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J44-53-25	Subdrain Details
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J44-25 Bridge Standards – General Notes

The J44-25 Bridge Standards, if properly used, provide the structural plans necessary to construct 3-span 44'-0" roadway continuous concrete slab bridges with lengths of 70, 80, 90, 100, 110, 120, 130, 140 and 150ft.

These bridges may be built on a 0°, 15°, 30° or 45° skew. These plans show the bridges skewed in one direction, but all dimensions and details would be the same for the opposite skew.

These standards give most of the information necessary to build these bridges. However, the following additional information is required for use on primary routes. For secondary routes the Engineer may not require all sheets to be provided:

1. Title sheet with Engineer's seal
2. Estimated Quantities Totals Including Bid Item "Class 20 Excavation" for Bridge
3. Situation Plan Layout of Bridge
4. Top of Slab Elevations Layout
5. Bottom of Abutment Footing Elevations
6. Bottom of Pier Cap Elevations
7. Piling Design Information
8. Slope Protection Layout (if needed)
9. Conduit Layout
10. Lighting Layout (if needed)

For clarity, most sections shown on the following sheets are drawn with single slope barrier rail only. These sections will be identical for open rail barriers with any modifications shown on Open Rail Barrier Details Sheet J44-52-25 and Open Rail Barrier Quantities Sheet J44-53-25.

Note, that when approach pavement is to be placed, the temporary paving blocks shall be removed. The abutments for these bridges are built integral with the superstructure. Therefore, it is important that a proper joint for expansion be provided. The BR-205 double reinforced 12-inch approach standard road plan shall be used with the J44 Standards. This standard ties the approaches to the integral (movable) abutment and provides expansion movement (BE joint) at the end of the first approach slab panel.

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

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

All laps and development lengths are conservatively based on epoxy coated reinforcement regardless of reinforcement type.

The abutment design utilized on these bridges restricts their use in the following manner:

(1) These bridges are not to be used when point bearing for the abutment steel piling would be obtained on rock at a distance less than 27 ft. from the bottom of the abutment footing without any prebore and at a distance of less than 34 ft. from the bottom of the abutment footing when there is 10 ft. of prebore. A special analysis is required to use steel piling at the abutment, if point bearing occurs at a shallower depth.

(2) For the 140 ft. and 150 ft. long bridges the abutment piling are to be driven through oversized holes prebored to a minimum of 10 ft. below the bottom of footing. The prebored holes shall be in accordance with Section 2501.03,Q of the Standard Specifications. The elevation of the bottom of the prebored hole shall be shown on the plans.

The piers and abutments for these standards have been designed for the use of both friction and point bearing piles. It is necessary that the type and length for both the abutment and pier piles be designated on the front sheet of the plans.

The integral abutments and pile bents for these J44 Standards have been designed for the use of various types of pile footings as follows.

- Integral abutments: Timber piles or HP 10x42 piles at Bridge Design Manual (BDM) Article 6.2.6.1 Structural Resistance Level-1 (SRL-1)
- Pile Bents: Standard concrete-filled steel pipe piles (P10L), standard prestressed concrete piles (P10L), or standard H-piles (P10L and SRL-1)

For pile foundations the Designer will need to determine the construction control method, contract length, and driving target and give that information on the front sheet of the plans. Bridge Design Manual CADD notes E718, E719, E818, and E819 are appropriate for that purpose. The notes, as well as the Bridge Design Manual and design examples, are available on the Bridges and Structures Bureau web site.

For more information on SRL-1, see the Bridge Design Manual, located on the Iowa Department of Transportation, Bridges and Structures Bureau web site. For piers subject to scour the design bearing shall be obtained below scour elevation. Scour elevation shall be shown on the front sheet.

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.

Specifications:

Design: AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024.
Construction: Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024.

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

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

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

n = 8 for tension steel

2n = 16 for compression steel

HL-93 live load plus 20 lbs. per sq. ft. for future wearing surface.

End span length is used to calculate equivalent width in live load distribution.

Six foot of approach slab dead & live load included in abutment loads.

Control of cracking by distribution of reinforcement for slab design based on the AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024.

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

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

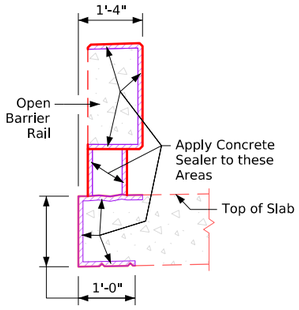
Continuous Concrete Slab Bridge

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General Information, Notes & Sheet Index

J44-01-25

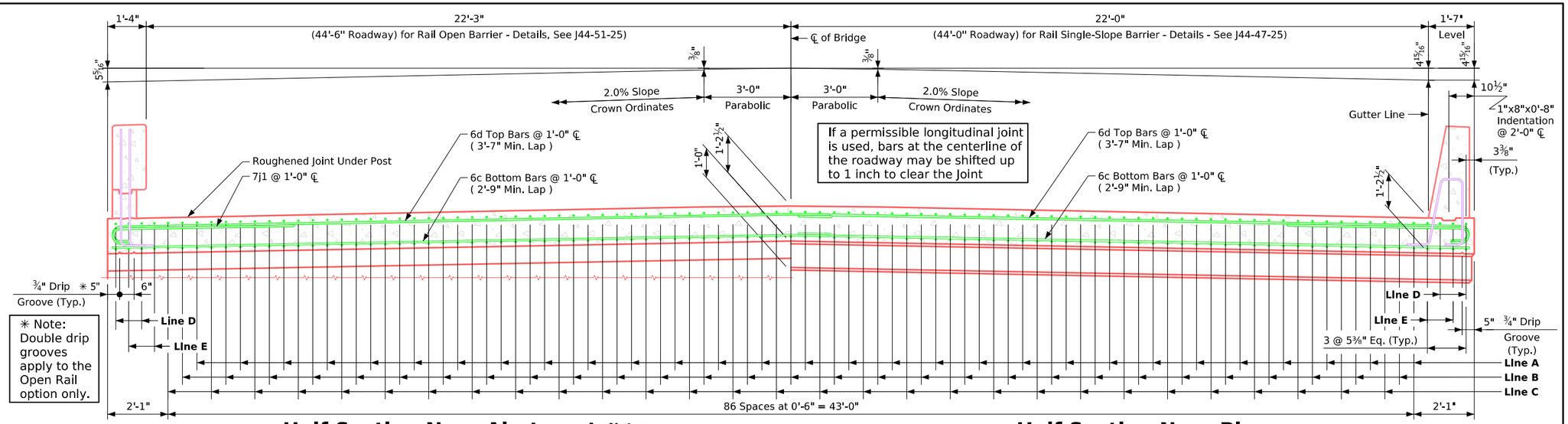
Revised 09-2026: Updated Bridge Engineer signature. Updated J44-54-25 sheet title to "Wing Armoring & Erosion Stone Details" (was using Macadam Stone).



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

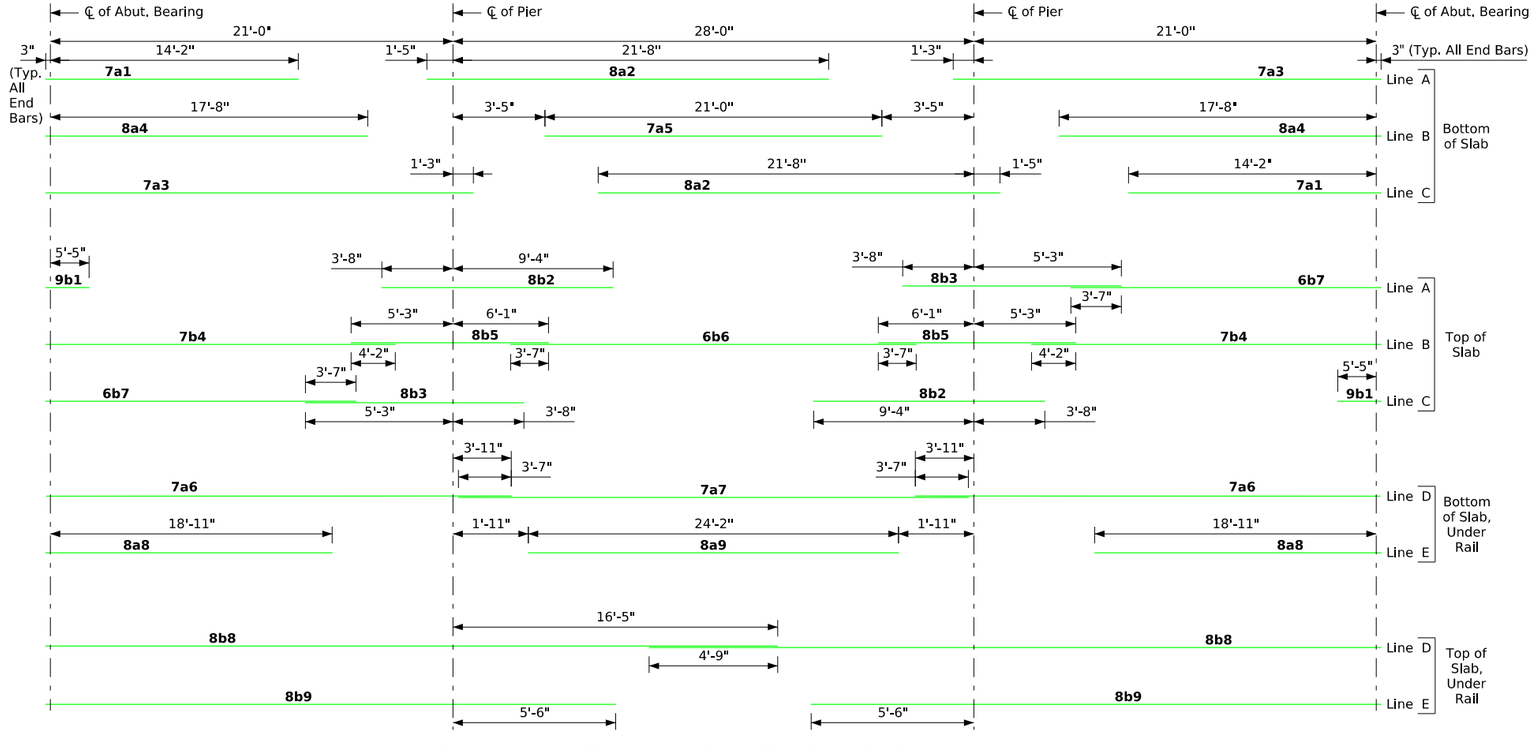
Slab cross-section area for barrier rail = 56.99 sq. ft.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

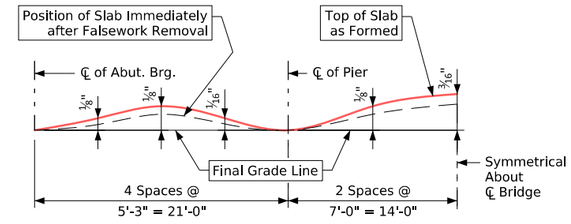
Half Section Near Pier

Slab cross-section area for barrier rail = 57.04 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



70' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details 70'-0" Bridge

J44-02-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

Reinforcing Steel for Superstructure - 70' Bridge

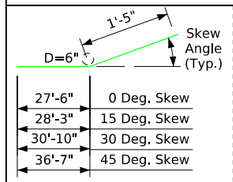
Location	Skew / Shape	Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		7a1	58	14' - 5"	1710	58	14' - 5"	1710	58	14' - 5"	1710	58	14' - 5"	1710
Slab Longitudinal Bottom		8a2	58	23' - 1"	3575	58	23' - 1"	3575	58	23' - 1"	3575	58	23' - 1"	3575
Slab Longitudinal Bottom		7a3	58	22' - 6"	2668	58	22' - 6"	2668	58	22' - 6"	2668	58	22' - 6"	2668
Slab Longitudinal Bottom		8a4	58	17' - 11"	2775	58	17' - 11"	2775	58	17' - 11"	2775	58	17' - 11"	2775
Slab Longitudinal Bottom		7a5	29	21' - 0"	1245	29	21' - 0"	1245	29	21' - 0"	1245	29	21' - 0"	1245
Slab Longitudinal Bottom, at Rail		7a6	8	25' - 2"	412	8	25' - 2"	412	8	25' - 2"	412	8	25' - 2"	412
Slab Longitudinal Bottom, at Rail		7a7	4	27' - 4"	224	4	27' - 4"	224	4	27' - 4"	224	4	27' - 4"	224
Slab Longitudinal Bottom, at Rail		8a8	8	19' - 2"	410	8	19' - 2"	410	8	19' - 2"	410	8	19' - 2"	410
Slab Longitudinal Bottom, at Rail		8a9	4	24' - 3"	259	4	24' - 3"	259	4	24' - 3"	259	4	24' - 3"	259
Slab Longitudinal Top		9b1	58	7' - 11"	1562	58	7' - 11"	1562	58	7' - 11"	1562	58	7' - 11"	1562
Slab Longitudinal Top		8b2	58	13' - 0"	2014	58	13' - 0"	2014	58	13' - 0"	2014	58	13' - 0"	2014
Slab Longitudinal Top		8b3	58	8' - 11"	1381	58	8' - 11"	1381	58	8' - 11"	1381	58	8' - 11"	1381
Slab Longitudinal Top		7b4	58	22' - 5"	2658	58	22' - 5"	2658	58	22' - 5"	2658	58	22' - 5"	2658
Slab Longitudinal Top		8b5	58	11' - 4"	1756	58	11' - 4"	1756	58	11' - 4"	1756	58	11' - 4"	1756
Slab Longitudinal Top		6b6	29	23' - 0"	1002	29	23' - 0"	1002	29	23' - 0"	1002	29	23' - 0"	1002
Slab Longitudinal, Top		6b7	58	21' - 10"	1903	58	21' - 10"	1903	58	21' - 10"	1903	58	21' - 10"	1903
Slab Longitudinal Top, at Rail		8b8	8	39' - 11"	853	8	39' - 11"	853	8	39' - 11"	853	8	39' - 11"	853
Slab Longitudinal Top, at Rail		8b9	8	29' - 0"	620	8	29' - 0"	620	8	29' - 0"	620	8	29' - 0"	620
Slab Transverse Bottom		6c1	67	26' - 4"	2651	67	27' - 3"	2743	57	26' - 4"	2255	47	26' - 4"	1859
Slab Transverse Bottom		6c2	67	23' - 3"	2340	67	24' - 1"	2424	59	23' - 3"	2061	51	23' - 3"	1781
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	12	VARIES	259	20	VARIES	461
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	11	VARIES	244	20	VARIES	431
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	11	VARIES	196	18	VARIES	359
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	11	VARIES	211	17	VARIES	341
Slab Transverse Top		6d1	67	27' - 10"	2801	67	28' - 8"	2885	57	27' - 10"	2383	47	27' - 10"	1965
Slab Transverse Top		6d2	67	24' - 3"	2441	67	24' - 3"	2441	59	24' - 3"	2149	51	24' - 3"	1858
Slab Transverse Ends, Top		6d3	-	-	-	-	-	-	12	VARIES	271	20	VARIES	481
Slab Transverse Ends, Top		6d4	-	-	-	-	-	-	11	VARIES	258	20	VARIES	456
Slab Transverse Ends, Top		6d5	-	-	-	-	-	-	11	VARIES	196	18	VARIES	359
Slab Transverse Ends, Top		6d6	-	-	-	-	-	-	11	VARIES	222	17	VARIES	356
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Transverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		7j1	132	8' - 3"	2226	132	8' - 3"	2226	122	8' - 3"	2058	116	8' - 3"	1957
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					43,987			44,331			44,677			45,227
Single-slope barrier rail - See Sheet J44-48-25.					3406			3406			3406			3406
Open barrier rail - See Sheet J44-52-25.					4066			4066			4066			4066
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap	Single Slope Rail			47,393			47,737			48,083			48,633
		Open Rail			48,053			48,397			48,743			49,293
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap	Single Slope Rail			47,393			47,737			48,083			48,633
		Open Rail			48,053			48,397			48,743			49,293
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap	Single Slope Rail			1655			1655			1655			1655
		Open Rail			1572			1572			1572			1572

Estimated Quantities for Superstructure - 70' Bridge Length

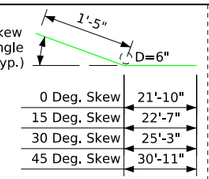
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	lbs.	199.2	200.2	200.7	203.3	220.9	223.9	225.4	233.0
	Reinf. Steel Epoxy Coated	lbs.	48,916	49,380	49,743	50,312	48,916	49,380	49,743	50,312
	Δ Reinf. Stainless Steel	lbs.	1901	1901	1901	1901	1901	1901	1901	1901
Concrete single-slope barrier rail		lin. ft.	162.0	162.2	162.9	164.5	162.0	162.2	162.9	164.5
with Open rail	*Structural Concrete (Bridge)	c.y.	195.1	196.1	196.6	199.2	216.8	219.8	221.3	228.9
	Reinf. Steel Epoxy Coated	lbs.	49,576	50,040	50,403	50,972	49,576	50,040	50,403	50,972
	D Reinf. Stainless Steel	lbs.	1818	1818	1818	1818	1818	1818	1818	1818

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

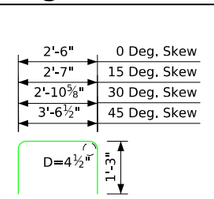
70'-0 Bridge-Bent Bar Details



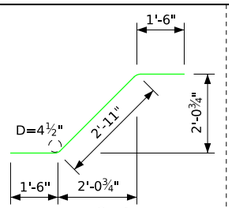
8e1



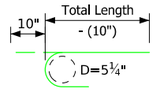
8e2



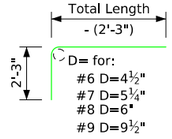
6e3



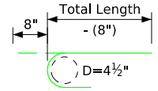
6e4



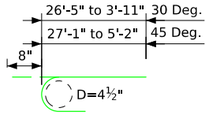
7j1



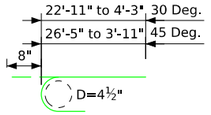
9b1, 7b4, 6b7, 8b8 and 8b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure
(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

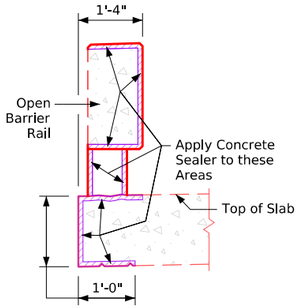
Continuous Concrete Slab Bridge

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Superstructure Details 70'-0" Bridge Quantities

J44-03-25

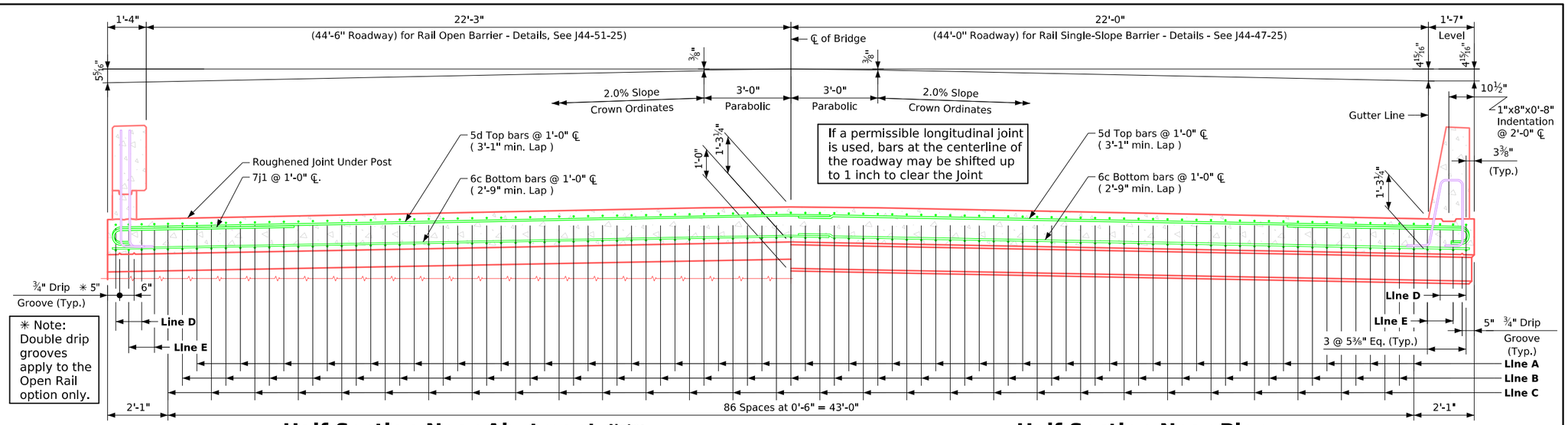
Revised 09-2026: Updated Bridge Engineer signature. Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars.



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

Slab cross-section area for barrier rail = 59.94 sq. ft.

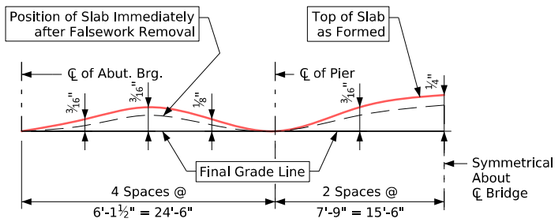
Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

Half Section Near Pier

Slab cross-section area for barrier rail = 59.99 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.

80' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details 80'-0" Bridge

J44-04-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

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

Reinforcing Steel for Superstructure - 80' Bridge

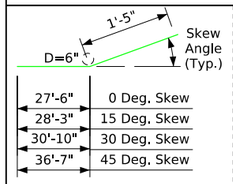
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		8a1	58	17' - 8"	2736	58	17' - 8"	2736	58	17' - 8"	2736	58	17' - 8"	2736
Slab Longitudinal Bottom		8a2	58	25' - 10"	4001	58	25' - 10"	4001	58	25' - 10"	4001	58	25' - 10"	4001
Slab Longitudinal Bottom		8a3	58	26' - 0"	4027	58	26' - 0"	4027	58	26' - 0"	4027	58	26' - 0"	4027
Slab Longitudinal Bottom		7a4	58	20' - 2"	2391	58	20' - 2"	2391	58	20' - 2"	2391	58	20' - 2"	2391
Slab Longitudinal Bottom		7a5	29	23' - 2"	1374	29	23' - 2"	1374	29	23' - 2"	1374	29	23' - 2"	1374
Slab Longitudinal Bottom, at Rail		7a6	8	28' - 8"	469	8	28' - 8"	469	8	28' - 8"	469	8	28' - 8"	469
Slab Longitudinal Bottom, at Rail		7a7	4	30' - 4"	249	4	30' - 4"	249	4	30' - 4"	249	4	30' - 4"	249
Slab Longitudinal Bottom, at Rail		8a8	8	22' - 3"	476	8	22' - 3"	476	8	22' - 3"	476	8	22' - 3"	476
Slab Longitudinal Bottom, at Rail		8a9	4	26' - 1"	279	4	26' - 1"	279	4	26' - 1"	279	4	26' - 1"	279
Slab Longitudinal Top		9b1	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496
Slab Longitudinal Top		9b2	58	15' - 8"	3090	58	15' - 8"	3090	58	15' - 8"	3090	58	15' - 8"	3090
Slab Longitudinal Top		9b3	58	14' - 5"	2843	58	14' - 5"	2843	58	14' - 5"	2843	58	14' - 5"	2843
Slab Longitudinal Top		7b4	58	26' - 8"	3162	58	26' - 8"	3162	58	26' - 8"	3162	58	26' - 8"	3162
Slab Longitudinal Top		8b5	58	11' - 3"	1743	58	11' - 3"	1743	58	11' - 3"	1743	58	11' - 3"	1743
Slab Longitudinal Top		6b6	29	26' - 6"	1155	29	26' - 6"	1155	29	26' - 6"	1155	29	26' - 6"	1155
Slab Longitudinal, Top		6b7	58	21' - 8"	1888	58	21' - 8"	1888	58	21' - 8"	1888	58	21' - 8"	1888
Slab Longitudinal Top, at Rail		6b8	8	25' - 11"	312	8	25' - 11"	312	8	25' - 11"	312	8	25' - 11"	312
Slab Longitudinal Top, at Rail		8b9	8	31' - 8"	677	8	31' - 8"	677	8	31' - 8"	677	8	31' - 8"	677
Slab Longitudinal Top, at Rail		8b10	8	23' - 3"	497	8	23' - 3"	497	8	23' - 3"	497	8	23' - 3"	497
Slab Transverse Bottom		6c1	77	26' - 4"	3046	77	27' - 3"	3152	67	26' - 4"	2651	57	26' - 4"	2255
Slab Transverse Bottom		6c2	77	23' - 3"	2689	77	24' - 1"	2786	69	23' - 3"	2410	61	23' - 3"	2131
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	77	27' - 9"	2229	77	28' - 7"	2296	67	27' - 9"	1940	57	27' - 9"	1650
Slab Transverse Top		5d2	77	24' - 2"	1941	77	24' - 2"	1941	69	24' - 2"	1740	61	24' - 2"	1538
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		7j1	152	8' - 3"	2564	152	8' - 3"	2564	146	8' - 3"	2462	144	8' - 3"	2429
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					49,835			50,189			50,690			51,420
Single-slope barrier rail - See Sheet J44-48-25.					3798			3798			3798			3798
Open barrier rail - See Sheet J44-52-25.					4427			4427			4427			4427
Epoxy Coated Rail Total - lbs. Monolithic Pier Cap	Single Slope Rail				53,633			53,987			54,488			55,218
	Open Rail				54,262			54,616			55,117			55,847
Epoxy Coated Rail Total - lbs. Non-Monolithic Pier Cap	Single Slope Rail				53,633			53,987			54,488			55,218
	Open Rail				54,262			54,616			55,117			55,847
Stainless Steel Rail Total - lbs. Non-Monolithic Pier Cap	Single Slope Rail				1826			1826			1826			1826
	Open Rail				1717			1717			1717			1717

Estimated Quantities for Superstructure - 80' Bridge Length

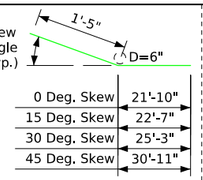
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	232.0	233.0	233.5	236.0	253.6	256.7	258.2	265.8
	Reinf. Steel Epoxy Coated	lbs.	55,175	55,649	56,167	56,916	55,175	55,649	56,167	56,916
	Δ Reinf. Stainless Steel	lbs.	2072	2072	2072	2072	2072	2072	2072	2072
Concrete single-slope barrier rail		lin. ft.	182.0	182.2	182.9	184.5	182.0	182.2	182.9	184.5
with Open rail	*Structural Concrete (Bridge)	c.y.	227.2	228.2	228.7	231.2	248.8	251.9	253.4	261.0
	Reinf. Steel Epoxy Coated	lbs.	55,804	56,278	56,796	57,545	55,804	56,278	56,796	57,545
	Δ Reinf. Stainless Steel	lbs.	1963	1963	1963	1963	1963	1963	1963	1963

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

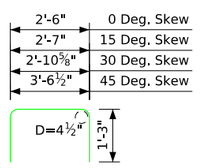
80'-0 Bridge-Bent Bar Details



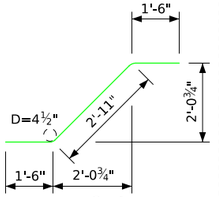
8e1



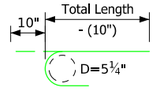
8e2



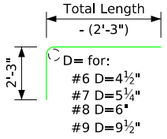
6e3



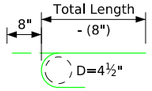
6e4



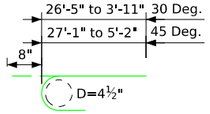
7j1



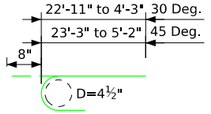
9b1, 7b4, 6b7, 6b8 and 8b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure
(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

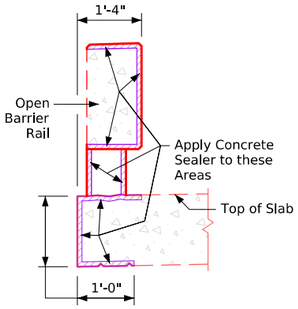
Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details 80'-0" Bridge Quantities

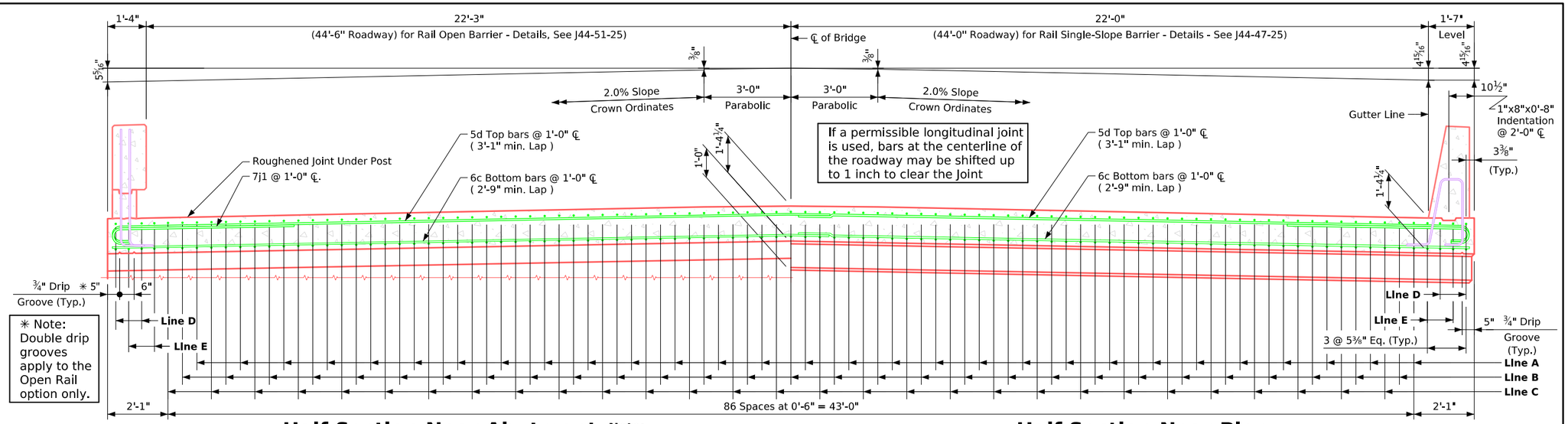
J44-05-25



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

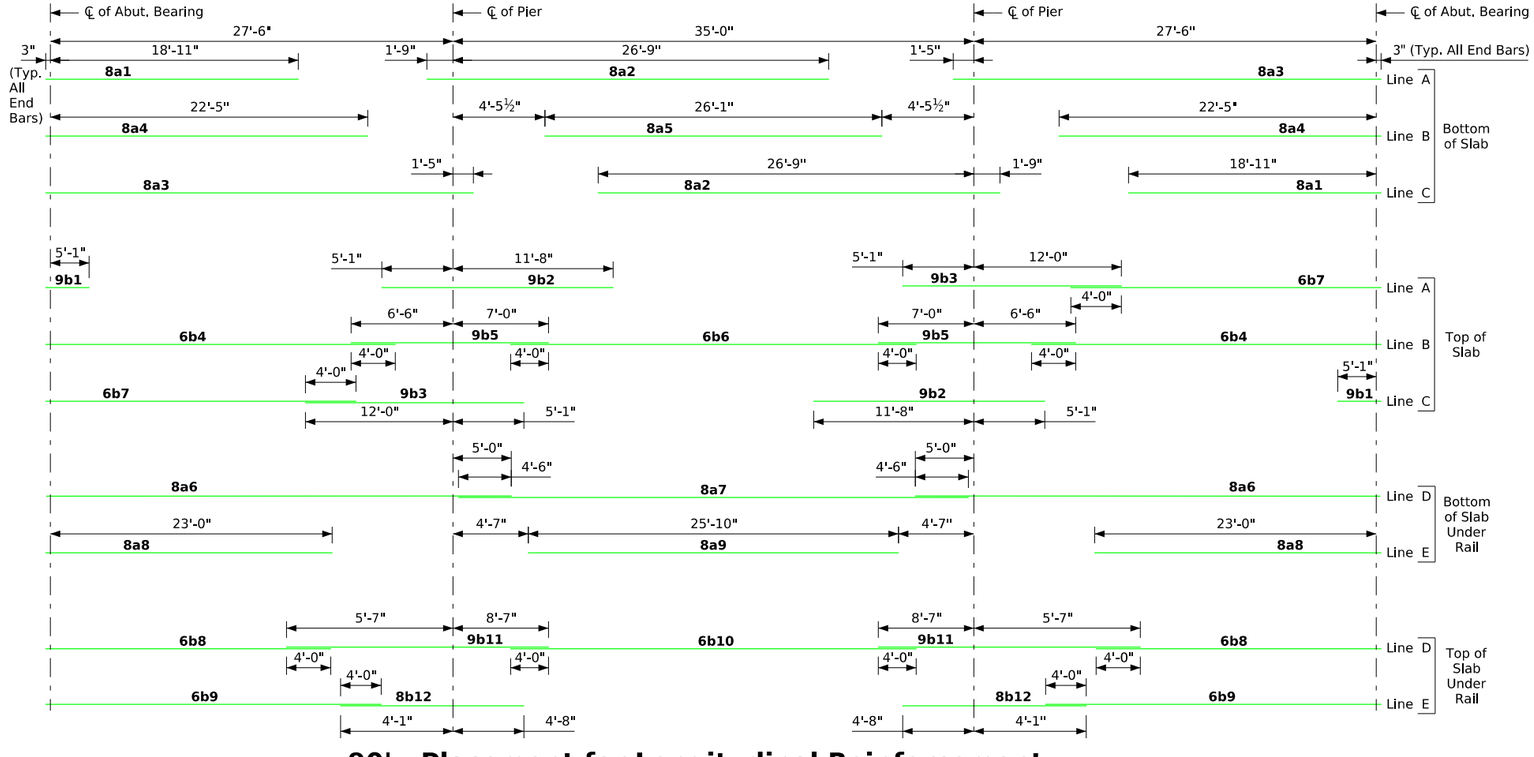
Slab cross-section area for barrier rail = 63.87 sq. ft.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

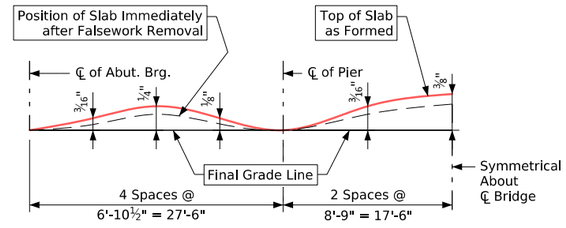
Half Section Near Pier

Slab cross-section area for barrier rail = 63.92 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



90' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details 90'-0" Bridge

J44-06-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

Reinforcing Steel for Superstructure - 90' Bridge

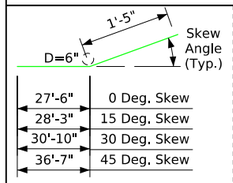
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		8a1	58	19' - 2"	2969	58	19' - 2"	2969	58	19' - 2"	2969	58	19' - 2"	2969
Slab Longitudinal Bottom		8a2	58	28' - 6"	4414	58	28' - 6"	4414	58	28' - 6"	4414	58	28' - 6"	4414
Slab Longitudinal Bottom		8a3	58	29' - 2"	4517	58	29' - 2"	4517	58	29' - 2"	4517	58	29' - 2"	4517
Slab Longitudinal Bottom		8a4	58	22' - 9"	3524	58	22' - 9"	3524	58	22' - 9"	3524	58	22' - 9"	3524
Slab Longitudinal Bottom		8a5	29	26' - 1"	2020	29	26' - 1"	2020	29	26' - 1"	2020	29	26' - 1"	2020
Slab Longitudinal Bottom, at Rail		8a6	8	32' - 9"	700	8	32' - 9"	700	8	32' - 9"	700	8	32' - 9"	700
Slab Longitudinal Bottom, at Rail		8a7	4	34' - 0"	364	4	34' - 0"	364	4	34' - 0"	364	4	34' - 0"	364
Slab Longitudinal Bottom, at Rail		8a8	8	23' - 3"	497	8	23' - 3"	497	8	23' - 3"	497	8	23' - 3"	497
Slab Longitudinal Bottom, at Rail		8a9	4	25' - 11"	277	4	25' - 11"	277	4	25' - 11"	277	4	25' - 11"	277
Slab Longitudinal Top		9b1	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496
Slab Longitudinal Top		9b2	58	16' - 9"	3304	58	16' - 9"	3304	58	16' - 9"	3304	58	16' - 9"	3304
Slab Longitudinal Top		9b3	58	17' - 1"	3369	58	17' - 1"	3369	58	17' - 1"	3369	58	17' - 1"	3369
Slab Longitudinal Top		6b4	58	27' - 6"	2396	58	27' - 6"	2396	58	27' - 6"	2396	58	27' - 6"	2396
Slab Longitudinal Top		9b5	58	13' - 6"	2663	58	13' - 6"	2663	58	13' - 6"	2663	58	13' - 6"	2663
Slab Longitudinal Top		6b6	29	29' - 0"	1264	29	29' - 0"	1264	29	29' - 0"	1264	29	29' - 0"	1264
Slab Longitudinal Top		6b7	58	22' - 0"	1917	58	22' - 0"	1917	58	22' - 0"	1917	58	22' - 0"	1917
Slab Longitudinal Top, at Rail		6b8	8	28' - 5"	342	8	28' - 5"	342	8	28' - 5"	342	8	28' - 5"	342
Slab Longitudinal Top, at Rail		6b9	8	29' - 11"	360	8	29' - 11"	360	8	29' - 11"	360	8	29' - 11"	360
Slab Longitudinal Top, at Rail		6b10	4	25' - 10"	156	4	25' - 10"	156	4	25' - 10"	156	4	25' - 10"	156
Slab Longitudinal Top, at Rail		9b11	8	14' - 2"	386	8	14' - 2"	386	8	14' - 2"	386	8	14' - 2"	386
Slab Longitudinal Top, at Rail		8b12	8	8' - 9"	187	8	8' - 9"	187	8	8' - 9"	187	8	8' - 9"	187
Slab Transverse Bottom		6c1	87	26' - 4"	3442	87	27' - 3"	3561	77	26' - 4"	3046	67	26' - 4"	2651
Slab Transverse Bottom		6c2	87	23' - 3"	3039	87	24' - 1"	3148	79	23' - 3"	2759	71	23' - 3"	2480
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	87	27' - 9"	2519	87	28' - 7"	2594	77	27' - 9"	2229	67	27' - 9"	1940
Slab Transverse Top		5d2	87	24' - 2"	2193	87	24' - 2"	2193	79	24' - 2"	1992	71	24' - 2"	1790
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		7j1	172	8' - 3"	2901	172	8' - 3"	2901	166	8' - 3"	2800	164	8' - 3"	2766
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					55,717			56,104			56,570			57,301
Single-slope barrier rail - See Sheet J44-48-25.					4134			4134			4134			4134
Open barrier rail - See Sheet J44-52-25.					4789			4789			4789			4789
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap, Single Slope Rail				59,851			60,238			60,704			61,435
	Monolithic Pier Cap, Open Rail				60,506			60,893			61,359			62,090
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap, Single Slope Rail				59,851			60,238			60,704			61,435
	Non-Monolithic Pier Cap, Open Rail				60,506			60,893			61,359			62,090
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap, Single Slope Rail				1867			1867			1867			1867
	Non-Monolithic Pier Cap, Open Rail				2020			2020			2020			2020

Estimated Quantities for Superstructure - 90' Bridge Length

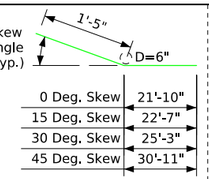
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	270.3	271.3	271.8	274.4	292.0	295.0	296.5	304.1
	Reinf. Steel Epoxy Coated	lbs.	61,430	61,937	62,420	63,170	61,430	61,937	62,420	63,170
	Δ Reinf. Stainless Steel	lbs.	2266	2266	2266	2266	2266	2266	2266	2266
Concrete single-slope barrier rail		lin. ft.	202.0	202.2	202.9	204.5	202.0	202.2	202.9	204.5
with Open rail	*Structural Concrete (Bridge)	c.y.	264.8	265.8	266.3	268.9	286.5	289.5	291.0	298.6
	Reinf. Steel Epoxy Coated	lbs.	62,085	62,592	63,075	63,825	62,085	62,592	63,075	63,825
	Δ Reinf. Stainless Steel	lbs.	2113	2113	2113	2113	2113	2113	2113	2113

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

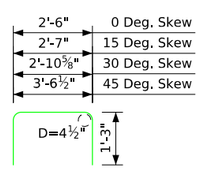
90'-0 Bridge-Bent Bar Details



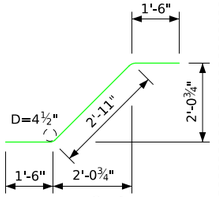
8e1



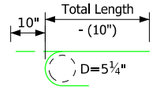
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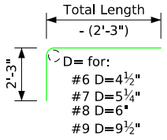
6e3



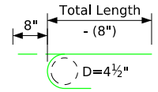
6e4



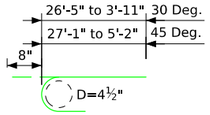
7j1



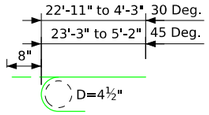
9b1, 6b4, 6b7, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

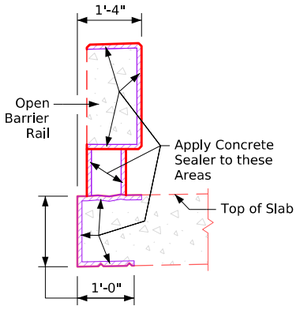
Continuous Concrete Slab Bridge

December, 2025

Superstructure Details 90'-0" Bridge Quantities

J44-07-25

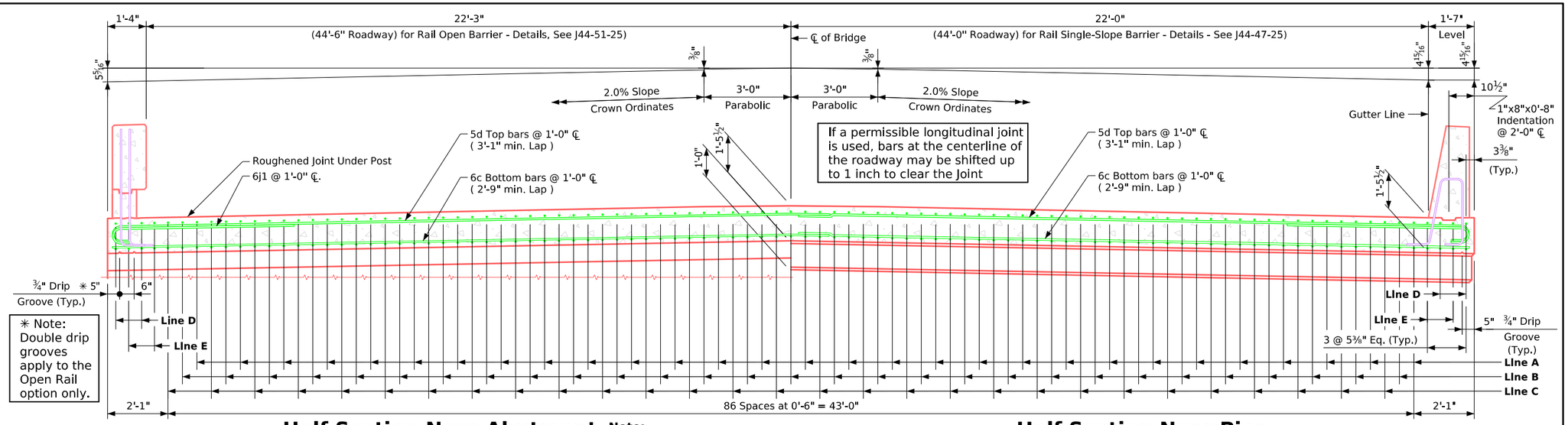
Revised 09-2026: Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Changed 6b4, 6b8, 6b9 bars (was 7b4, 8b8, 8b9).



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

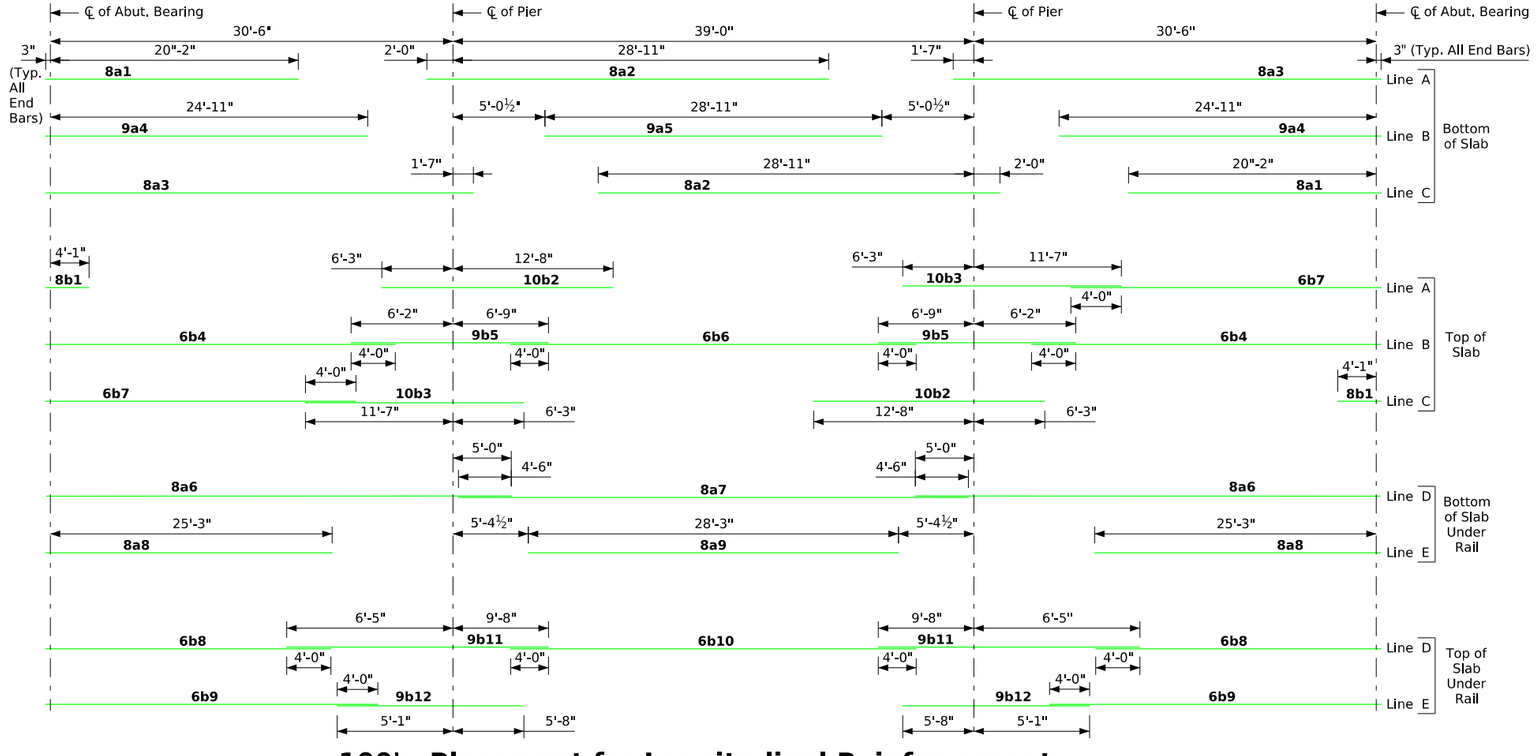
Slab cross-section area for barrier rail = 68.78 sq. ft.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

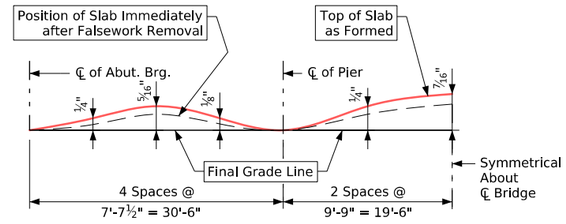
Half Section Near Pier

Slab cross-section area for barrier rail = 68.83 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



100' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
100'-0" Bridge

J44-08-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

Revised 09-2026: Updated Bridge Engineer signature. Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Changed 8b1, 6b4, 6b8, 6b9 bars (was 9b1, 7b4, 8b8, 8b9).

Reinforcing Steel for Superstructure - 100' Bridge

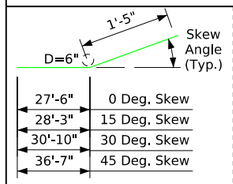
Location	Skew Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		8a1	58	20' - 5"	3162	58	20' - 5"	3162	58	20' - 5"	3162	58	20' - 5"	3162
Slab Longitudinal Bottom		8a2	58	30' - 11"	4788	58	30' - 11"	4788	58	30' - 11"	4788	58	30' - 11"	4788
Slab Longitudinal Bottom		8a3	58	32' - 4"	5008	58	32' - 4"	5008	58	32' - 4"	5008	58	32' - 4"	5008
Slab Longitudinal Bottom		9a4	58	25' - 2"	4963	58	25' - 2"	4963	58	25' - 2"	4963	58	25' - 2"	4963
Slab Longitudinal Bottom		9a5	29	28' - 11"	2852	29	28' - 11"	2852	29	28' - 11"	2852	29	28' - 11"	2852
Slab Longitudinal Bottom, at Rail		8a6	8	35' - 9"	764	8	35' - 9"	764	8	35' - 9"	764	8	35' - 9"	764
Slab Longitudinal Bottom, at Rail		8a7	4	38' - 0"	406	4	38' - 0"	406	4	38' - 0"	406	4	38' - 0"	406
Slab Longitudinal Bottom, at Rail		8a8	8	25' - 6"	545	8	25' - 6"	545	8	25' - 6"	545	8	25' - 6"	545
Slab Longitudinal Bottom, at Rail		8a9	4	28' - 4"	303	4	28' - 4"	303	4	28' - 4"	303	4	28' - 4"	303
Slab Longitudinal Top		8b1	58	6' - 7"	1020	58	6' - 7"	1020	58	6' - 7"	1020	58	6' - 7"	1020
Slab Longitudinal Top		10b2	58	18' - 10"	4701	58	18' - 10"	4701	58	18' - 10"	4701	58	18' - 10"	4701
Slab Longitudinal Top		10b3	58	17' - 10"	4451	58	17' - 10"	4451	58	17' - 10"	4451	58	17' - 10"	4451
Slab Longitudinal Top		6b4	58	30' - 10"	2687	58	30' - 10"	2687	58	30' - 10"	2687	58	30' - 10"	2687
Slab Longitudinal Top		9b5	58	12' - 11"	2548	58	12' - 11"	2548	58	12' - 11"	2548	58	12' - 11"	2548
Slab Longitudinal Top		6b6	29	33' - 6"	1460	29	33' - 6"	1460	29	33' - 6"	1460	29	33' - 6"	1460
Slab Longitudinal Top		6b7	58	25' - 5"	2215	58	25' - 5"	2215	58	25' - 5"	2215	58	25' - 5"	2215
Slab Longitudinal Top		6b8	8	30' - 7"	368	8	30' - 7"	368	8	30' - 7"	368	8	30' - 7"	368
Slab Longitudinal Top, at Rail		6b9	8	31' - 11"	384	8	31' - 11"	384	8	31' - 11"	384	8	31' - 11"	384
Slab Longitudinal Top, at Rail		6b10	4	27' - 8"	167	4	27' - 8"	167	4	27' - 8"	167	4	27' - 8"	167
Slab Transverse Bottom		9b11	8	16' - 1"	438	8	16' - 1"	438	8	16' - 1"	438	8	16' - 1"	438
Slab Transverse Bottom		9b12	8	10' - 9"	293	8	10' - 9"	293	8	10' - 9"	293	8	10' - 9"	293
Slab Transverse Bottom		6c1	97	26' - 4"	3837	97	27' - 3"	3971	87	26' - 4"	3442	77	26' - 4"	3046
Slab Transverse Bottom		6c2	97	23' - 3"	3388	97	24' - 1"	3509	89	23' - 3"	3109	81	23' - 3"	2829
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	97	27' - 9"	2808	97	28' - 7"	2892	87	27' - 9"	2519	77	27' - 9"	2229
Slab Transverse Top		5d2	97	24' - 2"	2445	97	24' - 2"	2445	89	24' - 2"	2244	81	24' - 2"	2042
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		6j1	192	7' - 7"	2187	192	7' - 7"	2187	186	7' - 7"	2119	184	7' - 7"	2096
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					62,689			63,112			63,578			64,317
Single-slope barrier rail - See Sheet J44-48-25.					4461			4461			4461			4461
Open barrier rail - See Sheet J44-52-25.					5151			5151			5151			5151
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap			Single Slope Rail	67,150			67,573			68,039			68,778
				Open Rail	67,840			68,263			68,729			69,468
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap			Single Slope Rail	67,150			67,573			68,039			68,778
				Open Rail	67,840			68,263			68,729			69,468
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap			Single Slope Rail	2221			2221			2221			2221
				Open Rail	2020			2020			2020			2020

Estimated Quantities for Superstructure - 100' Bridge Length

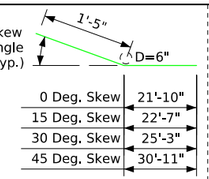
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	315.2	316.2	316.7	319.3	336.9	339.9	341.4	349.0
	Reinf. Steel Epoxy Coated	lbs.	68,418	68,961	69,444	70,202	68,418	68,961	69,444	70,202
	Δ Reinf. Stainless Steel	lbs.	2467	2467	2467	2467	2467	2467	2467	2467
Concrete single-slope barrier rail		lin. ft.	222.0	222.2	222.9	224.5	222.0	222.2	222.9	224.5
with Open rail	*Structural Concrete (Bridge)	c.y.	308.9	309.9	310.4	313.0	330.6	333.6	335.1	342.7
	Reinf. Steel Epoxy Coated	lbs.	69,108	69,651	70,134	70,892	69,108	69,651	70,134	70,892
	Δ Reinf. Stainless Steel	lbs.	2266	2266	2266	2266	2266	2266	2266	2266

* Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

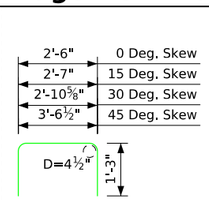
100'-0 Bridge-Bent Bar Details



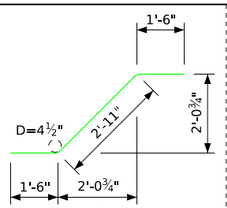
8e1



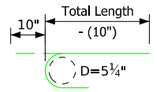
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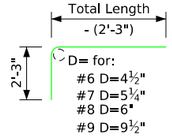
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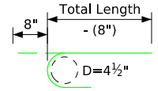
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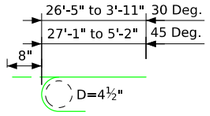
7j1



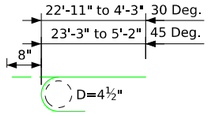
8b1, 6b4, 6b7, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

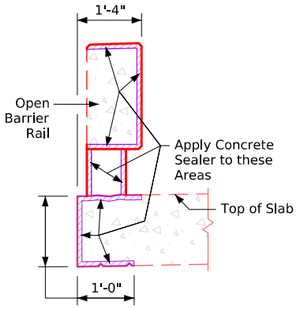
Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
100'-0" Bridge Quantities

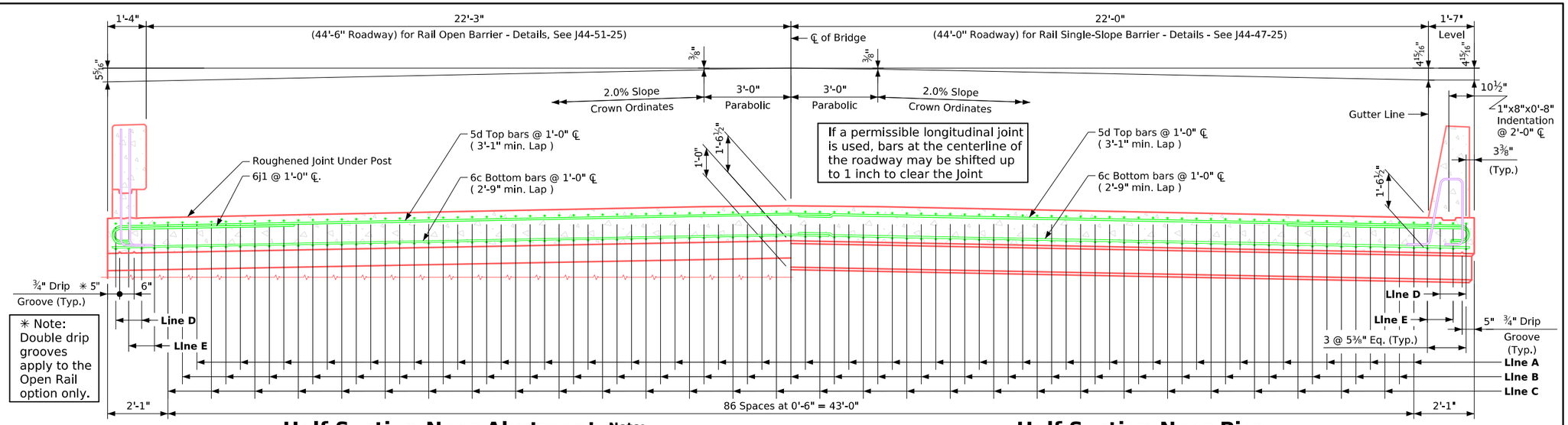
J44-09-25



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

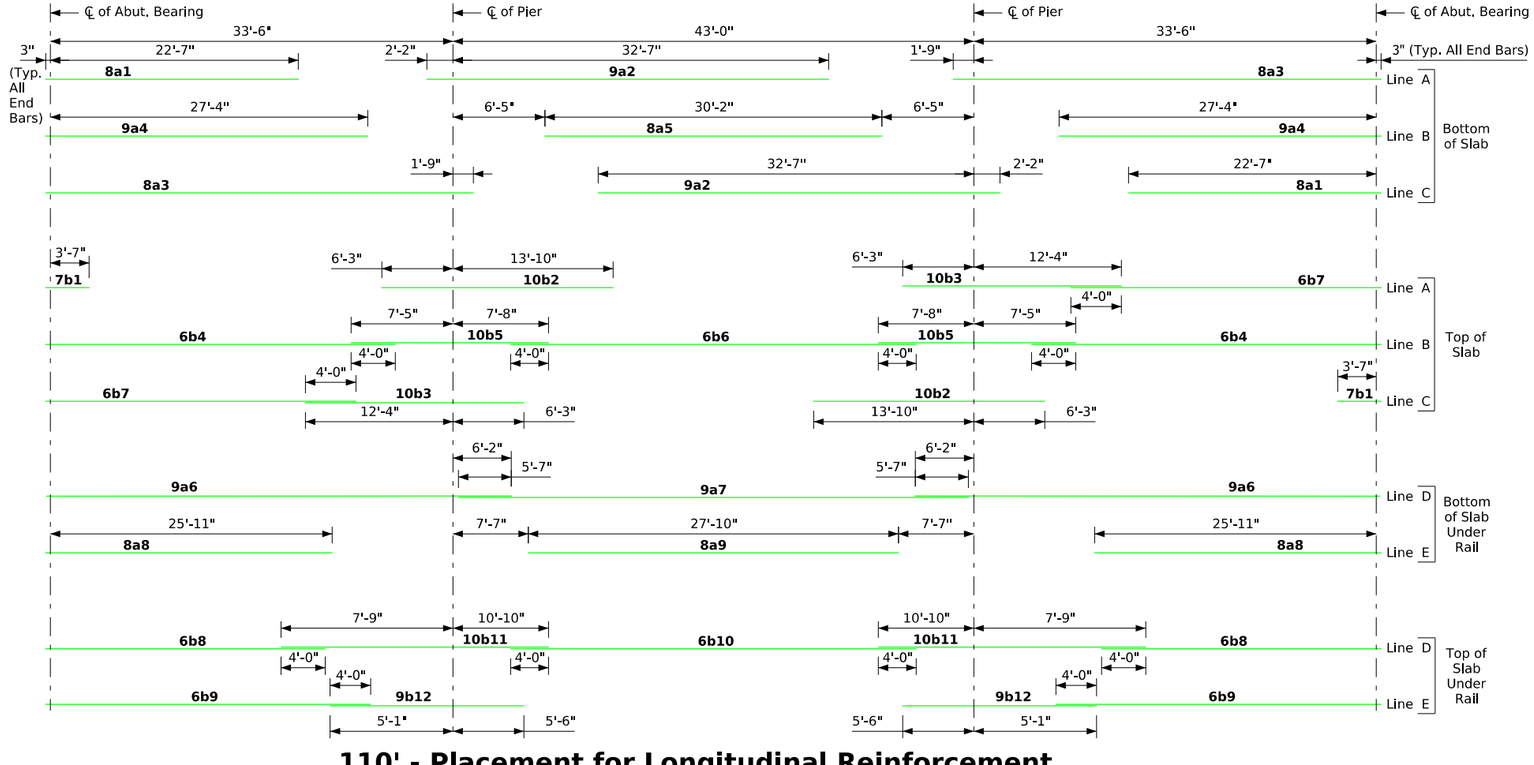
Slab cross-section area for barrier rail = 72.72 sq. ft.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

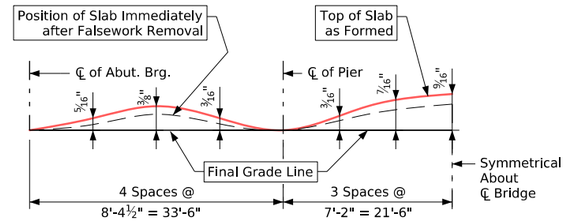
Half Section Near Pier

Slab cross-section area for barrier rail = 72.76 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



110' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
110'-0" Bridge

J44-10-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

Revised 09-2026: Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Changed 7b1, 6b4, 6b8, 6b9 bars (was 9b1, 7b4, 8b8, 8b9).

Reinforcing Steel for Superstructure - 110' Bridge

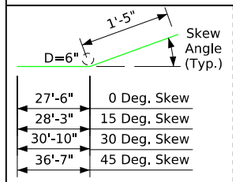
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		8a1	58	22' - 10"	3536	58	22' - 10"	3536	58	22' - 10"	3536	58	22' - 10"	3536
Slab Longitudinal Bottom		9a2	58	34' - 9"	6853	58	34' - 9"	6853	58	34' - 9"	6853	58	34' - 9"	6853
Slab Longitudinal Bottom		8a3	58	35' - 6"	5498	58	35' - 6"	5498	58	35' - 6"	5498	58	35' - 6"	5498
Slab Longitudinal Bottom		9a4	58	27' - 7"	5440	58	27' - 7"	5440	58	27' - 7"	5440	58	27' - 7"	5440
Slab Longitudinal Bottom		8a5	29	30' - 2"	2336	29	30' - 2"	2336	29	30' - 2"	2336	29	30' - 2"	2336
Slab Longitudinal Bottom, at Rail		9a6	8	39' - 11"	1086	8	39' - 11"	1086	8	39' - 11"	1086	8	39' - 11"	1086
Slab Longitudinal Bottom, at Rail		9a7	4	41' - 10"	569	4	41' - 10"	569	4	41' - 10"	569	4	41' - 10"	569
Slab Longitudinal Bottom, at Rail		8a8	8	26' - 3"	561	8	26' - 3"	561	8	26' - 3"	561	8	26' - 3"	561
Slab Longitudinal Bottom, at Rail		8a9	4	27' - 11"	299	4	27' - 11"	299	4	27' - 11"	299	4	27' - 11"	299
Slab Longitudinal Top		7b1	58	6' - 1"	722	58	6' - 1"	722	58	6' - 1"	722	58	6' - 1"	722
Slab Longitudinal Top		10b2	58	20' - 1"	5013	58	20' - 1"	5013	58	20' - 1"	5013	58	20' - 1"	5013
Slab Longitudinal Top		10b3	58	18' - 7"	4638	58	18' - 7"	4638	58	18' - 7"	4638	58	18' - 7"	4638
Slab Longitudinal Top		6b4	58	32' - 7"	2839	58	32' - 7"	2839	58	32' - 7"	2839	58	32' - 7"	2839
Slab Longitudinal Top		10b5	58	15' - 1"	3765	58	15' - 1"	3765	58	15' - 1"	3765	58	15' - 1"	3765
Slab Longitudinal Top		6b6	29	35' - 8"	1554	29	35' - 8"	1554	29	35' - 8"	1554	29	35' - 8"	1554
Slab Longitudinal Top		6b7	58	27' - 8"	2411	58	27' - 8"	2411	58	27' - 8"	2411	58	27' - 8"	2411
Slab Longitudinal Top, at Rail		6b8	8	32' - 3"	388	8	32' - 3"	388	8	32' - 3"	388	8	32' - 3"	388
Slab Longitudinal Top, at Rail		6b9	8	34' - 11"	420	8	34' - 11"	420	8	34' - 11"	420	8	34' - 11"	420
Slab Longitudinal Top, at Rail		6b10	4	29' - 2"	176	4	29' - 2"	176	4	29' - 2"	176	4	29' - 2"	176
Slab Longitudinal Top, at Rail		10b11	8	18' - 8"	643	8	18' - 8"	643	8	18' - 8"	643	8	18' - 8"	643
Slab Longitudinal Top, at Rail		9b12	8	10' - 7"	288	8	10' - 7"	288	8	10' - 7"	288	8	10' - 7"	288
Slab Transverse Bottom		6c1	107	26' - 4"	4233	107	27' - 3"	4380	97	26' - 4"	3837	87	26' - 4"	3442
Slab Transverse Bottom		6c2	107	23' - 3"	3737	107	24' - 1"	3871	99	23' - 3"	3458	91	23' - 3"	3178
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	107	27' - 9"	3097	107	28' - 7"	3190	97	27' - 9"	2808	87	27' - 9"	2519
Slab Transverse Top		5d2	107	24' - 2"	2698	107	24' - 2"	2698	99	24' - 2"	2496	91	24' - 2"	2294
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		6j1	212	7' - 7"	2415	212	7' - 7"	2415	206	7' - 7"	2347	204	7' - 7"	2324
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					69,716			70,174			70,603			71,344
Single-slope barrier rail - See Sheet J44-48-25.					4787			4787			4787			4787
Open barrier rail - See Sheet J44-52-25.					5607			5607			5607			5607
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap, Single Slope Rail				74,503			74,961			75,390			76,131
	Monolithic Pier Cap, Open Rail				75,323			75,781			76,210			76,951
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap, Single Slope Rail				74,503			74,961			75,390			76,131
	Non-Monolithic Pier Cap, Open Rail				75,323			75,781			76,210			76,951
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap, Single Slope Rail				2416			2416			2416			2416
	Non-Monolithic Pier Cap, Open Rail				2178			2178			2178			2178

Estimated Quantities for Superstructure - 110' Bridge Length

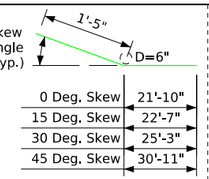
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	359.8	360.8	361.3	363.8	381.4	384.4	385.9	393.6
	Reinf. Steel Epoxy Coated	lbs.	75,172	75,750	76,196	76,956	75,172	75,750	76,196	76,956
	Δ Reinf. Stainless Steel	lbs.	2662	2662	2662	2662	2662	2662	2662	2662
Concrete single-slope barrier rail		lin. ft.	242.0	242.2	242.9	244.5	242.0	242.2	242.9	244.5
with Open rail	*Structural Concrete (Bridge)	c.y.	352.7	353.7	354.2	356.7	374.3	377.3	378.8	386.5
	Reinf. Steel Epoxy Coated	lbs.	75,992	76,570	77,016	77,776	75,992	76,570	77,016	77,776
	Δ Reinf. Stainless Steel	lbs.	2424	2424	2424	2424	2424	2424	2424	2424

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

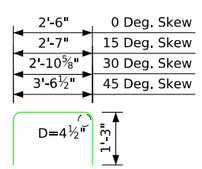
110'-0 Bridge-Bent Bar Details



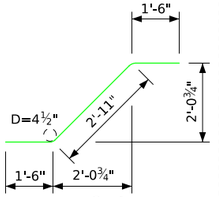
8e1



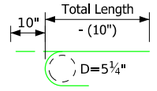
8e2



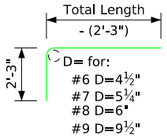
6e3



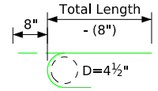
6e4



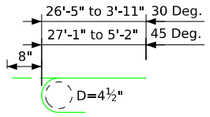
7j1



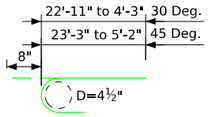
7b1, 6b4, 6b7, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

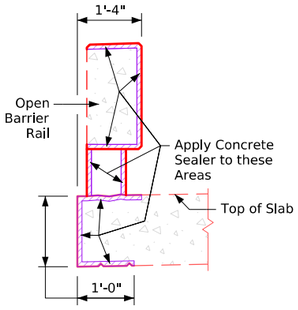
Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
110'-0" Bridge Quantities

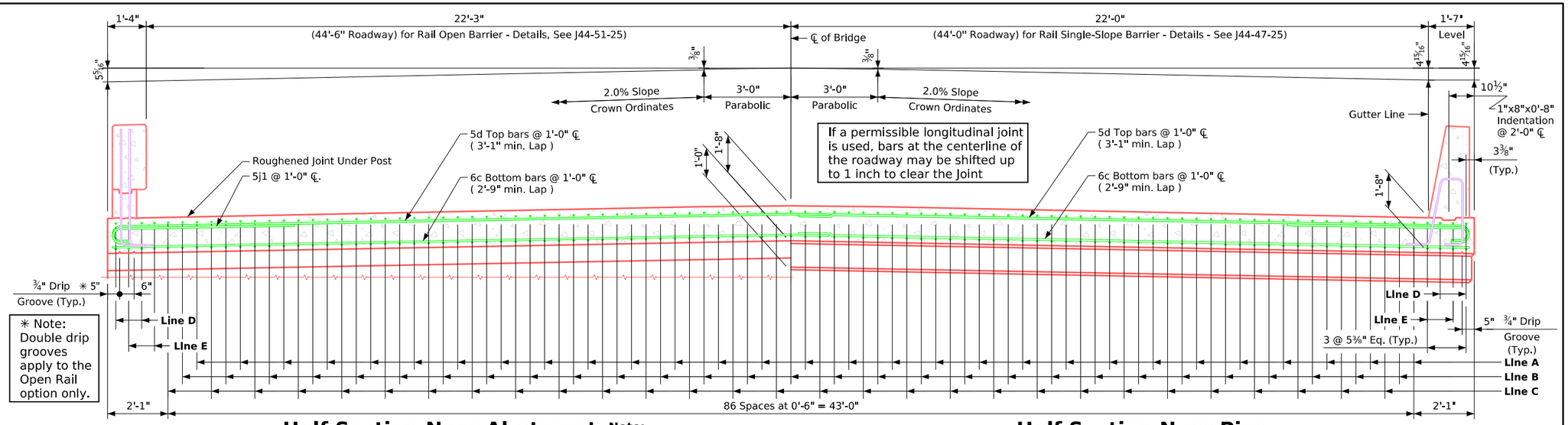
J44-11-25



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



✳ Note: Double drip grooves apply to the Open Rail option only.

If a permissible longitudinal joint is used, bars at the centerline of the roadway may be shifted up to 1 inch to clear the Joint

Half Section Near Abutment

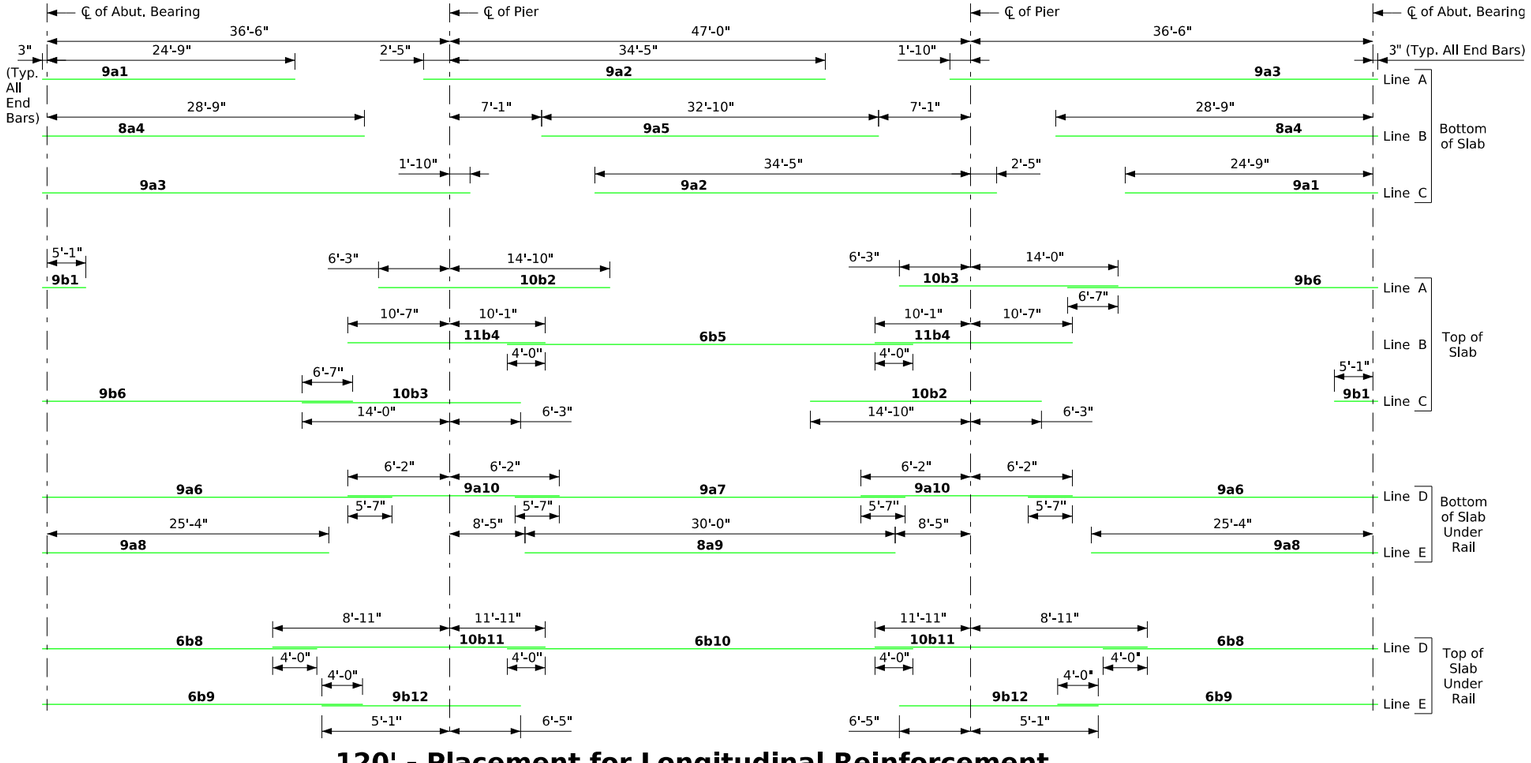
Slab cross-section area for barrier rail = 78.61 sq. ft.

Half Section Near Pier

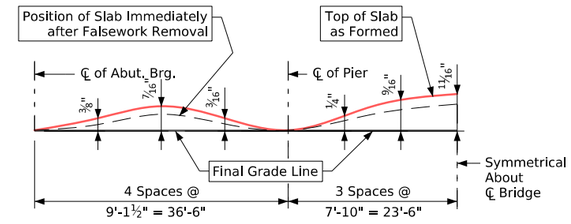
Slab cross-section area for barrier rail = 78.66 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.



120' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
120'-0" Bridge

J44-12-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

Revised 09-2026: Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Removed 7b4 bar mark in bent bar in details. Changed 9b6, 6b8, 6b9 bars (was 6b7, 8b8, 8b9).

Reinforcing Steel for Superstructure - 120' Bridge

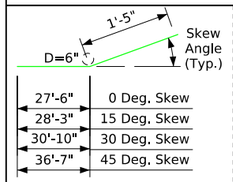
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		9a1	58	25' - 0"	4931	58	25' - 0"	4931	58	25' - 0"	4931	58	25' - 0"	4931
Slab Longitudinal Bottom		9a2	58	36' - 10"	7264	58	36' - 10"	7264	58	36' - 10"	7264	58	36' - 10"	7264
Slab Longitudinal Bottom		9a3	58	38' - 7"	7609	58	38' - 7"	7609	58	38' - 7"	7609	58	38' - 7"	7609
Slab Longitudinal Bottom		8a4	58	29' - 0"	4491	58	29' - 0"	4491	58	29' - 0"	4491	58	29' - 0"	4491
Slab Longitudinal Bottom		9a5	29	32' - 10"	3238	29	32' - 10"	3238	29	32' - 10"	3238	29	32' - 10"	3238
Slab Longitudinal Bottom, at Rail		9a6	8	36' - 2"	984	8	36' - 2"	984	8	36' - 2"	984	8	36' - 2"	984
Slab Longitudinal Bottom, at Rail		9a7	4	45' - 10"	624	4	45' - 10"	624	4	45' - 10"	624	4	45' - 10"	624
Slab Longitudinal Bottom, at Rail		9a8	8	25' - 7"	696	8	25' - 7"	696	8	25' - 7"	696	8	25' - 7"	696
Slab Longitudinal Bottom, at Rail		8a9	4	30' - 2"	323	4	30' - 2"	323	4	30' - 2"	323	4	30' - 2"	323
Slab Longitudinal Bottom, at Rail		9a10	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336
Slab Longitudinal Top		9b1	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496
Slab Longitudinal Top		10b2	58	21' - 1"	5262	58	21' - 1"	5262	58	21' - 1"	5262	58	21' - 1"	5262
Slab Longitudinal Top		10b3	58	20' - 3"	5054	58	20' - 3"	5054	58	20' - 3"	5054	58	20' - 3"	5054
Slab Longitudinal Top		11b4	58	20' - 8"	6369	58	20' - 8"	6369	58	20' - 8"	6369	58	20' - 8"	6369
Slab Longitudinal Top		6b5	29	34' - 10"	1518	29	34' - 10"	1518	29	34' - 10"	1518	29	34' - 10"	1518
Slab Longitudinal Top		9b6	58	31' - 7"	6229	58	31' - 7"	6229	58	31' - 7"	6229	58	31' - 7"	6229
Slab Longitudinal Top, at Rail		6b8	8	34' - 1"	410	8	34' - 1"	410	8	34' - 1"	410	8	34' - 1"	410
Slab Longitudinal Top, at Rail		6b9	8	37' - 11"	456	8	37' - 11"	456	8	37' - 11"	456	8	37' - 11"	456
Slab Longitudinal Top, at Rail		6b10	4	31' - 0"	187	4	31' - 0"	187	4	31' - 0"	187	4	31' - 0"	187
Slab Longitudinal Top, at Rail		10b11	8	20' - 11"	721	8	20' - 11"	721	8	20' - 11"	721	8	20' - 11"	721
Slab Longitudinal Top, at Rail		9b12	8	11' - 6"	313	8	11' - 6"	313	8	11' - 6"	313	8	11' - 6"	313
Slab Transverse Bottom		6c1	117	26' - 4"	4628	117	27' - 3"	4789	107	26' - 4"	4233	97	26' - 4"	3837
Slab Transverse Bottom		6c2	117	23' - 3"	4086	117	24' - 1"	4233	109	23' - 3"	3807	101	23' - 3"	3528
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	117	27' - 9"	3387	117	28' - 7"	3489	107	27' - 9"	3097	97	27' - 9"	2808
Slab Transverse Top		5d2	117	24' - 2"	2950	117	24' - 2"	2950	109	24' - 2"	2748	101	24' - 2"	2546
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		5j1	232	6' - 9"	1634	232	6' - 9"	1634	226	6' - 9"	1592	224	6' - 9"	1578
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					79,697			80,191			80,610			81,360
Single-slope barrier rail - See Sheet J44-48-25.					5108			5108			5108			5108
Open barrier rail - See Sheet J44-52-25.					5967			5967			5967			5967
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap			Single Slope Rail	84,805			85,299			85,718			86,468
				Open Rail	85,664			86,158			86,577			87,327
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap			Single Slope Rail	84,805			85,299			85,718			86,468
				Open Rail	85,664			86,158			86,577			87,327
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap			Single Slope Rail	2640			2640			2640			2640
				Open Rail	2371			2371			2371			2371

Estimated Quantities for Superstructure - 120' Bridge Length

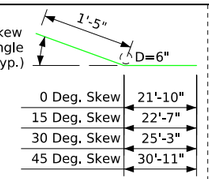
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	416.0	417.0	417.5	420.1	437.7	440.7	442.2	449.8
	Reinf. Steel Epoxy Coated	lbs.	84,797	85,411	85,718	86,428	84,797	85,411	85,718	86,428
	Δ Reinf. Stainless Steel	lbs.	2886	2886	2886	2886	2886	2886	2886	2886
Concrete single-slope barrier rail		lin. ft.	262.0	262.2	262.9	264.5	262.0	262.2	262.9	264.5
with Open rail	*Structural Concrete (Bridge)	c.y.	408.2	409.2	409.7	412.3	429.9	432.9	434.4	442.0
	Reinf. Steel Epoxy Coated	lbs.	85,656	86,270	86,577	87,287	85,656	86,270	86,577	87,287
	Δ Reinf. Stainless Steel	lbs.	2617	2617	2617	2617	2617	2617	2617	2617

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

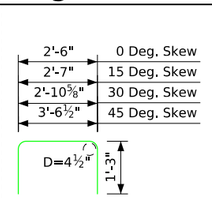
120'-0 Bridge-Bent Bar Details



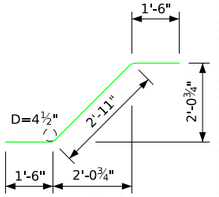
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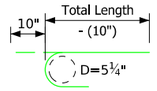
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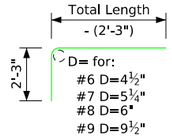
6e3



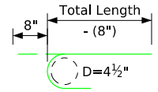
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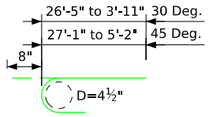
7j1



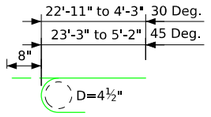
9b1, 9b6, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

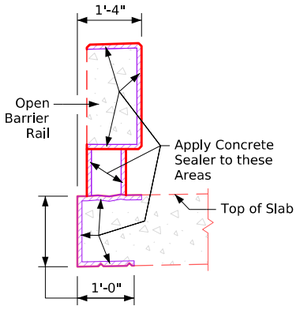
Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
120'-0" Bridge Quantities

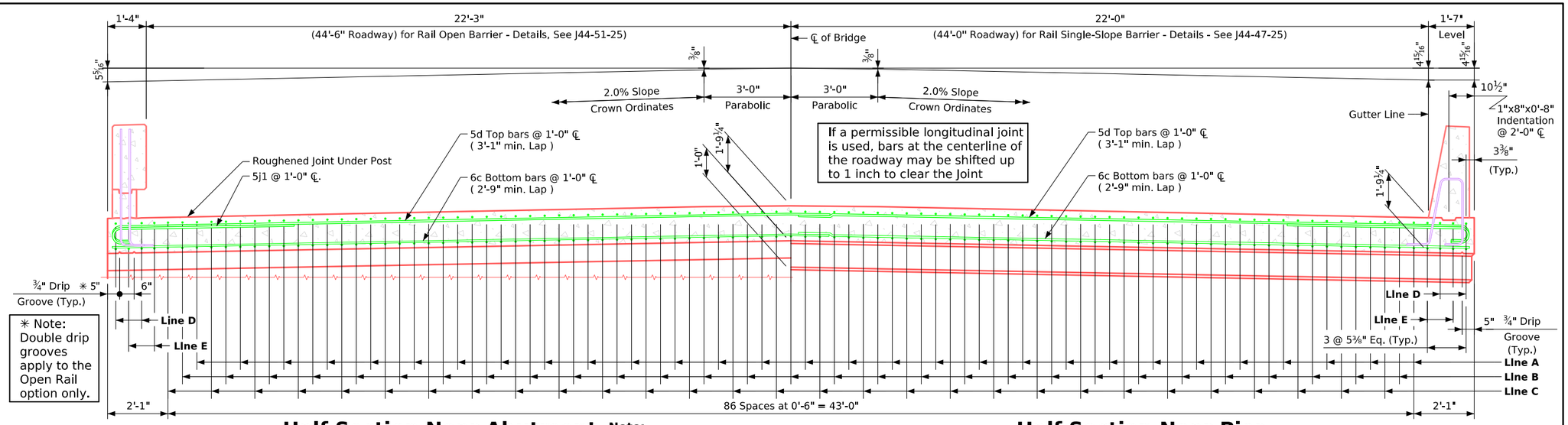
J44-13-25



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



✳ Note: Double drip grooves apply to the Open Rail option only.

Half Section Near Abutment

Slab cross-section area for barrier rail = 83.52 sq. ft.

Note:

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

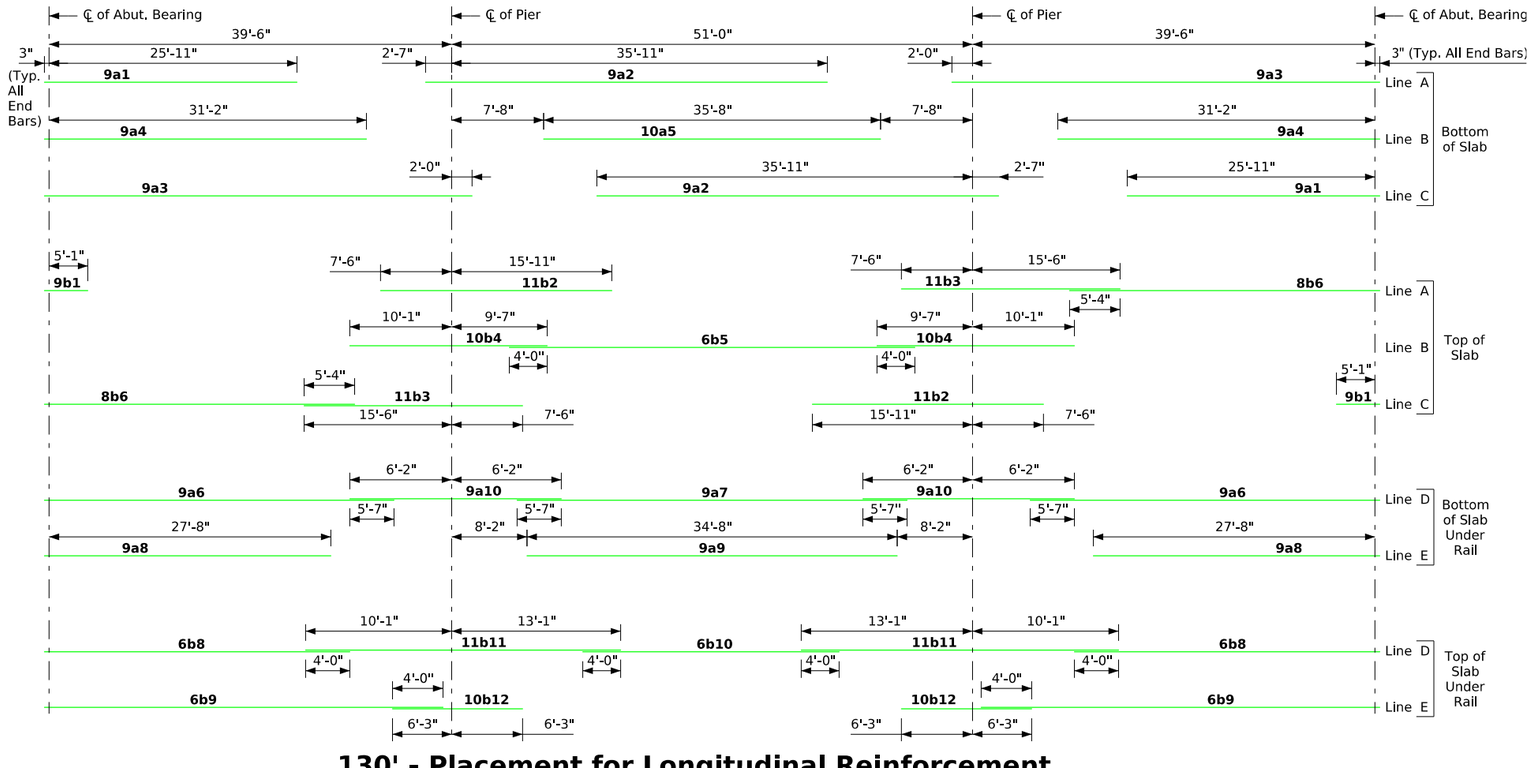
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab

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

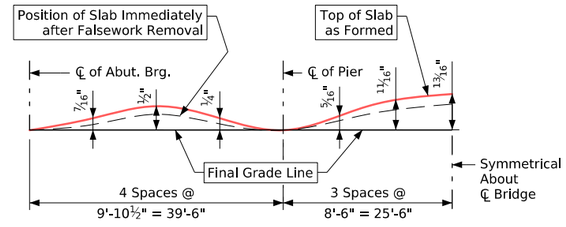
Half Section Near Pier

Slab cross-section area for barrier rail = 83.57 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



130' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
130'-0" Bridge

J44-14-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.

Revised 09-2026: Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Removed 6b7 bar mark in bent bar in details. Changed 8b4, 6b8, 6b9 bars (was 7b4, 8b8, 8b9).

Reinforcing Steel for Superstructure - 130' Bridge

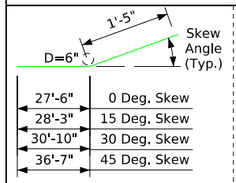
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		9a1	58	26' - 2"	5161	58	26' - 2"	5161	58	26' - 2"	5161	58	26' - 2"	5161
Slab Longitudinal Bottom		9a2	58	38' - 7"	7609	58	38' - 7"	7609	58	38' - 7"	7609	58	38' - 7"	7609
Slab Longitudinal Bottom		9a3	58	41' - 9"	8234	58	41' - 9"	8234	58	41' - 9"	8234	58	41' - 9"	8234
Slab Longitudinal Bottom		9a4	58	31' - 5"	6196	58	31' - 5"	6196	58	31' - 5"	6196	58	31' - 5"	6196
Slab Longitudinal Bottom		10a5	29	35' - 8"	4451	29	35' - 8"	4451	29	35' - 8"	4451	29	35' - 8"	4451
Slab Longitudinal Bottom, at Rail		9a6	8	39' - 2"	1066	8	39' - 2"	1066	8	39' - 2"	1066	8	39' - 2"	1066
Slab Longitudinal Bottom, at Rail		9a7	4	49' - 10"	678	4	49' - 10"	678	4	49' - 10"	678	4	49' - 10"	678
Slab Longitudinal Bottom, at Rail		9a8	8	28' - 0"	762	8	28' - 0"	762	8	28' - 0"	762	8	28' - 0"	762
Slab Longitudinal Bottom, at Rail		9a9	4	34' - 9"	473	4	34' - 9"	473	4	34' - 9"	473	4	34' - 9"	473
Slab Longitudinal Top		9a10	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336
Slab Longitudinal Top		9b1	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496	58	7' - 7"	1496
Slab Longitudinal Top		11b2	58	23' - 5"	7216	58	23' - 5"	7216	58	23' - 5"	7216	58	23' - 5"	7216
Slab Longitudinal Top		11b3	58	23' - 0"	7088	58	23' - 0"	7088	58	23' - 0"	7088	58	23' - 0"	7088
Slab Longitudinal Top		10b4	58	19' - 8"	4909	58	19' - 8"	4909	58	19' - 8"	4909	58	19' - 8"	4909
Slab Longitudinal Top		6b5	29	39' - 10"	1736	29	39' - 10"	1736	29	39' - 10"	1736	29	39' - 10"	1736
Slab Longitudinal Top		8b6	58	31' - 10"	4930	58	31' - 10"	4930	58	31' - 10"	4930	58	31' - 10"	4930
Slab Longitudinal Top, at Rail		6b8	8	35' - 11"	432	8	35' - 11"	432	8	35' - 11"	432	8	35' - 11"	432
Slab Longitudinal Top, at Rail		6b9	8	39' - 9"	478	8	39' - 9"	478	8	39' - 9"	478	8	39' - 9"	478
Slab Longitudinal Top, at Rail		6b10	4	32' - 8"	197	4	32' - 8"	197	4	32' - 8"	197	4	32' - 8"	197
Slab Longitudinal Top, at Rail		11b11	8	23' - 3"	989	8	23' - 3"	989	8	23' - 3"	989	8	23' - 3"	989
Slab Longitudinal Top, at Rail		10b12	8	12' - 6"	431	8	12' - 6"	431	8	12' - 6"	431	8	12' - 6"	431
Slab Transverse Bottom		6c1	127	26' - 4"	5024	127	27' - 3"	5199	117	26' - 4"	4628	107	26' - 4"	4233
Slab Transverse Bottom		6c2	127	23' - 3"	4436	127	24' - 1"	4594	119	23' - 3"	4156	111	23' - 3"	3877
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	127	27' - 9"	3676	127	28' - 7"	3787	117	27' - 9"	3387	107	27' - 9"	3097
Slab Transverse Top		5d2	127	24' - 2"	3202	127	24' - 2"	3202	119	24' - 2"	3000	111	24' - 2"	2798
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		5j1	252	6' - 9"	1775	252	8' - 6"	2235	246	8' - 6"	2181	244	8' - 6"	2164
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					87,482			88,470			88,842			89,589
Single-slope barrier rail - See Sheet J44-48-25.					5429			5429			5429			5429
Open barrier rail - See Sheet J44-52-25.					6331			6331			6331			6331
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap, Single Slope Rail				92,911			93,899			94,271			95,018
	Monolithic Pier Cap, Open Rail				93,813			94,801			95,173			95,920
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap, Single Slope Rail				92,911			93,899			94,271			95,018
	Non-Monolithic Pier Cap, Open Rail				93,813			94,801			95,173			95,920
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap, Single Slope Rail				2855			2855			2855			2855
	Non-Monolithic Pier Cap, Open Rail				2539			2539			2539			2539

Estimated Quantities for Superstructure - 130' Bridge Length

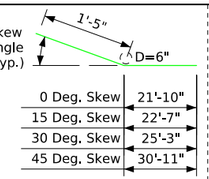
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	471.7	472.7	473.3	475.8	493.4	496.4	497.9	505.5
	Reinf. Steel Epoxy Coated	lbs.	92,903	94,011	94,272	94,977	92,903	94,011	94,272	94,977
	Δ Reinf. Stainless Steel	lbs.	3101	3101	3101	3101	3101	3101	3101	3101
Concrete single-slope barrier rail		lin. ft.	282.0	282.2	282.9	284.5	282.0	282.2	282.9	284.5
with Open rail	*Structural Concrete (Bridge)	c.y.	463.2	464.2	464.8	467.3	484.9	487.9	489.4	497.0
	Reinf. Steel Epoxy Coated	lbs.	93,805	94,913	95,174	95,879	93,805	94,913	95,174	95,879
	Δ Reinf. Stainless Steel	lbs.	2785	2785	2785	2785	2785	2785	2785	2785

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

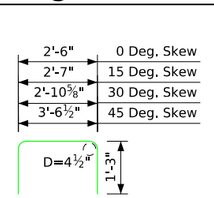
130'-0 Bridge-Bent Bar Details



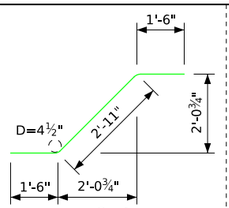
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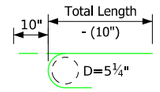
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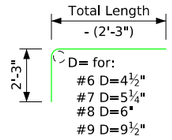
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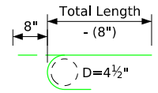
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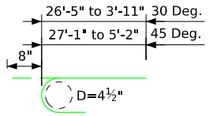
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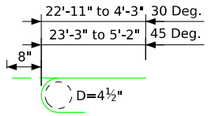
9b1, 8b6, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

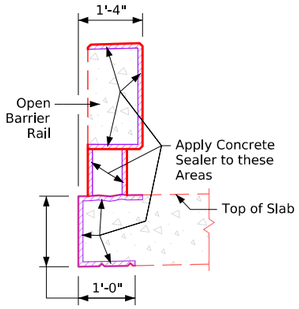
Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
130'-0" Bridge Quantities

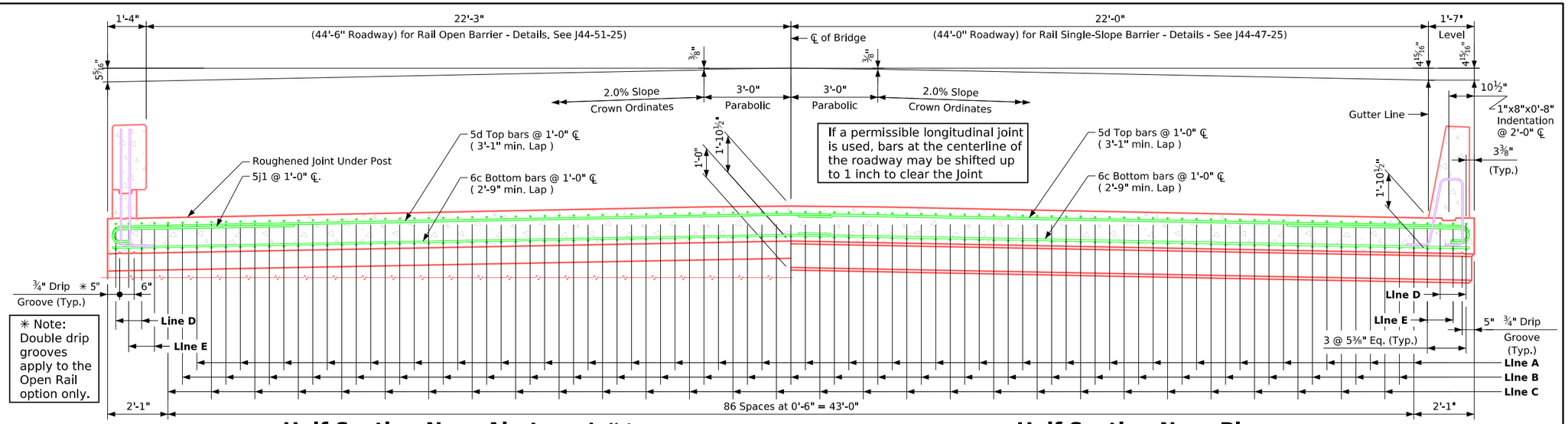
J44-15-25



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

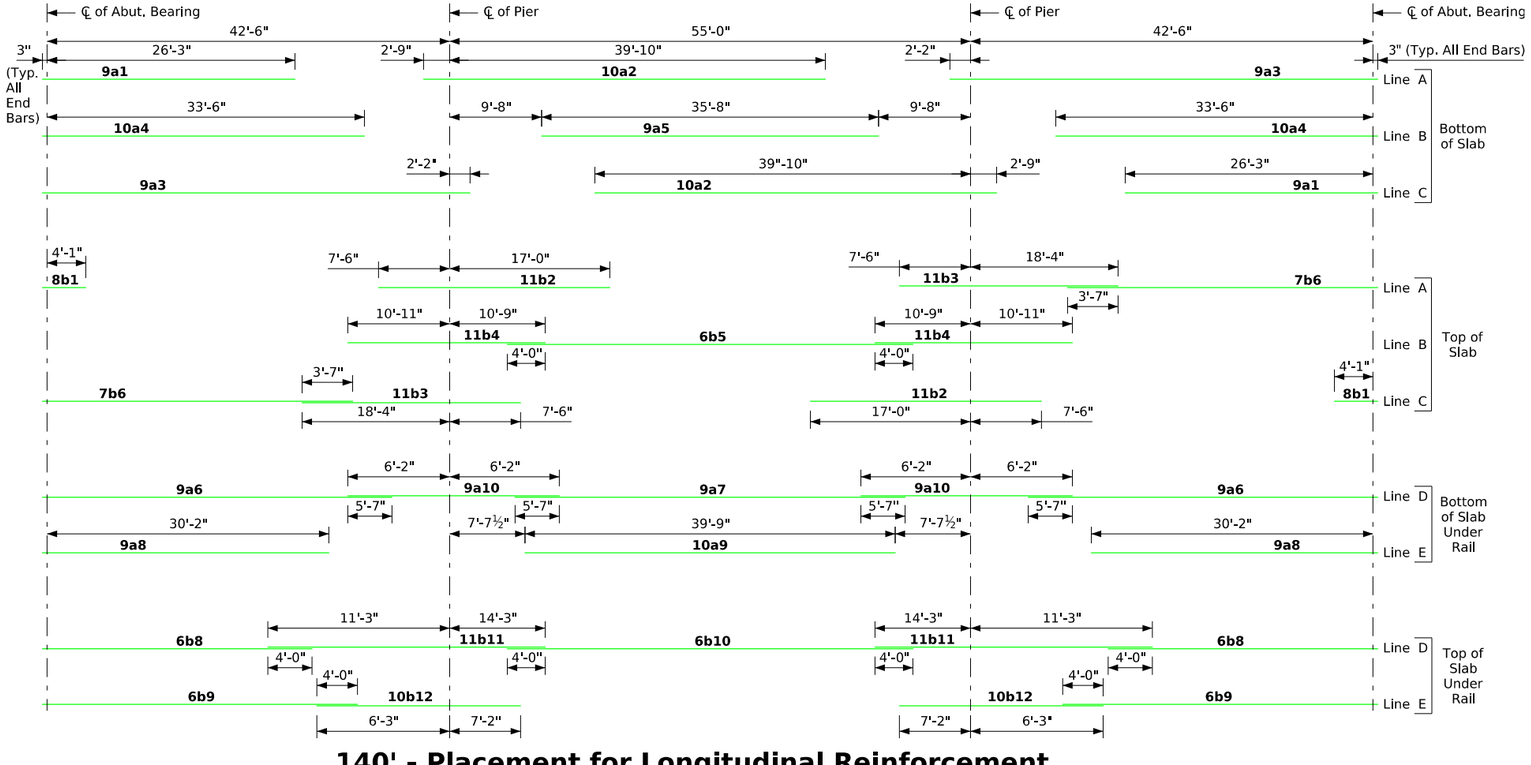
Slab cross-section area for barrier rail = 88.44 sq. ft.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

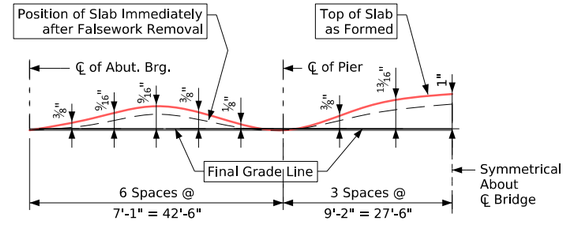
Half Section Near Pier

Slab cross-section area for barrier rail = 88.49 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



140' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
140'-0" Bridge

J44-16-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note.
Corrected typo on "140'-Placement for Longitudinal Reinforcement" (was incorrectly showing 144').

Reinforcing Steel for Superstructure - 140' Bridge

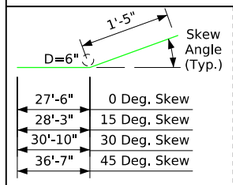
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		9a1	58	26' - 6"	5226	58	26' - 6"	5226	58	26' - 6"	5226	58	26' - 6"	5226
Slab Longitudinal Bottom		10a2	58	42' - 7"	10,628	58	42' - 7"	10,628	58	42' - 7"	10,628	58	42' - 7"	10,628
Slab Longitudinal Bottom		9a3	58	44' - 11"	8858	58	44' - 11"	8858	58	44' - 11"	8858	58	44' - 11"	8858
Slab Longitudinal Bottom		10a4	58	33' - 9"	8424	58	33' - 9"	8424	58	33' - 9"	8424	58	33' - 9"	8424
Slab Longitudinal Bottom		9a5	29	35' - 9"	3525	29	35' - 9"	3525	29	35' - 9"	3525	29	35' - 9"	3525
Slab Longitudinal Bottom, at Rail		9a6	8	42' - 2"	1147	8	42' - 2"	1147	8	42' - 2"	1147	8	42' - 2"	1147
Slab Longitudinal Bottom, at Rail		9a7	4	53' - 10"	733	4	53' - 10"	733	4	53' - 10"	733	4	53' - 10"	733
Slab Longitudinal Bottom, at Rail		9a8	8	30' - 5"	828	8	30' - 5"	828	8	30' - 5"	828	8	30' - 5"	828
Slab Longitudinal Bottom, at Rail		10a9	4	39' - 10"	686	4	39' - 10"	686	4	39' - 10"	686	4	39' - 10"	686
Slab Longitudinal Bottom, at Rail		9a10	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336
Slab Longitudinal Top		8b1	58	6' - 7"	1020	58	6' - 7"	1020	58	6' - 7"	1020	58	6' - 7"	1020
Slab Longitudinal Top		11b2	58	24' - 6"	7550	58	24' - 6"	7550	58	24' - 6"	7550	58	24' - 6"	7550
Slab Longitudinal Top		11b3	58	25' - 10"	7961	58	25' - 10"	7961	58	25' - 10"	7961	58	25' - 10"	7961
Slab Longitudinal Top		11b4	58	21' - 8"	6677	58	21' - 8"	6677	58	21' - 8"	6677	58	21' - 8"	6677
Slab Longitudinal Top		6b5	29	41' - 6"	1808	29	41' - 6"	1808	29	41' - 6"	1808	29	41' - 6"	1808
Slab Longitudinal Top, at Rail		7b6	58	30' - 3"	3587	58	30' - 3"	3587	58	30' - 3"	3587	58	30' - 3"	3587
Slab Longitudinal Top, at Rail		6b8	8	37' - 9"	454	8	37' - 9"	454	8	37' - 9"	454	8	37' - 9"	454
Slab Longitudinal Top, at Rail		6b9	8	42' - 9"	514	8	42' - 9"	514	8	42' - 9"	514	8	42' - 9"	514
Slab Longitudinal Top, at Rail		6b10	4	34' - 6"	208	4	34' - 6"	208	4	34' - 6"	208	4	34' - 6"	208
Slab Longitudinal Top, at Rail		11b11	8	25' - 6"	1084	8	25' - 6"	1084	8	25' - 6"	1084	8	25' - 6"	1084
Slab Longitudinal Top, at Rail		10b12	8	13' - 6"	465	8	13' - 6"	465	8	13' - 6"	465	8	13' - 6"	465
Slab Transverse Bottom		6c1	137	26' - 4"	5419	137	27' - 3"	5608	127	26' - 4"	5024	117	26' - 4"	4628
Slab Transverse Bottom		6c2	137	23' - 3"	4785	137	24' - 1"	4956	129	23' - 3"	4505	121	23' - 3"	4226
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	137	27' - 9"	3966	137	28' - 7"	4085	127	27' - 9"	3676	117	27' - 9"	3387
Slab Transverse Top		5d2	137	24' - 2"	3454	137	24' - 2"	3454	129	24' - 2"	3252	121	24' - 2"	3050
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		5j1	272	6' - 9"	1915	272	8' - 6"	2412	266	8' - 6"	2359	264	8' - 6"	2341
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					95759			96819			97157			97903
Single-slope barrier rail - See Sheet J44-48-25.					5827			5827			5827			5827
Open barrier rail - See Sheet J44-52-25.					6774			6774			6774			6774
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap	Single Slope Rail			101,586			102,646			102,984			103,730
		Open Rail			102,533			103,593			103,931			104,677
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap	Single Slope Rail			101,586			102,646			102,984			103,730
		Open Rail			102,533			103,593			103,931			104,677
Stainless Steel Rail Total - lbs.	Non-Monolithic Pier Cap	Single Slope Rail			3096			3096			3096			3096
		Open Rail			2711			2711			2711			2711

Estimated Quantities for Superstructure - 140' Bridge Length

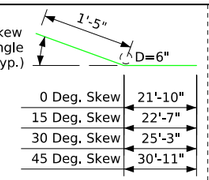
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	531.3	532.3	532.8	535.3	552.9	555.9	557.4	565.1
	Reinf. Steel Epoxy Coated	lbs.	102,654	103,834	104,060	104,766	102,654	103,834	104,060	104,766
	Δ Reinf. Stainless Steel	lbs.	3342	3342	3342	3342	3342	3342	3342	3342
Concrete single-slope barrier rail		lin. ft.	302.0	302.2	302.9	304.5	302.0	302.2	302.9	304.5
with Open rail	*Structural Concrete (Bridge)	c.y.	522.0	523.0	523.5	526.0	543.6	546.6	548.1	555.8
	Reinf. Steel Epoxy Coated	lbs.	103,601	104,781	105,007	105,713	103,601	104,781	105,007	105,713
	Δ Reinf. Stainless Steel	lbs.	2957	2957	2957	2957	2957	2957	2957	2957

* Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

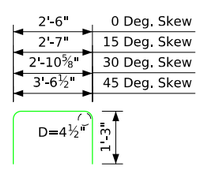
140'-0 Bridge-Bent Bar Details



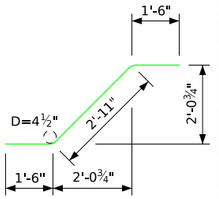
8e1



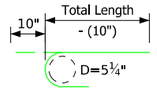
8e2



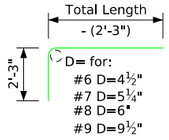
6e3



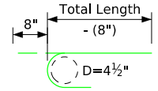
6e4



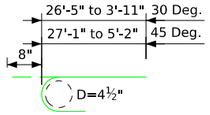
7j1



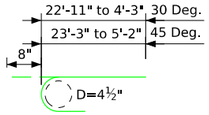
8b1, 7b6, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure
(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

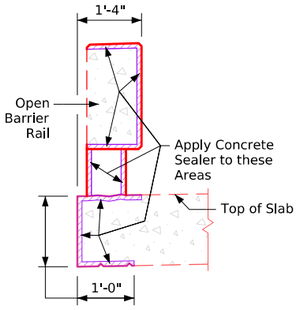
Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
140'-0" Bridge Quantities

J44-17-25

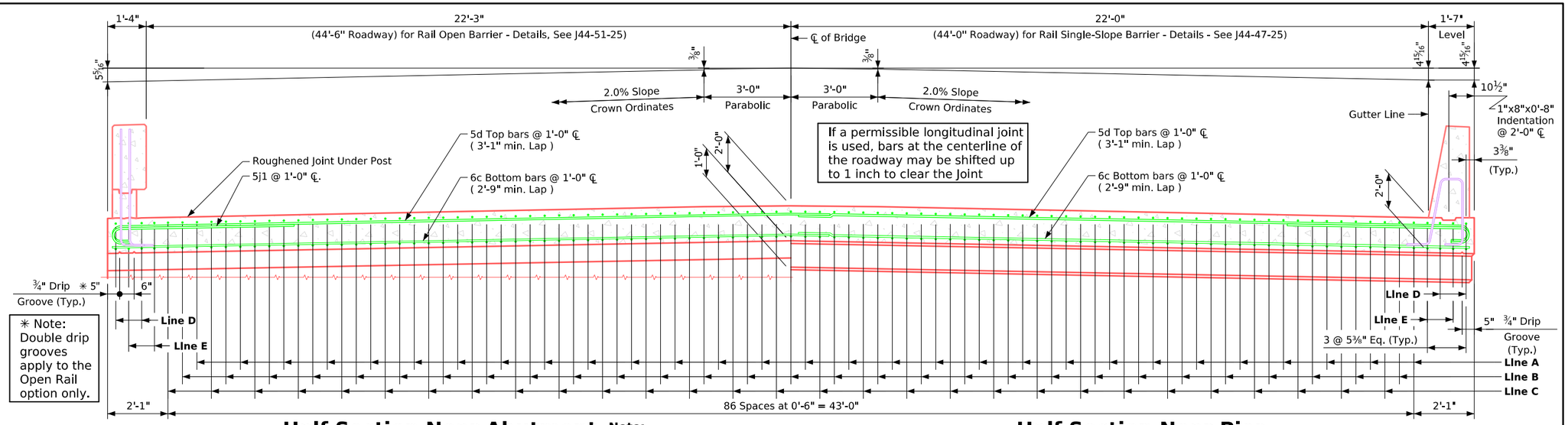
Revised 09-2026: Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Removed 6b7 bar mark in bent bar in details. Changed 8b1, 7b6, 6b8, 6b9 bars (was 9b1, 7b4, 8b8, 8b9).



Concrete Sealer Application Limits Open Rail Section

Concrete sealer shall be applied to both sides of bridge slab on the top, edge of slab, and under the slab. The concrete sealer shall also be applied to the open rail on the top, traffic face side, bottom of rail, and on all sides of the open rail posts.

The concrete sealer limits are shown in the detail and shall apply to the full length of bridge. Concrete sealer shall be applied in accordance with **Article 2403.03,P.3** of the **Standard Specifications** and **Materials I.M. 491.12**.



Half Section Near Abutment

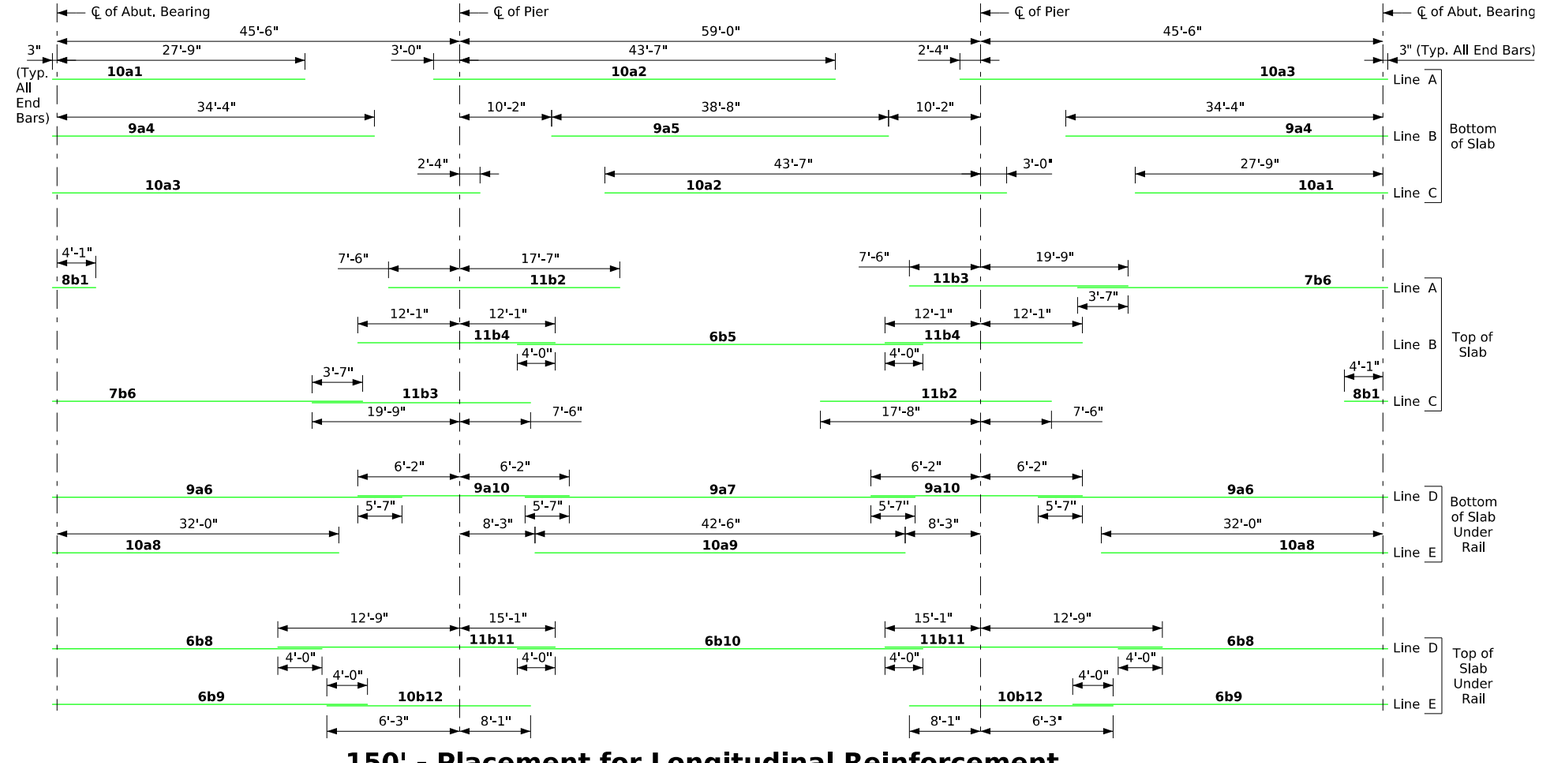
Slab cross-section area for barrier rail = 94.33 sq. ft.

Note:
Top longitudinal reinforcing steel shall be parallel to and 2¾ inches clear below the top of the Slab
Bottom longitudinal reinforcing steel shall be parallel to and 1½ inches clear above the bottom of the Slab
Reinforcing steel shall be securely wired in place and adequately supported on bar chairs before concrete placement.

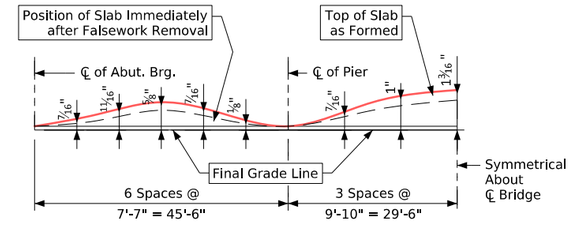
Half Section Near Pier

Slab cross-section area for barrier rail = 94.38 sq. ft.

I.M. 451.01 requirements shall apply for bar chairs.



150' - Placement for Longitudinal Reinforcement



Form Camber Diagram

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

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
150'-0" Bridge

J44-18-25

Revised 09-2026: Updated Bridge Engineer signature. Changed various bar lengths in "Placement for Longitudinal Reinforcement" detail. Updated "Concrete Sealer" note. Changed 7b6 (was 8b6).

Reinforcing Steel for Superstructure - 150' Bridge

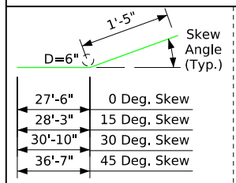
Location	Skew / Shape	0° Bar	0° No.	0° Length	0° Weight	15° No.	15° Length	15° Weight	30° No.	30° Length	30° Weight	45° No.	45° Length	45° Weight
Slab Longitudinal Bottom		10a1	58	28' - 0"	6989	58	28' - 0"	6989	58	28' - 0"	6989	58	28' - 0"	6989
Slab Longitudinal Bottom		10a2	58	46' - 7"	11,626	58	46' - 7"	11,626	58	46' - 7"	11,626	58	46' - 7"	11,626
Slab Longitudinal Bottom		10a3	58	48' - 1"	12,001	58	48' - 1"	12,001	58	48' - 1"	12,001	58	48' - 1"	12,001
Slab Longitudinal Bottom		9a4	58	34' - 7"	6820	58	34' - 7"	6820	58	34' - 7"	6820	58	34' - 7"	6820
Slab Longitudinal Bottom		9a5	29	38' - 8"	3813	29	38' - 8"	3813	29	38' - 8"	3813	29	38' - 8"	3813
Slab Longitudinal Bottom, at Rail		9a6	8	45' - 2"	1229	8	45' - 2"	1229	8	45' - 2"	1229	8	45' - 2"	1229
Slab Longitudinal Bottom, at Rail		9a7	4	57' - 10"	787	4	57' - 10"	787	4	57' - 10"	787	4	57' - 10"	787
Slab Longitudinal Bottom, at Rail		10a8	8	32' - 4"	1114	8	32' - 4"	1114	8	32' - 4"	1114	8	32' - 4"	1114
Slab Longitudinal Bottom, at Rail		10a9	4	42' - 7"	733	4	42' - 7"	733	4	42' - 7"	733	4	42' - 7"	733
Slab Longitudinal Bottom, at Rail		9a10	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336	8	12' - 4"	336
Slab Longitudinal Top		8b1	58	6' - 7"	1020	58	6' - 7"	1020	58	6' - 7"	1020	58	6' - 7"	1020
Slab Longitudinal Top		11b2	58	25' - 1"	7730	58	25' - 1"	7730	58	25' - 1"	7730	58	25' - 1"	7730
Slab Longitudinal Top		11b3	58	27' - 3"	8398	58	27' - 3"	8398	58	27' - 3"	8398	58	27' - 3"	8398
Slab Longitudinal Top		11b4	58	24' - 2"	7448	58	24' - 2"	7448	58	24' - 2"	7448	58	24' - 2"	7448
Slab Longitudinal Top		6b5	29	42' - 10"	1866	29	42' - 10"	1866	29	42' - 10"	1866	29	42' - 10"	1866
Slab Longitudinal Top		7b6	58	31' - 10"	3774	58	31' - 10"	3774	58	31' - 10"	3774	58	31' - 10"	3774
Slab Longitudinal Top, at Rail		6b8	8	39' - 3"	472	8	39' - 3"	472	8	39' - 3"	472	8	39' - 3"	472
Slab Longitudinal Top, at Rail		6b9	8	45' - 9"	550	8	45' - 9"	550	8	45' - 9"	550	8	45' - 9"	550
Slab Longitudinal Top, at Rail		6b10	4	36' - 10"	222	4	36' - 10"	222	4	36' - 10"	222	4	36' - 10"	222
Slab Longitudinal Top, at Rail		11b11	8	27' - 10"	1184	8	27' - 10"	1184	8	27' - 10"	1184	8	27' - 10"	1184
Slab Longitudinal Top, at Rail		10b12	8	14' - 4"	494	8	14' - 4"	494	8	14' - 4"	494	8	14' - 4"	494
Slab Transverse Bottom		6c1	147	26' - 4"	5815	147	27' - 3"	6017	137	26' - 4"	5419	127	26' - 4"	5024
Slab Transverse Bottom		6c2	147	23' - 3"	5134	147	24' - 1"	5318	139	23' - 3"	4855	131	23' - 3"	4575
Slab Transverse Ends, Bottom		6c3	-	-	-	-	-	-	14	VARIES	302	22	VARIES	507
Slab Transverse Ends, Bottom		6c4	-	-	-	-	-	-	12	VARIES	266	22	VARIES	474
Slab Transverse Ends, Bottom		6c5	-	-	-	-	-	-	12	VARIES	214	20	VARIES	399
Slab Transverse Ends, Bottom		6c6	-	-	-	-	-	-	12	VARIES	230	19	VARIES	381
Slab Transverse Top		5d1	147	27' - 9"	4255	147	28' - 7"	4383	137	27' - 9"	3966	127	27' - 9"	3676
Slab Transverse Top		5d2	147	24' - 2"	3706	147	24' - 2"	3706	139	24' - 2"	3504	131	24' - 2"	3302
Slab Transverse Ends, Top		5d3	-	-	-	-	-	-	14	VARIES	218	22	VARIES	366
Slab Transverse Ends, Top		5d4	-	-	-	-	-	-	12	VARIES	189	22	VARIES	337
Slab Transverse Ends, Top		5d5	-	-	-	-	-	-	12	VARIES	149	20	VARIES	277
Slab Transverse Ends, Top		5d6	-	-	-	-	-	-	12	VARIES	167	19	VARIES	275
Slab, Tansverse at Abutment		8e1	18	28' - 11"	1390	18	29' - 8"	1426	18	32' - 3"	1550	18	38' - 0"	1827
Slab, Tansverse at Abutment		8e2	18	23' - 3"	1118	18	24' - 0"	1154	18	26' - 8"	1282	18	32' - 4"	1554
Slab, Hairpins, at Abutment		6e3	100	5' - 0"	752	100	5' - 1"	764	100	5' - 5"	814	100	6' - 1"	914
Slab, Diagonal, at Abutment		6e4	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889	100	5' - 11"	889
Top of Slab, Transverse, at Rail		5j1	292	6' - 9"	2056	292	6' - 9"	2056	286	6' - 9"	2014	284	6' - 9"	2000
Wing, Vertical		5m1	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185	40	4' - 5"	185
Wing, Horizontal Back Face		5n1	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167	24	6' - 8"	167
Sub Total - LBS.					104,073			104,671			104,986			105,735
Single-slope barrier rail - See Sheet J44-48-25.					6153			6153			6153			6153
Open barrier rail - See Sheet J44-52-25.					7146			7146			7146			7146
Epoxy Coated Rail Total - lbs.	Monolithic Pier Cap	Single Slope Rail			110,226			110,824			111,139			111,888
		Open Rail			111,219			111,817			112,132			112,881
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap	Single Slope Rail			110,226			110,824			111,139			111,888
		Open Rail			111,219			111,817			112,132			112,881
Epoxy Coated Rail Total - lbs.	Non-Monolithic Pier Cap	Single Slope Rail			3349			3349			3349			3349
		Open Rail			2925			2925			2925			2925

Estimated Quantities for Superstructure - 150' Bridge Length

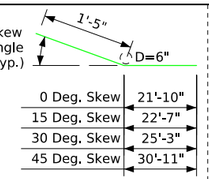
Item		Unit	with monolithic cap 0°	15°	30°	45°	with non-monolithic cap 0°	15°	30°	45°
with Single-slope rail	*Structural Concrete (Bridge)	c.y.	599.8	600.8	601.3	603.9	621.5	624.5	626.0	633.6
	Reinf. Steel Epoxy Coated	lbs.	111,135	111,853	112,057	112,764	111,135	111,853	112,057	112,764
	Δ Reinf. Stainless Steel	lbs.	3595	3595	3595	3595	3595	3595	3595	3595
Concrete single-slope barrier rail		lin. ft.	322.0	322.2	322.9	324.5	322.0	322.2	322.9	324.5
with Open rail	*Structural Concrete (Bridge)	c.y.	589.9	590.9	591.4	594.0	611.6	614.6	616.1	623.7
	Reinf. Steel Epoxy Coated	lbs.	112,128	112,846	113,050	113,757	112,128	112,846	113,050	113,757
	Δ Reinf. Stainless Steel	lbs.	3171	3171	3171	3171	3171	3171	3171	3171

✷ Includes 4 wings at 1.114 cubic yard each; excludes rail concrete.
Δ Includes abutment paving notch bar weight.

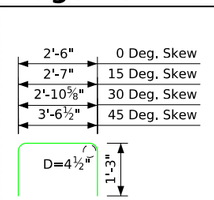
150'-0 Bridge-Bent Bar Details



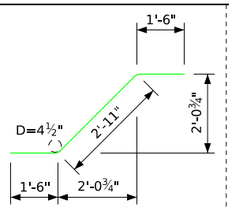
8e1



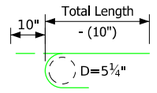
8e2



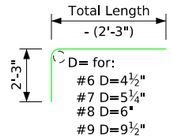
6e3



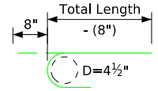
6e4



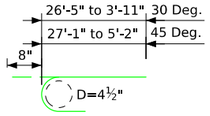
7j1



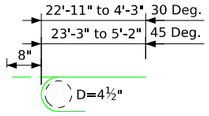
8b1, 7b6, 6b8 and 6b9



6d1 and 6d2



6d3



6d6

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

Stainless Steel Reinforcing for Superstructure

(All Skews)

Location	Shape	Bar	No.	Length	Weight
Abutment Paving Notch Bar		8u1	44	2'-1"	246

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

Note:
See J44-26-25 Sheet for Monolithic Pier Cap reinforcing details and quantities.
See J44-28-25 Sheet for Non-Monolithic Pier Cap reinforcing details and quantities.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

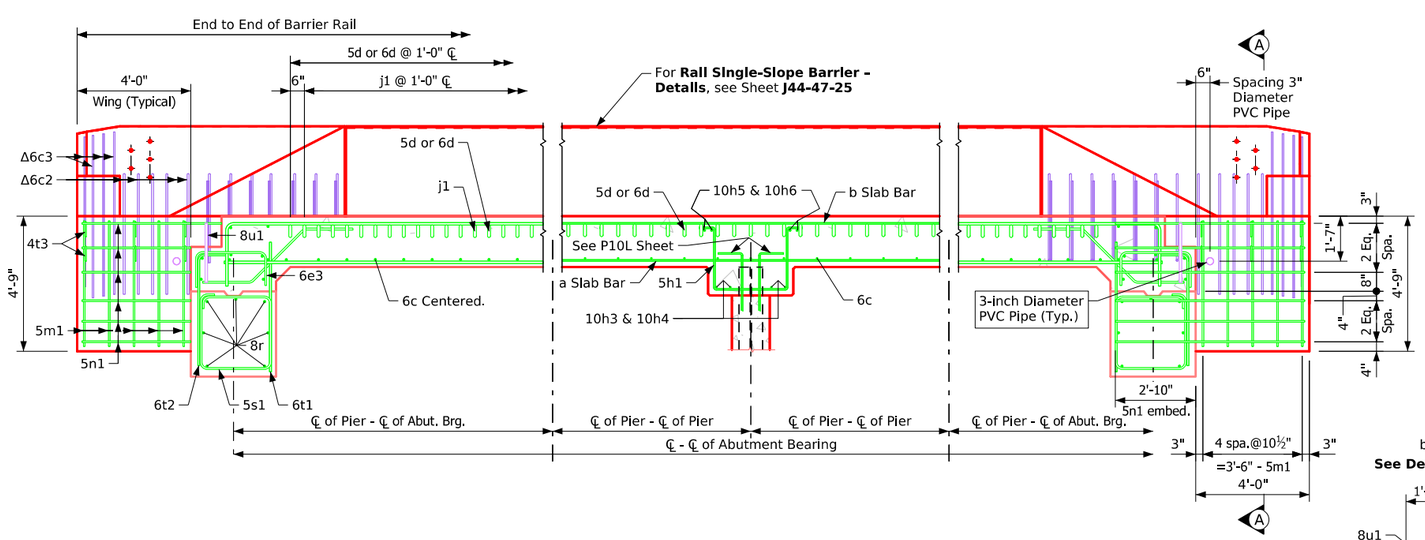
Continuous Concrete Slab Bridge

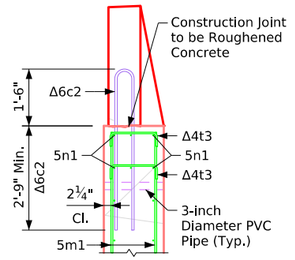
December, 2025

Superstructure Details
150'-0" Bridge Quantities

J44-19-25

Revised 09-2026: Updated Reinforcing Steel for Superstructure table and horizontal dimensions in Bent Bar Details on 8e1 and 8e2 bars. Removed 6b7 bar mark in bent bar in details. Changed 8b1, 7b6, 6b8, 6b9 bars (was 9b1, 7b4, 8b8, 8b9).

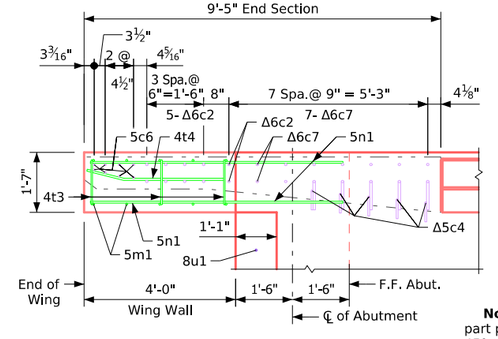




Section A-A

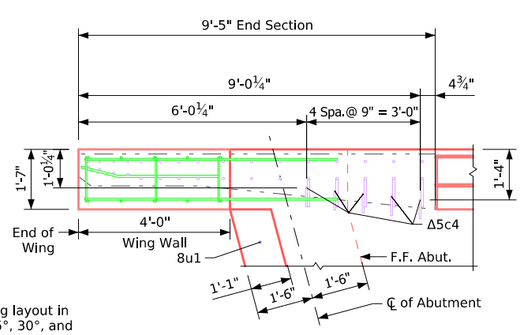
Δ Note: Refer to **Rail Single-Slope Barrier – End Section Details (1 of 2)** sheet on **J44-49-25** for details of the barrier rail end section. Reinforcing 6c2, 5c4, and 4t3 are included in the **Rail SIngle-Slope Barrier – End Sectlon Details (2 of 2)** sheet on **J44-50-25.**

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



Part Plan 0° Skew

(End Section Not Shown)

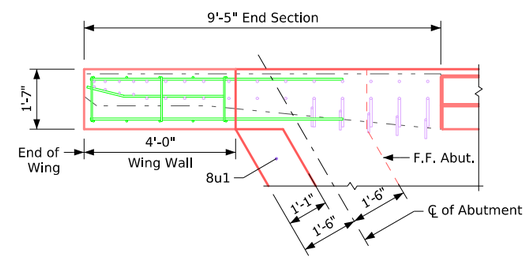


Part Plan 15° Skew

(End Section Not Shown)

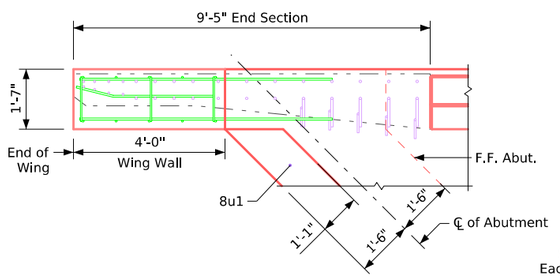
Note: Reinforcing layout in part plans for 0°, 15°, 30°, and 45° skews is for single-sloped barrier rail only. The wing and end section reinforcing layout is the same for all skews.

For **Rail Open Barrier – Details**, see Sheet **J44-51-25.**



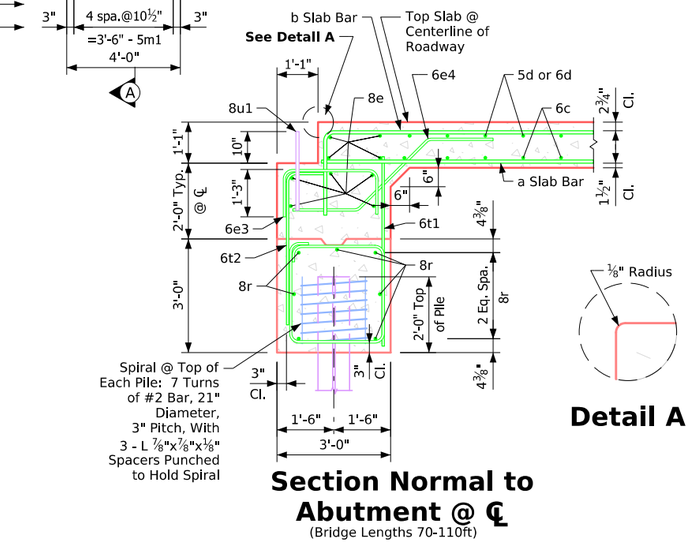
Part Plan 30° Skew

(End Section Not Shown)



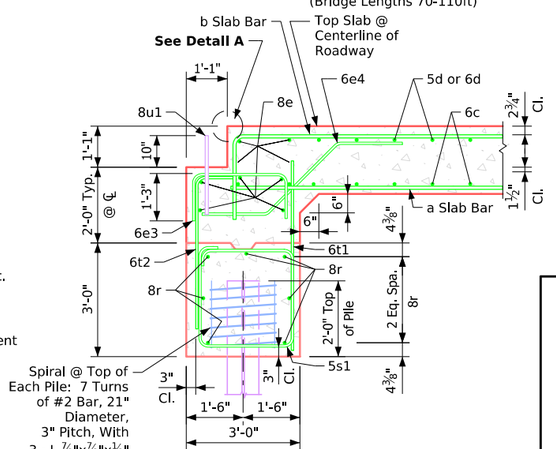
Part Plan 45° Skew

(End Section Not Shown)



Section Normal to Abutment @ ℄

(Bridge Lengths 70-110ft)



Section Normal to Abutment @ ℄

(Bridge Lengths 120-150ft)

Detail A

Superstructure Notes:

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

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

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

All reinforcing shall be Grade 60.

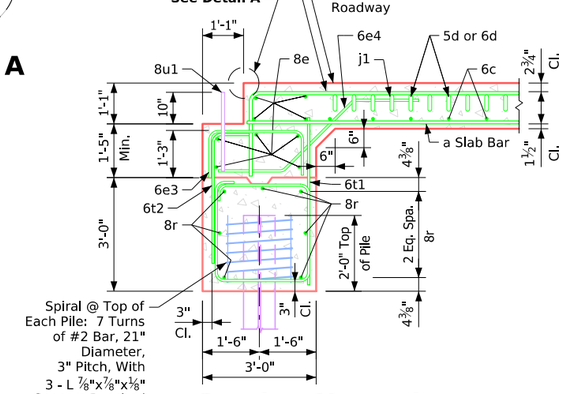
The concrete slab is to be placed with a minimum of construction joints. Procedures for placing slab concrete shall be submitted for approval, together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required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

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

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

Bar Chair Note:

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



Section Normal to Abutment @ Gutter Line

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

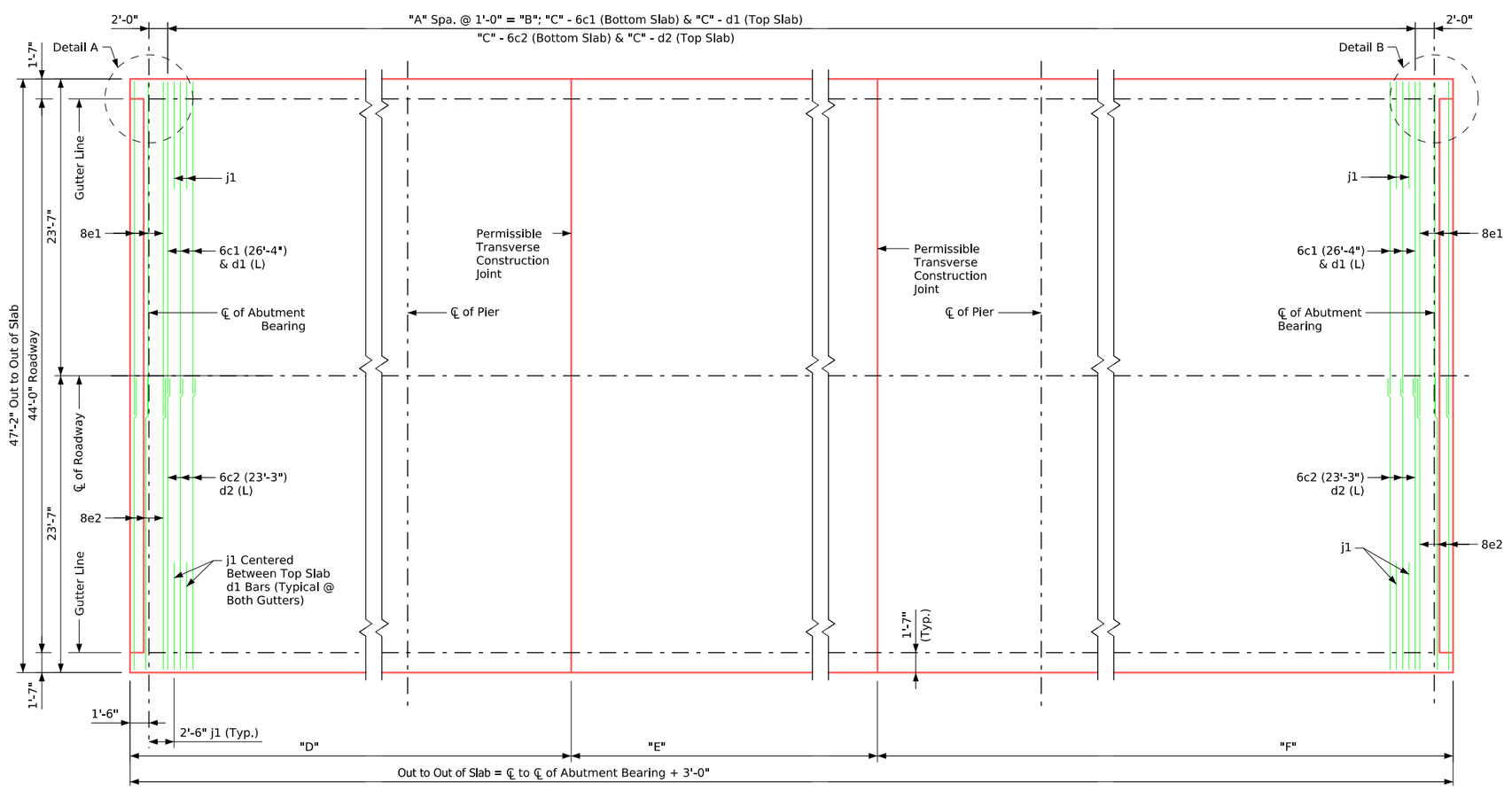
Continuous Concrete Slab Bridge

December, 2025

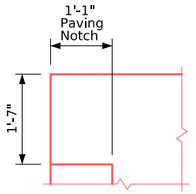
Superstructure General Details

J44-20-25

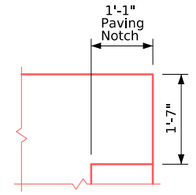
Revised 09-2026; Updated Bridge Engineer signature.



0° Skew Transverse Reinforcing Steel Layout



Detail A



Detail B

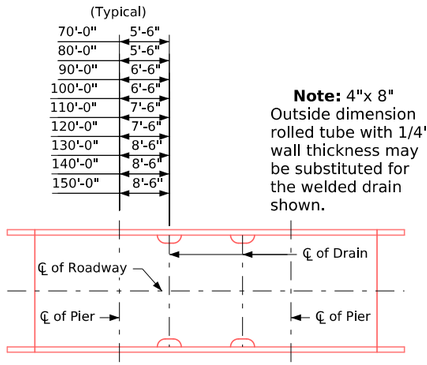
j1 Bar Size Table	
Bridge Length	Bar Size
70' to 90'	7
100' to 110'	6
120' to 150'	5

d Bar Size & Length Table

Bridge Length	Bar Size	d1 (L)	d2(L)
70'	6	25'-10"	21'-11"
80' to 150'	5	25'-3"	21'-10"

0° Transverse Reinforcement Dimensions – Table

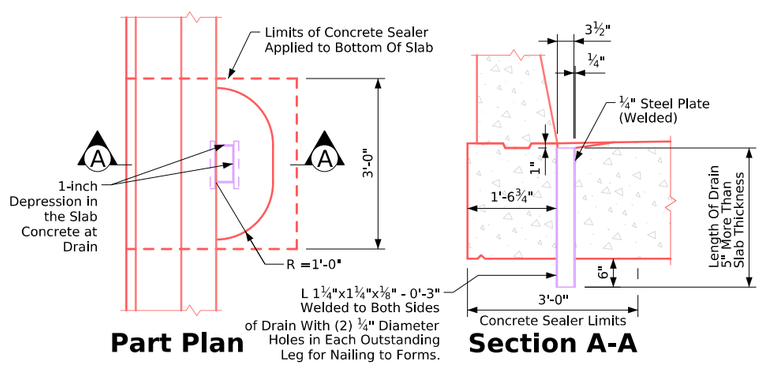
Bridge	"A"	"B"	"C"	"D"	"E"	"F"
70 ft.	66	66'-0"	67	28'-0"	17'-0"	28'-0"
80 ft.	76	76'-0"	77	32'-0"	19'-0"	32'-0"
90 ft.	86	86'-0"	87	36'-0"	21'-0"	36'-0"
100 ft.	96	96'-0"	97	40'-0"	23'-0"	40'-0"
110 ft.	106	106'-0"	107	44'-0"	25'-0"	44'-0"
120 ft.	116	116'-0"	117	48'-0"	27'-0"	48'-0"
130 ft.	126	126'-0"	127	52'-0"	29'-0"	52'-0"
140 ft.	136	136'-0"	137	56'-0"	31'-0"	56'-0"
150 ft.	146	146'-0"	147	60'-0"	33'-0"	60'-0"



Note: 4"x 8" Outside dimension rolled tube with 1/4" wall thickness may be substituted for the welded drain shown.

Floor Drain Location

Weight of One Floor Drain			
Span	Weight, lbs.	Span	Weight, lbs.
70'-0"	32	120'-0"	41
80'-0"	33	130'-0"	43
90'-0"	35	140'-0"	45
100'-0"	37	150'-0"	48
110'-0"	39		

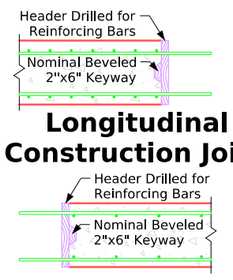


Part Plan

Section A-A

Floor Drain Details

(Use for single slope barrier rail only, not required for open rail.)
Note: Drains are to be galvanized. Include the cost of drains in the price bid for "Structural Concrete Bridge."
(4 Drains Required)



Longitudinal Construction Joint

Transverse Construction Joint

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

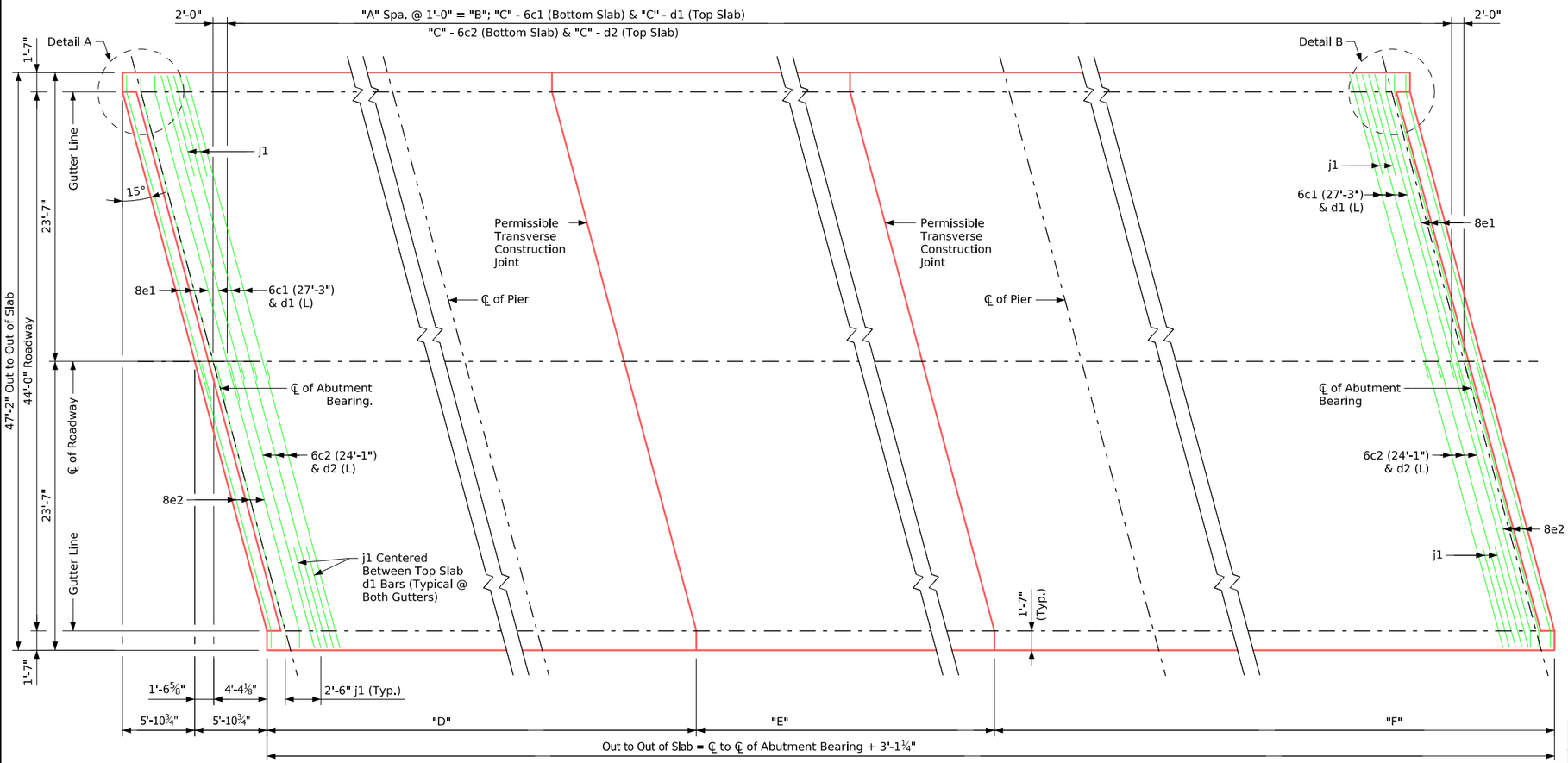
Continuous Concrete Slab Bridge

December, 2025

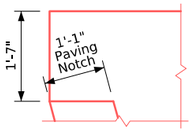
Superstructure Details
0° Skew

J44-21-25

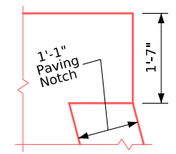
Revised 09-2026: Updated Bridge Engineer signature.



15° Skew Transverse Reinforcing Steel Layout



Detail A



Detail B

j1 Bar Size Table

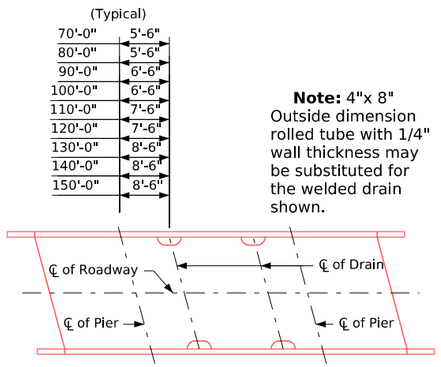
Bridge Length	Bar Size
70' to 90'	7
100' to 110'	6
120' to 150'	5

d Bar Size & Length Table

Bridge Length	Bar Size	d1 (L)	d2(L)
70'	6	28'-9"	26'-0"
80' to 150'	5	28'-2"	24'-11"

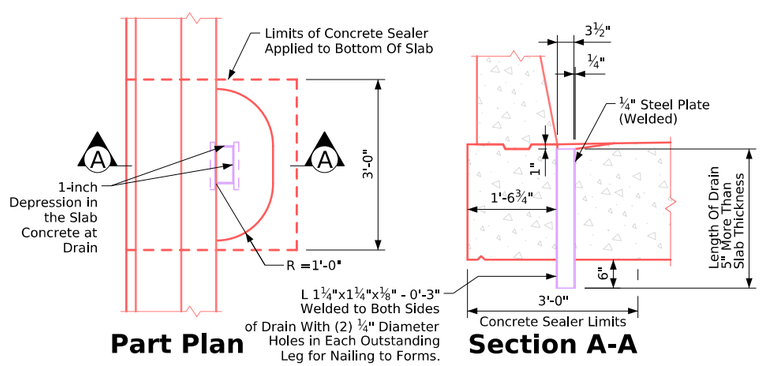
15° Transverse Reinforcement Dimensions – Table

Bridge	"A"	"B"	"C"	"D"	"E"	"F"
70 ft.	66	66'-0"	67	28'-0⅝"	17'-0"	28'-0⅝"
80 ft.	76	76'-0"	77	32'-0⅝"	19'-0"	32'-0⅝"
90 ft.	86	86'-0"	87	36'-0⅝"	21'-0"	36'-0⅝"
100 ft.	96	96'-0"	97	40'-0⅝"	23'-0"	40'-0⅝"
110 ft.	106	106'-0"	107	44'-0⅝"	25'-0"	44'-0⅝"
120 ft.	116	116'-0"	117	48'-0⅝"	27'-0"	48'-0⅝"
130 ft.	126	126'-0"	127	52'-0⅝"	29'-0"	52'-0⅝"
140 ft.	136	136'-0"	137	56'-0⅝"	31'-0"	56'-0⅝"
150 ft.	146	146'-0"	147	60'-0⅝"	33'-0"	60'-0⅝"



Note: 4"x 8" Outside dimension rolled tube with 1/4" wall thickness may be substituted for the welded drain shown.

Floor Drain Location



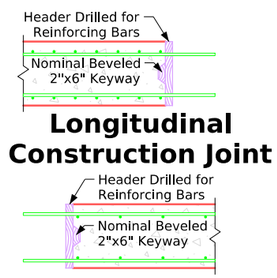
Part Plan **Section A-A**

Floor Drain Details

(Use for single slope barrier rail only, not required for open rail.)
Note: Drains are to be galvanized. Include the cost of drains in the price bid for "Structural Concrete Bridge."
(4 Drains Required)

Weight of One Floor Drain

Span	Weight, lbs.	Span	Weight, lbs.
70'-0"	32	120'-0"	41
80'-0"	33	130'-0"	43
90'-0"	35	140'-0"	45
100'-0"	37	150'-0"	48
110'-0"	39		



Longitudinal Construction Joint

Transverse Construction Joint

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

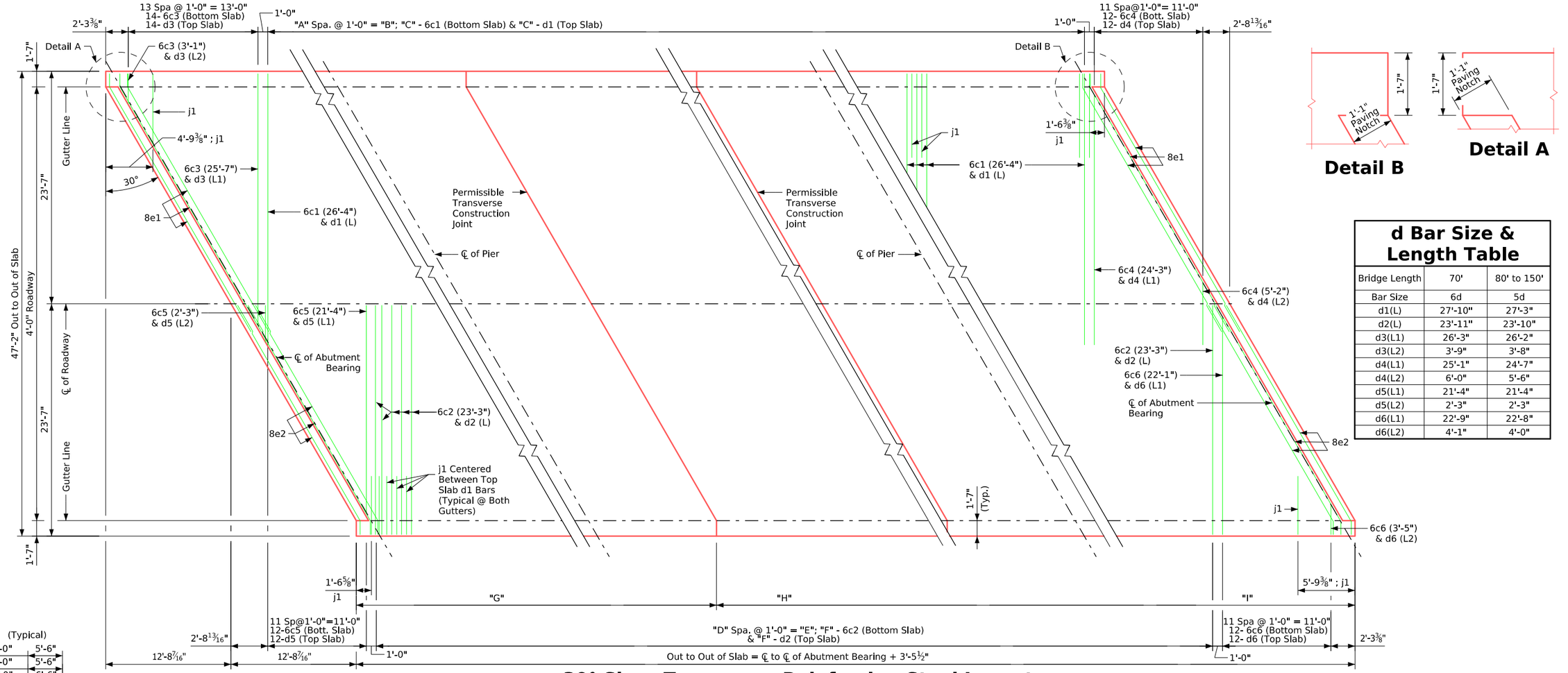
Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
15° Skew

J44-22-25

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



30° Skew Transverse Reinforcing Steel Layout

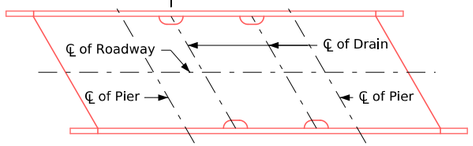
d Bar Size & Length Table

Bridge Length	70'	80' to 150'
Bar Size	6d	5d
d1(L)	27'-10"	27'-3"
d2(L)	23'-11"	23'-10"
d3(L1)	26'-3"	26'-2"
d3(L2)	3'-9"	3'-8"
d4(L1)	25'-1"	24'-7"
d4(L2)	6'-0"	5'-6"
d5(L1)	21'-4"	21'-4"
d5(L2)	2'-3"	2'-3"
d6(L1)	22'-9"	22'-8"
d6(L2)	4'-1"	4'-0"

(Typical)

70'-0"	5'-6"
80'-0"	5'-6"
90'-0"	6'-6"
100'-0"	6'-6"
110'-0"	7'-6"
120'-0"	7'-6"
130'-0"	8'-6"
140'-0"	8'-6"
150'-0"	8'-6"

Note: 4"x 8" Outside dimension rolled tube with 1/4" wall thickness may be substituted for the welded drain shown.



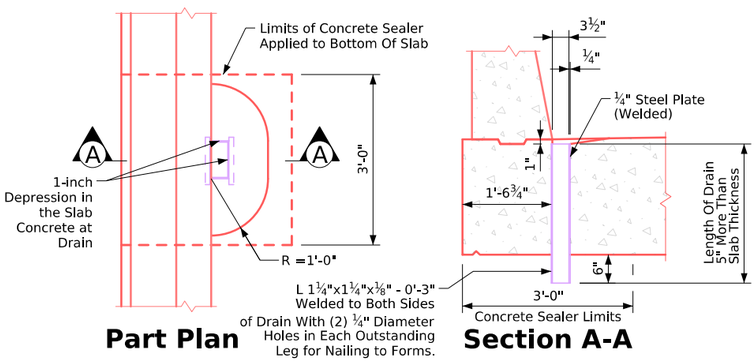
Floor Drain Location

j1 Bar Size Table

Bridge Length	Bar Size
70' to 90'	7
100' to 110'	6
120' to 150'	5

30° Transv. Reinf. Dim. Table

Bridge	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
70 ft.	55	55'-0"	56	57	57'-0"	58	27'-5½"	17'-0"	29'-0"
80 ft.	65	65'-0"	66	67	67'-0"	68	31'-5½"	19'-0"	33'-0"
90 ft.	75	75'-0"	76	77	77'-0"	78	35'-5½"	21'-0"	37'-0"
100 ft.	85	85'-0"	86	87	87'-0"	88	39'-5½"	23'-0"	41'-0"
110 ft.	95	95'-0"	96	97	97'-0"	98	43'-5½"	25'-0"	45'-0"
120 ft.	105	105'-0"	106	107	107'-0"	108	47'-5½"	27'-0"	49'-0"
130 ft.	115	115'-0"	116	117	117'-0"	118	51'-5½"	29'-0"	53'-0"
140 ft.	125	125'-0"	126	127	127'-0"	128	55'-5½"	31'-0"	57'-0"
150 ft.	135	135'-0"	136	137	137'-0"	138	59'-5½"	33'-0"	61'-0"

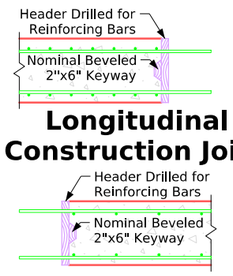


Part Plan

Section A-A

Floor Drain Details

(Use for single slope barrier rail only, not required for open rail.)
Note: Drains are to be galvanized. Include the cost of drains in the price bid for "Structural Concrete Bridge."
(4 Drains Required)



Longitudinal Construction Joint

Transverse Construction Joint

Weight of One Floor Drain

Span	Weight, lbs.	Span	Weight, lbs.
70'-0"	32	120'-0"	41
80'-0"	33	130'-0"	43
90'-0"	35	140'-0"	45
100'-0"	37	150'-0"	48
110'-0"	39		

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

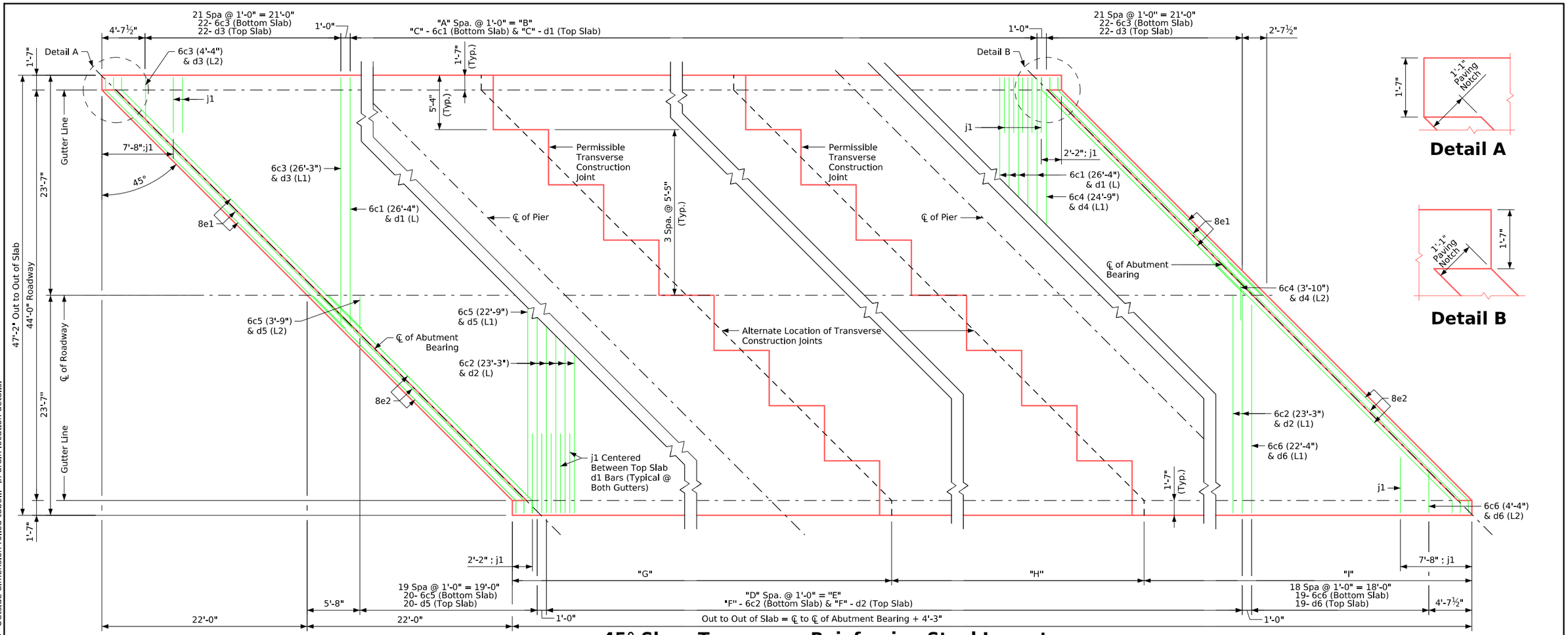
Continuous Concrete Slab Bridge

December, 2025

Superstructure Details
30° Skew

J44-23-25

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

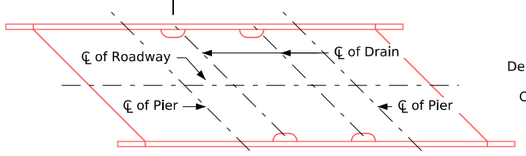


45° Skew Transverse Reinforcing Steel Layout

(Typical)

70'-0"	5'-6"
80'-0"	5'-6"
90'-0"	6'-6"
100'-0"	6'-6"
110'-0"	7'-6"
120'-0"	7'-6"
130'-0"	8'-6"
140'-0"	8'-6"
150'-0"	8'-6"

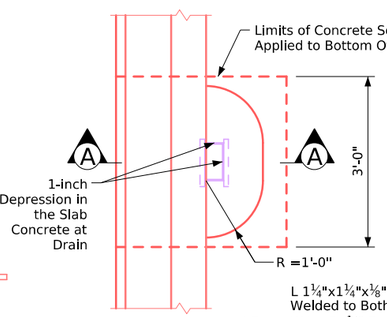
Note: 4"x 8" Outside dimension rolled tube with 1/4" wall thickness may be substituted for the welded drain shown.



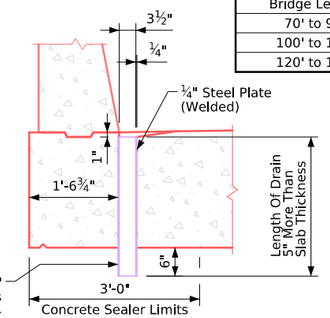
Floor Drain Location

Weight of One Floor Drain

Span	Weight, lbs.	Span	Weight, lbs.
70'-0"	32	120'-0"	41
80'-0"	33	130'-0"	43
90'-0"	35	140'-0"	45
100'-0"	37	150'-0"	48
110'-0"	39		



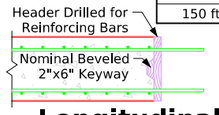
Part Plan



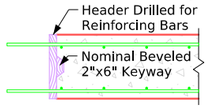
Section A-A

Floor Drain Details

(Use for single slope barrier rail only, not required for open rail.)
Note: Drains are to be galvanized. Include the cost of drains in the price bid for "Structural Concrete Bridge."
(4 Drains Required)



Longitudinal Construction Joint



Transverse Construction Joint

j1 Bar Size Table

Bridge Length	Bar Size
70' to 90'	7
100' to 110'	6
120' to 150'	5

45° Transv. Reinf. Dim. Table

Bridge	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"
70 ft.	45	45'-0"	46	48	48'-0"	49	27'-3"	17'-0"	30'-0"
80 ft.	55	55'-0"	56	58	58'-0"	59	31'-3"	19'-0"	34'-0"
90 ft.	65	65'-0"	66	68	68'-0"	69	35'-3"	21'-0"	38'-0"
100 ft.	75	75'-0"	76	78	78'-0"	79	39'-3"	23'-0"	42'-0"
110 ft.	85	85'-0"	86	88	88'-0"	89	43'-3"	25'-0"	46'-0"
120 ft.	95	95'-0"	96	98	98'-0"	99	47'-3"	27'-0"	50'-0"
130 ft.	105	105'-0"	106	108	108'-0"	109	51'-3"	29'-0"	54'-0"
140 ft.	115	115'-0"	116	118	118'-0"	119	55'-3"	31'-0"	58'-0"
150 ft.	125	125'-0"	126	128	128'-0"	129	59'-3"	33'-0"	62'-0"

d Bar Size & Length Table

Bridge Length	70'	80' to 150'
Bar Size	6d	5d
d1(L)	27'-10"	27'-3"
d2(L)	23'-11"	23-10"
d3(L1)	26'-11"	26'-10"
d3(L2)	5'-0"	4'-11"
d4(L1)	25'-7"	25'-1"
d4(L2)	4'-8"	4'-2"
d5(L1)	22'-9"	22'-9"
d5(L2)	3'-9"	3'-9"
d6(L1)	23'-0"	22'-11"
d6(L2)	5'-0"	4'-11"

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

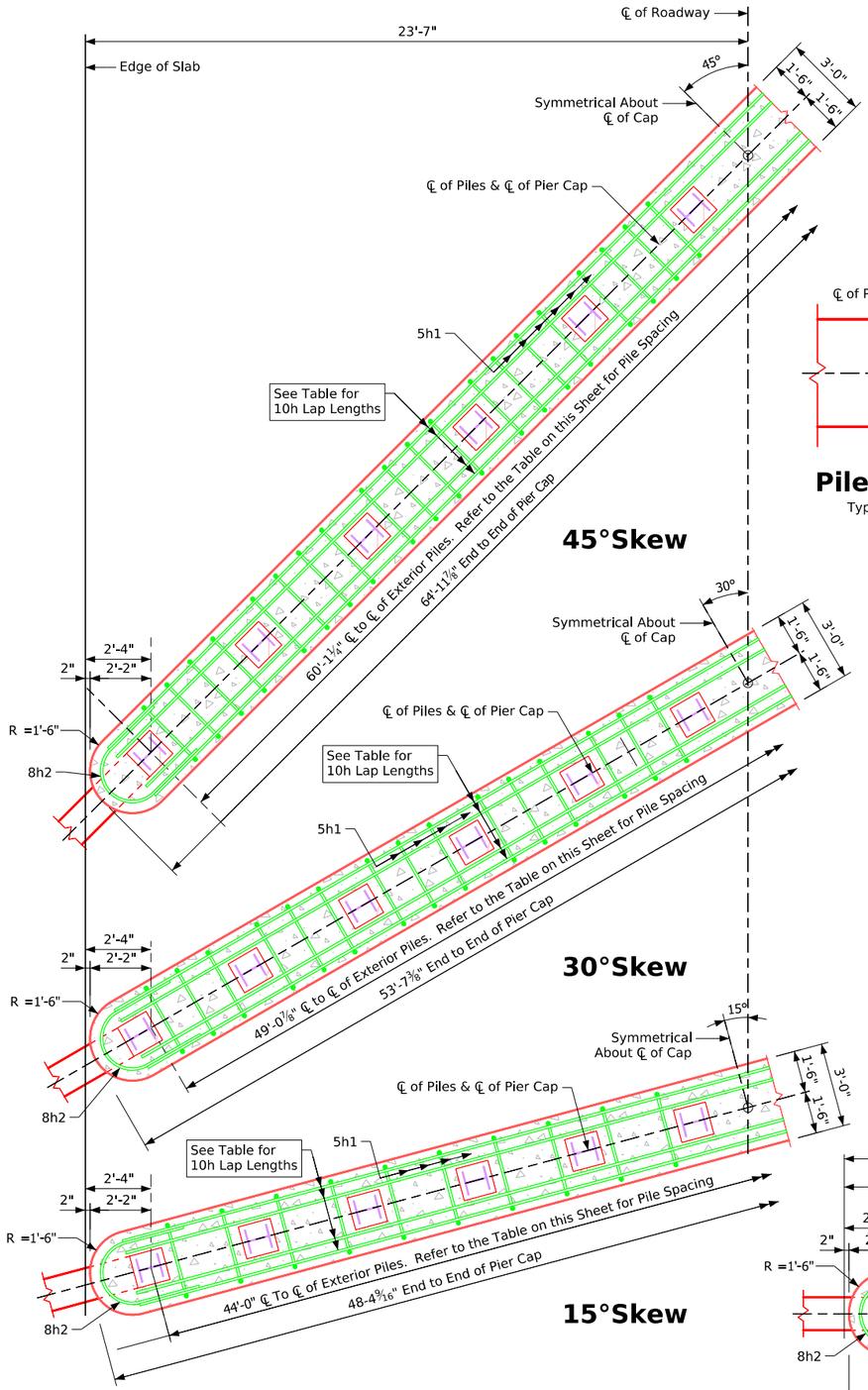
Continuous Concrete Slab Bridge

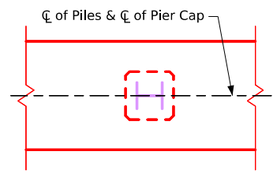
December, 2025

Superstructure Details
45° Skew

J44-24-25

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



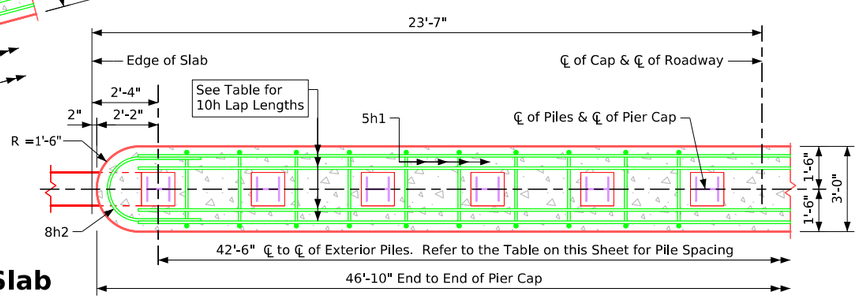


Pile Orientation

Type 3 Trestle Bent Piles.

Lap Lengths 10h Bars

Top	8'-2"
Bottom	6'-3"



0°Skew

Half Section Below Slab

Note: The number of piles and stirrups shown are for a 100'-0" bridge w/ HP 10x42 piles. Cap dimensions are typical for all bridges.

*Factored Loads And Number Of Piles Monolithic - 44' Roadway

Bridge Length	HP 10 x 42					HP 10 x 57					HP 12 x 53					HP 14 x 73					HP 14 x 89				
	Pu (kips)	Number of Piles				Pu (kips)	Number of Piles				Pu (kips)	Number of Piles				Pu (kips)	Number of Piles				Pu (kips)	Number of Piles			
		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°
70'-0"	894	9	9	9	9	921	7	7	8	9	933	7	7	8	9	1087	7	7	8	9	1134	7	7	8	9
80'-0"	993	10	10	10	10	992	7	7	8	9	1014	8	8	8	9	1131	7	7	8	9	1178	7	7	8	9
90'-0"	1105	11	11	11	11	1090	8	8	8	9	1119	9	9	9	9	1188	7	7	8	9	1282	7	7	8	9
100'-0"	1227	12	12	12	12	1205	9	9	9	9	1244	10	10	10	10	1303	7	7	8	9	1349	7	7	8	9
110'-0"	1346	13	13	13	13	1324	9	9	10	10	1367	11	11	11	11	1399	8	8	8	9	1461	7	7	8	9
120'-0"	1487	14	14	14	14	1465	10	10	10	11	1511	12	12	12	12	1532	9	9	9	9	1548	7	7	8	9
130'-0"	1634	15	16	16	16	1597	11	11	11	11	1653	13	13	13	13	1665	9	9	9	9	1664	8	8	8	9
140'-0"	1779	17	17	17	17	1743	12	12	12	12	1802	14	14	14	14	1819	10	10	10	10	1802	8	8	8	9
150'-0"	1948	18	18	18	19	1912	14	14	14	14	1967	15	15	15	15	1990	11	11	11	11	1957	9	9	9	9

*Factored Loads And Number Of Piles Monolithic - 44' Roadway

Bridge Length	Prestressed 14"					Prestressed 16"					Cast In Place 14"					Cast In Place 16"				
	Pu (kips)	Number of Piles				Pu (kips)	Number of Piles				Pu (kips)	Number of Piles				Pu (kips)	Number of Piles			
		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°		0°	15°	30°	45°
70'-0"	932	10	10	10	10	950	9	9	9	9	923	10	10	10	10	938	9	9	9	9
80'-0"	1034	11	11	11	11	1055	10	10	10	10	1024	11	11	11	11	1041	10	10	10	10
90'-0"	1160	12	12	13	13	1173	11	11	11	11	1138	12	12	12	12	1158	11	11	11	11
100'-0"	1285	14	14	14	14	1301	12	12	12	12	1271	14	14	14	14	1285	12	12	12	12
110'-0"	1407	15	15	15	15	1440	13	13	13	14	1392	15	15	15	15	1409	13	13	13	13
120'-0"	1561	N.A.	N.A.	17	17	1587	N.A.	N.A.	15	15	1545	N.A.	N.A.	17	17	1567	N.A.	N.A.	15	15
130'-0"	1703	N.A.	N.A.	N.A.	18	1733	N.A.	N.A.	N.A.	16	1686	N.A.	N.A.	N.A.	18	1711	N.A.	N.A.	N.A.	16
140'-0"	1862	N.A.	N.A.	N.A.	20	1897	N.A.	N.A.	N.A.	18	1843	N.A.	N.A.	N.A.	20	1861	N.A.	N.A.	N.A.	17
150'-0"	2038	N.A.	N.A.	N.A.	N.A.	2066	N.A.	N.A.	N.A.	19	2017	N.A.	N.A.	N.A.	N.A.	2040	N.A.	N.A.	N.A.	19

*Pier cap weight based on 45° Skew. Pu includes weight of pile encasement.
N.A. indicates the pile spacing for this pile size does not satisfy the maximum or minimum spacing requirements.

Pile Spacing - Monolithic 44' Roadway Width

No. Piles	No. Spaces	0° Skew	15° Skew	30° Skew	45° Skew
7	6	6'-1"	6'-3"	7'-0"	N.A.
8	7	5'-4"	5'-6"	6'-2"	7'-6"
9	8	4'-9"	4'-11"	5'-5"	6'-8"
10	9	4'-3"	4'-5"	4'-11"	6'-0"
11	10	3'-10"	4'-0"	4'-6"	5'-6"
12	11	3'-7"	3'-8"	4'-1"	5'-0"
13	12	3'-3"	3'-5"	3'-9"	4'-7"
14	13	3'-0"	3'-2"	3'-6"	4'-4"
15	14	2'-10"	2'-11"	3'-3"	4'-0"
16	15	2'-8"	2'-9"	3'-1"	3'-9"
17	16	2'-6"	2'-7"	2'-11"	3'-6"
18	17	N.A.	N.A.	2'-9"	3'-4"
19	18	N.A.	N.A.	2'-7"	3'-2"
20	19	N.A.	N.A.	N.A.	3'-0"

N.A. indicates the pile spacing for this pile size cannot satisfy for the limits of the maximum or minimum spacing requirements.

PIER NOTES:

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

Pier piles are to be driven to full penetration, if practicable, but in no case to a bearing value less than the pile bearing required for each bridge length as shown in plans. Additional driving capacity may be required through scourable layers. For General Plan Notes for additional information, Sheet **J44-01-25**.

Cap steel, as detailed on the P10L Standard Pile Drawing, is required for monolithic pier caps.

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

All reinforcing steel is to be Grade 60.

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

Note:
For Monolithic Pier Cap Details and quantities, see Sheet **J44-26-25**.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

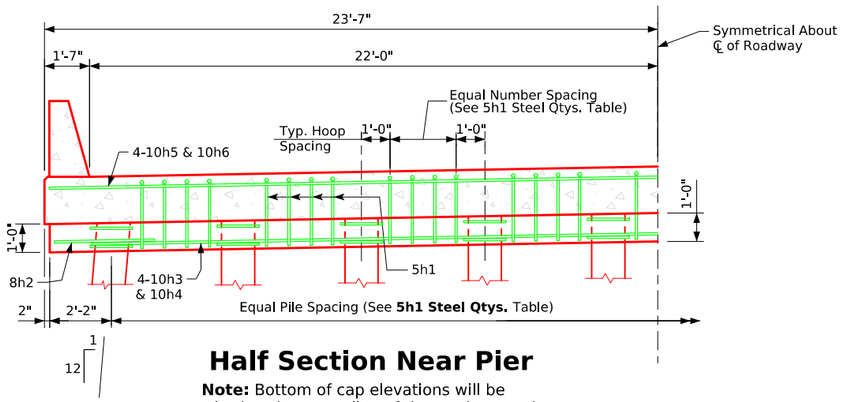
Continuous Concrete Slab Bridge

December, 2025

Pier Cap Monolithic Details All Bridges (1 of 2)

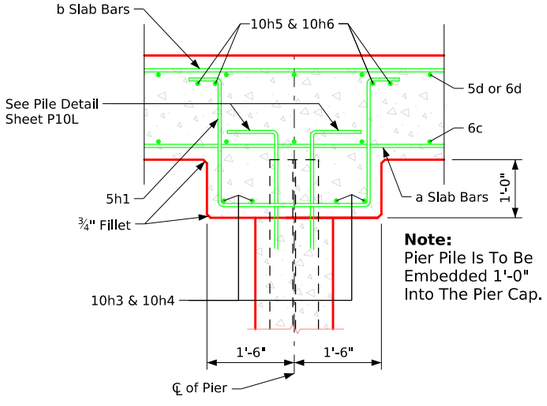
J44-25-25

Revised 09-2026; Updated Bridge Engineer signature.



Half Section Near Pier

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



TYPICAL CAP SECTION

Note:
*Total weight shall be calculated by the Designer based on the type/size of piling used and the size of the bridge.

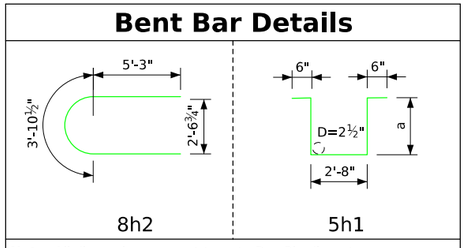
5h1 Steel Quantities - Monolithic Pier Cap - One Pier 44' Roadway Width

No. Piles	No. Pile Spaces	5h1 Shape	5h1 Length (ft)	0° Skew			15° Skew			30° Skew			45° Skew		
				No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)
7	6		See 5h1 Bar Lengths Table	6	42	361	6	42	361	N.A	N.A	N.A	N.A	N.A	N.A
8	7			5	42	361	5	42	361	6	49	422	N.A	N.A	N.A
9	8			4	40	344	4	40	344	5	48	413	6	56	482
10	9			3	36	310	3	36	310	4	45	387	5	54	465
11	10			3	40	344	3	40	344	3	40	344	5	60	516
12	11			2	33	284	2	33	284	3	44	379	4	55	473
13	12			2	36	310	2	36	310	3	48	413	4	60	516
14	13			2	39	336	2	39	336	2	39	336	3	52	447
15	14			2	42	361	2	42	361	2	42	361	3	56	482
16	15			1	30	258	1	30	258	2	45	387	3	60	516
17	16			1	32	275	1	32	275	2	48	413	2	48	413
18	17			1	34	293	1	34	293	1	34	293	2	51	439
19	18			N.A	N.A	N.A	N.A	N.A	N.A	1	36	310	2	54	465
20	19			N.A	N.A	N.A	N.A	N.A	N.A	1	38	327	2	57	490

Epoxy Reinforcing Steel - Monolithic 44' Roadway - One Pier

Bar	Shape	0° Skew			15° Skew			30° Skew			45° Skew		
		No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	Length	No.	Weight
8h2		2	14'-5"	77	2	14'-5"	77	4	14'-5"	154	14'-5"	4	154
10h3		4	21'-11"	377	8	22'-8"	354	8	25'-4"	871	28'-7"	8	985
10h4		4	28'-2"	485	8	28'-11"	462	8	31'-7"	1086	34'-10"	8	1200
10h5		4	21'-11"	377	8	22'-8"	376	8	25'-4"	871	28'-7"	8	985
10h6		4	30'-1"	518	8	30'-10"	516	8	33'-6"	1152	36'-9"	8	1266

Bent Bar Details



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

5h1 bar Lengths

Bridge Length	a Dimension	Length	Wt/bar (lbs)
70'-0"	1'-7½"	6'-11"	7
80'-0"	1'-8¼"	7'-1"	7
90'-0"	1'-9¼"	7'-3"	8
100'-0"	1'-10¼"	7'-5"	8
110'-0"	2'-0¼"	7'-9"	8
120'-0"	2'-1"	7'-10"	8
130'-0"	2'-2¼"	8'-1"	8
140'-0"	2'-3½"	8'-3"	9
150'-0"	2'-5"	8'-6"	9

Note:
For Pile Spacing, see Sheet **J44-25-25.**

Est. Concrete Qty - Monolithic One Pier 44' Roadway Width

	Skew	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
Structural Concrete (Cu. Yds.)	0°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
	15°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
	30°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
	45°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

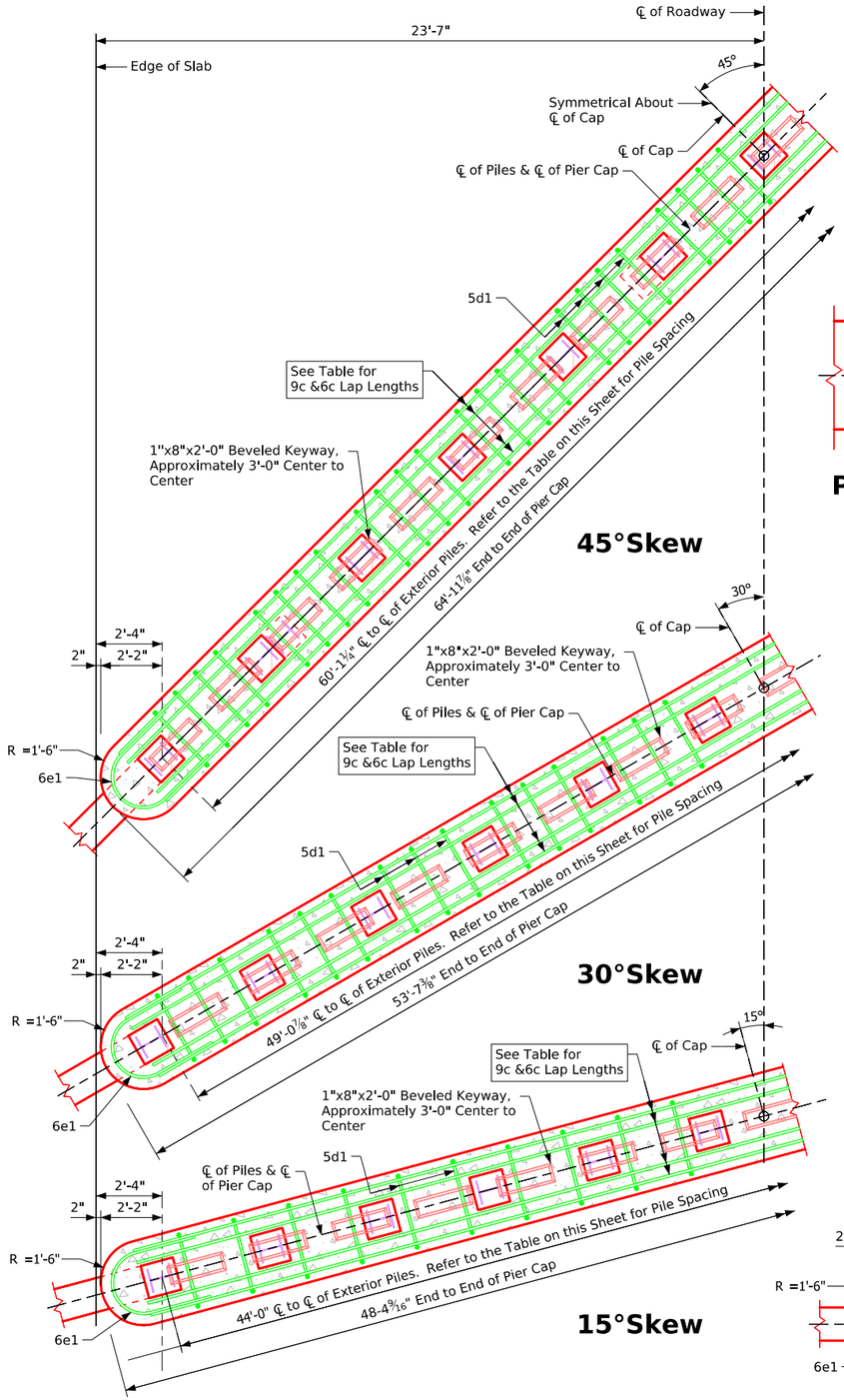
Continuous Concrete Slab Bridge

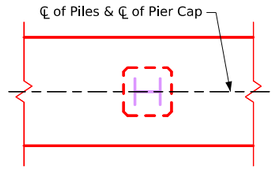
December, 2025

Pier Cap Monolithic Details all Bridges (2 of 2)

J44-26-25

Revised 09-2026: Updated Bridge Engineer signature.





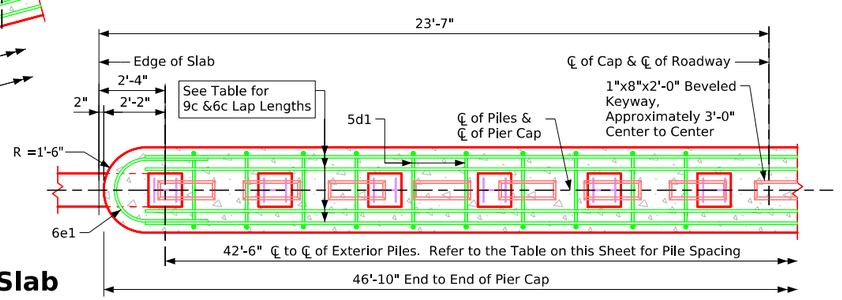
Pile Orientation

Type 3 Trestle Bent Piles.

Lap Lengths	
9c	6'-7"
6d	3'-1"

Half Section Below Slab

Note: The number of piles and stirrups shown are for a 100'-0" bridge w/ HP 10x42 piles. Cap dimensions are typical for all bridges.



0°Skew

*Factored Loads And Number Of Piles Non-Monolithic - 44' Roadway

Bridge Length	HP 10 x 42 Pu (kips)	HP 10 x 42 Number of Piles 0°	15°	30°	45°	HP 10 x 57 Pu (kips)	HP 10 x 57 Number of Piles 0°	15°	30°	45°	HP 12 x 53 Pu (kips)	HP 12 x 53 Number of Piles 0°	15°	30°	45°	HP 14 x 73 Pu (kips)	HP 14 x 73 Number of Piles 0°	15°	30°	45°	HP 14 x 89 Pu (kips)	HP 14 x 89 Number of Piles 0°	15°	30°	45°
70'-0"	987	9	9	9	10	986	7	7	8	9	1009	8	8	8	9	1125	7	7	8	9	1172	7	7	8	9
80'-0"	1086	10	10	10	11	1071	8	8	8	9	1100	8	8	8	9	1217	7	7	8	9	1264	7	7	8	9
90'-0"	1198	11	11	11	12	1176	8	8	8	9	1205	9	9	9	9	1274	7	7	8	9	1321	7	7	8	9
100'-0"	1320	12	12	12	13	1291	9	9	9	9	1330	10	10	10	10	1373	8	8	8	9	1435	7	7	8	9
110'-0"	1439	13	13	14	14	1410	10	10	10	10	1453	11	11	11	11	1485	8	8	8	9	1500	7	7	8	9
120'-0"	1580	15	15	15	15	1551	11	11	11	11	1597	12	12	12	12	1619	9	9	9	9	1634	7	7	8	9
130'-0"	1720	16	16	16	16	1690	12	12	12	12	1739	13	13	13	13	1767	10	10	10	10	1750	8	8	8	9
140'-0"	1872	17	18	18	18	1836	13	13	13	13	1898	14	14	14	15	1921	11	11	11	11	1888	9	9	9	9
150'-0"	2035	N.A.	N.A.	19	19	1998	14	14	14	14	2064	16	16	16	16	2092	12	12	12	12	2059	9	9	9	10

*Factored Loads And Number Of Piles Non-Monolithic - 44' Roadway

Bridge Length	Prestressed 14" Pu (kips)	Prestressed 14" Number of Piles 0°	15°	30°	45°	Prestressed 16" Pu (kips)	Prestressed 16" Number of Piles 0°	15°	30°	45°	Cast In Place 14" Pu (kips)	Cast In Place 14" Number of Piles 0°	15°	30°	45°	Cast In Place 16" Pu (kips)	Cast In Place 16" Number of Piles 0°	15°	30°	45°
70'-0"	1029	11	11	11	11	1049	10	10	10	10	1018	11	11	11	11	1036	10	10	10	10
80'-0"	1131	12	12	12	12	1154	11	11	11	11	1119	12	12	12	12	1139	10	10	11	11
90'-0"	1256	13	13	13	14	1273	12	12	12	12	1233	13	13	13	13	1256	12	12	12	12
100'-0"	1381	15	15	15	15	1401	13	13	13	13	1366	14	14	15	15	1383	13	13	13	13
110'-0"	1503	N.A.	16	16	16	1526	N.A.	14	14	14	1488	N.A.	16	16	16	1507	N.A.	14	14	14
120'-0"	1657	N.A.	N.A.	N.A.	18	1686	N.A.	N.A.	N.A.	16	1640	N.A.	N.A.	17	18	1664	N.A.	N.A.	15	16
130'-0"	1800	N.A.	N.A.	N.A.	19	1832	N.A.	N.A.	N.A.	17	1781	N.A.	N.A.	N.A.	19	1809	N.A.	N.A.	N.A.	17
140'-0"	1958	N.A.	N.A.	N.A.	21	1997	N.A.	N.A.	N.A.	19	1938	N.A.	N.A.	N.A.	21	1959	N.A.	N.A.	N.A.	18
150'-0"	2134	N.A.	N.A.	N.A.	N.A.	2165	N.A.	N.A.	N.A.	N.A.	2112	N.A.	N.A.	N.A.	N.A.	2138	N.A.	N.A.	N.A.	N.A.

*Pier cap weight based on 45° Skew. Pu includes weight of pile encasement.
N.A. indicates the pile spacing for this pile size does not satisfy the maximum or minimum spacing requirements.

Pile Spacing - Non-Monolithic 44' Roadway Width

No. Piles	No. Spaces	0° Skew	15° Skew	30° Skew	45° Skew
7	6	6'-1"	6'-3"	7'-0"	N.A.
8	7	5'-4"	5'-6"	6'-2"	7'-6"
9	8	4'-9"	4'-11"	5'-5"	6'-8"
10	9	4'-3"	4'-5"	4'-11"	6'-0"
11	10	3'-10"	4'-0"	4'-6"	5'-6"
12	11	3'-7"	3'-8"	4'-1"	5'-0"
13	12	3'-3"	3'-5"	3'-9"	4'-7"
14	13	3'-0"	3'-2"	3'-6"	4'-4"
15	14	2'-10"	2'-11"	3'-3"	4'-0"
16	15	2'-8"	2'-9"	3'-1"	3'-9"
17	16	2'-6"	2'-7"	2'-11"	3'-6"
18	17	N.A.	N.A.	2'-9"	3'-4"
19	18	N.A.	N.A.	2'-7"	3'-2"
20	19	N.A.	N.A.	N.A.	3'-0"
21	20	N.A.	N.A.	N.A.	2'-10"

N.A. indicates the pile spacing for this pile size cannot satisfy for the limits of the maximum or minimum spacing requirements.

Pier Notes:

For skewed bridges, the bottom of the pier cap is to be sloped to compensate for grade. Therefore, bottom-of-cap elevations will be required at the centerline of the roadway and at each exterior pile.

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

Pier piles are to be driven to full penetration if practicable but, in no case, to a bearing value less than the pile bearing required for each bridge.

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

All reinforcing steel is to be Grade 60.

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

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

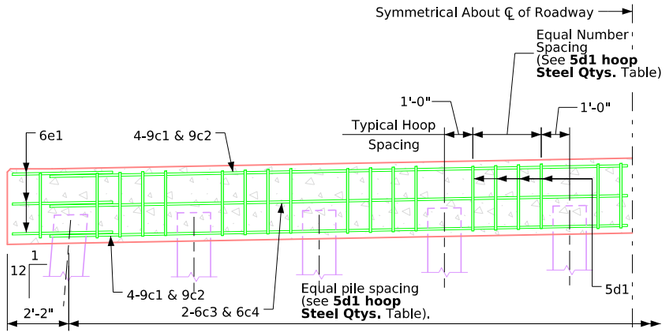
Continuous Concrete Slab Bridge

December, 2025

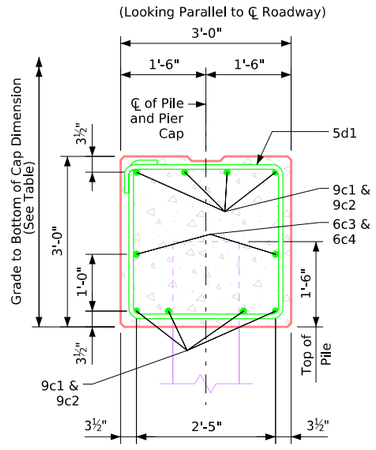
Pier Cap Non-Monolithic Details All Bridges (1 of 2)

J44-27-25

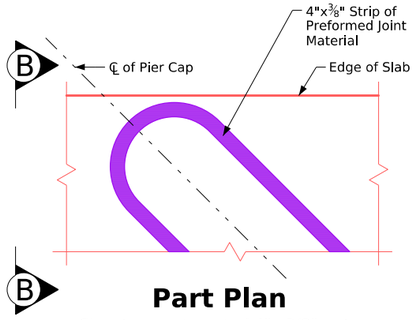
Revised 09-2026: Updated Bridge Engineer signature.



Typ. Half Elevation Pier Cap

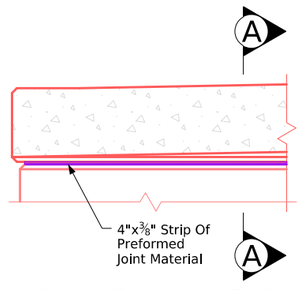


Typical Section

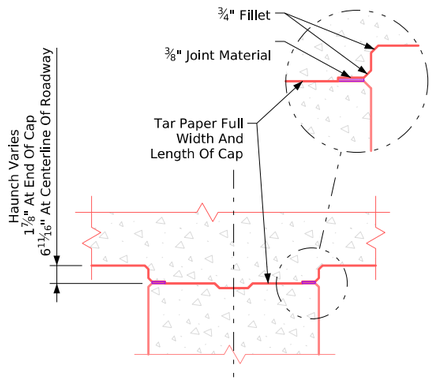


Part Plan

Showing treatment of 4"x 3/8" strip of preformed joint material at ends of pier cap. Note that joint material is to go all the way around pier cap for square and skewed bridges.



Part Section B-B



Part Section A-A

Note:
*Total weight shall be calculated by the Designer based on the type/size of piling used and the size of the bridge.

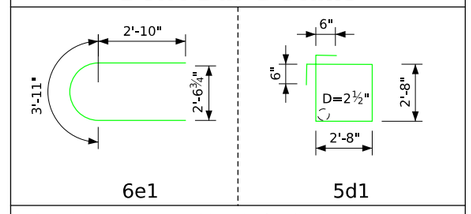
5h1 Steel Quantities - Non-Monolithic Pier Cap - One Pier 44' Roadway Width

				0° Skew			15° Skew			30° Skew			45° Skew		
No. Piles	No. Pile Spaces	5h1 Shape	5h1 Length (ft)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)	No. Eq. Hoop Spaces	Total No. Hoops	Total Weight (lbs)
7	6		11'-8"	6	42	511	6	42	511	N.A	N.A	N.A	N.A	N.A	N.A
8	7		11'-8"	5	42	511	5	42	511	6	49	596	N.A	N.A	N.A
9	8		11'-8"	4	40	487	4	40	487	5	48	584	6	56	682
10	9		11'-8"	3	36	438	3	36	438	4	45	548	5	54	657
11	10		11'-8"	3	40	487	3	40	487	3	40	487	5	60	730
12	11		11'-8"	2	33	402	2	33	402	3	44	536	4	55	669
13	12		11'-8"	2	36	438	2	36	138	3	48	584	4	60	730
14	13		11'-8"	2	39	475	2	39	475	2	39	475	3	52	663
15	14		11'-8"	2	42	511	2	42	411	2	42	511	3	56	682
16	15		11'-8"	1	30	365	1	30	365	2	45	548	3	60	730
17	16		11'-8"	1	32	389	1	32	389	2	48	584	2	48	584
18	17		11'-8"	1	34	414	1	34	414	1	34	414	2	51	621
19	18		11'-8"	N.A	N.A	N.A	N.A	N.A	N.A	1	36	438	2	54	657
20	19		11'-8"	N.A	N.A	N.A	N.A	N.A	N.A	1	38	463	2	57	694
21	20		11'-8"	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	2	60	730

Epoxy Reinforcing Steel - Non-Monolithic 44' Roadway - One Pier

		0° Skew			15° Skew			30° Skew			45° Skew		
Bar	Shape	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	Length	No.	Weight
9c1		4	21'-11"	298	4	22'-8"	309	4	25'-4"	344	28'-7"	4	389
9c2		4	28'-7"	389	4	29'-4"	309	4	32'-0"	435	35'-3"	4	480
9c3		4	21'-11"	298	4	22'-8"	309	4	25'-4"	344	28'-7"	4	389
9c4		4	27'-0"	367	4	27'-9"	378	4	30'-5"	413	33'-8"	4	458
6d3		2	21'-11"	66	2	22'-8"	68	2	25'-4"	76	28'-7"	2	86
6d4		2	25'-0"	75	2	25'-9"	77	2	28'-5"	85	31'-8"	2	95
6e1		6	9'-7"	86	6	9'-7"	86	6	9'-7"	86	9'-7"	6	86

Bent Bar Details



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

Est. Concrete Qty - Non-Monolithic One Pier 44' Roadway Width

	Skew	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
Structural Concrete (Cu. Yds.)	0°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
	15°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
	30°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
	45°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1

Note:
For Pile Spacing, see Sheet **J44-27-25**.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

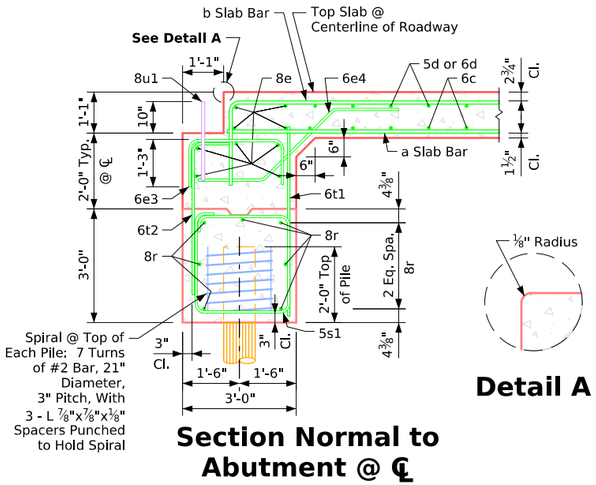
Continuous Concrete Slab Bridge

December, 2025

Pier Cap Non-Monolithic Details all Bridges (2 of 2)

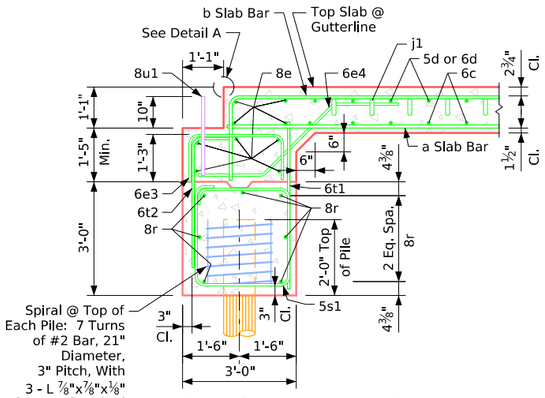
J44-28-25

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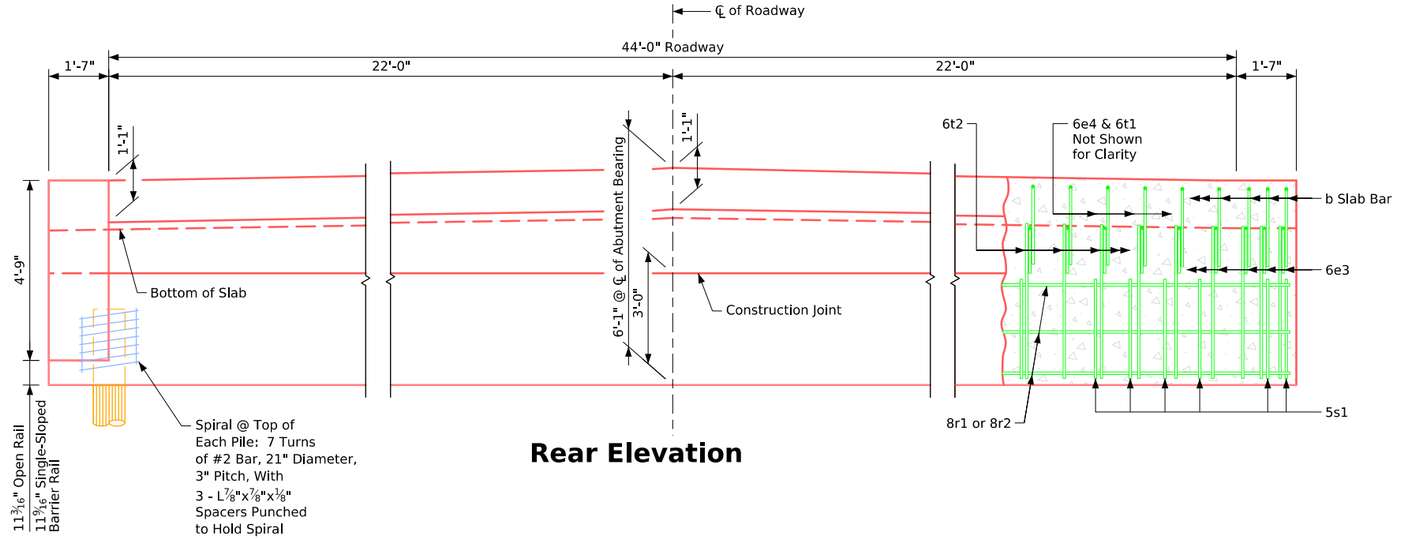


Detail A

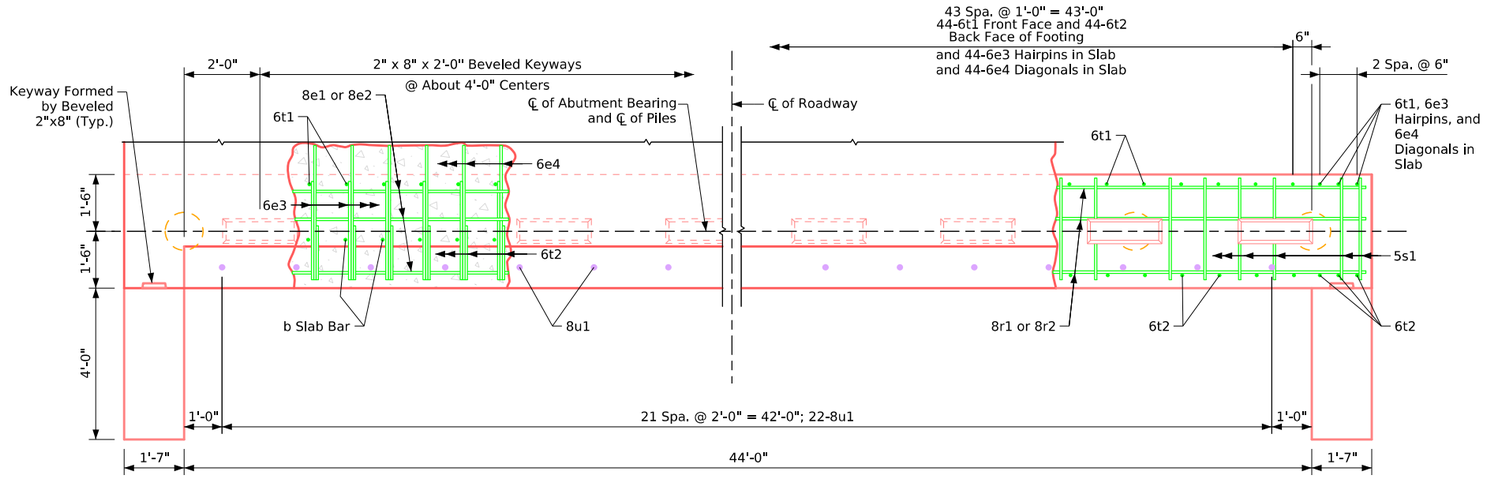
Section Normal to Abutment @ ℄



Section Normal to Abutment @ Gutter Line



Rear Elevation



Plan View

ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

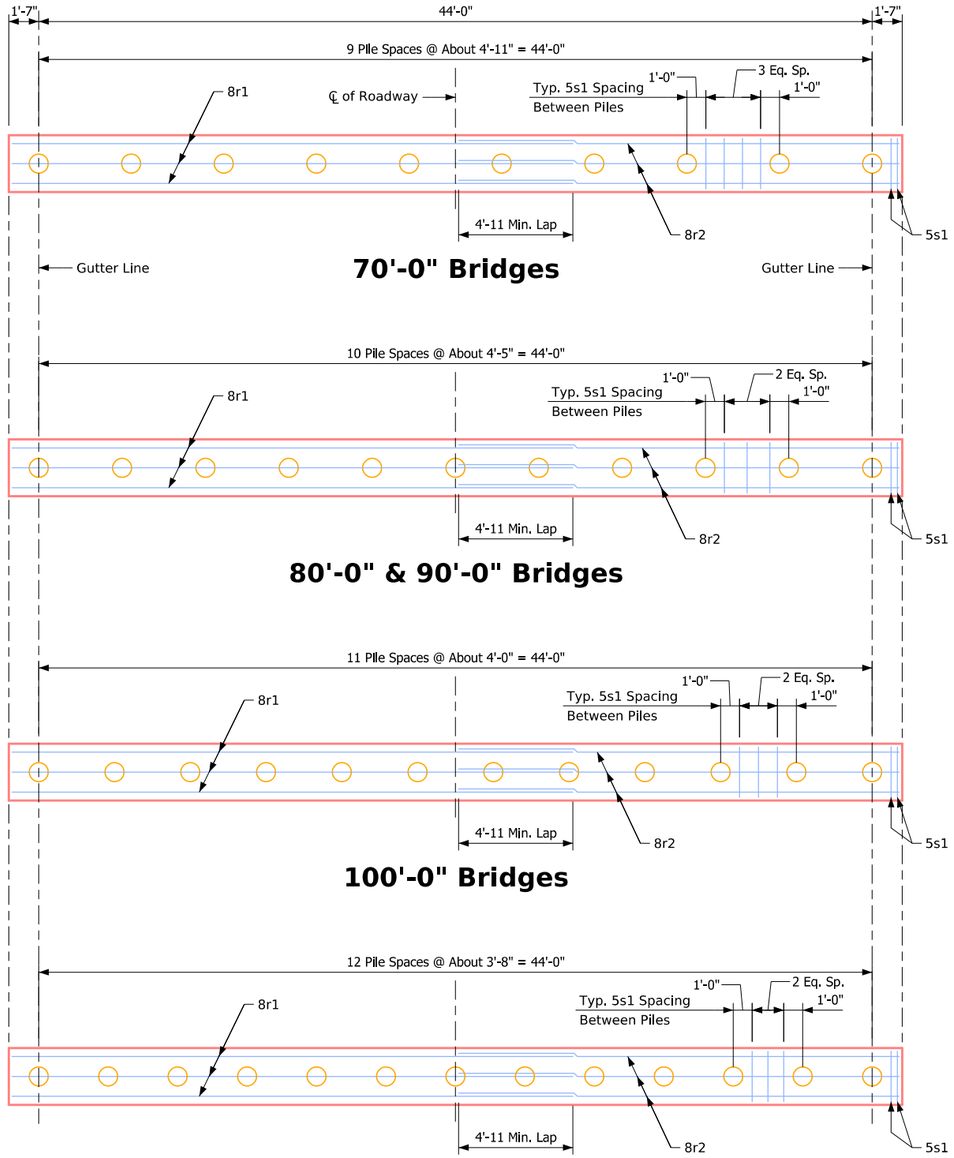
Continuous Concrete Slab Bridge

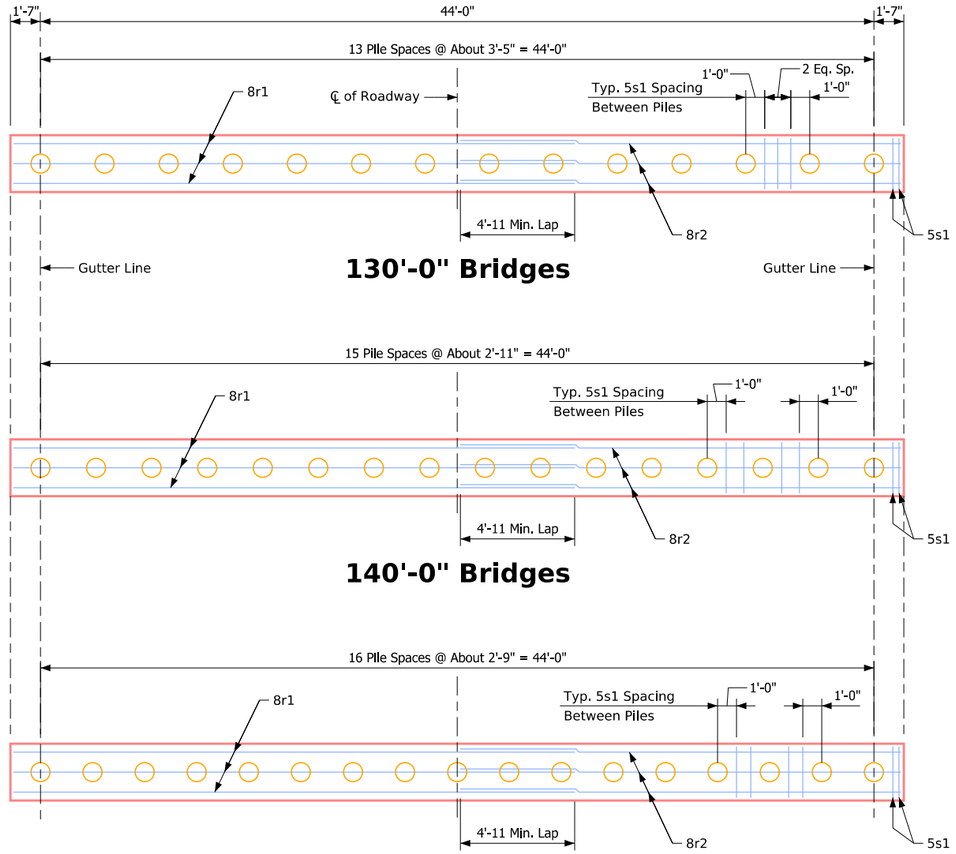
December, 2025

Abutment Details 0° Skew - Timber Piling (1 of 2)

J44-29-25

Revised 09-2026: Updated Bridge Engineer signature.





Pile Plan - 0° Skew Wood Piling

Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	10	11	11	12	13	13	14	16	17
Pu, Strength 1 Design Load - kips	504	539	571	613	653	699	744	Δ869	Δ922

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

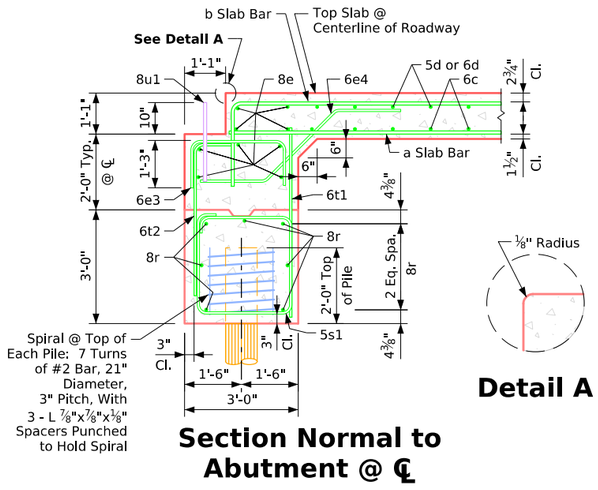
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 0° Skew -
Timber Piling (2 of 2)

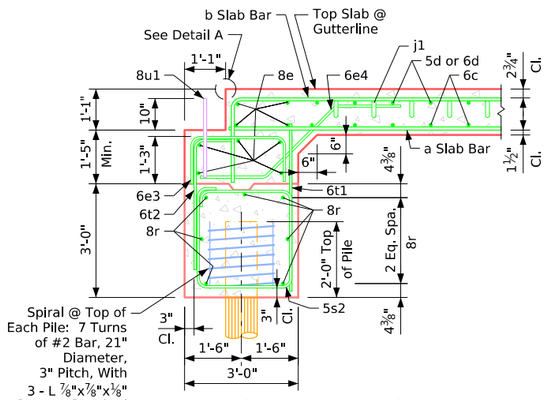
J44-30-25

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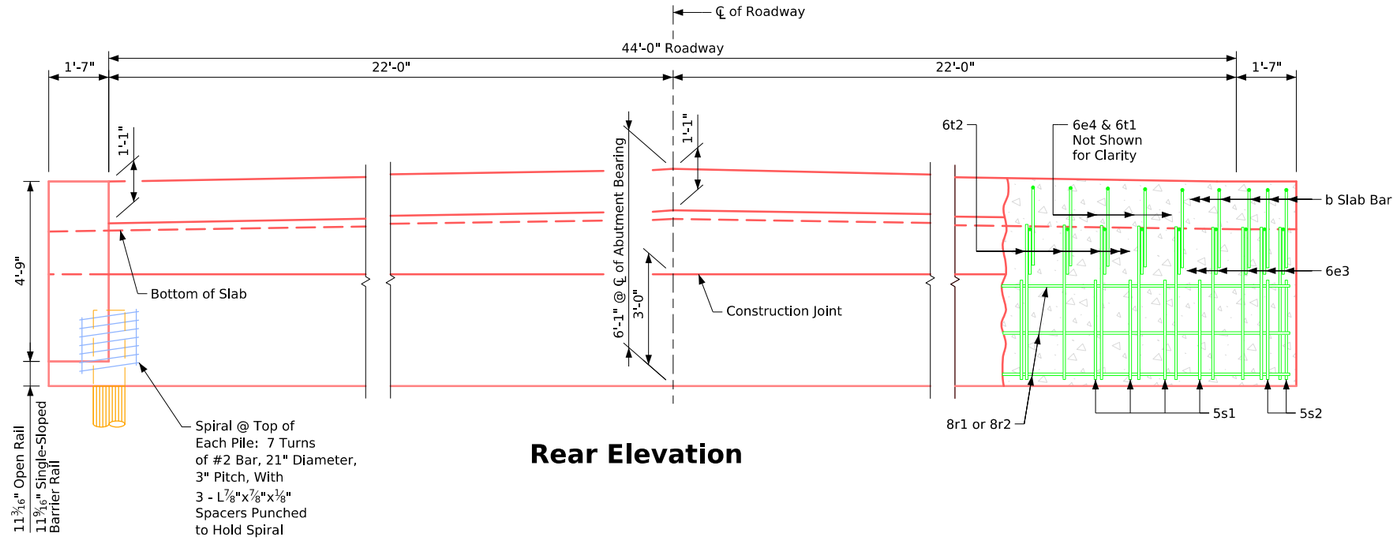


Section Normal to Abutment @ ℄

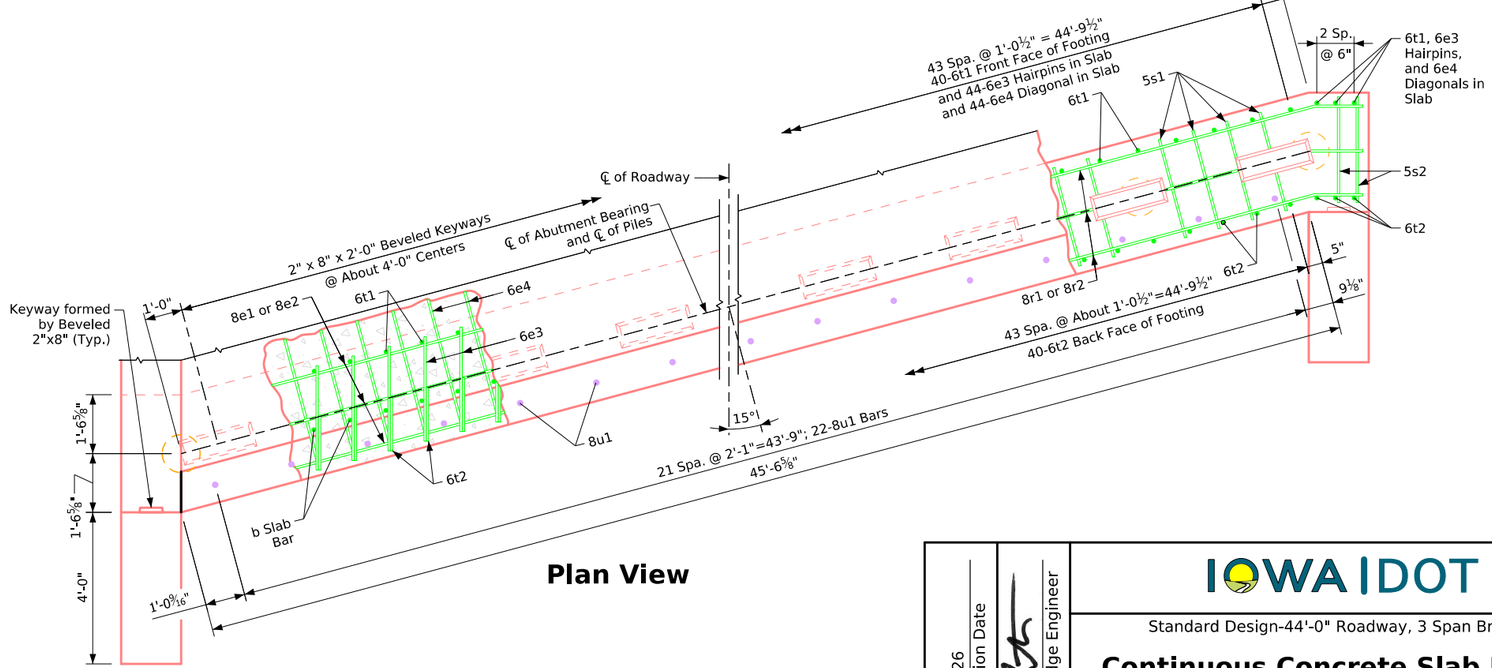
Detail A



Section Normal to Abutment @ Gutter Line



Rear Elevation



Plan View

ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

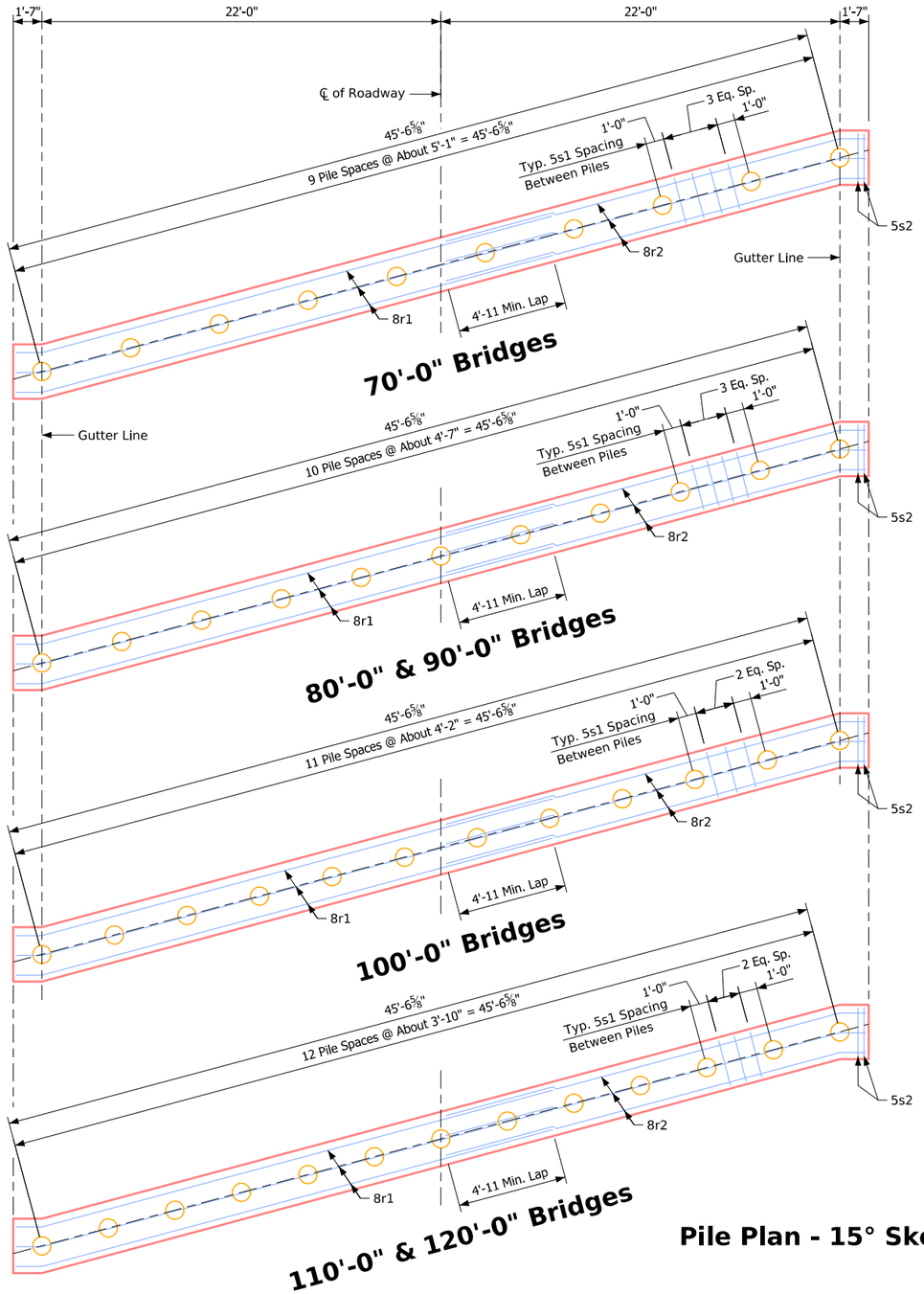
Continuous Concrete Slab Bridge

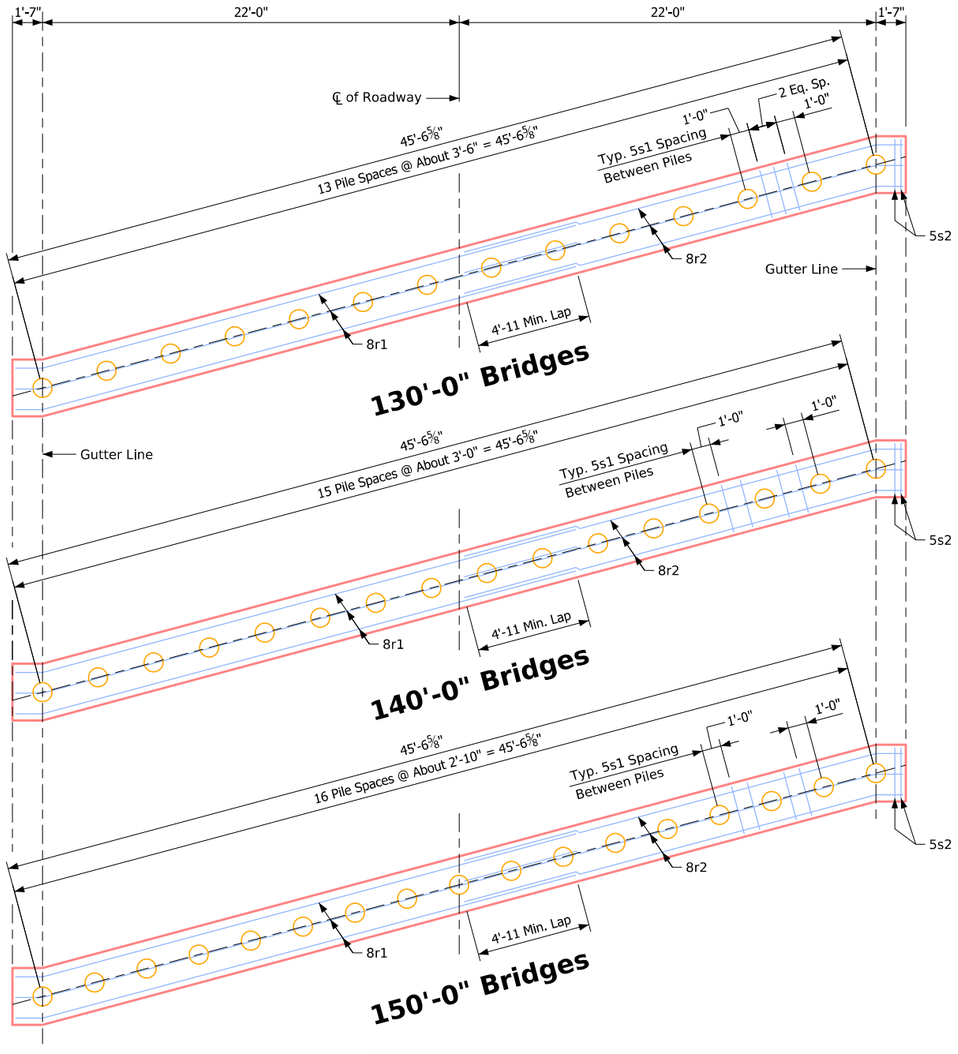
December, 2025

Abutment Details 15° Skew - Timber Piling (1 of 2)

J44-31-25

Revised 09-2026: Updated Bridge Engineer signature.





Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	10	11	11	12	13	13	14	16	17
Pu, Strength 1 Design Load - kips	509	544	577	618	658	705	749	Δ875	Δ927

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

Pile Plan - 15° Skew Wood Piling

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

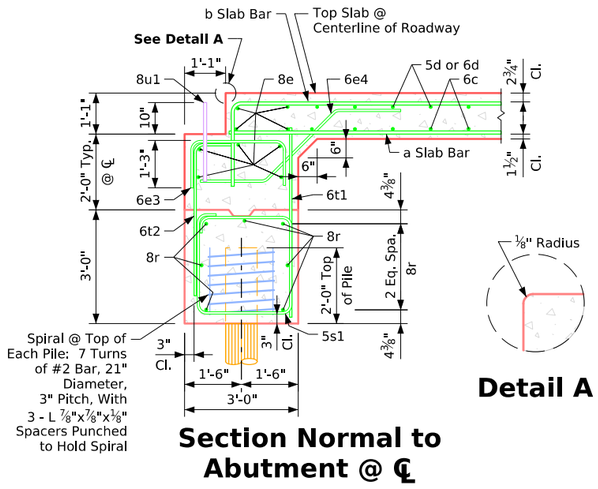
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 15° Skew - Timber Piling (2 of 2)

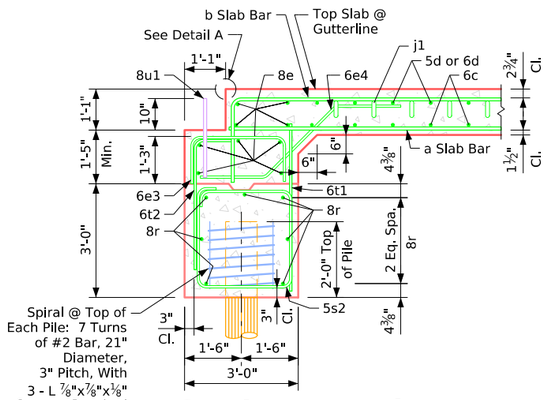
J44-32-25

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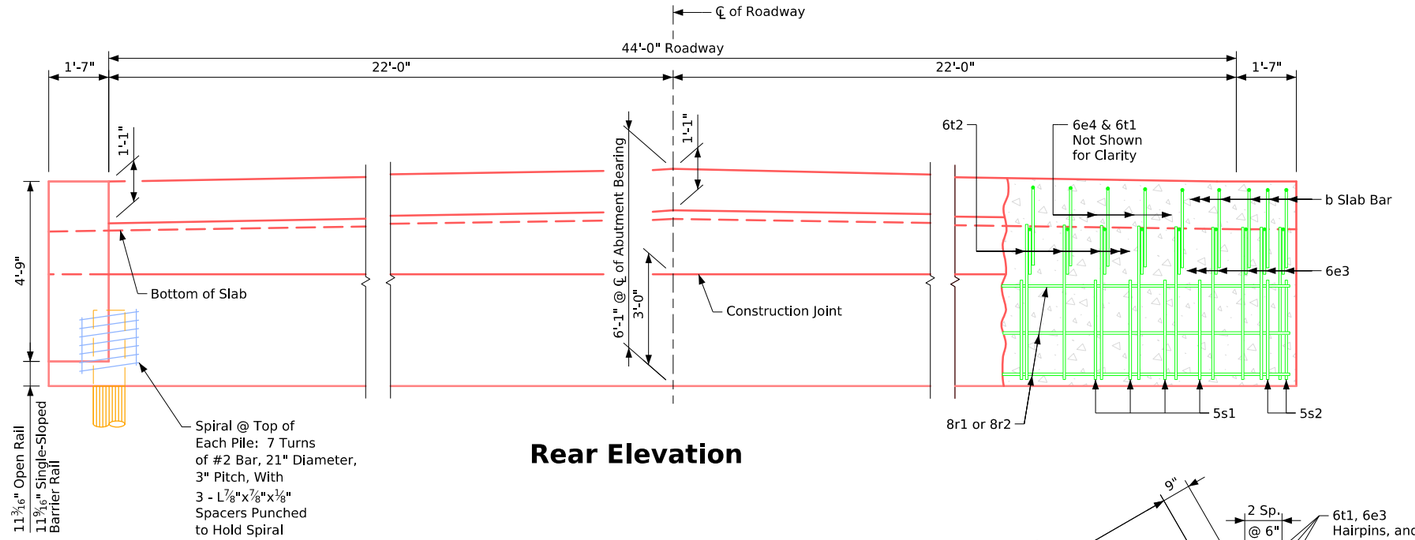


Section Normal to Abutment @ ℄

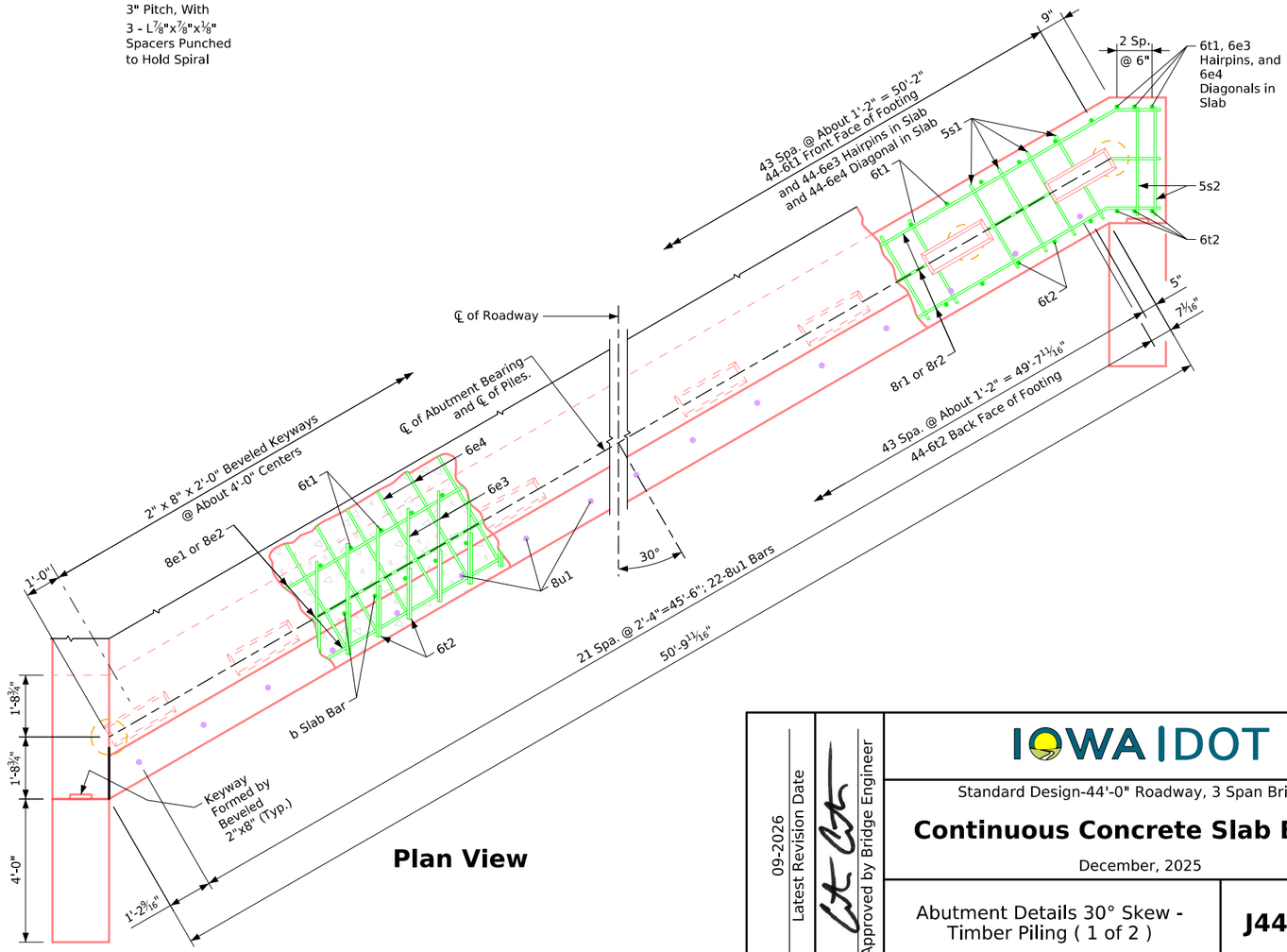
Detail A



Section Normal to Abutment @ Gutter Line



Rear Elevation



Plan View

ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

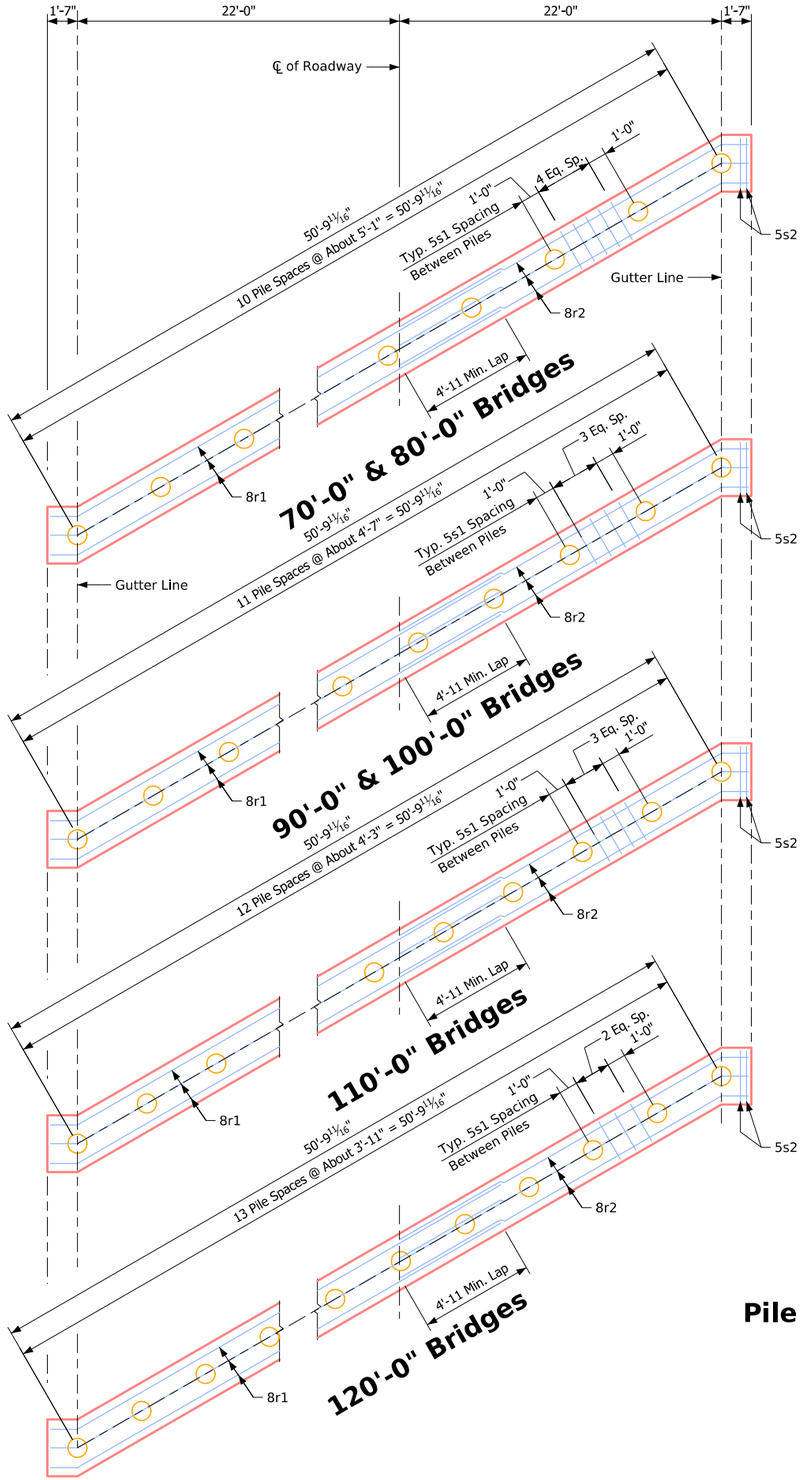
Continuous Concrete Slab Bridge

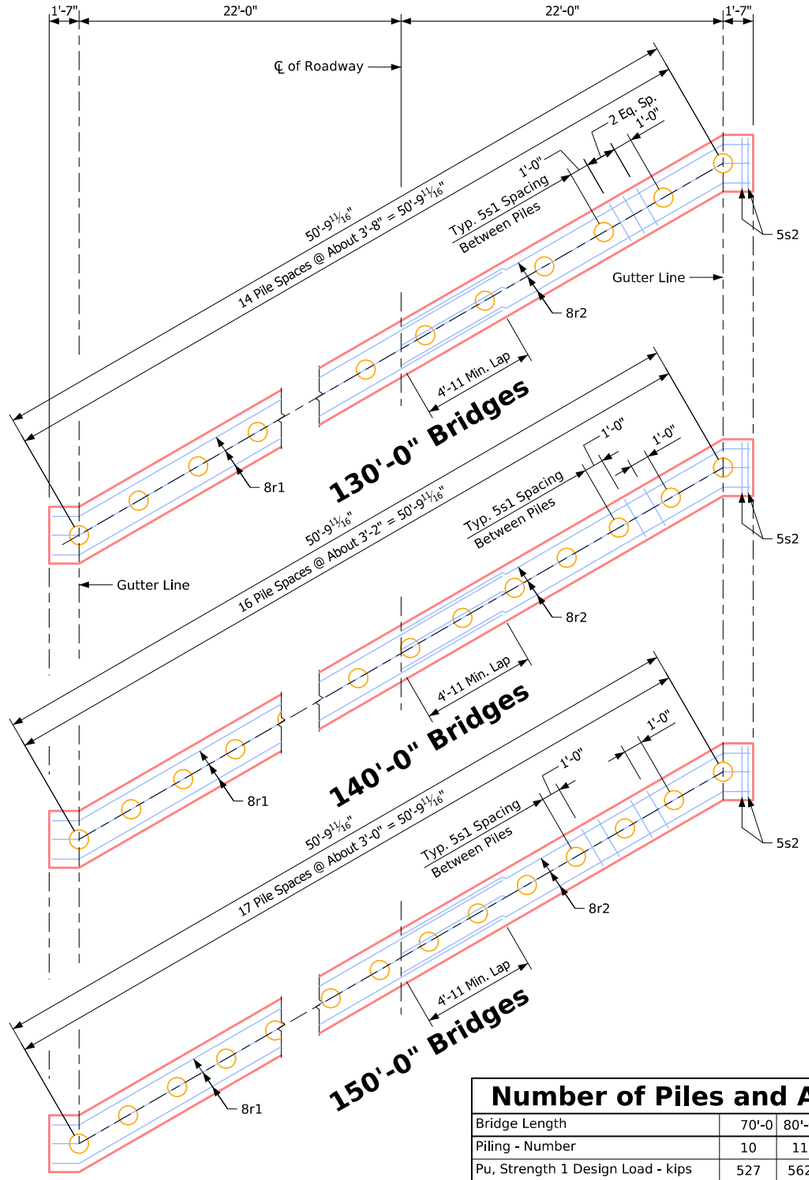
December, 2025

Abutment Details 30° Skew - Timber Piling (1 of 2)

J44-33-25

Revised 09-2026: Updated Bridge Engineer signature.





Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	10	11	12	12	13	14	15	17	18
Pu, Strength 1 Design Load - kips	527	562	594	636	676	723	768	Δ 893	Δ 946

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

Pile Plan - 30° Skew Wood Piling

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

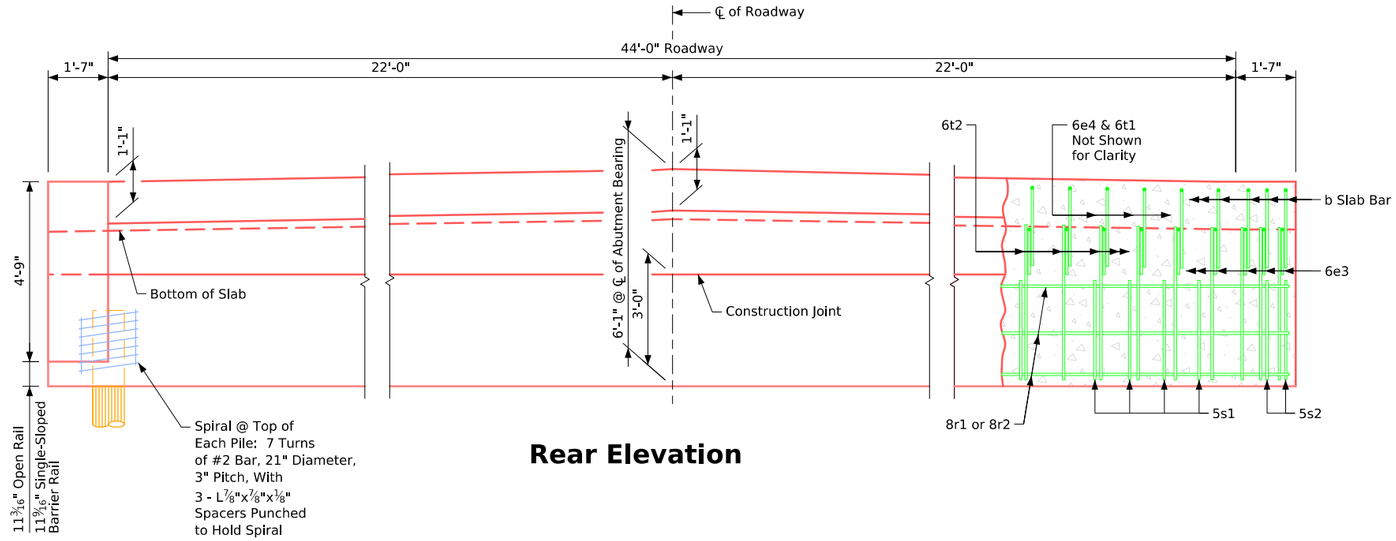
Continuous Concrete Slab Bridge

December, 2025

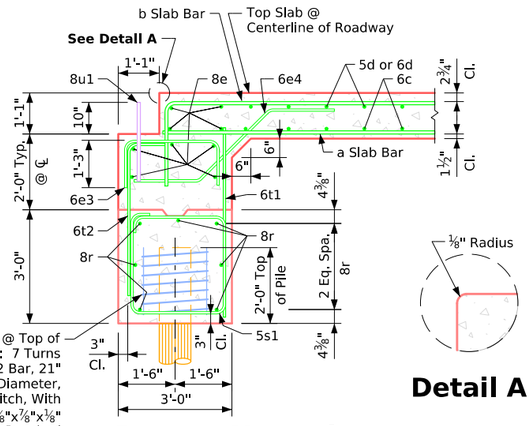
Abutment Details 30° Skew - Timber Piling (2 of 2)

J44-34-25

Revised 09-2026: Updated Bridge Engineer signature.

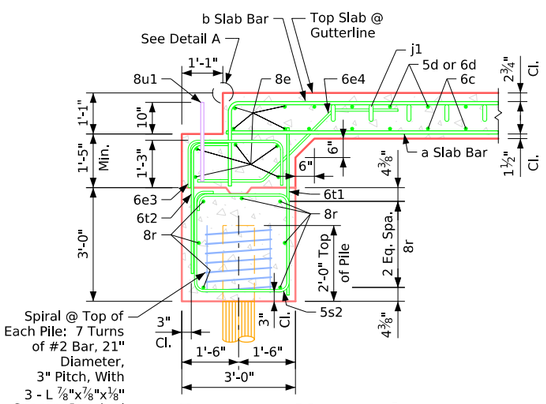


Rear Elevation

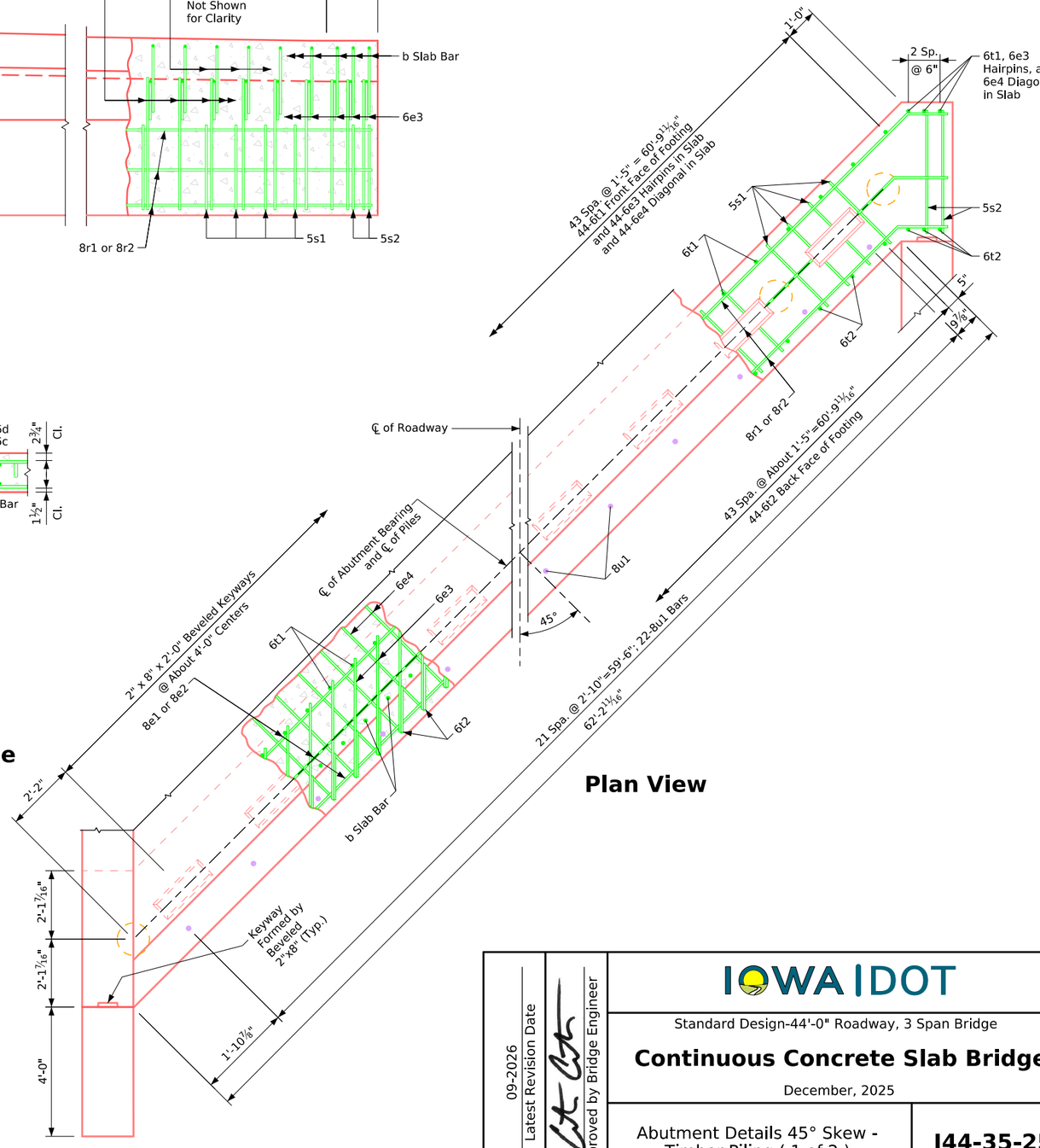


Section Normal to Abutment @ ℄

Detail A



Section Normal to Abutment @ Gutter Line



Plan View

ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

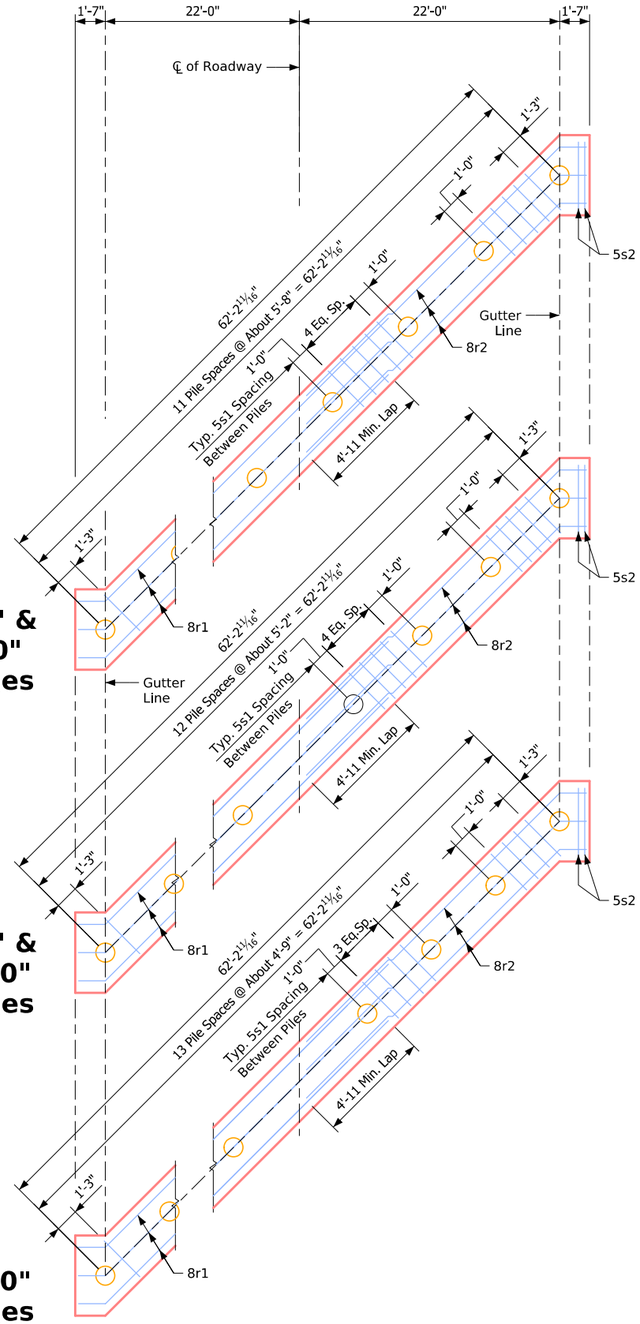
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 45° Skew - Timber Piling (1 of 2)

J44-35-25

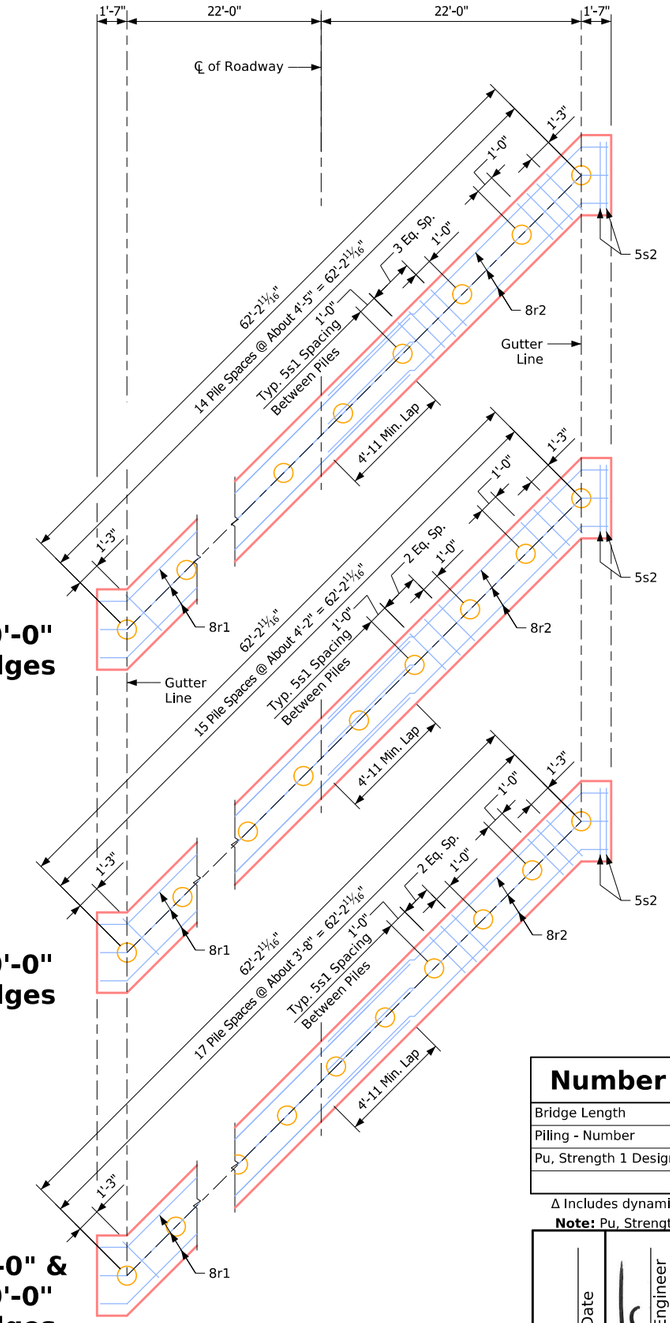
Revised 09-2026: Updated Bridge Engineer signature.



70'-0" & 80'-0" Bridges

90'-0" & 100'-0" Bridges

110'-0" Bridges



120'-0" Bridges

130'-0" Bridges

140'-0" & 150'-0" Bridges

Pile Plan - 45° Skew Wood Piling

Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	12	12	13	13	14	15	16	18	18
Pu, Strength 1 Design Load - kips	566	599	632	674	715	762	807	Δ933	Δ986

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

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Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Abutment Details 45° Skew - Timber Piling (2 of 2)

J44-36-25

Revised 09-2026: Updated Bridge Engineer signature.

BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		28'-6	7	553	7	533	7	533	7	533	7	533	7	533	7	533	7	533	7	533
8r2	Abutment Footing Longitudinal		23'-3	7	435	7	435	7	435	7	435	7	435	7	435	7	435	7	435	7	435
5s1	Abutment Footing Hoops		11'-0	40	459	44	505	44	505	37	425	40	459	40	459	43	493	34	390	36	413
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	46	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	10	64	11	71	11	71	12	77	13	84	13	84	14	90	16	103	17	109
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	30	38	33	42	33	42	36	46	39	50	39	50	42	54	48	62	51	65
	Reinforcing steel epoxy coated - total (lbs.)				2324		2380		2380		2380		2310		2355		2399		2317		2350

BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		29'-4	7	548	7	548	7	548	7	548	7	548	7	548	7	548	7	548	7	548
8r2	Abutment Footing Longitudinal		24'-1	7	435	7	435	7	435	7	435	7	435	7	435	7	435	7	435	7	435
5s1	Abutment Footing Hoops		11'-0	45	516	40	459	40	459	44	505	36	435	36	435	39	447	30	344	32	367
5s2	Abutment Footing Hoops		11'-11	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	10	64	11	71	11	71	12	77	12	84	13	84	14	90	16	103	17	109
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	30	38	33	42	33	42	36	46	39	50	39	50	42	54	48	62	51	65
	Reinforcing steel epoxy coated - total (lbs.)				2459		2412		2412		2468		2387		2387		2431		3249		2382

BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		31'-11	7	597	7	597	7	597	7	597	7	597	7	597	7	597	7	597	7	597
8r2	Abutment Footing Longitudinal		26'-8	7	498	7	498	7	498	7	498	7	498	7	498	7	498	7	498	7	498
5s1	Abutment Footing Hoops		11'-0	50	574	50	571	44	505	44	505	48	597	39	447	42	482	48	597	34	390
5s2	Abutment Footing Hoops		11'-11	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	11	71	11	71	12	77	12	77	13	83	14	90	15	96	17	109	18	116
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	33	42	33	42	36	46	36	46	39	50	42	54	45	58	51	65	54	69
	Reinforcing steel epoxy coated - total (lbs.)				2626		2562		2504		2504		3325		2467		2512		2601		2451

BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		37'-8	7	704	7	704	7	704	7	704	7	704	7	704	7	704	7	704	7	704
8r2	Abutment Footing Longitudinal		32'-7	7	609	7	609	7	609	7	609	7	609	7	609	7	609	7	609	7	609
5s1	Abutment Footing Hoops		11'-0	55	631	55	631	60	688	60	688	52	597	56	642	60	688	511	585	51	585
5s2	Abutment Footing Hoops		13'-6	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	520	419
#2	Pile Spiral		38'-6	12	77	12	77	13	84	13	84	14	90	15	96	16	103	18	116	18	116
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	36	46	36	46	39	50	39	50	42	54	45	58	48	62	54	69	54	69
	Reinforcing steel epoxy coated - total (lbs.)				2918		2918		2986		2986		2905		2961		3017		2934		2934

Note: The pile spirals and spiral spacers are to be non-coated reinforcing but may be epoxy-coated at the Contractor's option and expense.

ESTIMATED QUANTITIES - ONE ABUT. - 0° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	15.1	15.1	15.1	15.0	13.7	14.9	14.9	14.8	14.8
Reinforcing Steel, Epoxy-Coated	lbs.	2323	2379	2379	2309	2354	2354	2398	2316	2348
Wood Piles (Treated)	no.	10	11	11	12	13	13	14	16	17
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	160	170

ESTIMATED QUANTITIES - ONE ABUT. - 15° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	15.7	15.7	15.7	15.6	15.5	15.5	15.5	15.4	15.3
Reinforcing Steel, Epoxy-Coated	lbs.	2456	2409	2409	2465	2384	2384	2428	2346	2378
Wood Piles (Treated)	no.	10	11	11	12	13	13	14	16	17
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	160	170

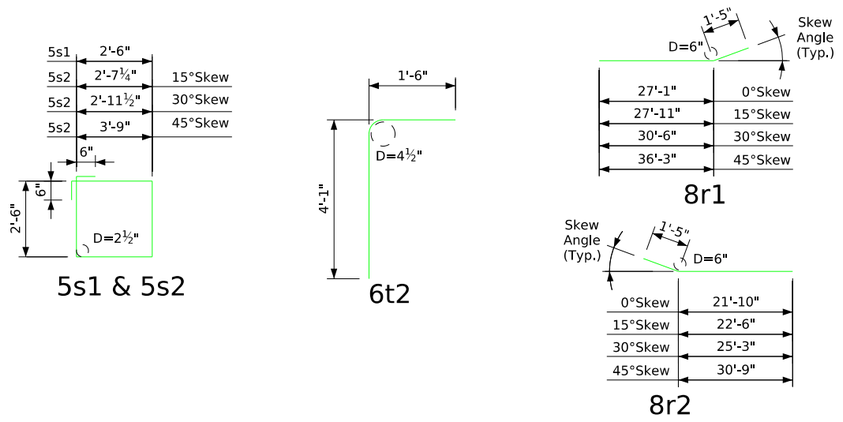
ESTIMATED QUANTITIES - ONE ABUT. - 30° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	17.6	17.6	17.5	17.5	17.4	17.4	17.3	17.2	17.2
Reinforcing Steel, Epoxy-Coated	lbs.	2625	2625	2566	2566	2623	2529	2574	2663	2513
Wood Piles (Treated)	no.	11	11	12	12	13	14	15	17	18
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	170	180

ESTIMATED QUANTITIES - ONE ABUT. - 45° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	21.6	21.6	21.5	21.5	21.5	21.4	21.3	21.2	21.2
Reinforcing Steel, Epoxy-Coated	lbs.	2912	2912	2980	2980	2899	2954	3011	2928	2628
Wood Piles (Treated)	no.	12	12	13	13	14	15	16	18	18
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	180	180

BENT BAR DETAILS



Note: Dimensions are out-to-out. D = pin diameter.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

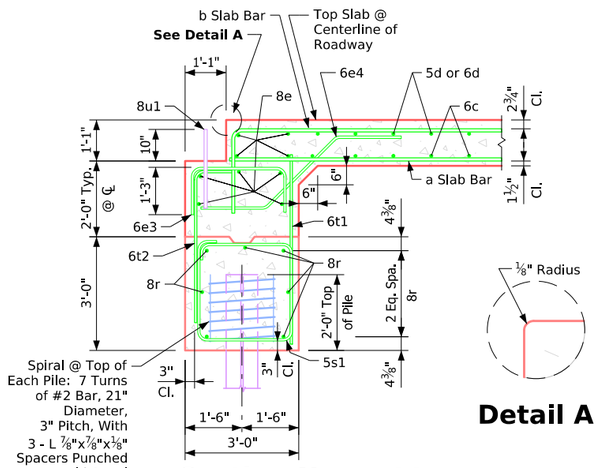
Continuous Concrete Slab Bridge

December, 2025

Abutment General Details - Timber Piling

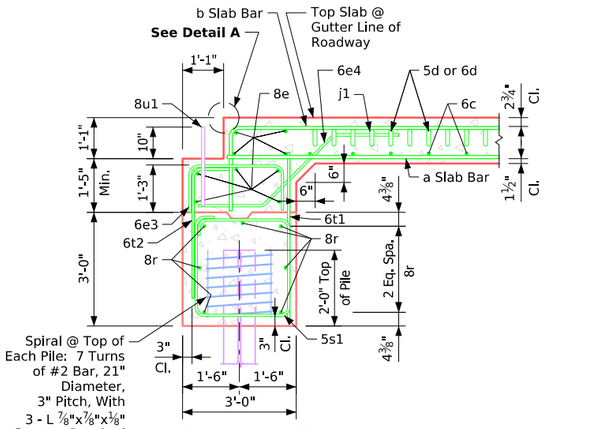
J44-37-25

Revised 09-2026: Updated Bridge Engineer signature.

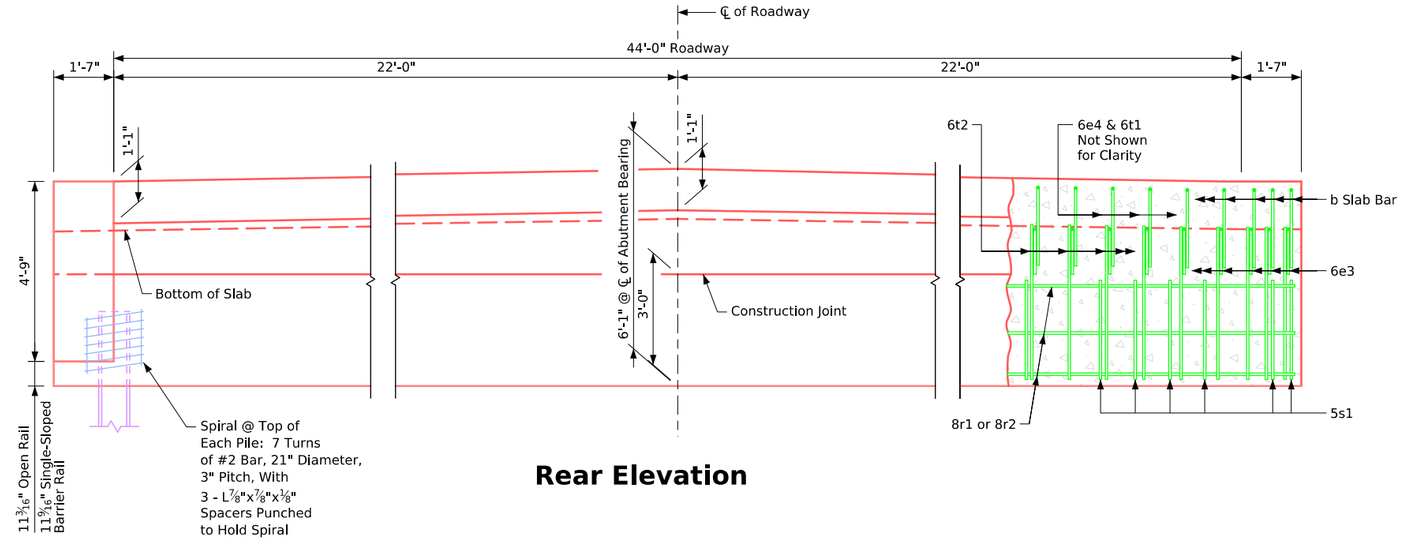


Section Normal to Abutment @ ℄

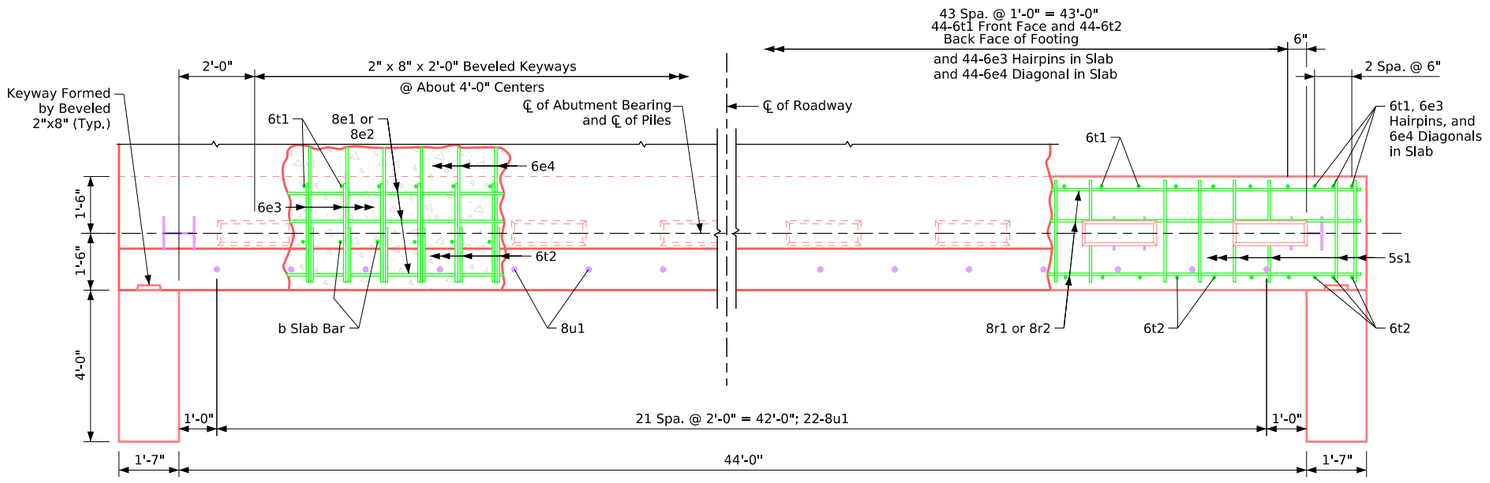
Detail A



Section Normal to Abutment @ Gutter Line



Rear Elevation



Plan View

ABUTMENT NOTES:

All piling are HP 10x42.

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

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

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

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

All reinforcing steel is to be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

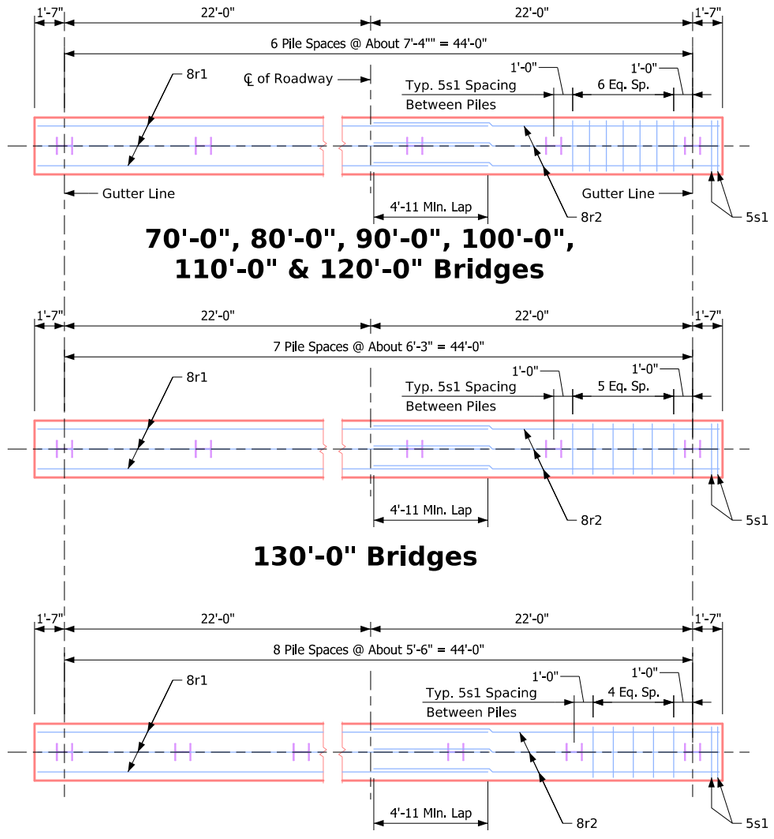
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 0° Skew - Steel Piling (1 of 2)

J44-38-25

Revised 09-2026: Updated Bridge Engineer signature.



Pile Plan - 0° Skew Steel Piling

Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	7	7	7	7	7	7	8	9	9
Pu, Strength 1 Design Load - kips	504	539	571	613	653	699	744	Δ869	Δ922

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

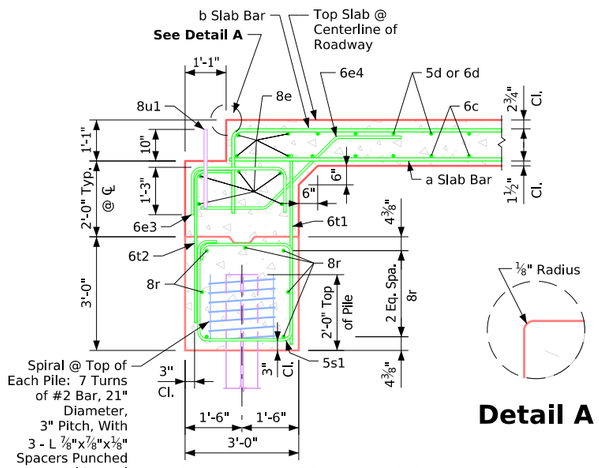
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 0° Skew -
Steel Piling (2 of 2)

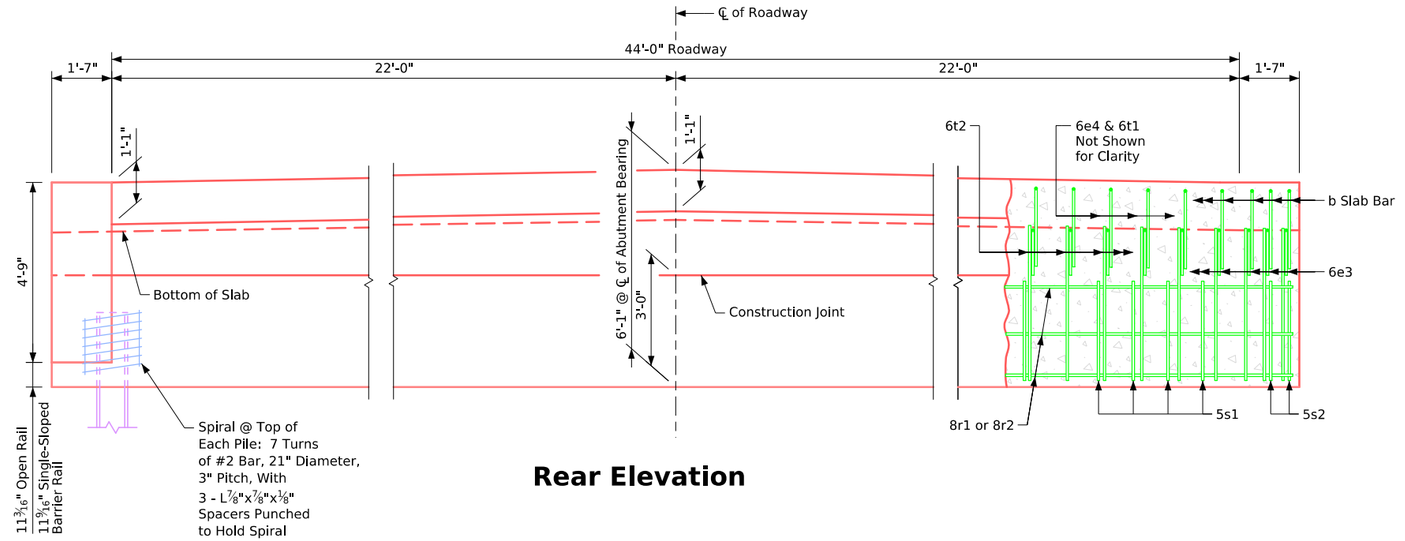
J44-39-25

Revised 09-2026: Updated Bridge Engineer signature.

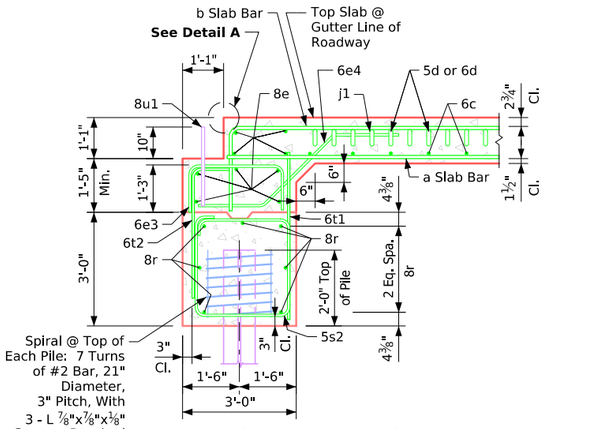


Section Normal to Abutment @ ℄

Detail A



Rear Elevation



Section Normal to Abutment @ Gutter Line

ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

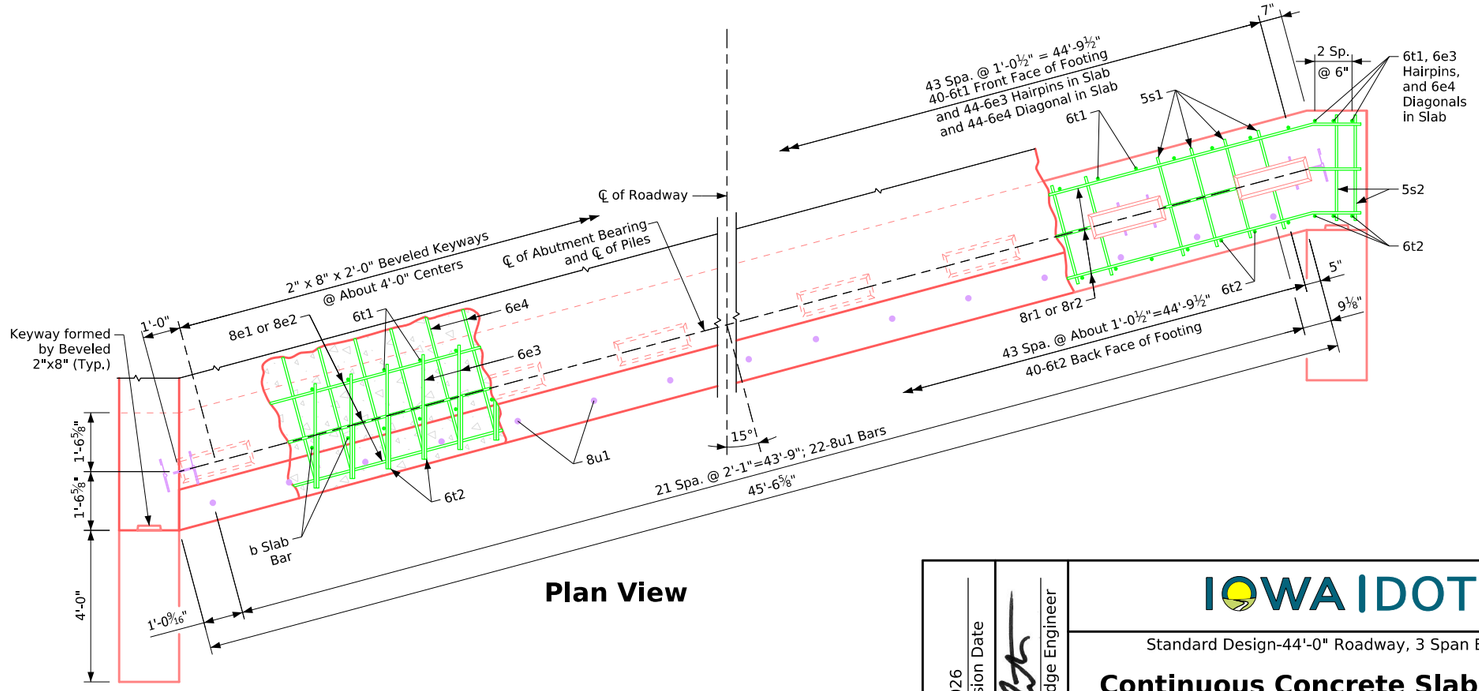
NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.



Plan View

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

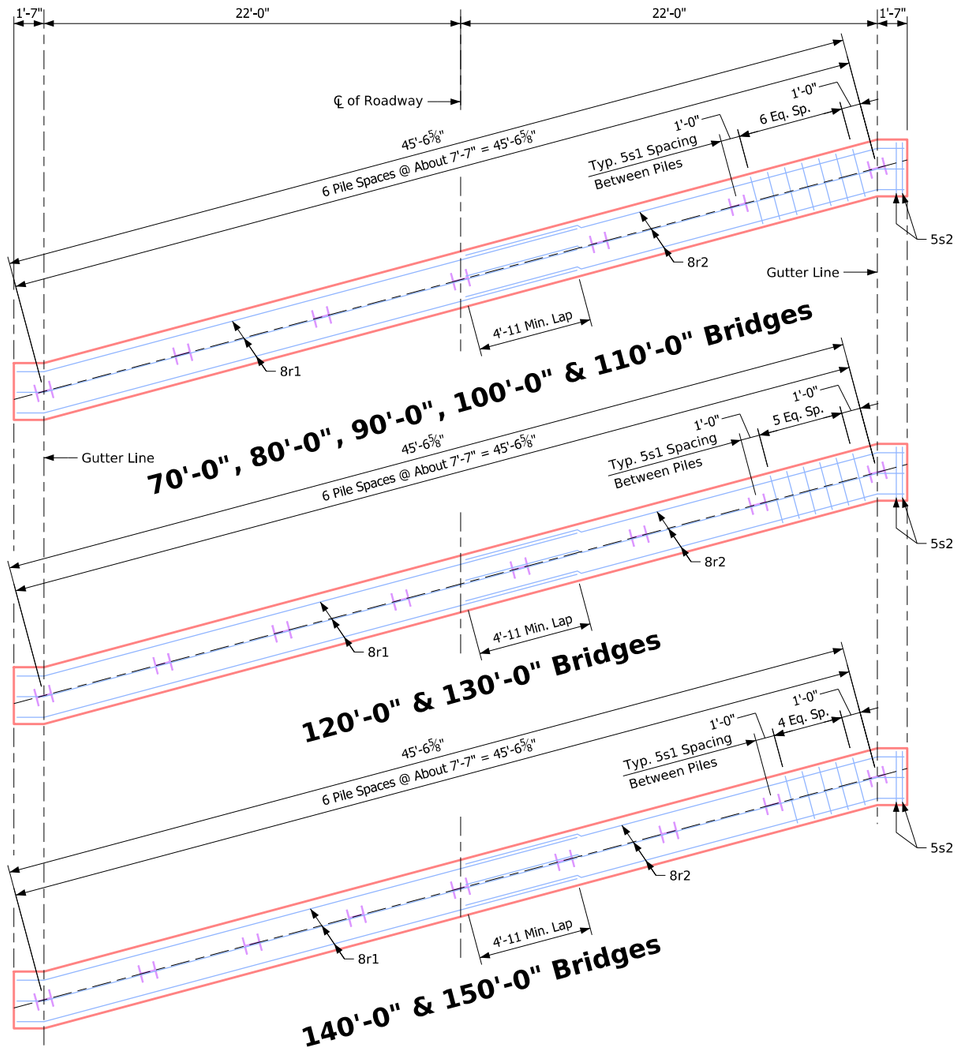
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 15° Skew - Steel Piling (1 of 2)

J44-40-25

Revised 09-2026: Updated Bridge Engineer signature.



Pile Plan - 15° Skew Steel Piling

Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	7	7	7	7	7	7	8	9	9
Pu, Strength 1 Design Load - kips	509	544	577	618	658	705	749	Δ875	Δ927

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

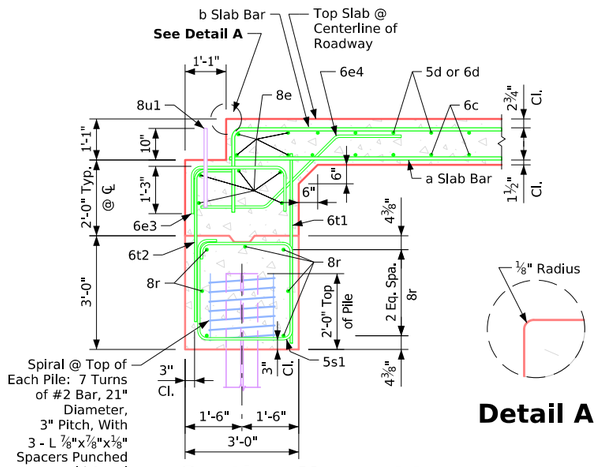
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 15° Skew - Steel Piling (2 of 2)

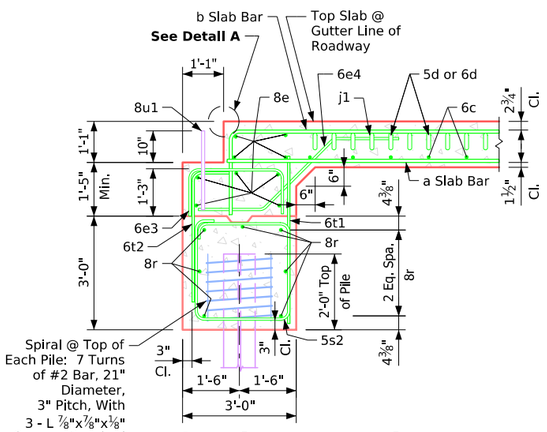
J44-41-25

Revised 09-2026: Updated Bridge Engineer signature.

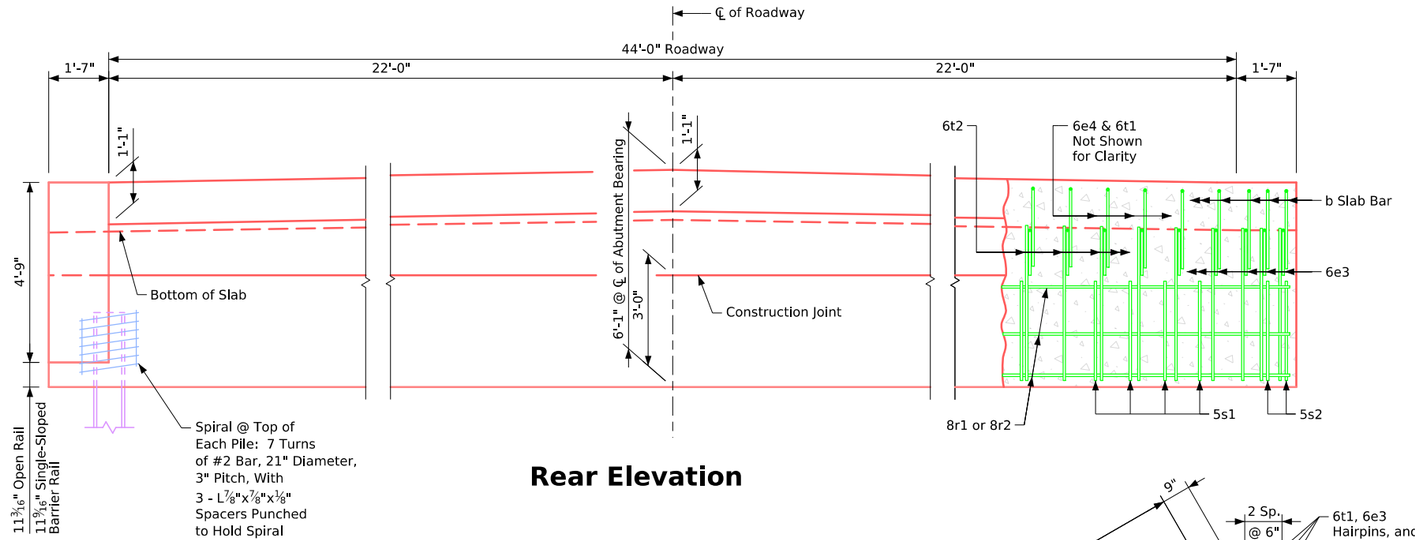


Section Normal to Abutment @ ℄

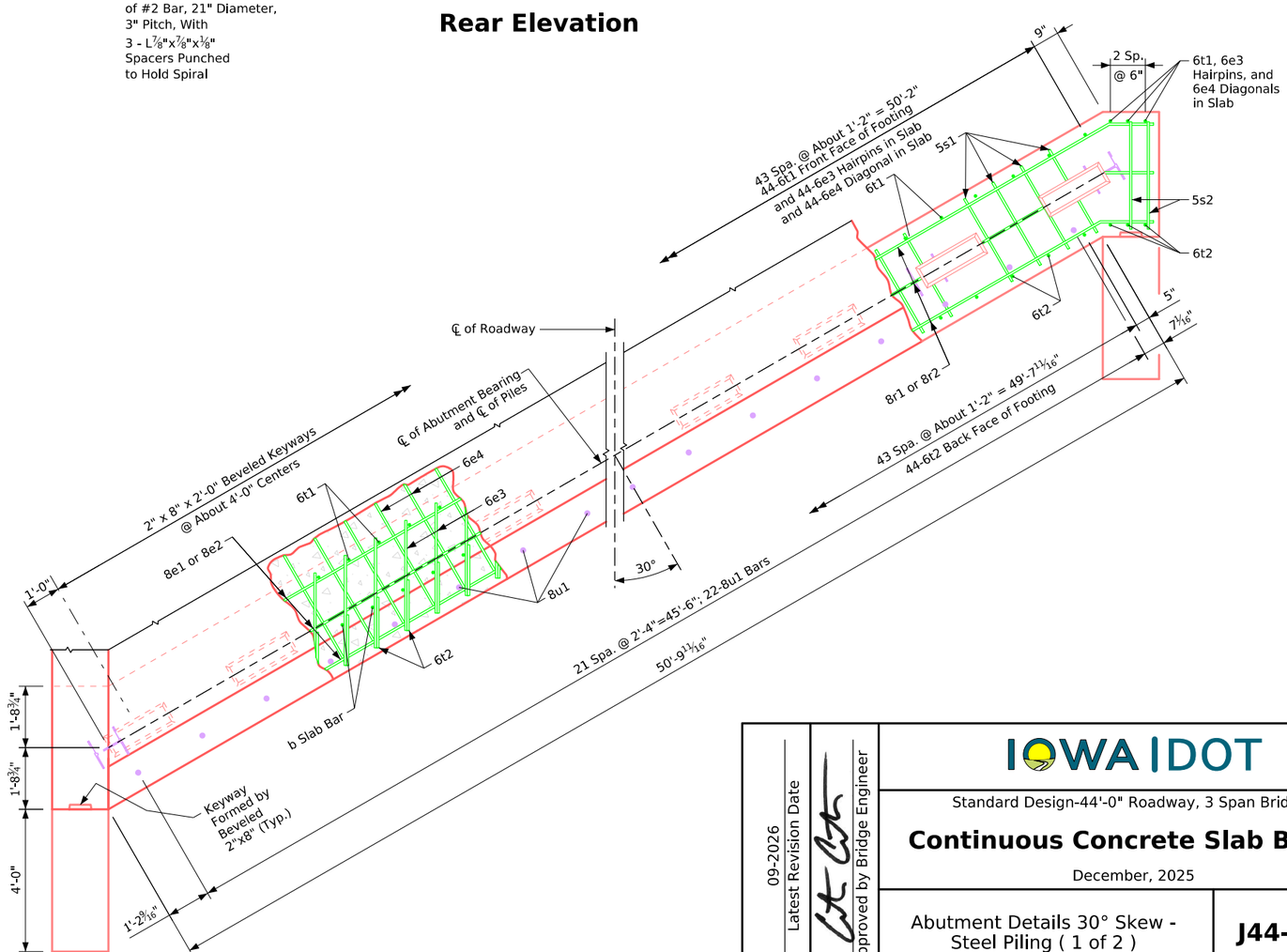
Detail A



Section Normal to Abutment @ Gutter Line



Rear Elevation



ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

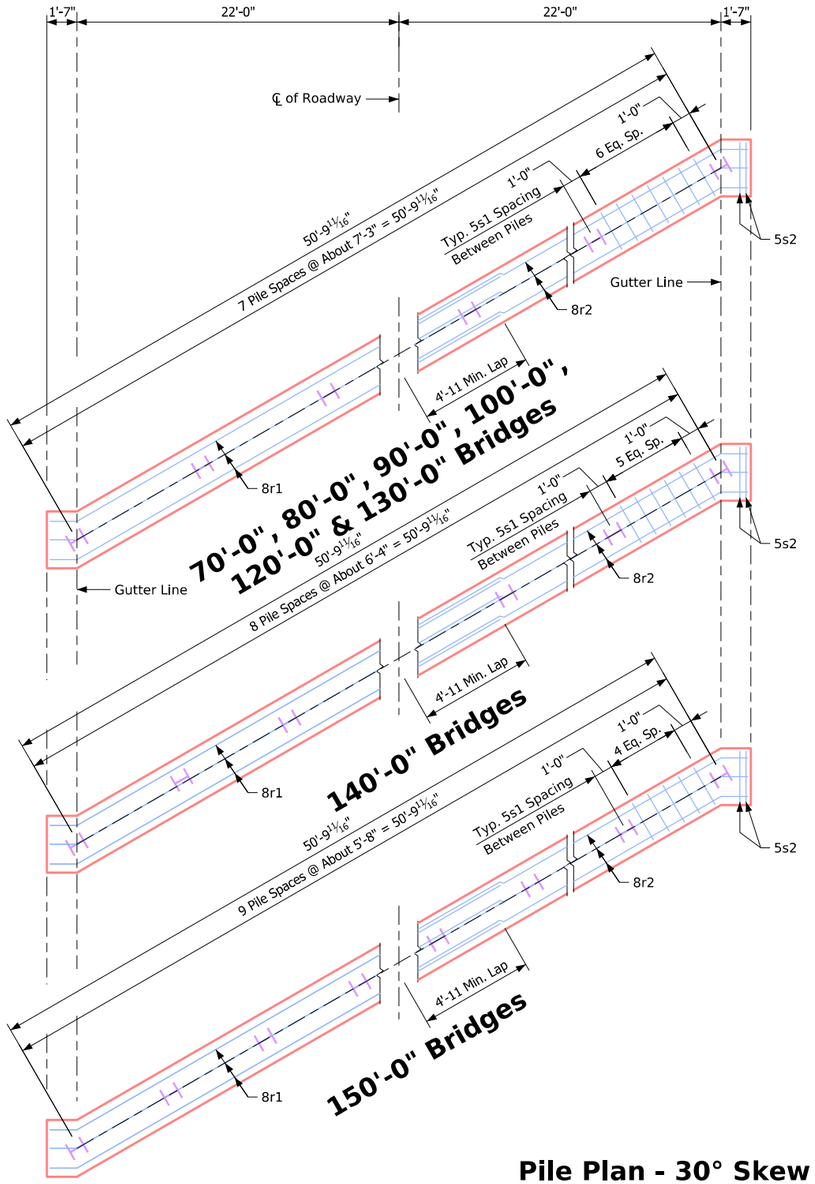
Continuous Concrete Slab Bridge

December, 2025

Abutment Details 30° Skew - Steel Piling (1 of 2)

J44-42-25

Revised 09-2026: Updated Bridge Engineer signature.



Pile Plan - 30° Skew
Steel Piling

Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	8	8	8	8	8	8	8	9	10
Pu, Strength 1 Design Load - kips	527	562	594	636	676	723	768	Δ893	Δ946

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

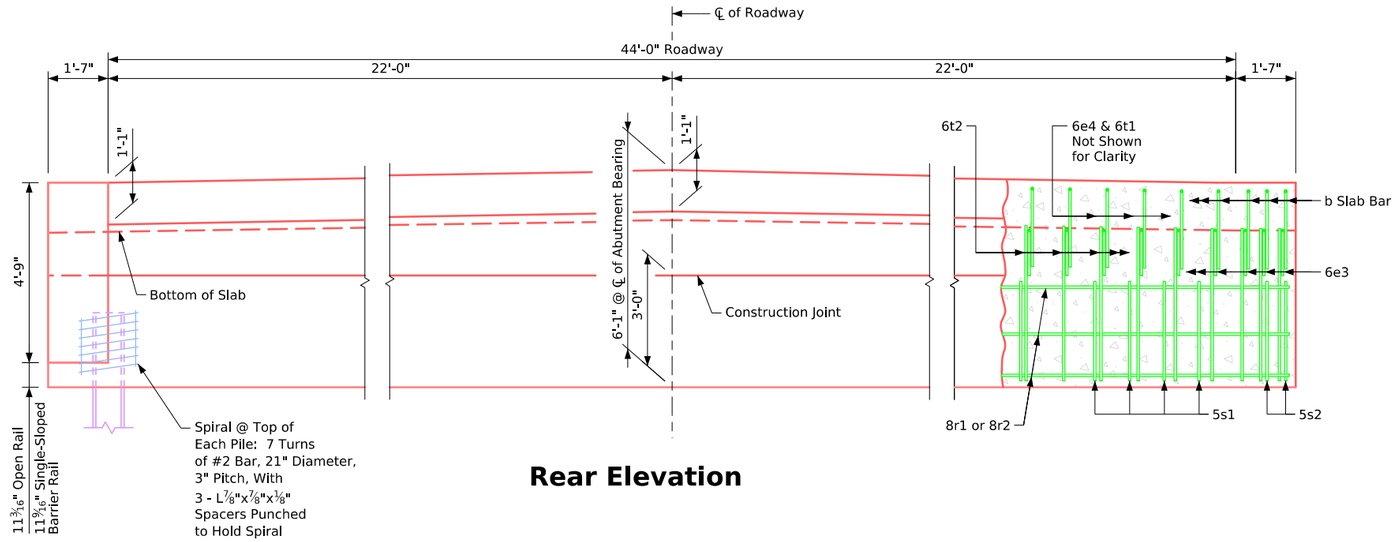
Continuous Concrete Slab Bridge

December, 2025

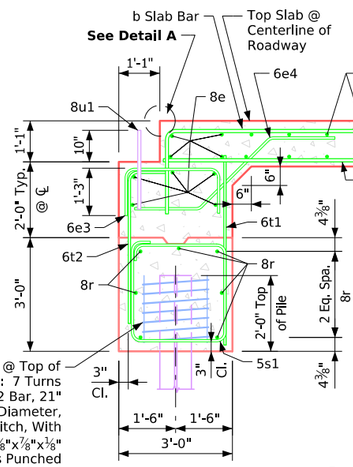
Abutment Details 30° Skew - Steel Piling (2 of 2)

J44-43-25

Revised 09-2026: Updated Bridge Engineer signature.

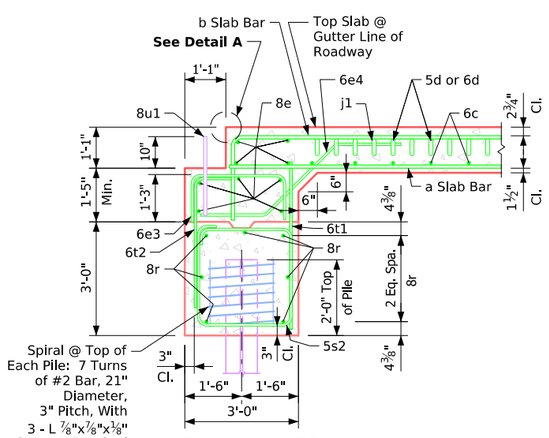


Rear Elevation

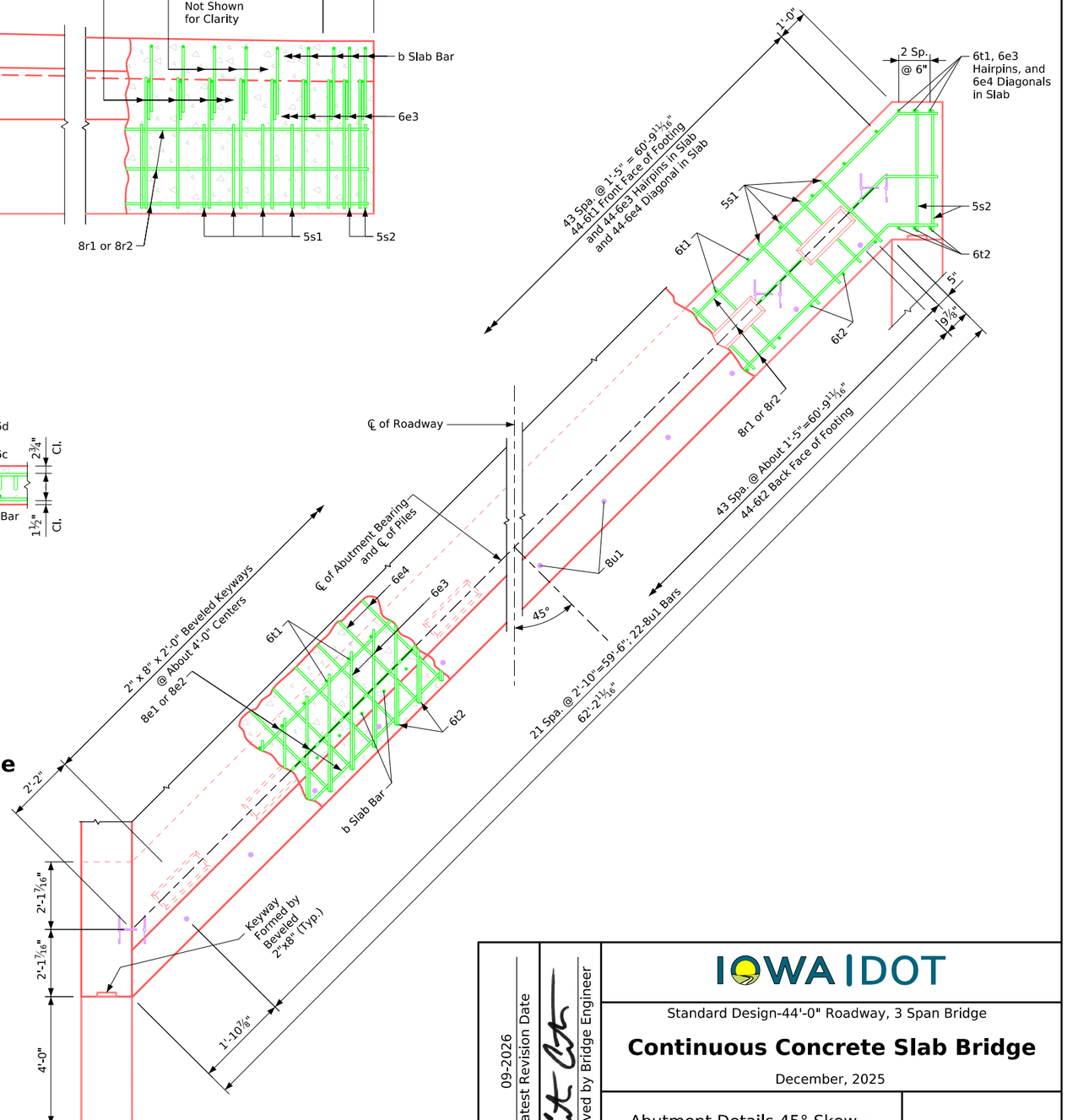


Section Normal to Abutment @ ℄

Detail A



Section Normal to Abutment @ Gutter Line



ABUTMENT NOTES:

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

Details on this sheet apply only when abutments are placed on timber piles.

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

Timber piles shall be driven to full penetration if practicable, but in no case to a bearing value less than specified in the design plans. Timber piles shall not be driven to more than 160 tons.

All reinforcing steel shall be Grade 60.

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

NOTES:

Barrier rails and reinforcement not shown.

Wing reinforcing not shown.

5n1 wing reinforcement shall be placed in the abutment footing before the footing is poured. For additional details, see Sheet **J44-20-25**.

6e3, 6e4, and 8e are included in the **Superstructure Quantities** for each individual bridge length.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

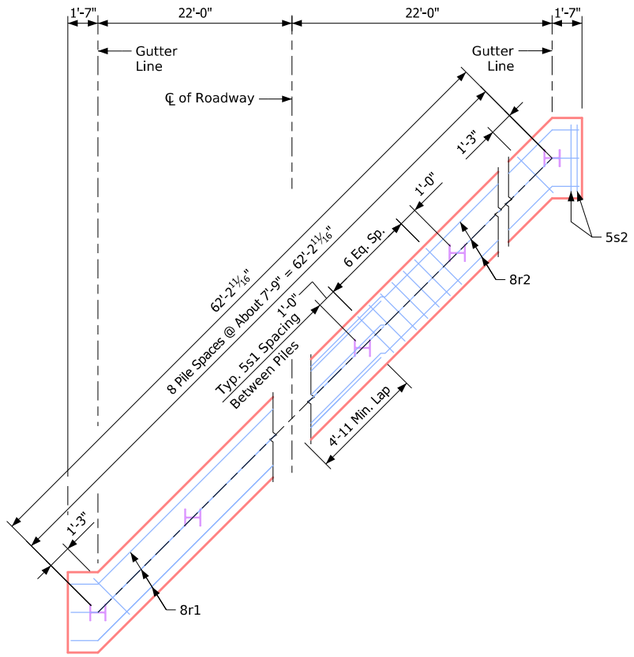
Continuous Concrete Slab Bridge

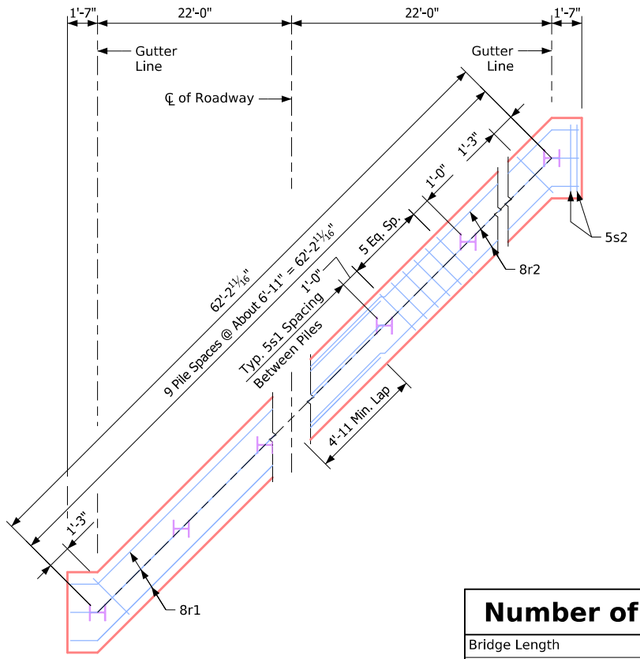
December, 2025

Abutment Details 45° Skew - Steel Piling (1 of 2)

J44-44-25

Revised 09-2026; Updated Bridge Engineer signature.





Pile Plan - 45° Skew Steel Piling

Number of Piles and Abutment Design Loads

Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Piling - Number	9	9	9	9	9	9	9	10	10
Pu, Strength 1 Design Load - kips	565	599	632	674	715	762	807	Δ933	Δ986

Δ Includes dynamic load allowance

Note: Pu, Strength 1 Design Load (kips) is not the value used in the field for driving piles.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Abutment Details 45° Skew - Steel Piling (2 of 2)

J44-45-25

Revised 09-2026: Updated Bridge Engineer signature.

BILL OF REINFORCING STEEL - ONE ABUTMENT - 0° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		28'-6	7	533	7	533	7	533	7	533	7	533	7	533	7	533	7	533	7	533
8r2	Abutment Footing Longitudinal		23'-3	7	435	7	435	7	435	7	435	7	435	7	435	7	435	7	435	7	435
5s1	Abutment Footing Hoops		11'-0	46	528	46	528	39	528	46	528	46	528	46	528	46	528	44	505	44	505
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	50	419	50	419	05	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	7	45	7	45	7	45	7	45	7	45	7	45	8	51	9	58	9	58
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	21	27	21	27	21	24	21	27	21	27	21	27	24	31	27	35	27	35
	Reinforcing steel epoxy coated - total (lbs.)				2362		2362		2362		2362		2362		2362		2372		2359		2359

BILL OF REINFORCING STEEL - ONE ABUTMENT - 15° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		29'-4	7	548	7	548	7	548	7	548	7	548	7	548	7	548	7	548	7	548
8r2	Abutment Footing Longitudinal		24'-1	7	450	7	45	7	450	7	450	7	450	7	413	7	450	7	450	7	450
5s1	Abutment Footing Hoops		11'-0	42	482	42	482	42	482	42	482	42	482	42	482	42	482	40	459	40	459
5s2	Abutment Footing Hoops		11'-3	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47	4	47
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	46	419	46	419	46	419	46	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	7	45	7	45	7	45	7	45	7	45	7	45	8	52	9	58	9	58
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	21	27	21	27	21	27	21	28	21	27	21	27	24	31	27	35	27	35
	Reinforcing steel epoxy coated - total (lbs.)				2394		2394		2184		2394		2394		2400		2827		2392		2392

BILL OF REINFORCING STEEL - ONE ABUTMENT - 30° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		31'-11	7	597	7	597	7	597	7	597	7	597	7	597	7	597	7	597	7	597
8r2	Abutment Footing Longitudinal		26'-8	7	498	7	498	7	498	7	498	7	498	7	498	7	498	7	498	7	498
5s1	Abutment Footing Hoops		11'-0	49	562	49	562	49	562	49	562	49	562	49	562	49	562	48	597	45	516
5s2	Abutment Footing Hoops		11'-11	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50	4	50
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	8	51	8	51	8	51	8	51	8	51	8	51	8	51	9	58	10	64
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	24	31	24	31	24	31	24	31	24	31	24	31	24	31	27	35	30	38
	Reinforcing steel epoxy coated - total (lbs.)				2584		2584		2584		2584		2584		2584		2584		2583		2559

BILL OF REINFORCING STEEL - ONE ABUTMENT - 45° Skew

Bridge Length				70'-0		80'-0		90'-0		100'-0		110'-0		120'-0		130'-0		140'-0		150'-0	
Mark	Location	Shape	Length	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight
8r1	Abutment Footing Longitudinal		37'-8	7	704	7	704	7	704	7	704	7	704	7	704	7	704	7	704	7	704
8r2	Abutment Footing Longitudinal		32'-7	7	609	7	609	7	609	7	609	7	609	7	609	7	609	7	609	7	609
5s1	Abutment Footing Hoops		11'-0	56	642	56	642	56	642	56	642	56	642	56	642	56	642	56	642	54	620
5s2	Abutment Footing Hoops		13'-6	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56	4	56
6t1	Footing To Slab Bars		5'-0	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376	50	376
6t2	Footing To Slab Bars		5'-7	50	419	50	419	50	419	50	419	505	419	50	419	50	419	50	419	50	419
#2	Pile Spiral		38'-6	9	58	9	58	9	58	9	58	9	58	9	58	9	58	10	64	10	64
	Spiral Spacers - L ⅞x⅞x⅛x 0.70		1'-10	27	35	27	35	27	35	27	35	27	35	27	35	27	35	30	39	30	39
	Reinforcing steel epoxy coated - total (lbs.)				2899		2899		2899		2899		2899		2899		2899		2886		2886

Note: The pile spirals and spiral spacers are to be non-coated reinforcing but may be epoxy-coated at the Contractor's option and expense.

ESTIMATED QUANTITIES - ONE ABUT. - 0° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
Reinforcing Steel, Epoxy-Coated	lbs.	2361	2361	2361	2361	2361	2361	2371	2359	2359
Steel Piling HP 10x42	no.	7	7	7	7	7	7	8	9	9
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	90	90

ESTIMATED QUANTITIES - ONE ABUT. - 15° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	16.3	16.3	16.3	16.3	v	16.3	16.3	16.3	16.3
Reinforcing Steel, Epoxy-Coated	lbs.	2391	2391	2391	2391	2391	2401	2401	2389	2389
Steel Piling HP 10x42	no.	7	7	7	7	7	8	8	9	9
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	90	90

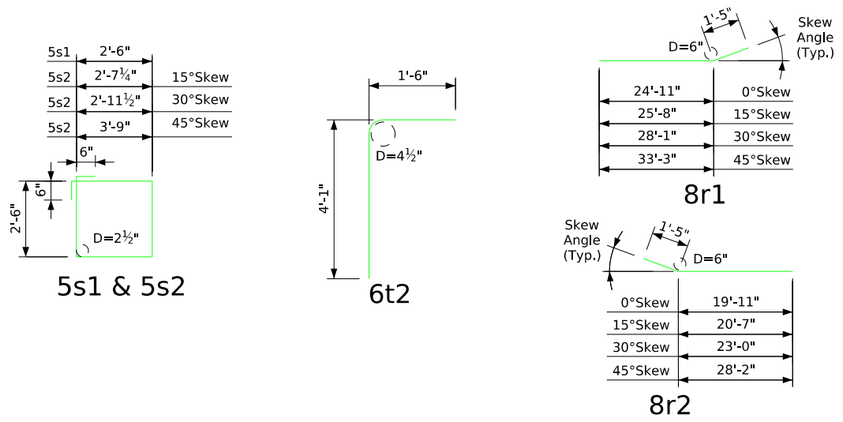
ESTIMATED QUANTITIES - ONE ABUT. - 30° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
Reinforcing Steel, Epoxy-Coated	lbs.	2582	2582	2582	2582	2582	2582	2582	2582	2557
Steel Piling HP 10x42	no.	8	8	8	8	8	8	8	9	10
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	90	100

ESTIMATED QUANTITIES - ONE ABUT. - 45° Skew

Location	Unit	Quantity								
Bridge Length		70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Structural Concrete (Bridge)	c.y.	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3	22.3
Reinforcing Steel, Epoxy-Coated	lbs.	2893	2893	2893	2893	2893	2893	2893	2881	2881
Steel Piling HP 10x42	no.	9	9	9	9	9	9	9	10	10
Prebored Holes	ft.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	100	100

BENT BAR DETAILS



Note: Dimensions are out-to-out. D = pin diameter.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

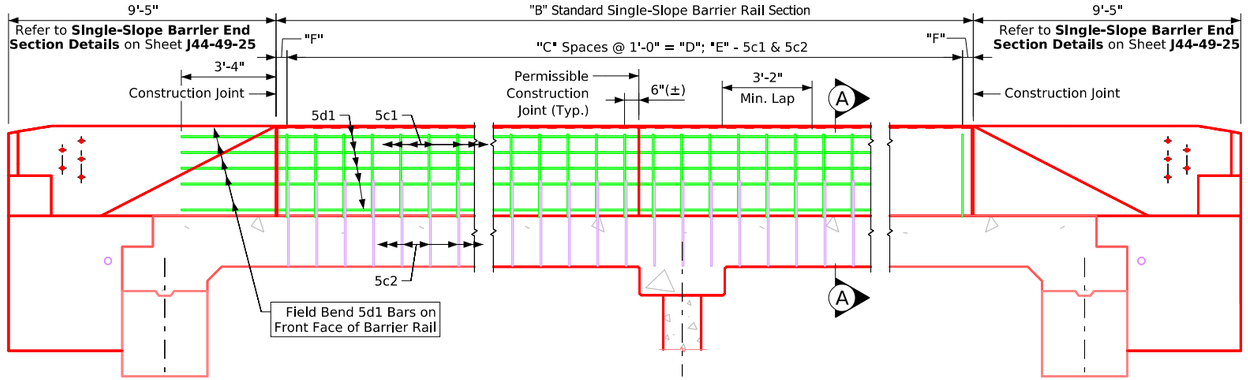
Abutment General Details - Steel Piling

J44-46-25

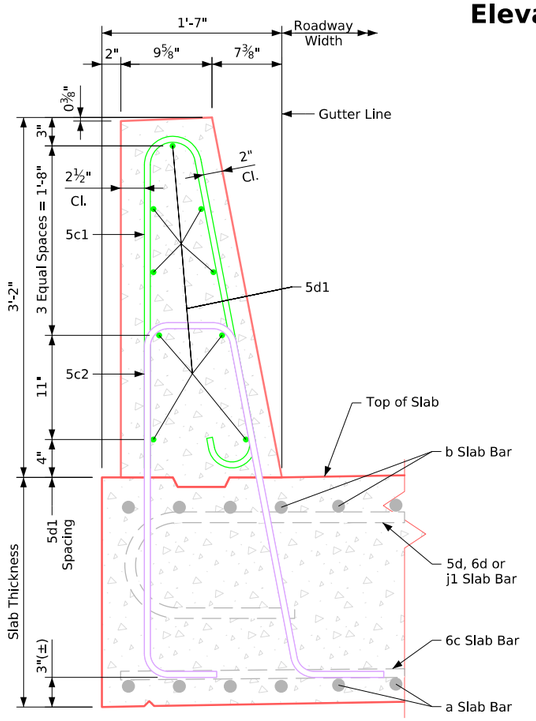
Revised 09-2026: Updated Bridge Engineer signature. In "Estimated Quantities-One Steel Abut." tables, corrected typo of Steel Piling HP 10x42 (was incorrectly shown as HP 10x24).

Table of Single-Slope Barrier Rail Dimensions and Numbers

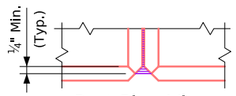
	Bridge Length	70'-0				80'-0				90'-0				100'-0				110'-0				120'-0				130'-0				140'-0				150'-0			
	Skew (Degrees)	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45
Dimension or Number	A (ft.-in.)	81'-0	81'-1¼	81'-5½	82'-3	91'-0	89'-1¼	91'-5½	92'-3	101'-0	101'-1¼	81'-5½	102'-3	111'-0	111'-1¼	111'-5½	112'-3	121'-0	121'-1¼	121'-5½	82'-3	131'-0	131'-1¼	131'-5½	132'-3	141'-0	141'-1¼	141'-5½	142'-3	151'-0	151'-1¼	151'-5½	152'-3	161'-0	161'-1¼	161'-5½	162'-3
	B (ft.-in.)	62'-2	62'-3¾	62'-7½	63'-5	72'-2	72'-3¾	72'-7½	73'-5	82'-2	82'-3¾	82'-7½	83'-5	92'-2	92'-3¾	92'-7½	93'-5	102'-2	102'-3¾	102'-7½	103'-5	112'-2	112'-3¾	112'-7½	113'-5	122'-2	122'-3¾	122'-7½	123'-5	132'-2	132'-3¾	132'-7½	133'-5	142'-2	142'-3¾	142'-7½	143'-5
	C	61	61	62	62	71	71	72	72	81	81	82	82	91	91	92	92	101	101	102	102	111	111	112	112	121	121	122	122	131	131	132	132	141	141	142	142
	D (ft.-in.)	61'-0	61'-0	62'-0	62'-0	71'-0	71'-0	72'-0	72'-0	81'-0	81'-0	82'-0	82'-0	91'-0	91'-0	92'-0	92'-0	101'-0	101'-0	102'-0	102'-0	111'-0	111'-0	112'-0	112'-0	121'-0	121'-0	122'-0	122'-0	131'-0	131'-0	132'-0	132'-0	141'-0	141'-0	142'-0	142'-0
	E	62	62	63	63	72	72	73	73	82	82	83	83	92	92	93	93	102	102	103	103	112	112	113	113	122	122	123	123	132	132	133	133	142	142	143	143
	F (in.)	7	7⅝	3¾	8½	7	7⅝	3¾	8½	7	7 5/8	3 3/4	8½	7	7⅝	3¾	8½	7	7⅝	3¾	8½	7	7⅝	3¾	8½	7	7⅝	3¾	8½	7	7⅝	3¾	8½	7	7⅝	3¾	8½



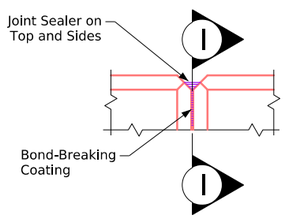
Elevation of Single-Sloped Barrier Rail



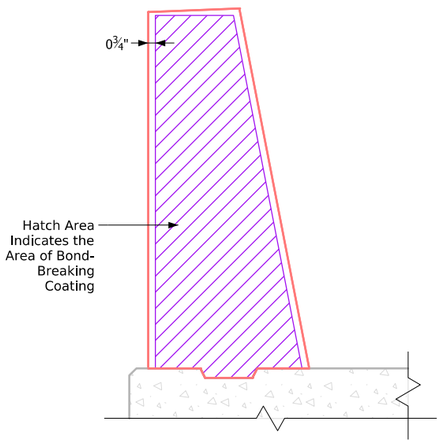
Part Section A-A



Part Plan View



Part Elevation View



Section I-I

Barrier Rail Joint Details

Note:
For **Rail Single-Slope Barrier - Quantities** on Sheet **J44-48-25**.

Single-slope Barrier Rail Notes:

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

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

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

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

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

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

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

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

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

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

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Rail Single-Slope Barrier - Details

J44-47-25

Revised 09-2026: Updated Bridge Engineer signature. Added 3'-4" dimension to horizontal barrier rail rebar into barrier end section.

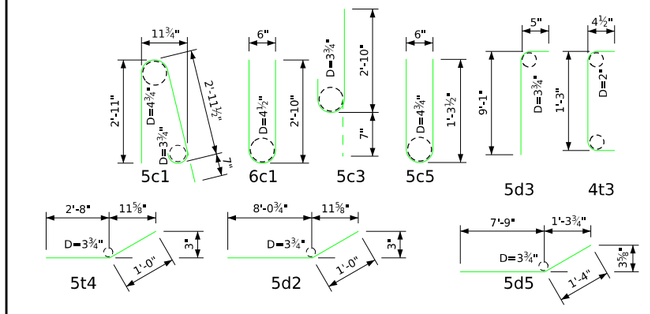
Epoxy Reinforcing Steel - Two Barrier Rails

Bridge Length				70'-0"			80'-0"			90'-0"			100'-0"			110'-0"			120'-0"			130'-0"			140'-0"			150'-0"		
Section	Bar	Location	Shape	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
2 Std.Sec	5c1	Vertical		124	6'-8"	862	144	6'-8"	1001	166	6'-8"	1154	186	6'-8"	1293	206	6'-8"	1432	226	6'-8"	1507	246	6'-8"	1640	266	6'-8"	1850	286	6'-8"	1989
	5d1	Long.		36	36'-6"	1371	54	28'-10"	1624	54	32'-1"	1807	54	35'-5"	1995	54	38'-9"	2182	72	32'-4"	2428	72	34'-10"	2616	72	37'-4"	2804	72	39'-10"	2991
4 End Sec.	6c1	Rail Vertical		48	5'-11"	427	48	5'-11"	427	48	5'-11"	427	48	5'-11"	427	48	5'-11"	427	48	5'-11"	427	48	5'-11"	427	48	5'-11"	427	48	5'-11"	427
	5c3	Rail Vertical (Traffic Face)		12	3'-5"	43	12	3'-5"	43	12	3'-5"	43	12	3'-5"	43	12	3'-5"	43	12	3'-5"	43	12	3'-5"	43	12	3'-5"	43	12	3'-5"	43
	5c5	Rail Vertical (End)		16	3'-1"	51	16	3'-1"	51	16	3'-1"	51	16	3'-1"	51	16	3'-1"	51	16	3'-1"	51	16	3'-1"	51	16	3'-1"	51	16	3'-1"	51
	5d1	Rail Horiz (Back Face)		24	9'-1"	227	24	9'-1"	227	24	9'-1"	227	24	9'-1"	227	24	9'-1"	227	24	9'-1"	227	24	9'-1"	227	24	9'-1"	227	24	9'-1"	227
	5d2	Rail Horiz (Traffic Face)		12	9'-1"	114	12	9'-1"	114	12	9'-1"	114	12	9'-1"	114	12	9'-1"	114	12	9'-1"	114	12	9'-1"	114	12	9'-1"	114	12	9'-1"	114
	5d3	Rail Horiz (Traffic Face)		12	9'-6"	120	12	9'-6"	120	12	9'-6"	120	12	9'-6"	120	12	9'-6"	120	12	9'-6"	120	12	9'-6"	120	12	9'-6"	120	12	9'-6"	120
	5d4	Rail Horiz (Traffic Face)		8	6'-3"	52	8	6'-3"	52	8	6'-3"	52	8	6'-3"	52	8	6'-3"	52	8	6'-3"	52	8	6'-3"	52	8	6'-3"	52	8	6'-3"	52
	5d5	Rail Horiz (Top)		8	9'-1"	76	8	9'-1"	76	8	9'-1"	76	8	9'-1"	76	8	9'-1"	76	8	9'-1"	76	8	9'-1"	76	8	9'-1"	76	8	9'-1"	76
	4t3	Rail Abut Wing Tie Bars		24	2'-0"	32		2'-0"	32	24	2'-0"	32	24	2'-0"	32	24	2'-0"	32	24	2'-0"	32	24	2'-0"	32	24	2'-0"	32	24	2'-0"	32
	5t4	Wing Horiz (Tie Bars)		8	3'-8"	31	8	3'-8"	31	8	3'-8"	31	8	3'-8"	31	8	3'-8"	31	8	3'-8"	31	8	3'-8"	31	8	3'-8"	31	8	3'-8"	31
Epoxy Reinforced Total Weight (lbs)					Total	3406		Total	3798		Total	4134		Total	4461		Total	4787		Total	5108		Total	5429		Total	5827		Total	6153

Stainless Steel Reinforcing Steel - Two Barrier Rails

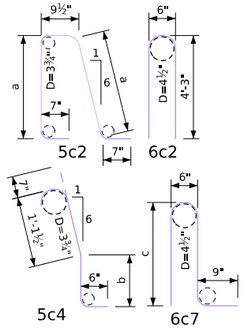
Bridge Length				70'-0"			80'-0"			90'-0"			100'-0"			110'-0"			120'-0"			130'-0"			140'-0"			150'-0"		
Section	Bar	Location	Shape	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
2 Std. Sec	5c2	Vertical		124	6'-8"	862	144	6'-9"	1014	166	6'-11"	1198	186	7'-2"	1390	206	7'-4"	1576	226	7'-7"	1788	246	7'-9"	1988	266	8'-0"	2220	286	8'-3"	2461
4 End Sec	6c2	Rail, Vertical		20	9'-0"	270	20	9'-0"	270	20	9'-0"	270	20	9'-0"	270	20	9'-0"	270	20	9'-0"	270	20	9'-0"	270	20	9'-0"	270	20	9'-0"	270
	5c4	Rail Vertical (Traffic Face)		24	3'-3"	81	24	3'-4"	83	24	3'-5"	86	24	3'-6"	88	24	3'-7"	90	24	3'-8"	92	24	3'-10"	96	24	3'-11"	98	24	4'-0"	100
	5c6	Rail , Vertical (End)		32	5'-8"	189	32	5'-8"	189	32	5'-8"	189	32	5'-8"	189	32	5'-8"	189	32	5'-8"	189	32	5'-8"	189	32	5'-8"	189	32	5'-8"	189
	6c7	Rail, Vertical (Slab/Abut.)		28	6'-3"	263	28	6'-5"	270	28	6'-7"	277	28	6'-9"	284	28	6'-11"	291	28	7'-2"	301	28	7'-5"	312	28	7'-7"	319	28	7'-10"	329
Stainless Steel Reinforced Total Weight (lbs)					Total	1665		Total	1826		Total	2020		Total	2221		Total	2416		Total	2640		Total	2855		Total	3096		Total	3349

Epoxy Bent Bar Details



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

Stainless Bent Bar Details



	5c2		5c4		6c7	
Bridge	a	Length	b	Length	c	Length
70'-0"	2'-4"	6'-8"	1'-0"	3'-3"	2'-6"	6'-3"
80'-0"	2'-4¾"	6'-9"	1'-0¾"	3'-4"	2'-6¾"	6'-5"
90'-0"	2'-5¾"	6'-11"	1'-1¾"	3'-5"	2'-7¾"	6'-7"
100'-0"	2'-7"	7'-2"	1'-3"	3'-6"	2'-9"	6'-9"
110'-0"	2'-8"	7'-4"	1'-4"	3'-7"	2'-10"	6'-11"
120'-0"	2'-9½"	7'-7"	1'-5½"	3'-8"	2'-11½"	7'-2"
130'-0"	2'-10¾"	7'-9"	1'-6¾"	3'-10"	3'-0¾"	7'-5"
140'-0"	3'-0"	8'-0"	1'-8"	3'-11"	3'-2"	7'-7"
150'-0"	3'-1½"	8'-3"	1'-9½"	4'-0"	3'-3½"	7'-10"

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

Concrete Placement Summary

Bridge Length	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
Standard Section ✱ 2 x "B" @ 0.1301 cu.yd. per ft.	8.2	9.6	10.9	12.2	13.5	14.8	16.1	17.4	18.7
End Section 4 @ 1.00 cu.yd.					4.0				
Total (cu.yd.)	12.2	13.6	14.9	16.2	17.5	18.8	20.1	21.4	22.7

✱ For Rail Single-Slope Barrier – **Dimension "B"**, see **J44-47-25**
Concrete Quantities shown are based on 45° skew bld lengths.

Concrete Barrier Rail Quantities

Bridge Length		Unit	70'-0"	80'-0"	90'-0"	100'-0"	110'-0"	120'-0"	130'-0"	140'-0"	150'-0"
Concrete Barrier Railing	0° Skew	L.F.	162.0	182.0	202.0	222.0	242.0	262.0	282.0	302.0	322.0
Concrete Barrier Railing	15° Skew	L.F.	162.2	182.2	202.2	222.2	242.2	262.2	282.2	302.2	322.2
Concrete Barrier Railing	30° Skew	L.F.	162.9	182.9	202.9	222.9	242.9	262.9	282.9	302.9	322.9
Concrete Barrier Railing	45° Skew	L.F.	164.5	184.5	204.5	224.5	244.5	264.5	284.5	304.5	324.5

Note:
For **Rail Single-Slope Barrier - Details**, see Sheet **J44-47-25**.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

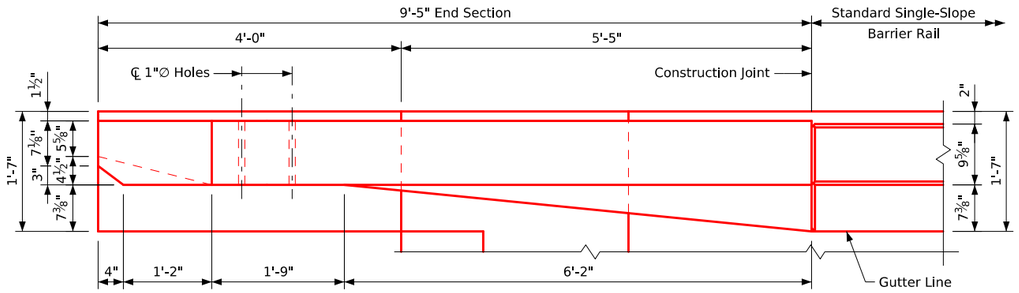
Continuous Concrete Slab Bridge

December, 2025

Rail Single-Slope Barrier - Quantities

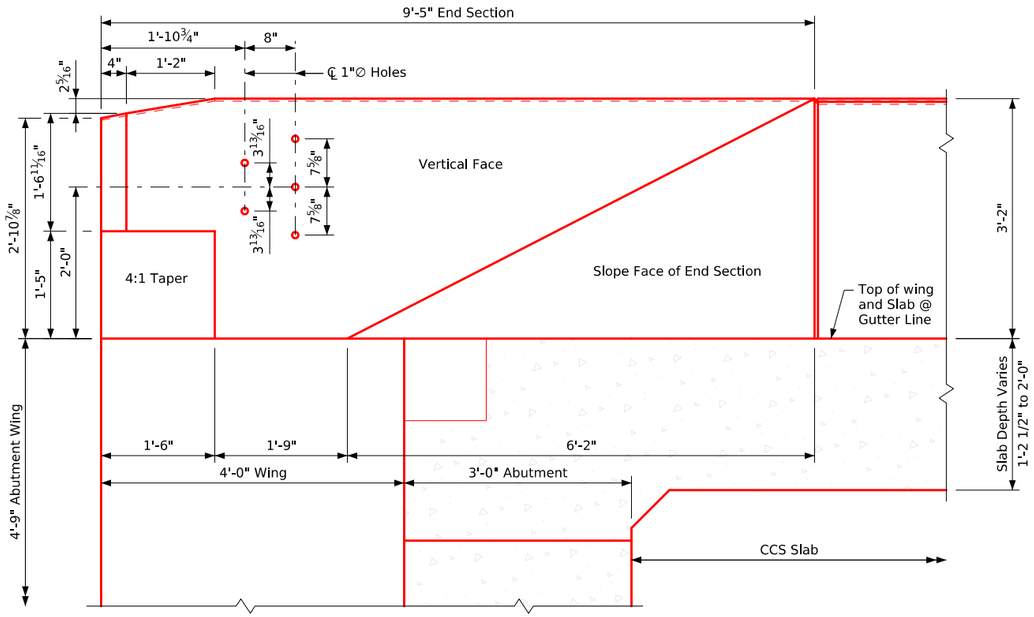
J44-48-25

Revised 09-2026: Updated Bridge Engineer signature. Added "Unit" column to the "Concrete Barrier Rail Quantities" table.

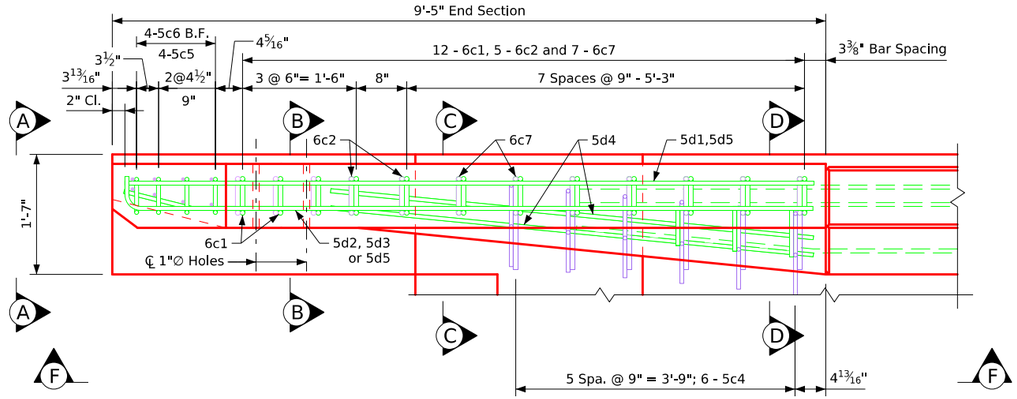


Part Plan View

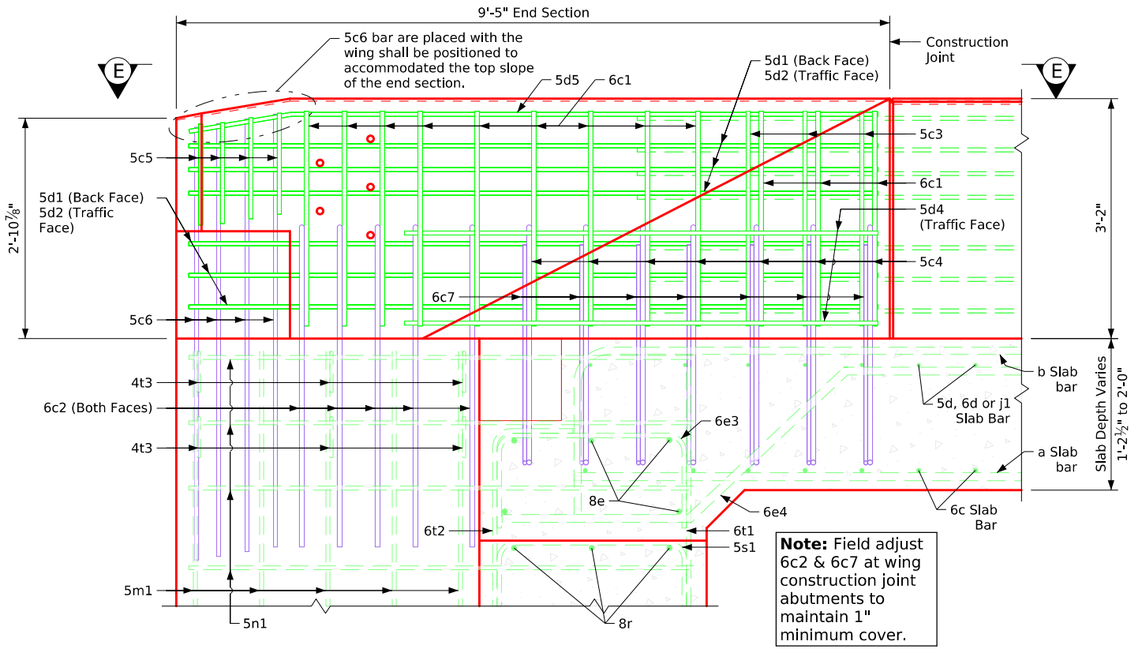
Provide five holes formed with 1" diameter plastic conduit.
Cost to be included in price of Bid for **Concrete Barrier Rail**.



Part Elevation View



Part View E-E



Part View F-F

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

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

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

Dashed lines below the top of the wing indicate abutment wing and slab reinforcing steel. For additional details, see Sheet **J44-20-25**.

Note:
For section details, see Sheet **J44-50-25**

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

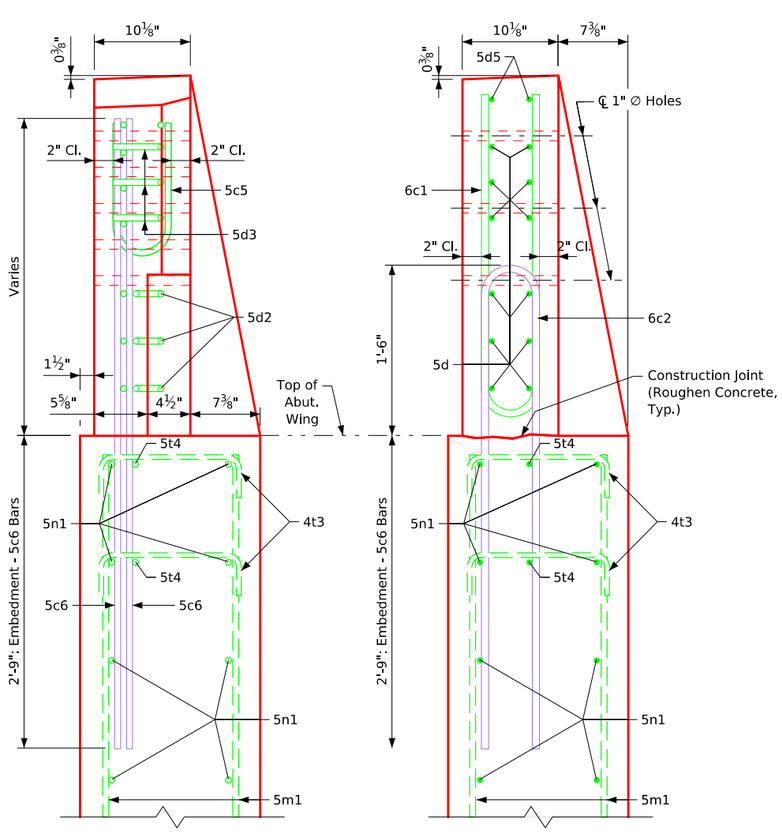
Continuous Concrete Slab Bridge

December, 2025

Rail Single-Slope Barrier - End Section Detail (1 of 2)

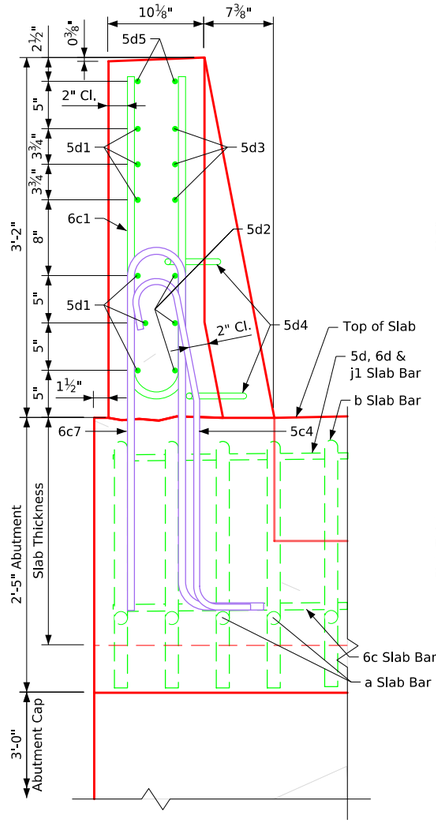
J44-49-25

Revised 09-2026: Updated Bridge Engineer signature.

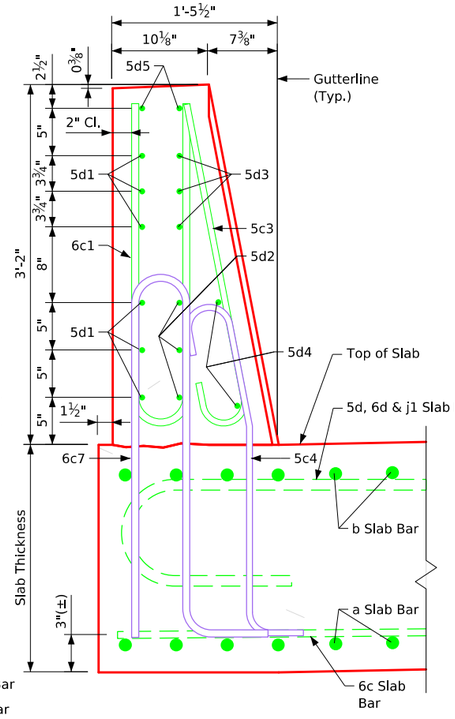


View A-A

Section B-B



Section C-C



Section D-D

Note: For End Section locations, see Sheet **J44-49-25.**

Note: For barrier rail end section quantities, see Sheet **J44-48-25.**

Note: For additional barrier-to-abutment wing details, see **J44-20-25**.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Rail Single-Slope Barrier - End Section Detail (2 of 2)

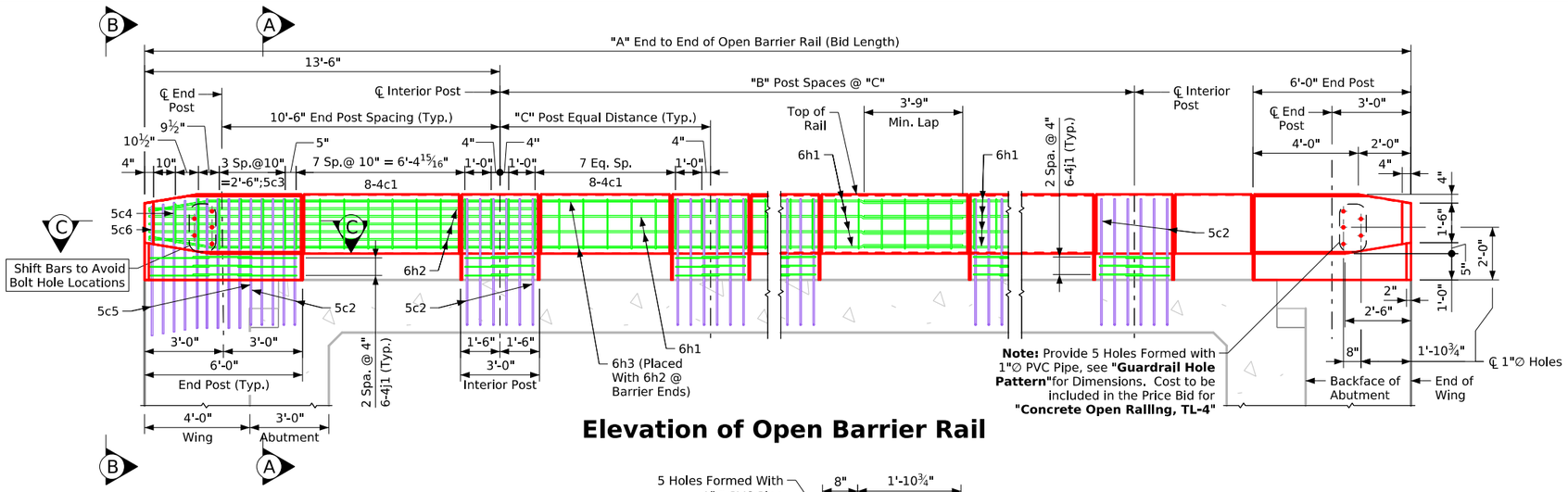
J44-50-25

Revised 09-2026: Updated Bridge Engineer signature.

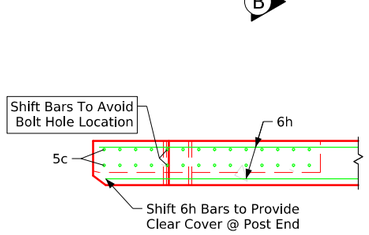
Table of Open Rail Dimensions and Numbers

BridgeLength		70'-0"				80'-0"				90'-0"				100'-0"				110'-0"				120'-0"				130'-0"				140'-0"				150'-0"			
Skew		0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45
Dim. or Number	A(ft.-in.)	81'-0"	81'-1¼"	81'-5½"	82'-3"	91'-0"	91'-1¼"	91'-5½"	92'-3"	101'-0"	101'-1¼"	101'-5½"	102'-3"	111'-0"	111'-1¼"	111'-5½"	112'-3"	121'-0"	121'-1¼"	121'-5½"	122'-3"	131'-0"	131'-1¼"	131'-5½"	132'-3"	141'-0"	141'-1¼"	141'-5½"	142'-3"	151'-0"	151'-1¼"	151'-5½"	152'-3"	161'-0"	161'-1¼"	161'-5½"	162'-3"
	B	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14	15	15	15	16
	C(ft.-in.)	7'-8⅝"	7'-8¾"	7'-9⅜"	7'-10¾"	8'-0"	8'-0⅛"	8'-0¾"	8'-1⅞"	8'-2⅝"	8'-2¾"	8'-3¼"	8'-4⅜"	8'-4¾"	8'-4⅞"	8'-5⅜"	8'-6¼"	8'-6½"	8'-6⅞"	8'-7"	8'-7⅞"	8'-8"	8'-8⅛"	8'-8½"	8'-9¼"	8'-9¼"	8'-9⅜"	8'-9⅝"	8'-10⅜"	8'-10¼"	8'-10⅜"	8'-10⅝"	8'-11⅜"	8'-11⅛"	8'-11¼"	8'-11⅝"	8'-5⅜"

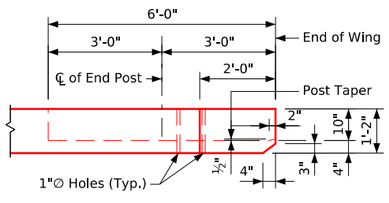
Note:
For **Rail Open Barrier – Quantities**, see Sheet **J44-52-25.**



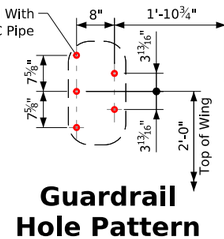
Elevation of Open Barrier Rail



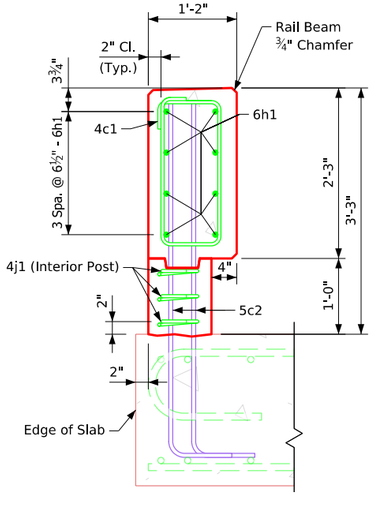
Section C-C



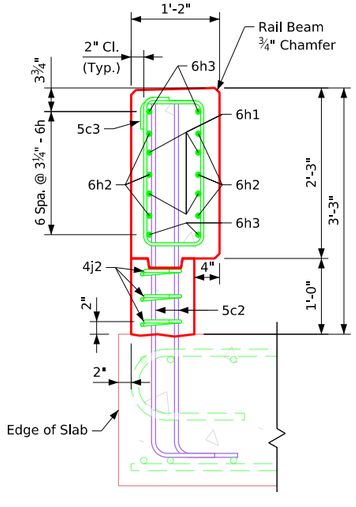
Part Plan of End Post



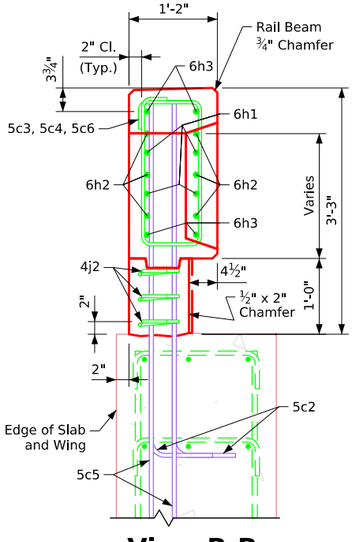
Guardrail Hole Pattern



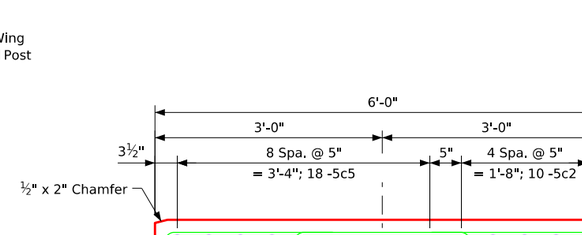
(Typical) Rail Section



Part Section A-A

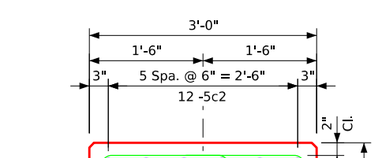


View B-B



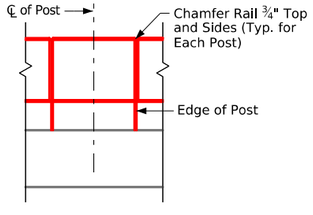
End Post Details

(Shift 5c2 at Wing Construction Joint to Provide 1" Clearance.)



Interior Post Details

(Typical)



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		Continuous Concrete Slab Bridge
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		Rail Open Barrier - Details **J44-51-25**

Revised 09-2026: Updated Bridge Engineer signature.

Epoxy Reinforcing Steel - Two Barrier Rails

Bridge Length			70'-0"			80'-0"			90'-0"			100'-0"			110'-0"			120'-0"			130'-0"			140'-0"			150'-0"		
Bar	Location	Shape	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
4c1	Rail Ties		176	6'-3"	735	196	6'-3"	818	216	6'-3"	902	236	6'-3"	985	256	6'-3"	1069	276	6'-3"	1152	296	6'-3"	1236	316	6'-3"	1319	336	6'-3"	1403
5c3	End Posts, Tie		20	6'-6"	136	20	6'-6"	136	20	6'-6"	136	20	6'-6"	136	20	6'-6"	136	20	6'-6"	136	20	6'-6"	136	20	6'-6"	136	20	6'-6"	136
5c4	End Post, Tie		4	6'-2"	26	4	6'-2"	26	4	6'-2"	26	4	6'-2"	26	4	6'-2"	26	4	6'-2"	26	4	6'-2"	26	4	6'-2"	26	4	6'-2"	26
5c6	End Post, Tie		4	5'-2"	22	4	5'-2"	22	4	5'-2"	22	4	5'-2"	22	4	5'-2"	22	4	5'-2"	22	4	5'-2"	22	4	5'-2"	22	4	5'-2"	22
6h1	Rail, Horizontal		32	29'-11"	1438	32	33'-3"	1598	32	36'-7"	1758	32	39'-11"	1919	48	33'-5"	2409	48	35'-11"	2589	48	38'-5"	2770	64	33'-5"	3212	64	35'-6"	3412
6h2	Rail, Horizontal, Ends		24	14'-10"	535	24	14'-10"	535	24	14'-10"	535	24	14'-10"	535	24	14'-10"	535	24	14'-10"	535	24	14'-10"	535	24	14'-10"	535	24	14'-10"	535
6h3	Rail, Horizontal, Ends		16	29'-11"	719	16	33'-3"	799	16	36'-7"	879	16	39'-11"	959	16	33'-5"	803	16	35'-11"	862	16	38'-5"	923	16	33'-5"	803	16	35'-6"	853
4j1	Interior Post, Tie		96	4'-9"	305	108	4'-9"	343	120	4'-9"	381	132	4'-9"	419	144	4'-9"	457	156	4'-9"	495	168	4'-9"	533	180	4'-9"	571	192	4'-9"	609
4j2	End Post, Tie		36	6'-3"	150	36	6'-3"	150	36	6'-3"	150	36	6'-3"	150	36	6'-3"	150	36	6'-3"	150	36	6'-3"	150	36	6'-3"	150	36	6'-3"	150
	Total (lbs)				4066			4427			4789			5151			5607			5967			6331			6774			7146

Note: Reinforcing quantities shown are based on 45 degree skew bid lengths.

Stainless Steel Reinforcing Steel - Two Barrier Rails

Bridge Length			70'-0"			80'-0"			90'-0"			100'-0"			110'-0"			120'-0"			130'-0"			140'-0"			150'-0"		
Bar	Location	Shape	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
5c2	Posts, Vertical		232	4'-11"	1190	256	5'-0"	1335	280	5'-1"	1485	304	5'-2"	1638	328	5'-3"	1796	352	5'-5"	1989	376	5'-6"	2157	400	5'-7"	2329	424	5'-9"	2543
5c5	End Posts, Vertical		72	5'-1"	382	72	5'-1"	382	72	5'-1"	382	72	5'-1"	382	72	5'-1"	382	72	5'-1"	382	72	5'-1"	382	72	5'-1"	382	72	5'-1"	382
	Total (lbs)				1572			1717			1867			2020			2178			2371			2539			2711			2925

Concrete Placement Quantities

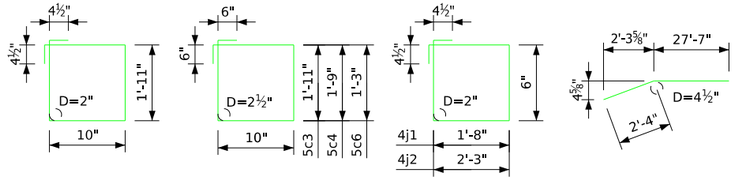
Bridge Length	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
One Rail Qtys (cu. yd.)	8.0	9.0	9.9	10.9	11.9	12.9	13.8	14.8	15.8
Quant Interior Posts (One Rail)	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.6
Quantity Two End Posts	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total Conc. Qtys -Two Rails (cu. yd.)	18.2	20.3	22.5	24.6	26.7	28.9	31.0	33.1	35.4

Note: Concrete quantities shown are based on 45 degree skew bid lengths.

Concrete Open Rail Quantites

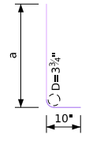
Bridge Length	Unit	70'-0	80'-0	90'-0	100'-0	110'-0	120'-0	130'-0	140'-0	150'-0
Concrete Open Railing TL-4 0 deg skew	L.F.	162.0	182.0	202.0	222.0	242.0	262.0	282.0	302.0	322.0
Concrete Open Railing TL-4 15 deg skew	L.F.	162.2	182.2	202.2	222.2	242.2	262.2	282.2	302.2	322.2
Concrete Open Railing TL-4 30 deg skew	L.F.	162.9	182.9	202.9	222.9	242.9	262.9	282.9	302.9	322.9
Concrete Open Railing TL-4 45 deg skew	L.F.	164.5	184.5	204.5	224.5	244.5	264.5	284.5	304.5	324.5

Epoxy Bent Bar Details



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

Stainless Bent Bar Details



Bridge	Slab Depth	a Dim.	Bar Length
70'-0"	1'-2 1/2"	4'-1"	4'-11"
80'-0"	1'-3 1/4"	4'-1 3/4"	5'-0"
90'-0"	1'-4 1/4"	4'-2 3/4"	5'-1"
100'-0"	1'-5 1/2"	4'-4"	5'-2"
110'-0"	1'-6 1/2"	4'-5"	5'-3"
120'-0"	1'-8"	4'-6 1/2"	5'-5"
130'-0"	1'-9 1/4"	4'-7 3/4"	5'-6"
140'-0"	1'-10 1/2"	4'-9"	5'-7"
150'-0"	2'-0"	4'-10 1/2"	5'-9"

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

Note:
For **Rail Open Barrier - Details**, see Sheet **J44-51-25**.

Open Rail Notes:

The open rail system meets **Test Level 4 (TL-4)** requirements according to the **Manual for Assessing Safety Hardware (MASH)** and includes provisions for a 3" future wearing surface height.

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

Unless otherwise noted or shown, the minimum clear distance from the face of concrete to the nearest reinforcing bar shall be 2".

The cost of the joint sealer and bond breaker shall be considered incidental to the price bid item "**Concrete Open Rail, TL-4**."

The concrete open rail is to be bid on a linear foot basis, measured from end to end of the rail. The number of linear feet of open rail installed will be paid for at the contract price per linear foot.

The price bid for "**Concrete Open Rail, TL-4**" shall be full compensation for furnishing all materials (excluding reinforcing steel) and for all equipment and labor required to construct the rail in accordance with these plans and current specifications.

All open rail concrete is to be **Class C**.

The joint sealer shall be a light gray, non-sag latex caulking sealer marketed for outdoor use. No testing or certification is required.

The top of the open rail shall be parallel to the theoretical ℄ grade.

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Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

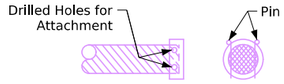
Continuous Concrete Slab Bridge

December, 2025

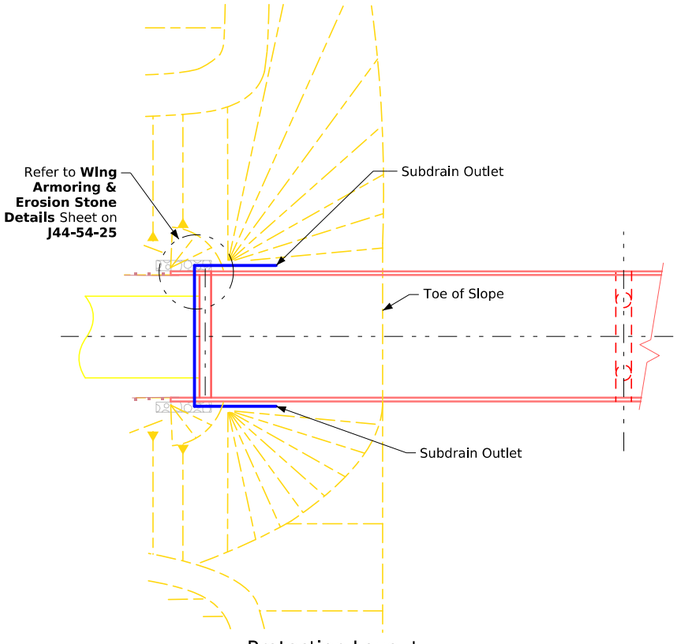
Rail Open Barrier - Quantities

J44-52-25

Revised 09-2026: Updated Bridge Engineer signature.

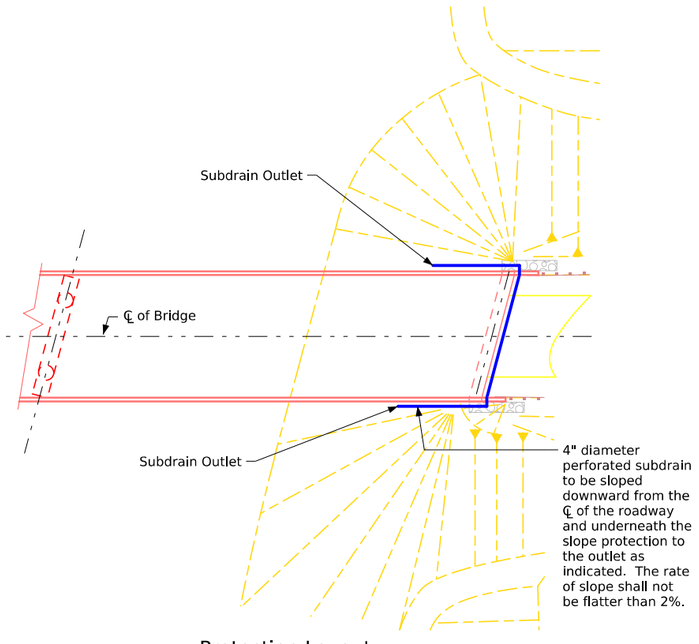


Removable Rodent Guard Details



Protection Layout

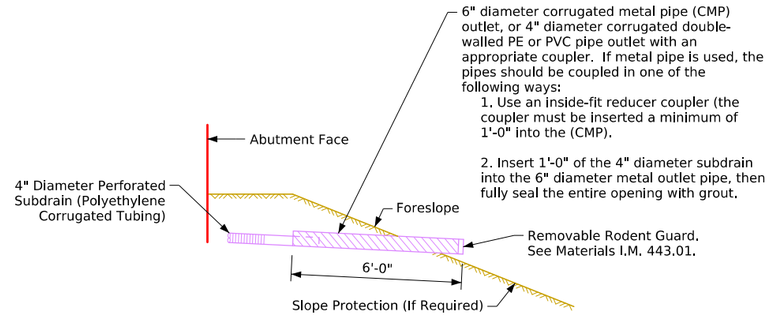
0 Degree Skew



Protection Layout
Skewed

Situation Plan

Refer to **Situation Plan** for North arrow.



Typical Subdrain Outlet Details

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

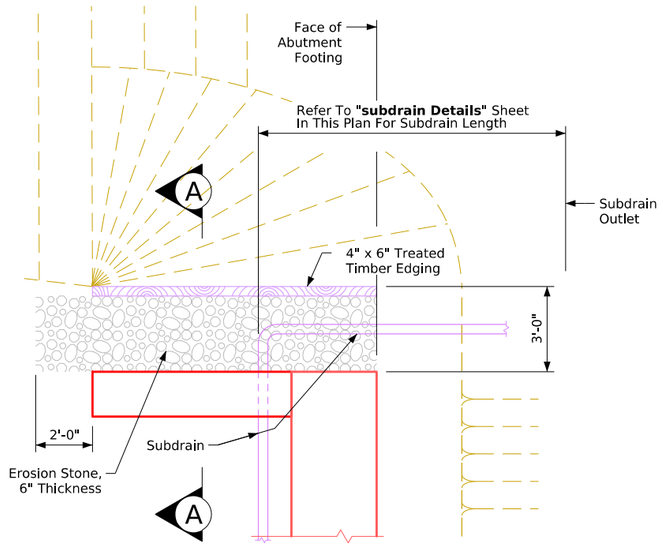
Continuous Concrete Slab Bridge

December, 2025

Subdrain Details

J44-53-25

Revised 09-2026: Updated Bridge Engineer signature. Updated sheet to use Erosion Stone (was using Macadam Stone).



Plan View of Wing Armoring

Erosion Stone Wing Armoring Notes:

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

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

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

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

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

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

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

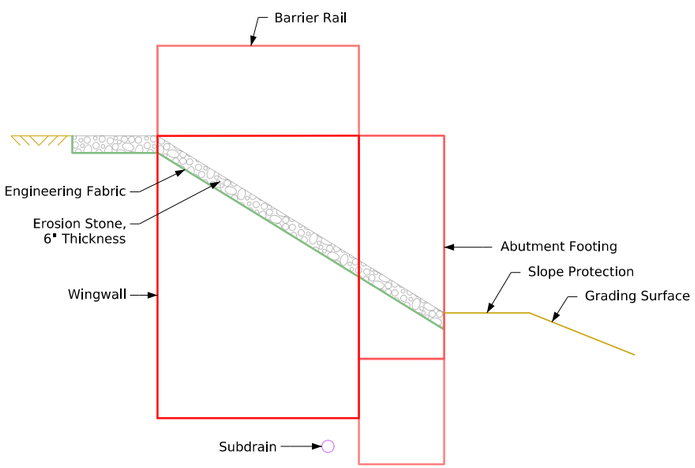
Subdrain Notes:

For details on placing all subdrains and subdrain outlets required for this structure, see **Subdrain Details** on Sheet **J44-54-25** and "**SITUATION PLAN**"

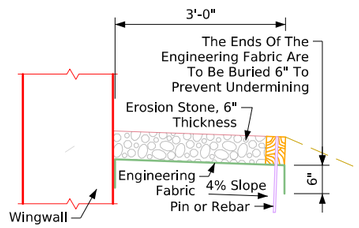
The Bridge Contractor is responsible for installing subdrains behind the abutment. The subdrains shall be 4" in diameter and comply with **Article 4143.01, B, of the Standard Specifications.** The subdrain outlet shall consist of a 6'-0" length of pipe with a removable rodent guard.

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

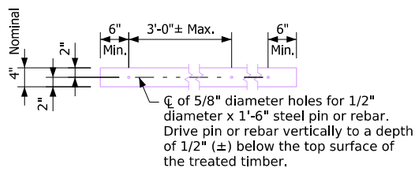
The cost for furnishing and placing the subdrain (including excavation), granular backfill, porous backfill, and subdrain outlet is to be included in the price bid for "**Structural Concrete (Bridge)**." No additional payment will be made.



Elevation View of Wing Armoring



Section A-A



4"x 6" Treated Timber Edging Details

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

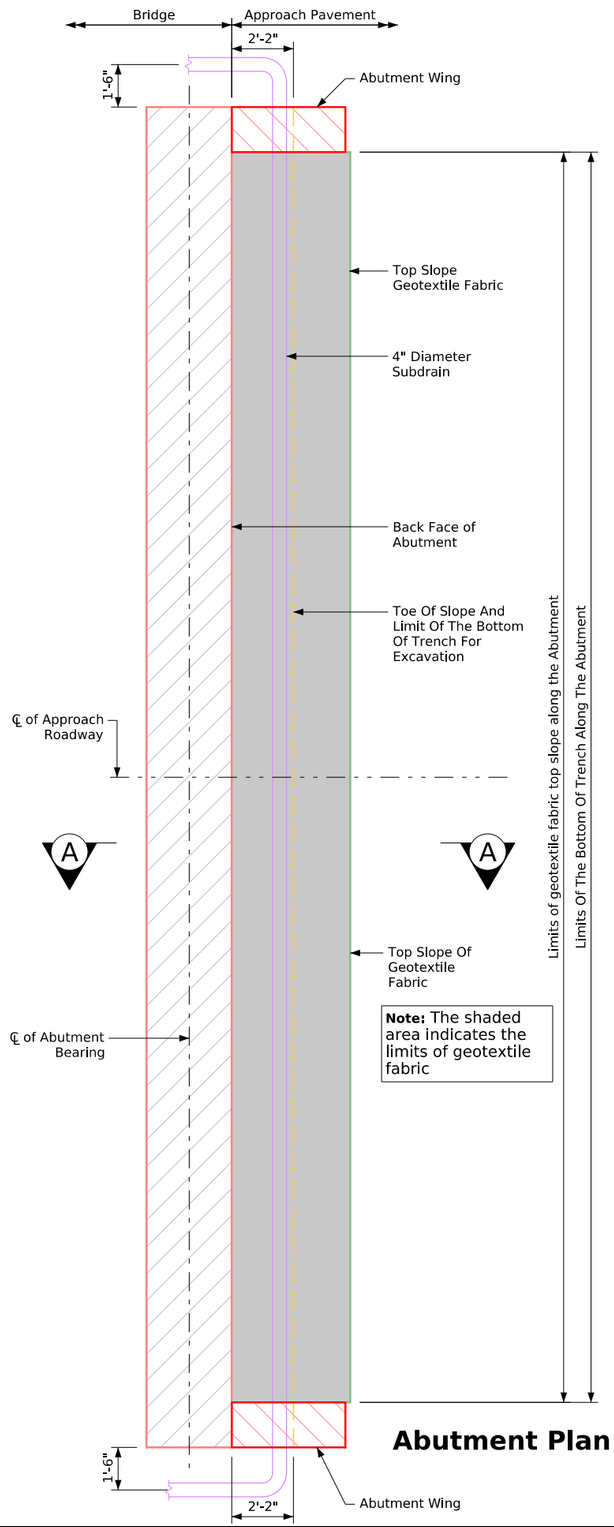
Continuous Concrete Slab Bridge

December, 2025

Wing Protection & Erosion Stone Details

J44-54-25

Revised 09-2026: Updated Bridge Engineer signature. Updated sheet to use Erosion Stone (was using Macadam Stone).



Abutment Plan

Abutment Backfill Process:

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

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

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

Porous backfill shall be placed and leveled without compaction.

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

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

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

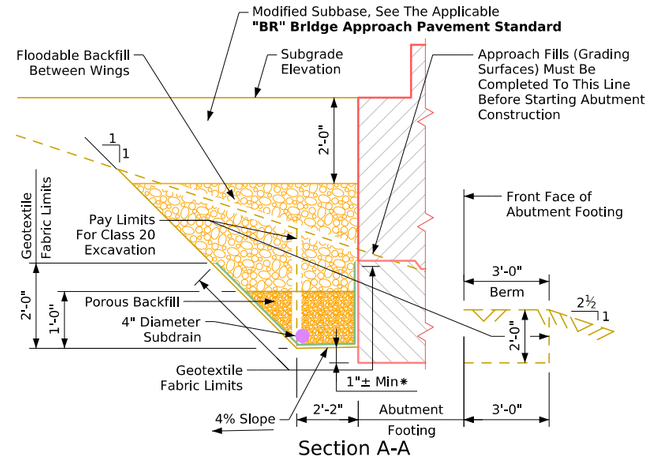
Water used for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric at the bridge abutments will not be measured separately for payment. The cost of this water shall be included in the contract unit price bid for **"Structural Concrete (Bridge)"**.

Note:

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

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

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



Section A-A

Backfill Details

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

✳ Dimension varies due to the 2% subdrain slope.

Note: For additional details not shown on this sheet, see **Subdrain Details** on Sheet **J44-53-25**.

09-2026
Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

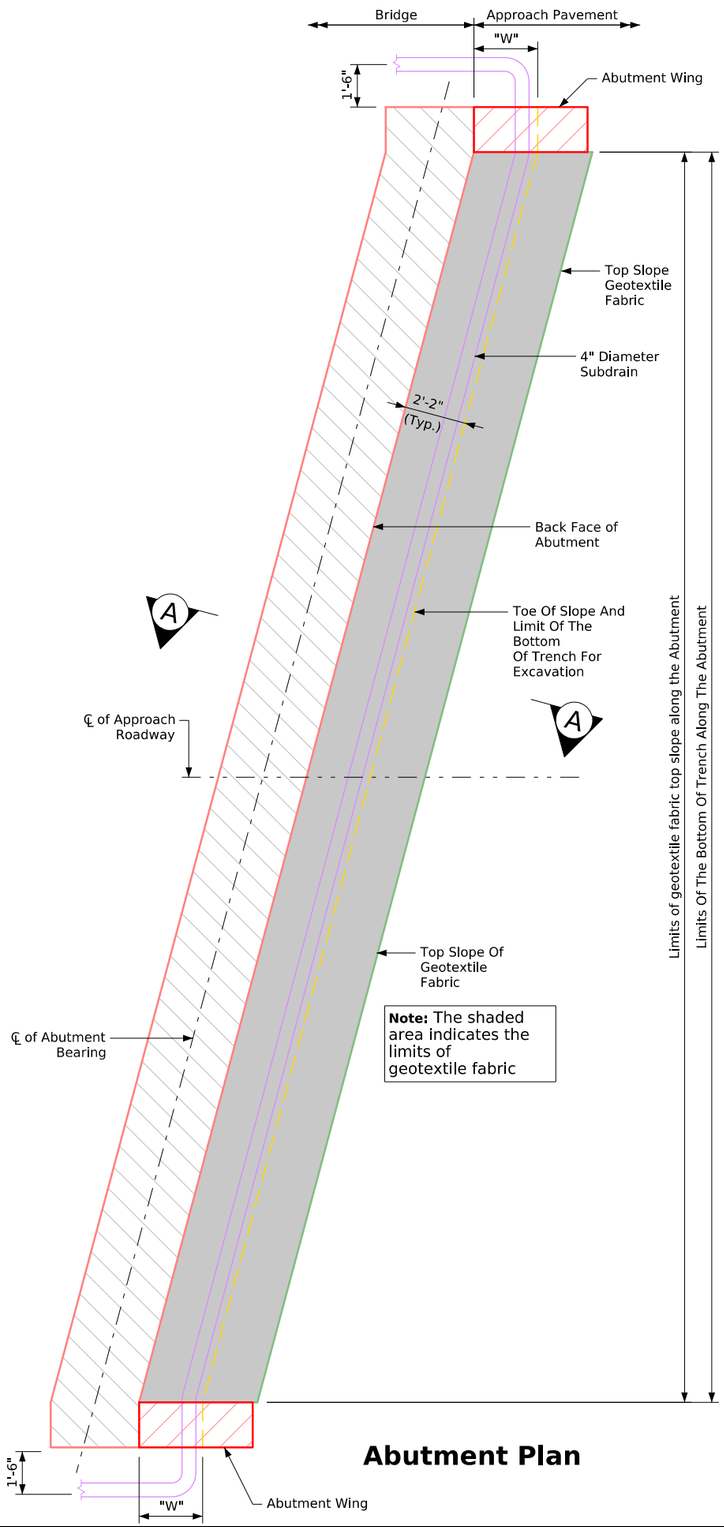
Continuous Concrete Slab Bridge

December, 2025

Backfill Details - 0° Skew Abutments

J44-55-25

Revised 09-2026: Updated Bridge Engineer signature.



Abutment Plan

Abutment Backfill Process:

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

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

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

Porous backfill shall be placed and leveled without compaction.

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

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

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

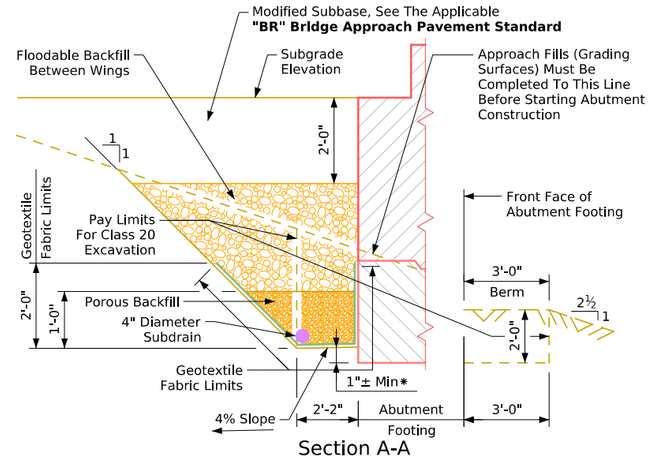
Water used for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric at the bridge abutments will not be measured separately for payment. The cost of this water shall be included in the contract unit price bid for **"Structural Concrete (Bridge)"**.

Note:

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

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

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



Section A-A

Backfill Details

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

* Dimension varies due to the 2% subdrain slope.

"W" Dimension	
Skew	Dimension
15 Degree	2'-2⅞"
30 Degree	2'-6"
45 Degree	3'-0¾"

Note: For additional details not shown on this sheet, see **Subdrain Details** on Sheet **J44-53-25**.

09-2026 Latest Revision Date

Approved by Bridge Engineer

IOWA DOT

Standard Design-44'-0" Roadway, 3 Span Bridge

Continuous Concrete Slab Bridge

December, 2025

Backfill Details - 15°, 30°, 45° Skew Abutments

J44-56-25

Revised 09-2026: Updated Bridge Engineer signature.