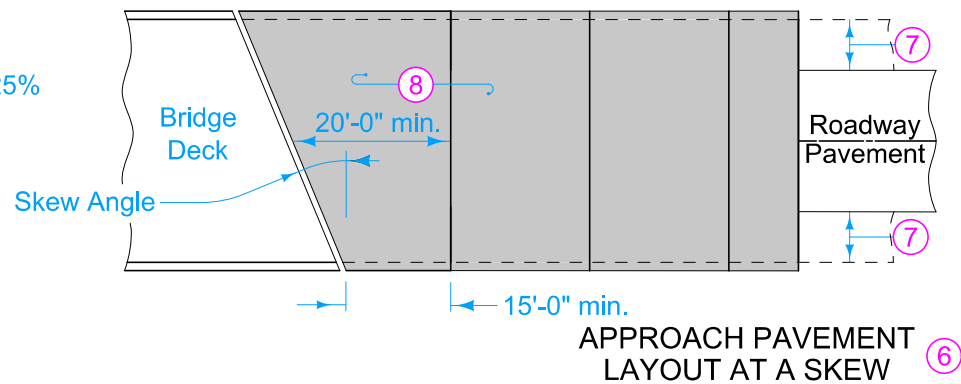
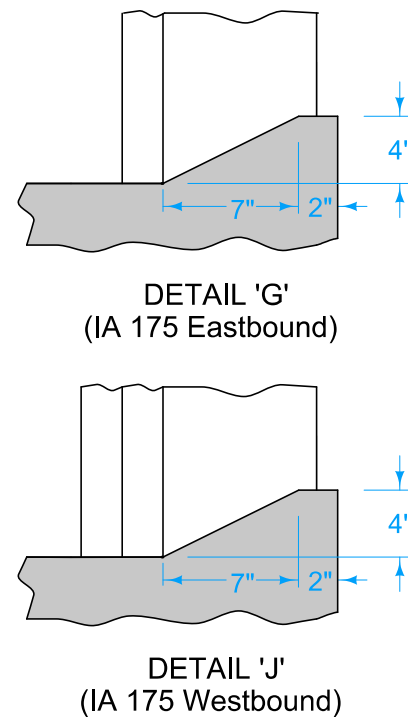
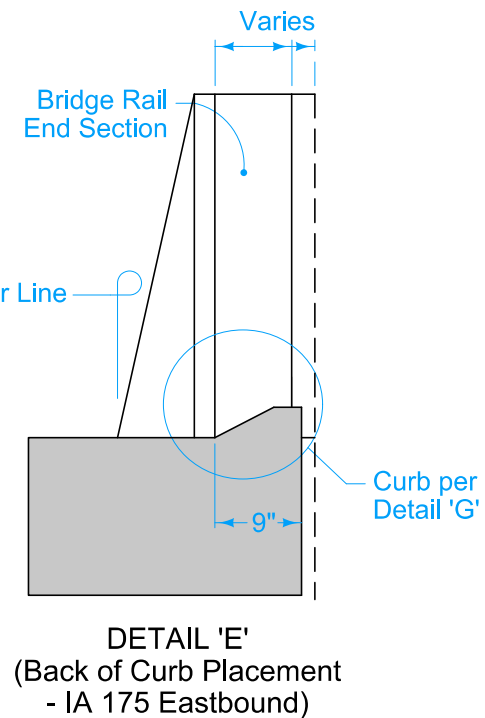
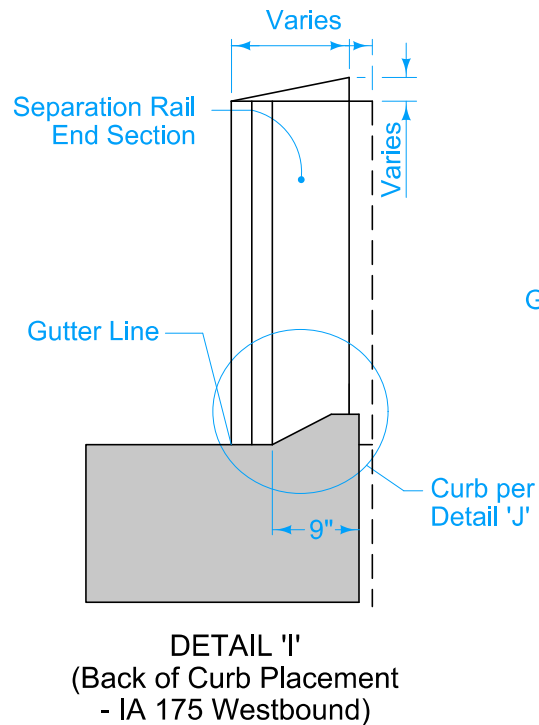
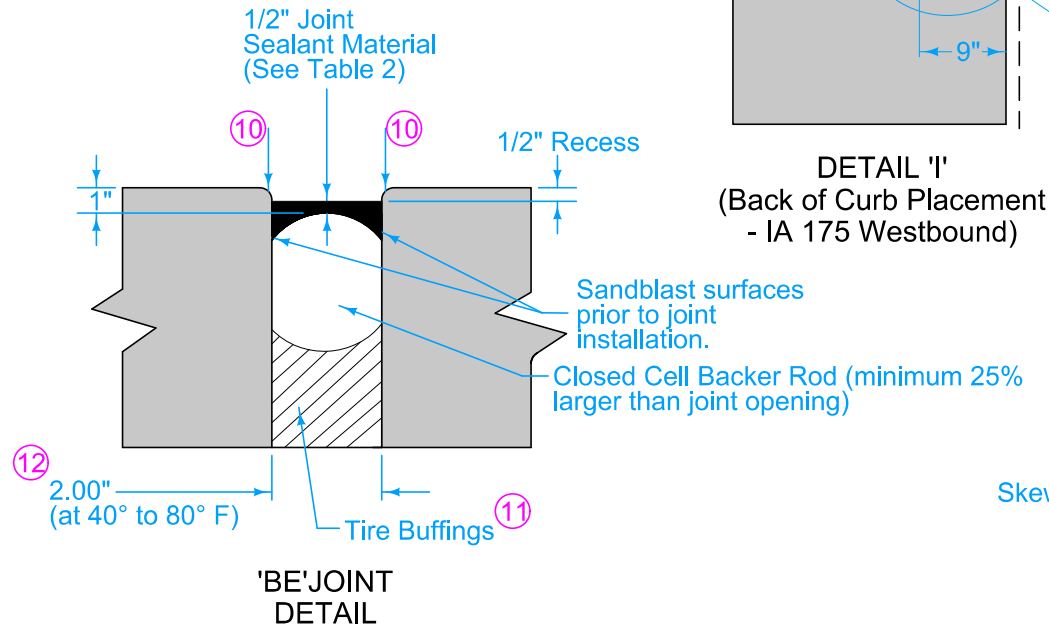
MODIFIED STANDARD ROAD PLAN	REVISION	
	5	10-21-25
BR-203		
SHEET 1 of 3		
MODIFICATIONS: Removed Fixed Abutment details, included one additional double reinforced panel, modified details to include separation barrier.		
APPROVED BY DESIGN METHODS ENGINEER		
DOUBLE REINFORCED 12" APPROACH		



⑤ If abutting pavement is not in place, refer to BR-213.

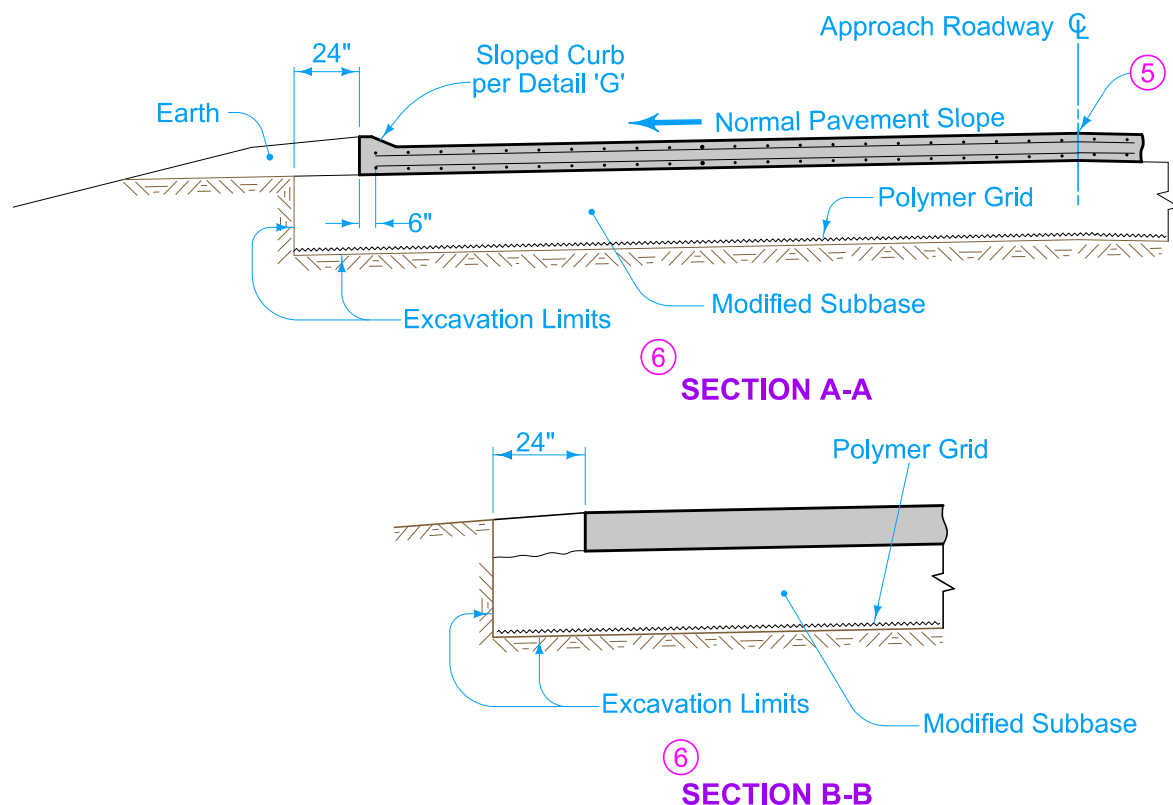
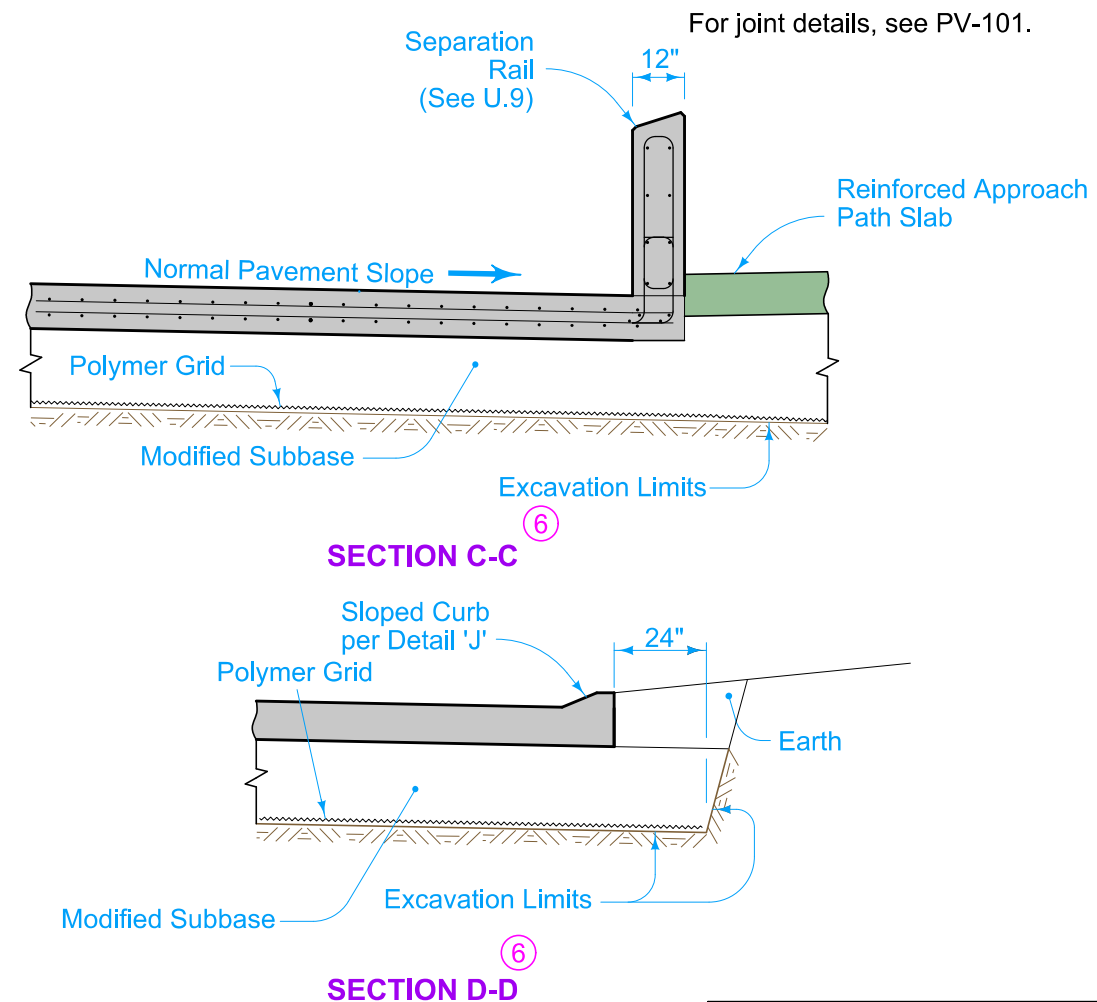
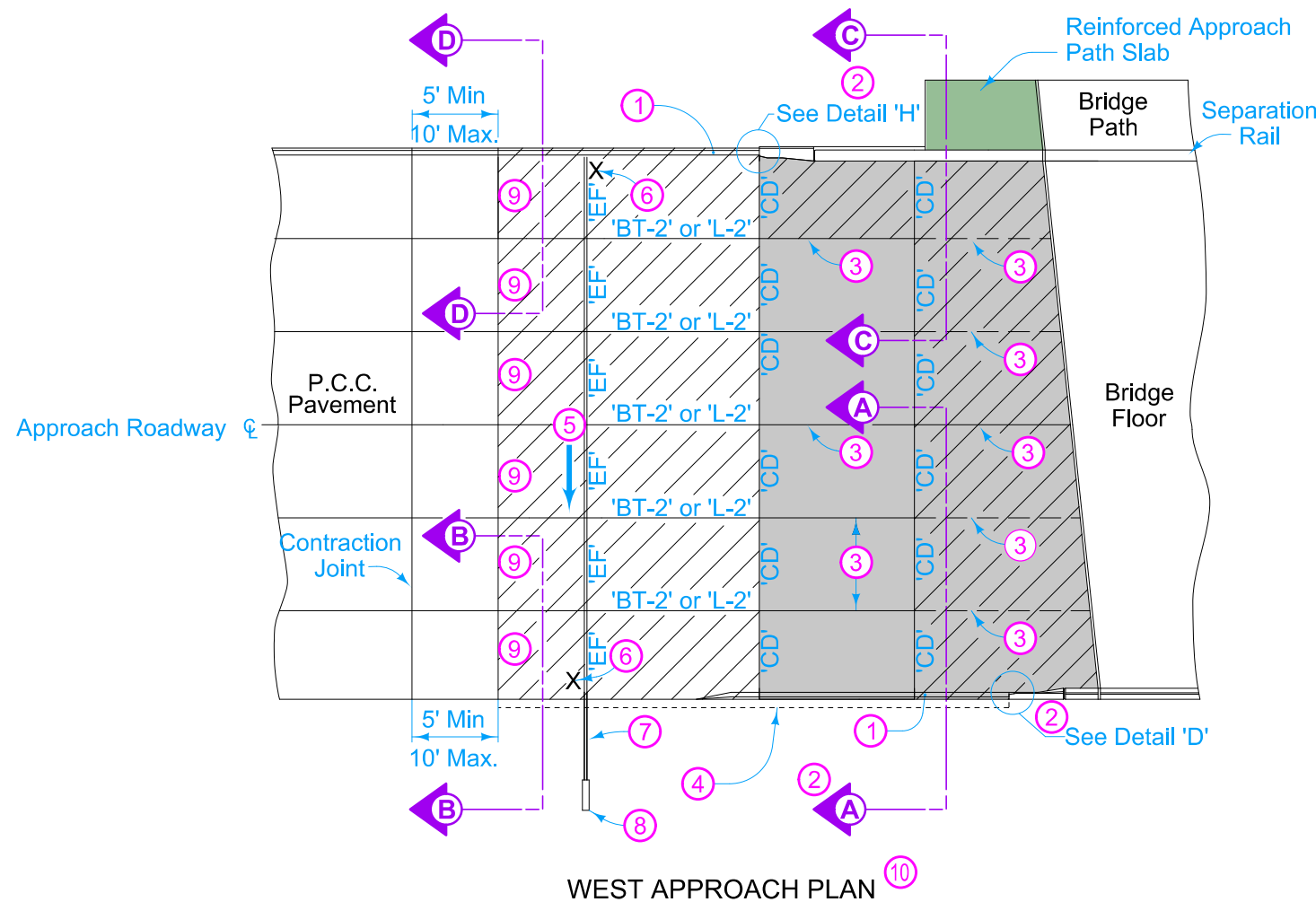
MODIFIED		REVISION	
		5	10-21-25
STANDARD ROAD PLAN		BR-203	
		SHEET 2 of 3	
MODIFICATIONS: Removed Fixed Abutment details, included one additional double reinforced panel, modified details to include separation barrier.			
APPROVED BY DESIGN METHODS ENGINEER			
DOUBLE REINFORCED 12" APPROACH			

Table 2
Approved List of Sealant
Dow - Dowsil 902 RCS
Sika - Sikasil 728 RCS
Watson Bowman Acme - Wabo SiliconeSeal
Pecora - 322FC






- ⑥ Refer to BR-231 MODIFIED.
- ⑦ Design shoulder width.
- ⑧ Reinforced bridge approach section.
- ⑨ Joint at end of Bridge Rail End Section: Place joint filler the full depth of the bridge approach pavement. In areas with curb, place full depth of pavement plus curb and shape material to fit the shape of the curb per Section B-B of PV-101. Seal joint per Detail F of PV-101.
- Moveable Abutment Bridges: Flexible Foam Expansion Joint Filler complying with Section 4136 of the Standard Specifications. Set width of gap to 2 inches. Joint length as required to completely fill from back side of curb to front face of bridge wing.
- ⑩ Edge with 1/4 inch tool for length of joint indicated if formed edging not required when cut with diamond blade saw.
- ⑪ Compact tire buffings by spading with a square-nose shovel. Tire buffings shall not be larger than 1/2 inch.
- ⑫ Setting Width Notes:
 - Width is perpendicular to abutment.
 - Temperature of concrete deck on the underside or shaded portion of the deck shall be between 40 to 80 degrees Fahrenheit when placing approach slab concrete.
 - This 'BE' joint and the setting temperatures may be used for all concrete beam or slab bridges up to 575' in length and for all steel girder bridges up to 400' in length.

MODIFIED STANDARD ROAD PLAN	REVISION	
	5	10-21-25
BR-203		
SHEET 3 of 3		
MODIFICATIONS: Removed Fixed Abutment details, included one additional double reinforced panel for west approach, modified details to include separation barrier.		
APPROVED BY DESIGN METHODS ENGINEER		
DOUBLE REINFORCED 12" APPROACH		

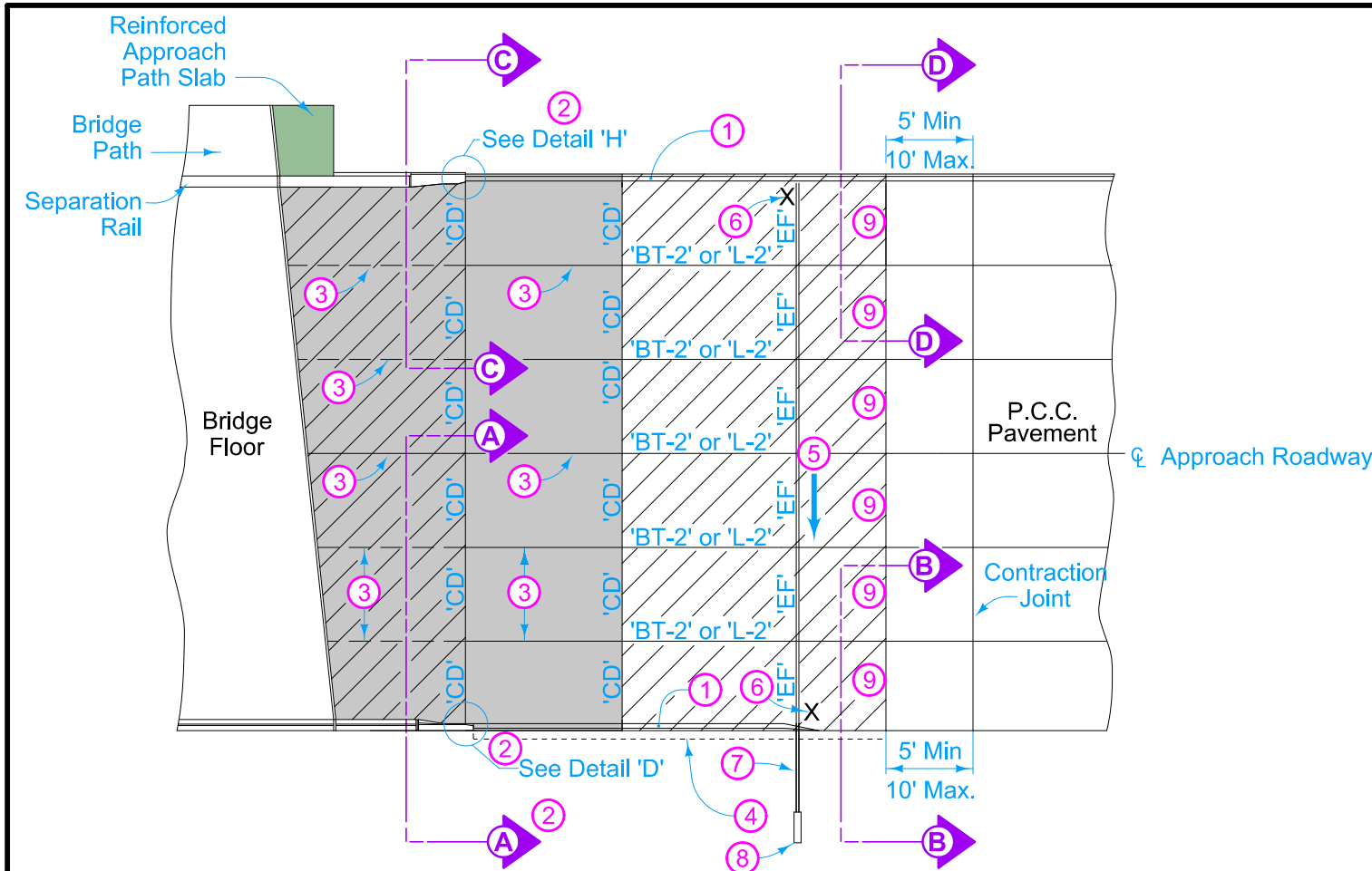


- ① Build 4 inch Sloped Curb, unless noted otherwise in the plans. Refer to PV-102 for curb and runout details.
- ② See BR-203 MODIFIED.
- ③ Longitudinal Joint (PV-101):
Single Pour - Saw cut joint per Detail B .
Two Pours - Use 'BT-2' joint.
- ④ Polymer Grid and excavation limits of Modified Subbase 2 feet outside of pavement edge. See BR-203 MODIFIED.
- ⑤ Slope subdrain to drain.
- ⑥ Place an "X" in the plastic concrete near the 'EF' joint at the outside edge of pavement.
- ⑦ 4 inch perforated subdrain (polyethylene, corrugated tubing).
- ⑧ See DR-303 or DR-306 for outlet details
- ⑨ 'DW' or 'RT' joint.
- ⑩ See Bridge Curb Detail for bridge approach geometry

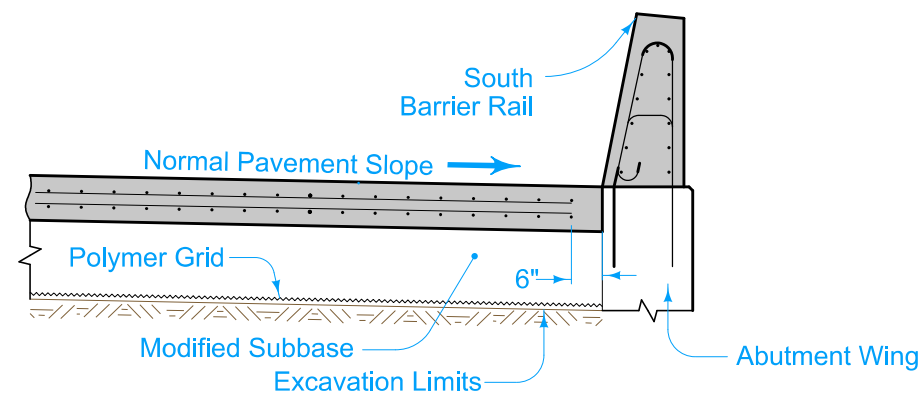
Pay limits for contract item include the following areas:

-  Double Reinforced Section
-  Single Reinforced Section
-  Non-Reinforced Section

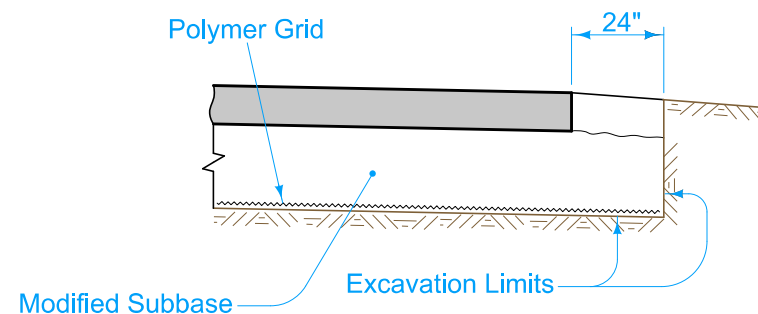
REVISION	
3	10-21-25
BR-231	
SHEET 1 of 2	
MODIFICATIONS: Curbed roadway along north side and roadway shoulder on south side, included one additional double reinforced panel on west approach, modified details to include separation barrier.	
APPROVED BY DESIGN METHODS ENGINEER	
BRIDGE APPROACH (MULTI-LANE, CURBED ROADWAY)	



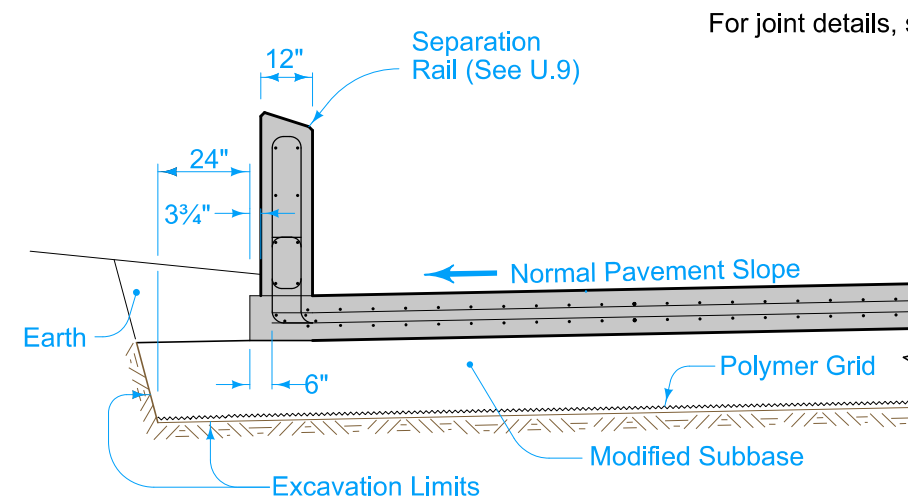
EAST APPROACH PLAN



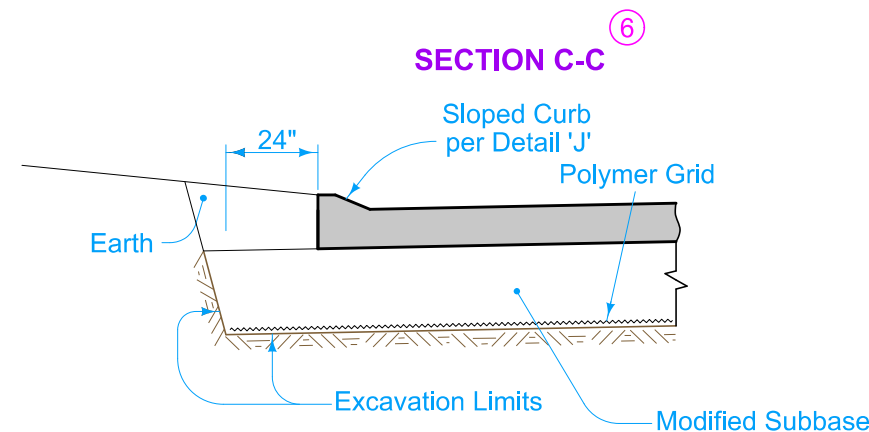
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

- ① Build 4 inch Sloped Curb, unless noted otherwise in the plans. Refer to PV-102 for curb and runout details.
- ② See BR-203 MODIFIED.
- ③ Longitudinal Joint (PV-101):
Single Pour - Saw cut joint per Detail B .
Two Pours - Use 'BT-2' joint.
- ④ Polymer Grid and excavation limits of Modified Subbase 2 feet outside of pavement edge. See BR-203 MODIFIED.
- ⑤ Slope subdrain to drain.
- ⑥ Place an "X" in the plastic concrete near the 'EF' joint at the outside edge of pavement.
- ⑦ 4 inch perforated subdrain (polyethylene, corrugated tubing).
- ⑧ See DR-303 or DR-306 for outlet details
- ⑨ 'DW' or 'RT' joint.
- ⑩ See Bridge Curb Detail for bridge approach geometry

Pay limits for contract item include the following areas:

- Double Reinforced Section
- Single Reinforced Section
- Non-Reinforced Section

REVISION	
3	10-21-25
MODIFIED	
STANDARD ROAD PLAN	
MODIFICATIONS: Curbed roadway along north side and roadway shoulder on south side, included one additional double reinforced panel on west approach, modified details to include separation barrier.	
APPROVED BY DESIGN METHODS ENGINEER	
BRIDGE APPROACH (MULTI-LANE, CURBED ROADWAY)	



Maintain a minimum clear distance of 2" from the concrete face to the nearest reinforcing bar, unless otherwise specified.

Construct permissible construction joints between vertical bars with a minimum spacing of 20 feet, ensuring a minimum distance of 1'-0" from the centerline of any handrail post. Apply an approved bond breaker on construction joint contact surfaces.

All barrier rail reinforcing steel to be epoxy coated or stainless steel as shown. Use a light gray nonsag latex caulking sealer designed for outdoor use as the joint sealer. No testing or certification is required.

Ensure the top of the barrier rail aligns parallel to the theoretical centerline grade.

Fillet all exposed corners with a $\frac{3}{4}$ " dressed and beveled strip for corners with a 90 degree or sharper angle.

The cross-sectional area of the separation barrier is 2.96 square feet.

All materials required for constructing the roadway separation rail, including approximately 50 feet of 2" diameter rigid steel conduit, are incidental to the Concrete Barrier, Reinforced, Separation bid item.

Section	Unit	Total
Concrete Barrier, Reinforced, Separation	L.F.	73.7

11:29:54 PM 10/1/2025 dhu pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\6717502021\Design\096 Bridge-Unspecified\CADD Files\Sheet Files\SHT 67175096 U02 Z06