Standard Plans for Steel Bridges

Four-span Continuous Span Bridges

Smarter.
Stronger.
Steel.

Standard Plans for Steel Bridges

Four-span Continuous Span Bridges

National Steel Bridge Alliance

AISC STANDARD PLANS FOR STEEL BRIDGES

FOUR-SPAN CONTINUOUS SPAN BRIDGES

Design Specification: AASHTO LRFD 10th Edition
Release Date: January 2025

Smarter. Stronger. Steel.

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GENERAL NOTES:

Specifications:

AASHTO LRFD Bridge Design Specifications, 10th Edition.

AASHTO Guide Specifications for Wind Loads on Bridges During Construction, 1st Edition.

Materials:

Girder Webs and Flanges

ASTM A709 Gr 50W or Gr HPS 70W as noted in the plate size tables

Gr HPS 70W flanges are noted with a ▲

Stiffeners

A709 Gr 50W

Intermediate transverse shear stiffeners, single sided
Stiffener sizes shown as required by design, $\frac{1}{2}$ in. minimum thickness

Lateral Bracing and Diaphragm / Crossframe Members

ASTM A709 Gr 50W

Concrete Deck

f'_c = 4 ksi

Reinforcing Steel

F_y = 60 ksi

Bolts

ASTM F3125 Grade A325, diameter provided on detail sheets

Loading:

Live Load

Live load is the controlling force effects from:

HL93
EV3 - Present in multiple lanes
Fatigue design based on $ADTT_{sl}$ = 1000 trucks per day

Dead Load

Dead load assumptions:

For DC1

Slab thickness as shown in plans
Overhang thickness = slab thickness + 4 in.
Concrete haunch weight, 50 plf per beam
Stay-in-place form allowance, 15 psf
Miscellaneous steel weight:
8 ft girder spacing - 30 plf
10 ft girder spacing - 30 plf
12 ft girder spacing - 30 plf
14 ft girder spacing - 45 plf

Total DC1 loads shown on this sheet are computed with the above assumptions and assuming equal loading to all beams in the cross-section.

For DC2

Assumed single slope TL5 railing
600 plf divided to two beams

For DW

2 in. asphalt at 140 pcf

Final Design Dead Loads

8 ft girder spacing designs:

DC1 = 930 plf
DC2 = 300 plf
DW = 160 plf

10 ft girder spacing designs:

DC1 = 1,220 plf
DC2 = 300 plf
DW = 200 plf

12 ft girder spacing designs:

DC1 = 1,540 plf
DC2 = 300 plf
DW = 240 plf

14 ft girder spacing designs:

DC1 = 2,000 plf
DC2 = 300 plf
DW = 280 plf

Note: exterior girders also designed for flange lateral bending moments from overhang brackets and concrete deck finishing machine. Flange lateral bending moments for exterior beams are provided on the **Fascia Beam Design Criteria** sheet.

Wind Load

Wind on completed bridge 44 psf
Wind on open framing during construction, see **General Design Criteria** sheet.

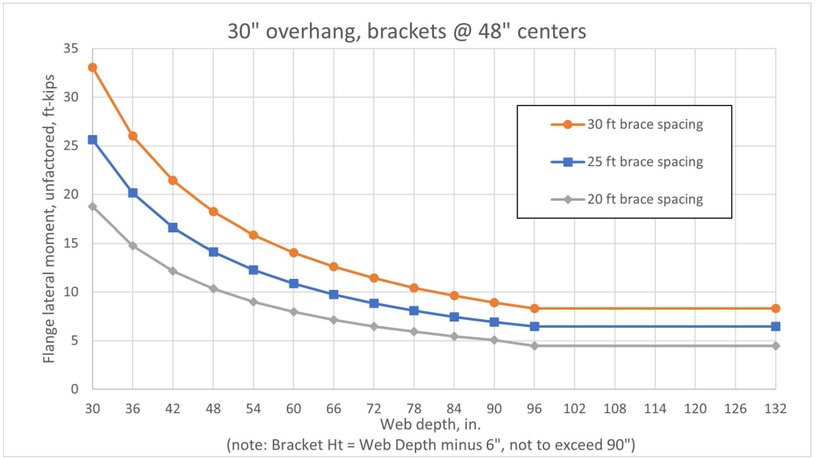
Design Assumptions and Criteria, Continuous Span Bridges:

1. Girder Design
   a. All designs performed using NSBA LRFD SIMON.
   b. Interior and exterior beams were designed. In LRFD SIMON, the "BOTH" option is used for the LL distribution factors. This results in a single beam designed for the governing shear and moment distribution factors for an interior and exterior beam. The composite slab effective width is based on an exterior beam.
   c. Live load distribution follows AASHTO LRFD 4.6.2.2 for all beam spacings and span lengths. Designs where the AASHTO distribution factor equations are used beyond the range of applicability are noted in the design tables.
   d. A skew of 20 degrees from normal is assumed for all designs.
   e. Live load deflection satisfies AASHTO LRFD 2.5.2.6.2 Criteria for Deflection for vehicular bridges, L/800.
   f. Girder depth satisfies AASHTO LRFD 2.5.2.6.3 Optional Criteria for Span-to-Depth Ratios.
   g. Fatigue design based on Category C for shear studs welded to top flanges and Category C' for welded transverse stiffeners, $ADTT_{SL}$ = 1,000 vehicles per day and a 75-year design life.
   h. Maximum segment length, 140 feet.
   i. Four-span-continuous units are designed for end span lengths equal to 78% of the interior span lengths.
   j. All continuous span bridges have field splices adjacent to each pier at approximately 0.7L of the end span.
   k. Some continuous span bridges have additional splices at approximately 0.25L of the end span to meet shipping length requirements. These are noted in the plans.
   l. Maximum shipping weight, 50 tons.
   m. Maximum web depth, 11 feet.
   n. Minimum top flange width, $b_{tfs} \geq L_{fs} / 85$ where L_{fs} is the field section length. AASHTO LRFD (C6.10.2.2-1).
   o. Flange widths held constant in a field section.
   p. Minimum flange thickness, 1 in. Maximum flange thickness, 3 in. Flange thickness increments, 1/4 in.
   q. Minimum web thickness, 1/2 in. Web thickness increments, 1/8 in.
   r. No more than two complete joint penetration flange butt welds per flange in any field section.
   s. When a single size flange is used in a field section, the weight reduction of a complete joint penetration transition was first evaluated and then eliminated based on weight, cost, and stress considerations.
   t. Single-sided transverse shear stiffeners are used when needed.
   u. Longitudinal stiffeners are not used.
   v. All girders are composite for positive and negative bending.
   w. Negative moment longitudinal deck reinforcing is 1% of the gross deck cross-section. This reinforcing extends at least between the field splices, or longer as required by AASHTO LRFD 6.10.1.7 for the Service II Limit State. Designer to determine if the factored deck casting and construction loads require this reinforcing steel to be extended. See the **Deck Details** sheets for additional details.
   x. Shear stud design based on LRFD SIMON and AASHTO LRFD 9th edition. For flanges ≤ 16 in. wide, three 7/8 in. diameter studs in a transverse row are used. All other flange widths use four studs in a transverse row.
2. Diaphragm and Cross-Frame Design
   a. Intermediate diaphragms and cross-frames are designed as below. End diaphragms or cross-frames that support the deck and/or expansion joint are not considered as part of these standards.
   b. Diaphragm and cross-frame spacing varies within in the span. Maximum spacing does not exceed 30 ft.
   c. Depth of bracing is at least 0.8 times girder web height.
   d. For cross-frame design, the effective depth of the chords was assumed to be 5 in. vertically from the top and bottom of web. This dimension is used for "D" in the S/D checks. For all S/D checks, "S" is S / Cosine 20 deg assuming a maximum 20 degree skew for all designs.
   e. Solid diaphragms are used when the girder spacing to web depth ratio, S/D > 3.5.
   f. K-frames are used when 1.5 < S/D ≤ 3.5.
   g. X-frames are used when S/D ≤ 1.5
   h. Angles are used for all cross-frame members.
   i. Cross-Frame members are designed as secondary members.
   j. Cross-Frame members are designed for tension / compression loading.
   k. Cross-frame member stiffness is based on 0.65AE stiffness reduction factor for eccentrically loaded angles, AASHTO LRFD C4.6.3.3.4.
   l. Diaphragms and cross-frames are designed for combined stability-induced loads along with simultaneous deck casting forces. The finishing machine is assumed to be centered at a brace point location.
3. Wind Load Design
   a. Lateral deflection and flange lateral bending stresses due to wind on the fully erected steel framing were evaluated. Lateral bracing is not required for the design conditions assumed in 3.1 and 3.2, below. Other conditions may require bracing for wind load deflection or stress.

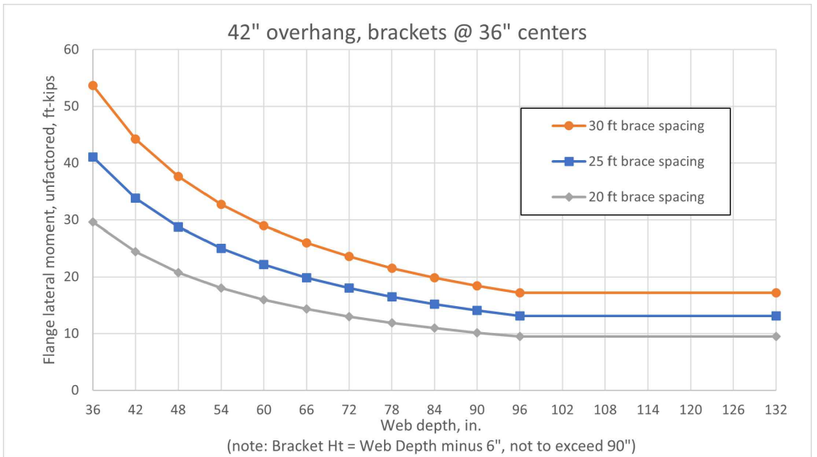
3.1 Service Design Criteria
   a. Lateral deflections due to wind loads on the fully erected steel satisfy the Span / 150 requirement established by PennDOT BD-620M. All references to BD-620M are to the April 29, 2016 edition.
   b. For this deflection check, a 32 psf assumed pressure is applied to fascia beams only for a superstructure height = 30 ft. For other superstructure heights, refer to PennDOT BD-620M.

3.2 Strength Design Criteria
   Girder flange lateral bending is checked for strength as follows:
   a. Maximum wind load positve and negative moment regions were checked. Check other plate transitions in final design.
   b. Fascia beam checked for global bending of the span and local bending between cross-frames.
   c. Wind loads on erected steel determined from the *AASHTO Guide Specification for Wind Loads on Bridges During Construction, 2017.*
      Inactive wind condition, V = 115 mph. Superstructure height, 30 ft
      Superstructure construction duration 6 weeks - 1 year, R = 0.73
      K_z = 1.0, C_d = 2.2 for fascia beam, per AASHTO Guide Specifications for other beams.

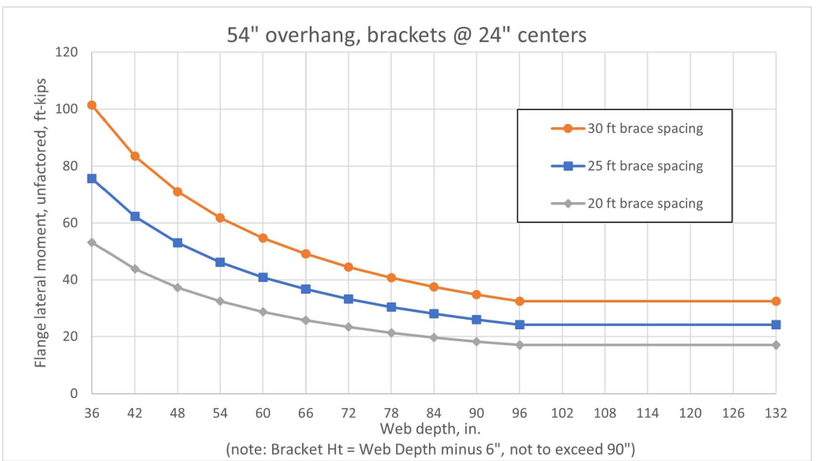
4. Bolted Field Splices
   a. All bolted field splices use 1 in. diameter ASTM F3125 Grade A325 bolts and standard sized holes.
   b. All connection and fill plates are Gr 50W.
   c. Slip resistance is based on a Class B surface condition.
   d. For connections where the bottom flange and a portion of the web are required to be in tension to resist the factored moments at the point of splice an additional check was made to determine if the slab has adequate compression strength. This check is not in AASHTO. If the slab is unable to provide a compression capacity equal to the tensile forces of the bottom flange and web in tension, the connection was designed as a noncomposite splice. If or when this situation occurs, these splices are noted "Non-Composite" in the **Bolted Field Splices** sheets. This condition was not encountered in any of the four-span standard designs.



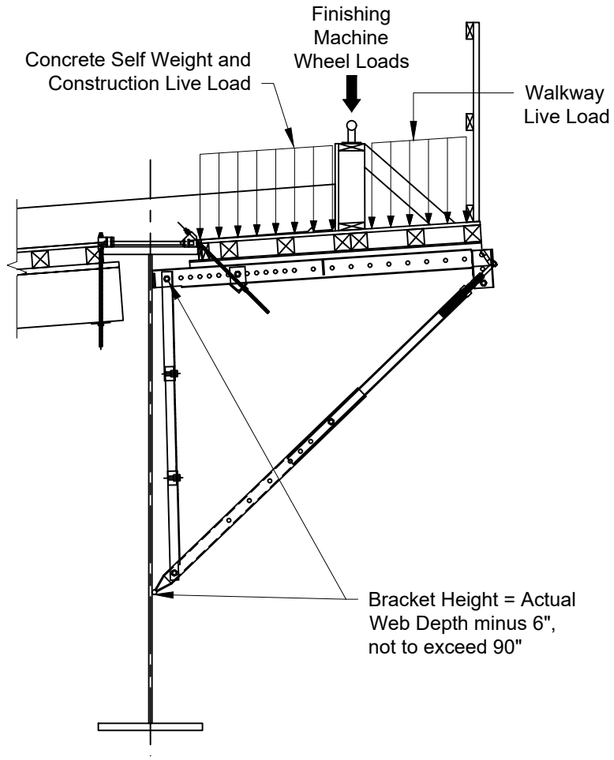
(note: Bracket Ht = Web Depth minus 6", not to exceed 90")



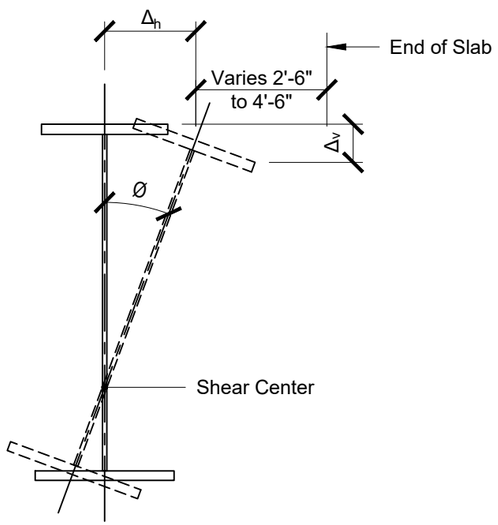
(note: Bracket Ht = Web Depth minus 6", not to exceed 90")



(note: Bracket Ht = Web Depth minus 6", not to exceed 90")



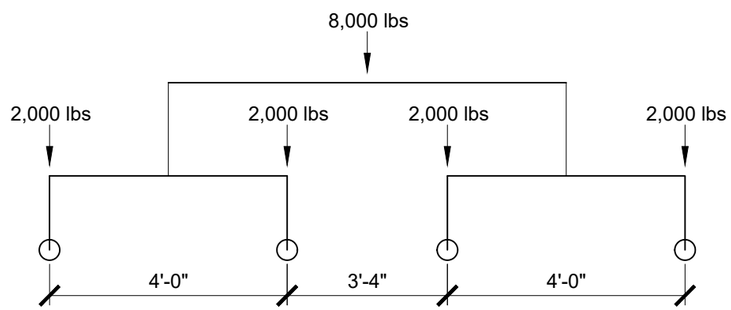
TYPICAL SECTION



GIRDER ROTATION DIAGRAM

Fascia Beam Design Criteria:

1. Finishing machine wheel load, 4 @ 2000 pounds. Loads shown are representative of finishing machines used for bridge widths and types shown on these plans.
2. Concrete density, 160 pcf, to account for formwork weight allowance.
3. Construction live load on deck, 50 psf.
4. Walkway live load, 50 psf. Assumed walkway width, 2 ft.
5. Overhang slab thickness equals nominal slab thickness + 4 in. assuming slab is flush to underside of top flange and an assumed 4 in. haunch.
6. Finishing machine is assumed to be midway between cross-frames for lateral bending moment calculations.
   a. Factored load combination: AASHTO LRFD 3.4.2, 1.25 DC + 1.5 LL
   b. An equivalent service bending moment is computed for LRFD SIMON input. LRFD SIMON uses a 1.4 factor on all lateral bending moments. Moments shown on the accompanying graphs are unfactored and are a total weighted average of the dead and live load lateral flange bending moments.
7. Bracket spacing assumed as follows. Bracket spacing is based on limiting capacities of common commercially available hangers and brackets. Assumed safe working load of 6,000 lbs. per hanger. Assumed safe working load of 3,750 lbs. per diagonal.
   a. 30 in. overhangs, 48 in. bracket spacing.
   b. 42 in. overhang, 36 in. bracket spacing.
   c. 54 in. overhang, 24 in. bracket spacing.
8. Girder service load rotations, Ø, are limited to 1 degree.
9. Lateral deflection at the top of web, Δ_h, limited to 0.25 in. Vertical deflection of the edge of slab, Δ_v, limited to 0.5 in. Both limits checked for maximum finishing machine loading and are instantaneous values.



ASSUMED FINISHING MACHINE

FASCIA BEAM DESIGN CRITERIA

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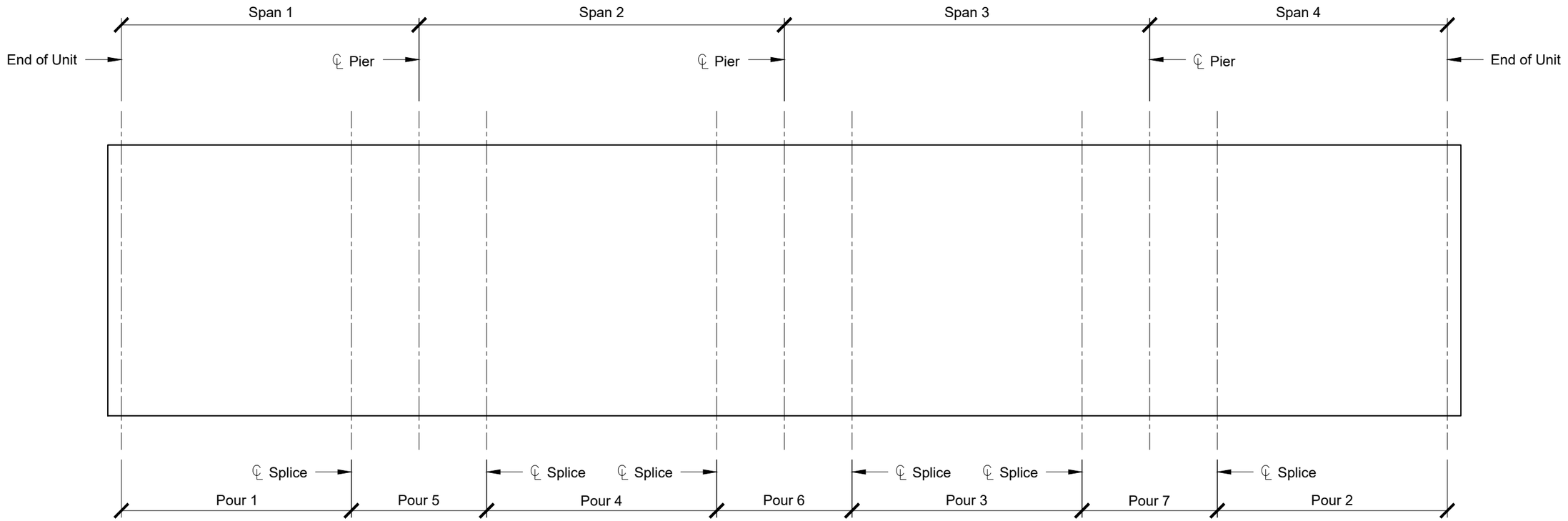
Revision 0

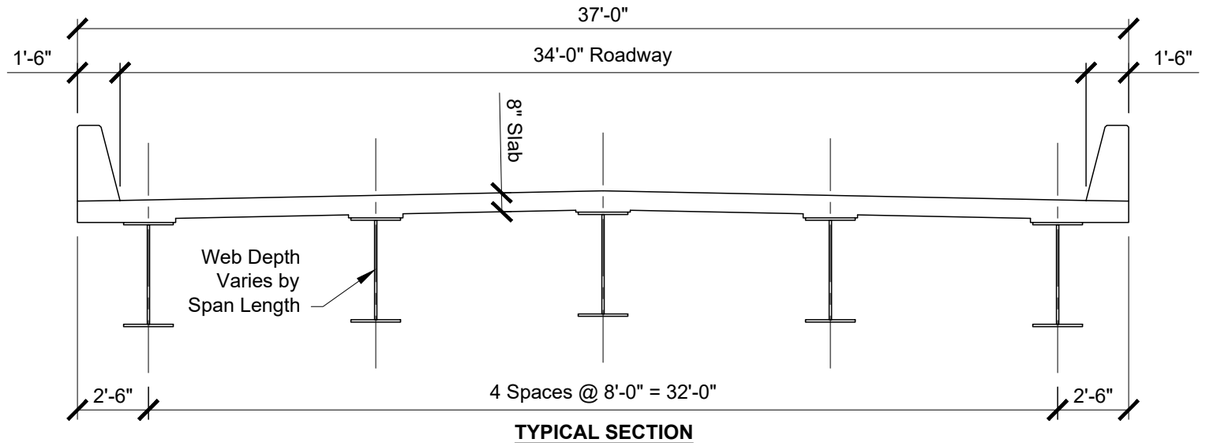


4-SPAN UNIT DECK POURING SEQUENCE

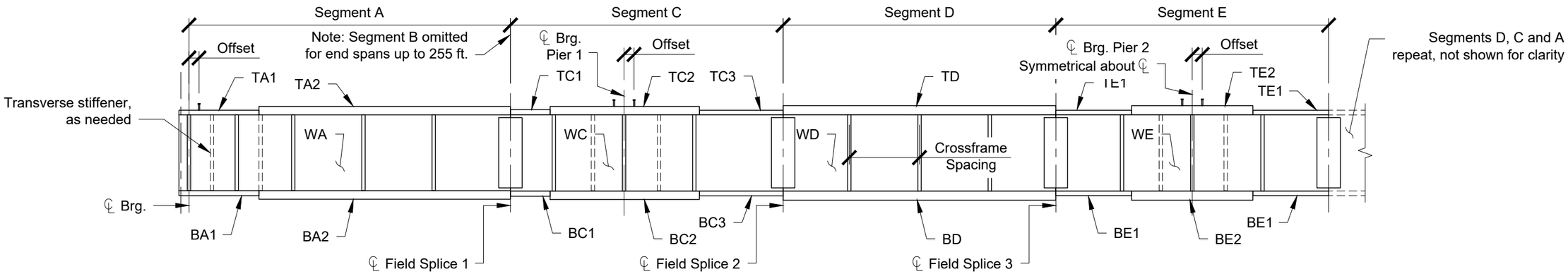
DECK POURING NOTES

1. The deck pouring sequence shown is the basis of design.
2. The beams are designed for local and lateral-torsional buckling limits for the specified pour sequence and additionally for the global stability and cross-frame requirements of AASHTO LRFD 10th edition Article 6.7.4.2.2.
3. For the 4-span unit, the critical checks for deck casting positive and negative bending in noncomposite sections occur during Pour 1 and 6.
4. The provisions of AASHTO LRFD 6.7.4.2.2 do not account for the stiffening influence of any previously cast and composite deck sections and are conservative for other than Pour 1.
5. Uplift is prevented in all cases.

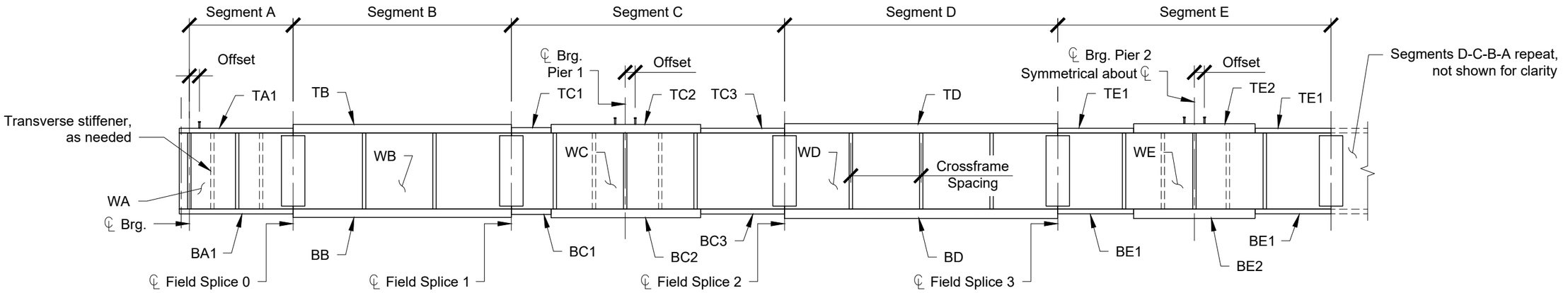
Note: An alternate pouring sequence with the deck cast continuously end-to-end is also permitted. All girder designs in these standards satisfy stress, strength, uplift, and stability requirements for the alternate pouring sequence.



TYPICAL SECTION



GIRDER ELEVATION INTERIOR SPANS 150-255 FT



GIRDER ELEVATION INTERIOR SPANS 270-300 FT

FOUR SPAN 150-300 FT 8 FT SPACING

Issued January 2025
Revision 0

Span, ft. End-Interior	SEGMENT A					SEGMENT B (as needed)			SEGMENT C						
	WA (in. x in. x ft.)	TA1 (in. x in. x ft.)	TA2 (in. x in. x ft.)	BA1 (in. x in. x ft.)	BA2 (in. x in. x ft.)	WB (in. x in. x ft.)	TB (in. x in. x ft.)	BB (in. x in. x ft.)	WC (in. x in. x ft.)	TC1 (in. x in. x ft.)	TC2 (in. x in. x ft.)	TC3 (in. x in. x ft.)	BC1 (in. x in. x ft.)	BC2 (in. x in. x ft.)	BC3 (in. x in. x ft.)
117-150	54 x 0.5 x 79	---	16 x 1 x 79	---	16 x 1.25 x 79	---	---	---	54 x 0.5 x 76	---	22 x 1.25 x 76	---	---	22 x 1.5 x 76	---
129-165	60 x 0.5 x 89	---	16 x 1 x 89	---	16 x 1.25 x 89	---	---	---	60 x 0.5 x 80	22 x 1 x 25	22 x 1.5 x 30	22 x 1 x 25	22 x 1 x 25	22 x 1.75 x 30	22 x 1 x 25
141-180	66 x 0.5 x 98	---	16 x 1 x 98	---	16 x 1.25 x 98	---	---	---	66 x 0.5 x 86	22 x 1 x 26	22 x 1.5 x 34	22 x 1 x 26	22 x 1 x 26	22 x 1.75 x 34	22 x 1 x 26
153-195	72 x 0.625 x 106	---	18 x 1 x 106	---	18 x 1 x 106	---	---	---	72 x 0.625 x 94	24 x 1 x 28	24 x 1.5 x 38	24 x 1 x 28	24 x 1 x 28	24 x 1.75 x 38	24 x 1 x 28
164-210	76 x 0.625 x 113	---	18 x 1 x 113	---	18 x 1 x 113	---	---	---	76 x 0.625 x 102	24 x 1 x 30	24 x 1.75 x 42	24 x 1 x 30	24 x 1 x 30	24 x 1.75 x 42	24 x 1 x 30
176-225	82 x 0.625 x 122	---	18 x 1 x 122	---	18 x 1 x 122	---	---	---	82 x 0.625 x 108	24 x 1 x 27	24 x 1.75 x 54	24 x 1 x 27	24 x 1 x 27	24 x 2 x 54	24 x 1 x 27
188-240	88 x 0.625 x 130	---	20 x 1 x 130	---	20 x 1 x 130	---	---	---	88 x 0.625 x 116	26 x 1.25 x 39	26 x 1.75 x 38	26 x 1.25 x 39	26 x 1.25 x 39	26 x 2 x 38	26 x 1.25 x 39
199-255	92 x 0.625 x 138	---	20 x 1 x 138	---	20 x 1 x 138	---	---	---	92 x 0.625 x 122	26 x 1.25 x 40	26 x 2 x 42	26 x 1.25 x 40	26 x 1.25 x 40	26 x 2 x 42	26 x 1.25 x 40
211-270	96 x 0.75 x 51	20 x 1 x 51	---	20 x 1 x 51	---	96 x 0.75 x 100	20 x 1 x 100	20 x 1 x 100	96 x 0.75 x 125	26 x 1.25 x 35	26 x 2 x 50	26 x 1.25 x 40	26 x 1.25 x 35	26 x 2.25 x 50	26 x 1.25 x 40
223-285	102 x 0.75 x 51	22 x 1 x 51	---	22 x 1 x 51	---	102 x 0.75 x 110	22 x 1 x 110	22 x 1 x 110	102 x 0.75 x 140	28 x 1.25 x 36	28 x 2 x 52	28 x 1.25 x 52	28 x 1.25 x 36	28 x 2.25 x 52	28 x 1.25 x 52
234-300	108 x 0.75 x 54	22 x 1 x 54	---	22 x 1 x 54	---	108 x 0.75 x 130	24 x 1 x 130	24 x 1 x 130	108 x 0.75 x 140	28 x 1.25 x 25	28 x 2 x 50	28 x 1.25 x 65	28 x 1.5 x 25	28 x 2 x 50	28 x 1.25 x 65

Span, ft. End-Interior	SEGMENT D			SEGMENT E					Additional Footnotes
	WD (in. x in. x ft.)	TD (in. x in. x ft.)	BD (in. x in. x ft.)	WE (in. x in. x ft.)	TE1 (in. x in. x ft.)	TE2 (in. x in. x ft.)	BE1 (in. x in. x ft.)	BE2 (in. x in. x ft.)	
117-150	54 x 0.5 x 74	16 x 1 x 74	16 x 1.25 x 74	54 x 0.5 x 76	---	22 x 1.5 x 76	---	22 x 1.75 x 76	---
129-165	60 x 0.5 x 85	16 x 1 x 85	16 x 1.25 x 85	60 x 0.5 x 80	22 x 1 x 25	22 x 1.5 x 30	22 x 1 x 25	22 x 1.75 x 30	---
141-180	66 x 0.5 x 94	16 x 1 x 94	16 x 1.25 x 94	66 x 0.5 x 86	22 x 1 x 21	22 x 1.75 x 44	22 x 1 x 21	22 x 2 x 44	---
153-195	72 x 0.625 x 101	18 x 1 x 101	18 x 1 x 101	72 x 0.625 x 94	24 x 1 x 28	24 x 1.5 x 38	24 x 1 x 28	24 x 1.75 x 38	---
164-210	76 x 0.625 x 108	18 x 1 x 108	18 x 1 x 108	76 x 0.625 x 102	24 x 1 x 25	24 x 1.75 x 52	24 x 1 x 25	24 x 2 x 52	---
176-225	82 x 0.625 x 117	18 x 1 x 117	18 x 1 x 117	82 x 0.625 x 108	24 x 1 x 27	24 x 1.75 x 54	24 x 1 x 27	24 x 2 x 54	---
188-240	88 x 0.625 x 124	20 x 1 x 124	20 x 1 x 124	88 x 0.625 x 116	26 x 1.25 x 39	26 x 1.75 x 39	26 x 1.25 x 39	26 x 2 x 38	---
199-255	92 x 0.625 x 133	20 x 1 x 133	20 x 1 x 133	92 x 0.625 x 122	26 x 1.25 x 35	26 x 2 x 52	26 x 1.25 x 35	26 x 2.25 x 52	a
211-270	96 x 0.75 x 140	20 x 1 x 140	20 x 1 x 140	96 x 0.75 x 130	26 x 1.25 x 37	26 x 2 x 56	26 x 1.25 x 37	26 x 2.25 x 56	a
223-285	102 x 0.75 x 140	22 x 1 x 140	22 x 1 x 140	102 x 0.75 x 134	28 x 1.25 x 33	28 x 2.25 x 68	28 x 1.25 x 33	28 x 2.5 x 68	a
234-300	108 x 0.75 x 140	22 x 1 x 140	22 x 1 x 140	108 x 0.75 x 140	28 x 1.25 x 35	28 x 2.25 x 70	28 x 1.25 x 35	28 x 2.25 x 70	a

Note: All plates are A709 Gr 50W.

Footnotes:

a. AASHTO distribution factor equations were used with girder stiffness and / or span length exceeding AASHTO limits. Check with refined analysis.

TRANSVERSE AND BEARING STIFFENERS										
Span, ft. End-Interior	Transverse Stiffener Size and Location, Distance From End support, Each Span				Bearing Stiffeners, End		Bearing Stiffeners, Pier 1		Bearing Stiffeners, Pier 2	
	Width in.	Thickness in.	Span 1 Location, ft.	Span 2 Location, ft.	Width in.	Thickness in.	Width in.	Thickness in.	Width in.	Thickness in.
117-150	5.5	0.5	90, 103.5	13.5, 27, 123, 136.5	7.25	0.75	10.25	1	10.25	1
129-165	5.5	0.5	7.5, 99, 114	15, 30, 40, 135, 150	7.25	0.75	10.25	1	10.25	1
141-180	6	0.5	8.25, 24.75, 81.5, 98, 108, 124.5	16.5, 33, 43, 59.5, 120.5, 137, 147, 163.5	7.25	0.75	10.25	1	10.25	1
153-195	6	0.5	135	18, 177	8.25	0.75	11.25	1	11.25	1
164-210	6	0.5	145	19, 191	8.25	0.75	11.25	1	11.25	1
176-225	6	0.5	135, 155.5	20.5, 41, 184, 204.5	8.25	0.75	11.25	1	11.25	1
188-240	7	0.5	144, 166	22, 44, 196, 218	8.25	0.875	12.25	1.125	12.25	1.125
199-255	7	0.5	11.5, 153, 176	23, 46, 209, 232	9.25	0.875	12.25	1.125	12.25	1.125
211-270	6.5	0.5	187	24, 246	9	0.875	12	1.125	12	1.125
223-285	7	0.5	197.5	25.5, 259.5	10	0.875	13	1.125	13	1.125
234-300	7	0.5	207	27, 54, 246, 273	10	0.875	13	1.125	13	1.125

SHEAR STUD LAYOUT																				
Span, ft. End-Interior	Studs per row	Span 1										Span 2									
		Offset in.	Group 1			Group 2			Group 3			Offset in.	Group 1			Group 2			Group 3		
			Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.		Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.
117-150	4	0	39	12	19	52	16	69.33	7	48	28	12	6	48	24	75	16	100	6	48	24
129-165	4	0	20	12	20	52	18	78	7	48	28	12	7	48	28	80	16	106.67	7	48	28
141-180	4	0	14	12	14	62	18	93	8	48	32	0	9	48	36	72	18	108	9	48	36
153-195	4	0	8	12	8	72	18	108	9	48	36	36	9	48	36	78	18	117	9	48	36
164-210	4	0	9	12	9	76	18	114	10	48	40	36	9	48	36	86	18	129	10	48	40
176-225	4	0	8	18	12	74	20	123.33	10	48	40	14	11	48	44	74	22	135.67	11	48	44
188-240	4	0	19	18	28.5	57	24	114	11	48	44	30	11	48	44	73	24	146	11	48	44
199-255	4	0	14	18	21	65	24	130	12	48	48	30	12	48	48	77	24	154	12	48	48
211-270	4	0	7	18	10.5	74	24	148	13	48	52	0	12	48	48	87	24	174	12	48	48
223-285	4	0	17	24	34	58	28	135.33	11	48	52	18	13	48	52	89	24	178	13	48	52
234-300	4	0	18	24	36	56	30	140	14	48	56	24	14	48	56	73	30	182.5	14	48	56

CROSS-FRAME SPACING			
Span, ft. End-Interior	End Span	Interior Span	Type
117-150	4 @ 20.5 + 2 @ 17.5 = 117	2 @ 17.5 + 3 @ 26.66 + 2 @ 17.5 = 150	K-Frame
129-165	4 @ 23 + 2 @ 18.5 = 129	2 @ 18.5 + 4 @ 22.75 + 2 @ 18.5 = 165	K-Frame
141-180	4 @ 25.25 + 2 @ 20 = 141	2 @ 20 + 4 @ 25 + 2 @ 20 = 180	K-Frame
153-195	5 @ 22 + 2 @ 21.5 = 153	2 @ 21.5 + 4 @ 27.25 + 2 @ 21.5 = 195	K-Frame
164-210	5 @ 23 + 3 @ 16.33 = 164	3 @ 16.25 + 5 @ 22.5 + 3 @ 16.25 = 210	K-Frame
176-225	5 @ 25 + 3 @ 17 = 176	3 @ 16.66 + 5 @ 25 + 3 @ 16.66 = 225	X-Frame
188-240	5 @ 26.5 + 3 @ 18.5 = 188	3 @ 17.91 + 5 @ 26.5 + 3 @ 17.91 = 240	X-Frame
199-255	6 @ 23.5 + 3 @ 19.33 = 199	3 @ 18.75 + 5 @ 28.5 + 3 @ 18.75 = 255	X-Frame
211-270	6 @ 24.67 + 3 @ 21 = 211	3 @ 21 + 6 @ 24 + 3 @ 21 = 270	X-Frame
223-285	7 @ 23 + 3 @ 20.66 = 223	4 @ 17.5 + 6 @ 24.16 + 4 @ 17.5 = 285	X-Frame
234-300	8 @ 23.25 + 3 @ 16 = 234	4 @ 19 + 6 @ 24.66 + 4 @ 19 = 300	X-Frame

DEAD LOAD AND LIVE LOAD REACTIONS												
Span, ft. End-Interior	End Reaction				Pier 1 / 3 Reaction				Pier 2 Reaction			
	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips
117-150	61	7	75	30	221	24	130	82	229	24	132	86
129-165	67	7	76	33	245	26	134	90	246	27	134	94
141-180	74	8	76	36	268	29	136	98	276	29	137	103
153-195	82	9	76	39	303	31	138	106	302	31	138	110
164-210	88	9	77	42	327	34	139	114	333	34	140	120
176-225	94	10	77	45	358	36	140	123	356	36	141	128
188-240	103	11	77	48	390	39	141	131	387	39	141	136
199-255	109	11	77	51	415	41	142	138	420	41	142	145
211-270	120	12	77	54	455	43	142	146	458	44	142	153
223-285	129	13	77	56	489	46	142	154	499	46	143	162
234-300	138	13	78	59	516	48	143	162	530	49	143	170

Note: Truck and lane reactions include distribution factors, skew correction, and impact on the truck loading.

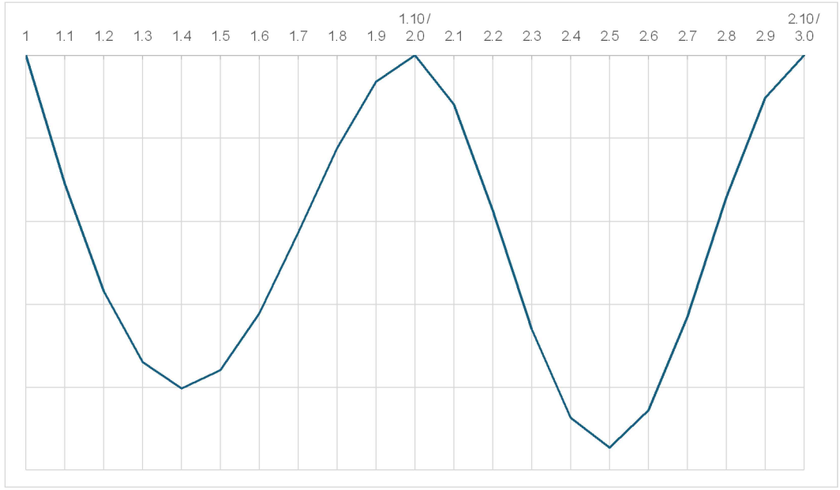
GIRDER WEIGHT						
Span, ft. End-Interior	Segment A tons	Segment B tons	Segment C tons	Segment D tons	Segment E tons	Total tons
117-150	8.47	---	11.31	7.93	12.74	68.16
129-165	9.99	---	11.48	9.54	11.48	73.51
141-180	11.50	---	12.86	11.04	14.15	84.94
153-195	14.61	---	16.81	13.92	16.81	107.49
164-210	16.05	---	19.15	15.34	20.29	121.37
176-225	18.11	---	22.10	17.37	22.10	137.25
188-240	21.01	---	25.78	20.04	25.86	159.54
199-255	22.89	---	28.21	22.06	29.45	175.79
211-270	9.72	19.06	33.01	26.68	34.64	211.55
223-285	10.46	22.55	39.23	28.70	40.69	242.57
234-300	11.48	28.53	39.84	29.77	42.64	261.89

Note: Girder weight is total weight of web and flanges only measured between CL brg at each end. Does not include girder extension at end bearings, stiffeners, shear studs, bracing, or any other allowances.

FOUR SPAN 150-300 FT 8 FT SPACING

Issued January 2025
Revision 0

DEAD LOAD DEFLECTIONS																							
Span, ft. End-Interior	Span Tenth Points and Deflections, in. Span 1 Shown. Span 4 Symmetric											Span Tenth Points and Deflections, in. Span 2 Shown. Span 3 Symmetric											
	1.0	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**	**1.9**	**1.10**	**2.0**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**	**2.10**
117-150 ft. span - steel only, in.	0.00	0.13	0.24	0.31	0.34	0.32	0.26	0.18	0.10	0.03	0.00	0.00	0.05	0.16	0.28	0.37	0.40	0.37	0.27	0.15	0.05	0.00
slab, in.	0.00	0.55	1.00	1.30	1.41	1.34	1.10	0.76	0.40	0.12	0.00	0.00	0.20	0.63	1.11	1.47	1.59	1.44	1.06	0.59	0.18	0.00
barrier rails, in.	0.00	0.10	0.19	0.24	0.27	0.25	0.21	0.14	0.08	0.02	0.00	0.00	0.04	0.13	0.23	0.30	0.32	0.29	0.22	0.12	0.04	0.00
117-150 ft. span - total, in.	**0.00**	**0.78**	**1.43**	**1.85**	**2.02**	**1.91**	**1.57**	**1.08**	**0.57**	**0.17**	**0.00**	**0.00**	**0.29**	**0.92**	**1.62**	**2.14**	**2.32**	**2.10**	**1.55**	**0.87**	**0.27**	**0.00**
129-165 ft. span - steel only, in.	0.00	0.15	0.28	0.36	0.39	0.37	0.30	0.20	0.10	0.03	0.00	0.00	0.06	0.19	0.33	0.45	0.49	0.44	0.33	0.18	0.05	0.00
slab, in.	0.00	0.63	1.15	1.49	1.62	1.52	1.23	0.83	0.42	0.11	0.00	0.00	0.22	0.74	1.34	1.80	1.96	1.79	1.33	0.72	0.20	0.00
barrier rails, in.	0.00	0.12	0.22	0.29	0.31	0.30	0.24	0.16	0.08	0.02	0.00	0.00	0.05	0.16	0.28	0.37	0.40	0.37	0.27	0.15	0.04	0.00
129-165 ft. span - total, in.	**0.00**	**0.90**	**1.65**	**2.15**	**2.32**	**2.18**	**1.77**	**1.20**	**0.60**	**0.16**	**0.00**	**0.00**	**0.32**	**1.08**	**1.96**	**2.61**	**2.85**	**2.60**	**1.93**	**1.06**	**0.30**	**0.00**
141-180 ft. span - steel only, in.	0.00	0.19	0.35	0.45	0.49	0.47	0.38	0.26	0.14	0.04	0.00	0.00	0.06	0.20	0.37	0.50	0.54	0.49	0.36	0.19	0.06	0.00
slab, in.	0.00	0.75	1.37	1.78	1.93	1.82	1.49	1.02	0.53	0.16	0.00	0.00	0.21	0.78	1.43	1.92	2.08	1.88	1.37	0.73	0.21	0.00
barrier rails, in.	0.00	0.15	0.27	0.35	0.38	0.36	0.30	0.20	0.11	0.03	0.00	0.00	0.05	0.17	0.31	0.41	0.44	0.40	0.30	0.16	0.05	0.00
141-180 ft. span - total, in.	**0.00**	**1.08**	**1.98**	**2.58**	**2.80**	**2.65**	**2.17**	**1.49**	**0.77**	**0.23**	**0.00**	**0.00**	**0.32**	**1.15**	**2.11**	**2.82**	**3.07**	**2.77**	**2.03**	**1.09**	**0.32**	**0.00**
153-195 ft. span - steel only, in.	0.00	0.23	0.43	0.56	0.60	0.57	0.46	0.31	0.16	0.04	0.00	0.00	0.08	0.27	0.49	0.66	0.72	0.65	0.49	0.27	0.08	0.00
slab, in.	0.00	0.78	1.43	1.85	2.01	1.88	1.53	1.03	0.53	0.15	0.00	0.00	0.25	0.87	1.60	2.15	2.35	2.14	1.59	0.87	0.25	0.00
barrier rails, in.	0.00	0.16	0.30	0.39	0.42	0.39	0.32	0.22	0.11	0.03	0.00	0.00	0.06	0.20	0.35	0.47	0.51	0.47	0.35	0.19	0.06	0.00
153-195 ft. span - total, in.	**0.00**	**1.18**	**2.15**	**2.80**	**3.03**	**2.84**	**2.31**	**1.57**	**0.80**	**0.22**	**0.00**	**0.00**	**0.39**	**1.34**	**2.44**	**3.27**	**3.57**	**3.26**	**2.42**	**1.33**	**0.38**	**0.00**
164-210 ft. span - steel only, in.	0.00	0.28	0.51	0.66	0.72	0.67	0.55	0.37	0.19	0.05	0.00	0.00	0.09	0.30	0.55	0.74	0.81	0.73	0.54	0.29	0.09	0.00
slab, in.	0.00	0.90	1.65	2.14	2.31	2.17	1.76	1.18	0.60	0.17	0.00	0.00	0.27	0.94	1.73	2.34	2.55	2.31	1.69	0.90	0.27	0.00
barrier rails, in.	0.00	0.19	0.35	0.45	0.49	0.46	0.38	0.26	0.13	0.04	0.00	0.00	0.07	0.22	0.40	0.53	0.58	0.52	0.39	0.21	0.06	0.00
164-210 ft. span - total, in.	**0.00**	**1.37**	**2.51**	**3.25**	**3.52**	**3.30**	**2.68**	**1.80**	**0.91**	**0.25**	**0.00**	**0.00**	**0.43**	**1.46**	**2.68**	**3.61**	**3.94**	**3.56**	**2.61**	**1.40**	**0.41**	**0.00**
176-225 ft. span - steel only, in.	0.00	0.32	0.58	0.75	0.81	0.75	0.61	0.41	0.21	0.06	0.00	0.00	0.10	0.33	0.61	0.83	0.91	0.83	0.61	0.33	0.10	0.00
slab, in.	0.00	0.98	1.79	2.31	2.49	2.32	1.87	1.26	0.64	0.19	0.00	0.00	0.29	0.98	1.84	2.51	2.75	2.51	1.84	0.99	0.29	0.00
barrier rails, in.	0.00	0.21	0.38	0.49	0.53	0.50	0.41	0.28	0.14	0.04	0.00	0.00	0.07	0.24	0.43	0.58	0.63	0.57	0.42	0.23	0.07	0.00
176-225 ft. span - total, in.	**0.00**	**1.50**	**2.74**	**3.55**	**3.83**	**3.58**	**2.89**	**1.94**	**0.99**	**0.29**	**0.00**	**0.00**	**0.46**	**1.55**	**2.88**	**3.91**	**4.29**	**3.91**	**2.88**	**1.55**	**0.46**	**0.00**
188-240 ft. span - steel only, in.	0.00	0.36	0.66	0.85	0.92	0.87	0.70	0.48	0.24	0.07	0.00	0.00	0.12	0.40	0.73	0.98	1.07	0.98	0.73	0.40	0.12	0.00
slab, in.	0.00	1.02	1.86	2.41	2.60	2.44	1.97	1.33	0.68	0.19	0.00	0.00	0.31	1.07	1.98	2.68	2.94	2.68	1.98	1.08	0.31	0.00
barrier rails, in.	0.00	0.22	0.41	0.53	0.57	0.54	0.44	0.30	0.15	0.04	0.00	0.00	0.08	0.26	0.47	0.63	0.68	0.62	0.46	0.26	0.07	0.00
188-240 ft. span - total, in.	**0.00**	**1.60**	**2.93**	**3.80**	**4.10**	**3.84**	**3.12**	**2.10**	**1.08**	**0.31**	**0.00**	**0.00**	**0.50**	**1.74**	**3.17**	**4.28**	**4.69**	**4.28**	**3.17**	**1.73**	**0.50**	**0.00**
199-255 ft. span - steel only, in.	0.00	0.42	0.77	0.99	1.08	1.01	0.82	0.56	0.29	0.08	0.00	0.00	0.12	0.43	0.80	1.08	1.18	1.07	0.78	0.42	0.13	0.00
slab, in.	0.00	1.16	2.12	2.74	2.96	2.77	2.24	1.52	0.78	0.23	0.00	0.00	0.30	1.13	2.11	2.87	3.14	2.84	2.07	1.11	0.33	0.00
barrier rails, in.	0.00	0.26	0.47	0.61	0.66	0.62	0.51	0.34	0.18	0.05	0.00	0.00	0.08	0.29	0.52	0.69	0.75	0.68	0.50	0.27	0.08	0.00
199-255 ft. span - total, in.	**0.00**	**1.83**	**3.35**	**4.34**	**4.69**	**4.40**	**3.57**	**2.42**	**1.25**	**0.37**	**0.00**	**0.00**	**0.51**	**1.85**	**3.42**	**4.64**	**5.07**	**4.59**	**3.35**	**1.80**	**0.53**	**0.00**
211-270 ft. span - steel only, in.	0.00	0.51	0.94	1.21	1.31	1.23	0.99	0.67	0.34	0.10	0.00	0.00	0.15	0.54	0.99	1.34	1.47	1.33	0.98	0.53	0.16	0.00
slab, in.	0.00	1.24	2.27	2.94	3.17	2.97	2.41	1.62	0.83	0.25	0.00	0.00	0.33	1.22	2.28	3.11	3.41	3.09	2.26	1.22	0.36	0.00
barrier rails, in.	0.00	0.28	0.51	0.66	0.72	0.67	0.55	0.37	0.19	0.05	0.00	0.00	0.09	0.31	0.56	0.76	0.82	0.75	0.55	0.30	0.09	0.00
211-270 ft. span - total, in.	**0.00**	**2.03**	**3.72**	**4.82**	**5.20**	**4.87**	**3.95**	**2.67**	**1.36**	**0.40**	**0.00**	**0.00**	**0.57**	**2.07**	**3.84**	**5.21**	**5.70**	**5.17**	**3.79**	**2.05**	**0.61**	**0.00**
223-285 ft. span - steel only, in.	0.00	0.56	1.03	1.33	1.44	1.35	1.10	0.74	0.38	0.11	0.00	0.00	0.17	0.59	1.08	1.45	1.58	1.42	1.04	0.55	0.16	0.00
slab, in.	0.00	1.28	2.35	3.04	3.29	3.08	2.51	1.70	0.88	0.27	0.00	0.00	0.31	1.19	2.25	3.07	3.37	3.04	2.20	1.17	0.34	0.00
barrier rails, in.	0.00	0.29	0.54	0.70	0.76	0.71	0.58	0.40	0.21	0.06	0.00	0.00	0.09	0.31	0.57	0.76	0.83	0.75	0.55	0.30	0.09	0.00
223-285 ft. span - total, in.	**0.00**	**2.14**	**3.91**	**5.07**	**5.48**	**5.15**	**4.18**	**2.84**	**1.47**	**0.44**	**0.00**	**0.00**	**0.56**	**2.09**	**3.90**	**5.29**	**5.78**	**5.22**	**3.79**	**2.02**	**0.59**	**0.00**
234-300 ft. span - steel only, in.	0.00	0.62	1.12	1.45	1.56	1.47	1.19	0.80	0.41	0.12	0.00	0.00	0.21	0.70	1.27	1.69	1.83	1.65	1.20	0.65	0.19	0.00
slab, in.	0.00	1.32	2.41	3.12	3.37	3.16	2.57	1.75	0.90	0.27	0.00	0.00	0.38	1.38	2.55	3.45	3.77	3.40	2.47	1.32	0.39	0.00
barrier rails, in.	0.00	0.31	0.56	0.73	0.79	0.74	0.61	0.42	0.22	0.06	0.00	0.00	0.11	0.36	0.64	0.86	0.93	0.85	0.62	0.34	0.10	0.00
234-300 ft. span - total, in.	**0.00**	**2.25**	**4.10**	**5.29**	**5.72**	**5.37**	**4.37**	**2.96**	**1.53**	**0.44**	**0.00**	**0.00**	**0.69**	**2.43**	**4.45**	**6.00**	**6.53**	**5.90**	**4.30**	**2.30**	**0.68**	**0.00**



DEFLECTION VERSUS SPAN TENTH POINT, SYMMETRIC ABOUT PIER 2

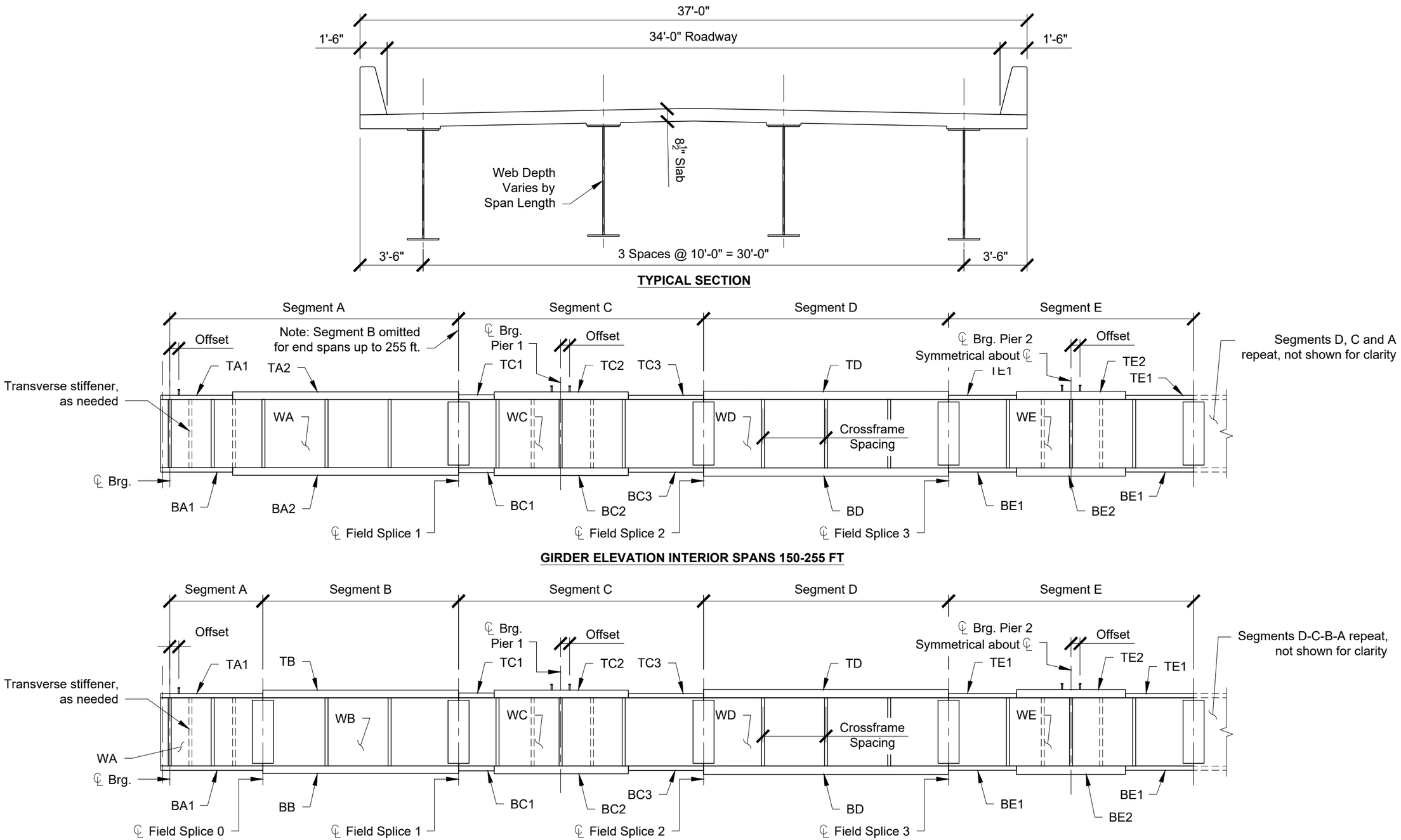
Exterior and First Interior Girder

Deflection Assumptions

"Steel Only" = self weight of girders

"Slab" = deflection due to user-input non composite uniform dead load (slab, haunch, allowance for bracing)

"Barrier Rails" = deflection due to barrier rail loading distributed evenly to exterior and first interior girder.



FOUR SPAN 150-300 FT 10 FT SPACING

Issued January 2025
Revision 0

Span, ft. End-Interior	SEGMENT A					SEGMENT B (as needed)			SEGMENT C						
	WA (in. x in. x ft.)	TA1 (in. x in. x ft.)	TA2 (in. x in. x ft.)	BA1 (in. x in. x ft.)	BA2 (in. x in. x ft.)	WB (in. x in. x ft.)	TB (in. x in. x ft.)	BB (in. x in. x ft.)	WC (in. x in. x ft.)	TC1 (in. x in. x ft.)	TC2 (in. x in. x ft.)	TC3 (in. x in. x ft.)	BC1 (in. x in. x ft.)	BC2 (in. x in. x ft.)	BC3 (in. x in. x ft.)
117-150	55 x 0.5 x 79	---	16 x 1 x 79	---	18 x 1.75 x 79	---	---	---	55 x 0.5 x 76	---	22 x 1.5 x 76	---	---	22 x 1.75 x 76	---
129-165	60 x 0.5 x 89	---	16 x 1 x 89	---	18 x 1.75 x 89	---	---	---	60 x 0.5 x 80	22 x 1 x 20	22 x 1.75 x 40	22 x 1 x 20	22 x 1.25 x 20	22 x 2 x 40	22 x 1.25 x 20
141-180	66 x 0.625 x 98	---	16 x 1 x 98	20 x 1.25 x 49	20 x 1.5 x 49	---	---	---	66 x 0.625 x 86	22 x 1 x 21	22 x 1.75 x 44	22 x 1 x 21	24 x 1 x 21	24 x 2 x 44	24 x 1 x 21
153-195	74 x 0.625 x 106	---	18 x 1 x 106	20 x 1 x 53	20 x 1.5 x 53	---	---	---	74 x 0.625 x 94	24 x 1 x 23	24 x 1.75 x 48	24 x 1 x 23	24 x 1 x 23	24 x 2 x 48	24 x 1 x 23
164-210	76 x 0.625 x 113	---	18 x 1 x 113	20 x 1 x 57	20 x 1.5 x 56	---	---	---	76 x 0.625 x 102	24 x 1 x 30	24 x 2 x 42	24 x 1 x 30	24 x 1.25 x 30	24 x 2.25 x 42	24 x 1.25 x 30
176-225	82 x 0.625 x 122	---	18 x 1 x 122	20 x 1 x 61	20 x 1.5 x 61	---	---	---	82 x 0.625 x 108	24 x 1.25 x 27	24 x 2.25 x 54	24 x 1.25 x 27	24 x 1.25 x 27	24 x 2.5 x 54	24 x 1.25 x 27
188-240	88 x 0.75 x 130	---	20 x 1 x 130	20 x 1 x 70	20 x 1.5 x 60	---	---	---	88 x 0.75 x 116	26 x 1.25 x 34	26 x 2 x 48	26 x 1.25 x 34	26 x 1.25 x 34	26 x 2.25 x 48	26 x 1.25 x 34
199-255	92 x 0.75 x 138	---	20 x 1 x 138	20 x 1.25 x 69	20 x 1.5 x 69	---	---	---	92 x 0.75 x 122	26 x 1.25 x 30	26 x 2.25 x 62	26 x 1.25 x 30	26 x 1.25 x 30	26 x 2.5 x 62	26 x 1.25 x 30
211-270	97 x 0.75 x 51	20 x 1 x 51	---	22 x 1 x 51	---	97 x 0.75 x 100	20 x 1 x 100	22 x 1.25 x 100	97 x 0.75 x 125	26 x 1.25 x 30	26 x 2.5 x 55	26 x 1.25 x 40	26 x 1.5 x 30	26 x 2.75 x 55	26 x 1.5 x 40
223-285	102 x 0.75 x 51	22 x 1 x 51	---	22 x 1 x 51	---	102 x 0.75 x 110	22 x 1 x 110	22 x 1.25 x 110	102 x 0.75 x 140	28 x 1.25 x 36	28 x 2.5 x 52	28 x 1.25 x 52	28 x 1.5 x 36	28 x 2.75 x 52	28 x 1.5 x 52
234-300	108 x 0.75 x 54	24 x 1 x 54	---	24 x 1 x 54	---	108 x 0.75 x 130	24 x 1 x 130	24 x 1.25 x 130	108 x 0.75 x 140	28 x 1.25 x 25	28 x 2.5 x 50	28 x 1.25 x 65	28 x 1.75 x 25	28 x 2.75 x 50	28 x 1.5 x 65

Span, ft. End-Interior	SEGMENT D			SEGMENT E					Additional Footnotes
	WD (in. x in. x ft.)	TD (in. x in. x ft.)	BD (in. x in. x ft.)	WE (in. x in. x ft.)	TE1 (in. x in. x ft.)	TE2 (in. x in. x ft.)	BE1 (in. x in. x ft.)	BE2 (in. x in. x ft.)	
117-150	55 x 0.5 x 74	16 x 1 x 74	18 x 1.75 x 74	55 x 0.5 x 76	---	22 x 1.75 x 76	---	22 x 2 x 76	---
129-165	60 x 0.5 x 85	16 x 1 x 85	18 x 1.75 x 85	60 x 0.5 x 80	22 x 1 x 20	22 x 2 x 40	22 x 1.25 x 20	22 x 2.25 x 40	---
141-180	66 x 0.625 x 94	16 x 1 x 94	20 x 1.5 x 94	66 x 0.625 x 86	24 x 1 x 21	24 x 1.75 x 44	24 x 1 x 21	24 x 2 x 44	---
153-195	74 x 0.625 x 101	18 x 1 x 101	20 x 1.5 x 101	74 x 0.625 x 94	24 x 1 x 23	24 x 1.75 x 48	24 x 1 x 23	24 x 2 x 48	---
164-210	76 x 0.625 x 108	18 x 1 x 108	20 x 1.5 x 108	76 x 0.625 x 102	24 x 1 x 30	24 x 2 x 42	24 x 1.25 x 30	24 x 2.25 x 42	---
176-225	82 x 0.625 x 117	18 x 1 x 117	20 x 1.5 x 117	82 x 0.625 x 108	24 x 1.25 x 32	24 x 2.25 x 44	24 x 1.25 x 32	24 x 2.5 x 44	---
188-240	88 x 0.75 x 124	20 x 1 x 124	20 x 1.25 x 124	88 x 0.75 x 116	26 x 1.25 x 34	26 x 2.25 x 48	26 x 1.25 x 34	26 x 2.5 x 48	---
199-255	92 x 0.75 x 133	20 x 1 x 133	20 x 1.25 x 133	92 x 0.75 x 122	26 x 1.25 x 30	26 x 2.5 x 62	26 x 1.25 x 30	26 x 2.5 x 62	a
211-270	97 x 0.75 x 140	20 x 1 x 140	20 x 1.25 x 140	97 x 0.75 x 130	26 x 1.25 x 37	26 x 2.5 x 56	26 x 1.5 x 37	26 x 2.75 x 56	a
223-285	102 x 0.75 x 140	22 x 1 x 140	22 x 1.25 x 140	102 x 0.75 x 134	28 x 1.5 x 38	28 x 2.75 x 58	28 x 1.5 x 38	28 x 3 x 58	a
234-300	108 x 0.75 x 140	22 x 1 x 140	22 x 1 x 140	108 x 0.75 x 140	28 x 1.5 x 40	28 x 2.75 x 60	28 x 1.5 x 40	28 x 3 x 60	a

Note: All plates are A709 Gr 50W.

Footnotes:

a. AASHTO distribution factor equations were used with girder stiffness and / or span length exceeding AASHTO limits. Check with refined analysis.

TRANSVERSE AND BEARING STIFFENERS										
Span, ft. End-Interior	Transverse Stiffener Size and Location, Distance From End support, Each Span				Bearing Stiffeners, End		Bearing Stiffeners, Pier 1		Bearing Stiffeners, Pier 2	
	Width in.	Thickness in.	Span 1 Location, ft.	Span 2 Location, ft.	Width in.	Thickness in.	Width in.	Thickness in.	Width in.	Thickness in.
117-150	5.5	0.5	6.75, 89, 103.25	13.75, 27.5, 122.5, 136.25	7.25	0.75	10.25	1	10.25	1
129-165	6	0.5	7.5, 22.5, 74, 89, 100, 115	13.5, 28.5, 40, 55, 110, 125, 136.75, 151.75	7.25	0.75	10.25	1	10.25	1
141-180	6	0.5	124.5	16.5, 163.5	7.25	0.75	10.25	1	11.25	1
153-195	6	0.5	116, 134.5	18.5, 37, 158, 176.5	8.25	0.75	11.25	1	11.25	1
164-210	6	0.5	126, 145	19, 38, 172, 191	8.25	0.75	11.25	1	11.25	1
176-225	7	0.5	10.25, 135, 155.5	20.5, 41, 184, 204.5	8.25	0.75	11.25	1	11.25	1
188-240	6.5	0.5	166	22, 218	9	0.875	12	1.125	12	1.125
199-255	6.5	0.5	176	23, 232	9	0.875	12	1.125	12	1.125
211-270	6.5	0.5	162.5, 186.75	24.25, 48.5, 221.5, 245.75	9	0.875	12	1.125	12	1.125
223-285	7	0.5	172, 197.5	25.5, 51, 234, 259.5	10	0.875	13	1.125	13	1.125
234-300	8	0.625	157, 184, 207	27, 54, 84, 246, 273	11	1	13	1.125	13	1.125

DEAD LOAD AND LIVE LOAD REACTIONS												
Span, ft. End-Interior	End Reaction				Pier 1 / 3 Reaction				Pier 2 Reaction			
	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips
117-150	75	9	87	35	270	30	150	94	279	31	153	100
129-165	82	9	88	39	299	33	155	104	304	33	157	110
141-180	91	10	89	42	334	36	158	114	335	36	159	119
153-195	99	11	89	46	367	39	161	124	366	39	161	129
164-210	106	12	89	49	397	42	162	133	398	42	163	139
176-225	112	13	90	52	438	45	164	143	427	45	164	148
188-240	126	13	90	56	473	48	164	152	476	48	165	159
199-255	324	14	90	59	511	51	165	162	510	51	166	168
211-270	142	15	90	63	544	54	166	171	546	55	166	179
223-285	152	16	90	66	582	57	166	181	593	58	167	190
234-300	162	17	91	70	615	60	167	190	626	61	168	199

Note: Truck and lane reactions include distribution factors, skew correction, and impact on the truck loading.

SHEAR STUD LAYOUT																				
Span, ft. End-Interior	Studs per row	Span 1										Span 2									
		Offset in.	Group 1			Group 2			Group 3			Offset in.	Group 1			Group 2			Group 3		
			Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.		Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.
117-150	4	0	21	10	17.5	60	14	70	8	42	28	18	8	42	28	78	14	91	8	42	28
129-165	4	0	97	12	97	4	42	14	4	48	16	24	10	36	30	101	12	101	10	36	30
141-180	4	0	106	12	106	8	48	32	---	---	---	0	9	48	36	108	12	108	9	48	36
153-195	4	0	23	12	23	69	16	92	9	48	36	24	9	48	36	89	16	118.67	9	48	36
164-210	4	0	25	12	25	74	16	98.67	10	48	40	4	10	48	40	97	16	129.33	10	48	40
176-225	4	0	27	12	27	70	18	105	11	48	44	48	10	48	40	91	18	136.5	11	48	44
188-240	4	0	29	12	29	75	18	112.5	11	48	44	0	12	48	48	96	18	144	12	48	48
199-255	4	0	20	12	20	87	18	130.5	12	48	48	27	12	48	48	103	18	154.5	12	48	48
211-270	4	0	11	12	11	99	18	148.5	12	48	48	6	13	48	52	109	18	163.5	13	48	52
223-285	4	0	24	18	36	76	21	133	13	48	52	12	17	48	68	84	21	147	17	48	68
234-300	4	0	9	16	12	98	20	163.33	14	48	56	16	18	48	72	92	20	153.33	18	48	72

GIRDER WEIGHT						
Span, ft. End-Interior	Segment A tons	Segment B tons	Segment C tons	Segment D tons	Segment E tons	Total tons
117-150	10.08	---	12.80	9.44	14.22	78.87
129-165	11.74	---	13.07	11.21	13.82	85.84
141-180	14.13	---	15.80	13.95	16.20	103.97
153-195	16.10	---	18.50	16.20	18.50	120.09
164-210	17.39	---	21.04	17.55	21.04	133.01
176-225	19.56	---	25.40	19.76	24.48	153.93
188-240	24.47	---	29.57	23.42	30.63	185.54
199-255	27.35	---	33.99	25.80	34.67	208.94
211-270	9.96	20.46	36.76	28.05	38.10	228.55
223-285	10.46	23.58	42.76	30.01	44.19	257.80
234-300	11.85	29.86	43.89	29.77	47.16	277.91

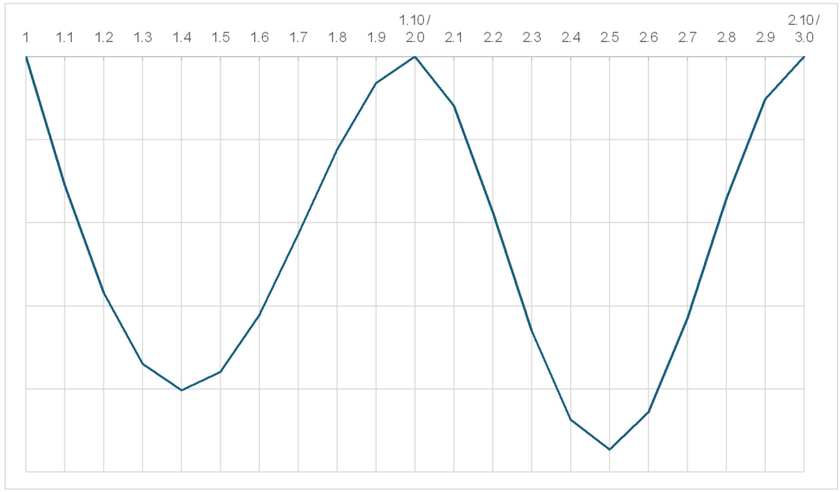
Note: Girder weight is total weight of web and flanges only measured between CL brg at each end. Does not include girder extension at end bearings, stiffeners, shear studs, bracing, or any other allowances.

CROSS-FRAME SPACING			
Span, ft. End-Interior	End Span	Interior Span	Type
117-150	4 @ 20.5 + 2 @ 17.5 = 117	2 @ 17.5 + 3 @ 26.66 + 2 @ 17.5 = 150	K-Frame
129-165	4 @ 23 + 2 @ 18.5 = 129	2 @ 18.5 + 4 @ 22.75 + 2 @ 18.5 = 165	K-Frame
141-180	4 @ 25.25 + 2 @ 20 = 141	2 @ 20 + 4 @ 25 + 2 @ 20 = 180	K-Frame
153-195	5 @ 22 + 2 @ 21.5 = 153	2 @ 21.5 + 4 @ 27.25 + 2 @ 21.5 = 195	K-Frame
164-210	5 @ 23 + 3 @ 16.33 = 164	3 @ 16.25 + 5 @ 22.5 + 3 @ 16.25 = 210	K-Frame
176-225	5 @ 25 + 3 @ 17 = 176	3 @ 16.66 + 5 @ 25 + 3 @ 16.66 = 225	K-Frame
188-240	5 @ 26.5 + 3 @ 18.5 = 188	3 @ 17.91 + 5 @ 26.5 + 3 @ 17.91 = 240	K-Frame
199-255	6 @ 23.5 + 3 @ 19.33 = 199	3 @ 18.75 + 5 @ 28.5 + 3 @ 18.75 = 255	K-Frame
211-270	6 @ 24.67 + 3 @ 21 = 211	3 @ 21 + 6 @ 24 + 3 @ 21 = 270	X-Frame
223-285	7 @ 23 + 3 @ 20.66 = 223	4 @ 17.5 + 6 @ 24.16 + 4 @ 17.5 = 285	X-Frame
234-300	8 @ 23.25 + 3 @ 16 = 234	4 @ 19 + 6 @ 24.66 + 4 @ 19 = 300	X-Frame

FOUR SPAN 150-300 FT 10 FT SPACING

Issued January 2025
Revision 0

DEAD LOAD DEFLECTIONS																							
Span, ft.	Span Tenth Points and Deflections, in. Span 1 Shown. Span 4 Symmetric											Span Tenth Points and Deflections, in. Span 2 Shown. Span 3 Symmetric											
End-Interior	**1.0**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**	**1.9**	**1.10**	**2.0**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**	**2.10**
117-150 ft. span - steel only, in.	0.00	0.12	0.23	0.29	0.32	0.30	0.25	0.17	0.09	0.03	0.00	0.00	0.05	0.16	0.28	0.36	0.39	0.35	0.26	0.15	0.05	0.00
slab, in.	0.00	0.58	1.06	1.37	1.49	1.41	1.16	0.80	0.42	0.12	0.00	0.00	0.22	0.68	1.20	1.58	1.72	1.55	1.15	0.64	0.20	0.00
barrier rails, in.	0.00	0.07	0.13	0.17	0.19	0.18	0.15	0.10	0.06	0.02	0.00	0.00	0.04	0.10	0.18	0.23	0.25	0.23	0.17	0.10	0.03	0.00
117-150 ft. span - total, in.	**0.00**	**0.77**	**1.41**	**1.84**	**2.00**	**1.89**	**1.56**	**1.08**	**0.57**	**0.16**	**0.00**	**0.00**	**0.30**	**0.94**	**1.65**	**2.17**	**2.35**	**2.13**	**1.58**	**0.88**	**0.27**	**0.00**
129-165 ft. span - steel only, in.	0.00	0.15	0.28	0.36	0.39	0.36	0.30	0.20	0.11	0.03	0.00	0.00	0.05	0.17	0.30	0.41	0.44	0.40	0.29	0.16	0.05	0.00
slab, in.	0.00	0.69	1.27	1.64	1.78	1.67	1.36	0.93	0.48	0.14	0.00	0.00	0.23	0.76	1.38	1.85	2.01	1.82	1.34	0.71	0.21	0.00
barrier rails, in.	0.00	0.09	0.17	0.22	0.23	0.22	0.18	0.13	0.07	0.02	0.00	0.00	0.04	0.12	0.21	0.27	0.30	0.27	0.20	0.11	0.03	0.00
129-165 ft. span - total, in.	**0.00**	**0.93**	**1.71**	**2.21**	**2.40**	**2.26**	**1.84**	**1.26**	**0.65**	**0.19**	**0.00**	**0.00**	**0.32**	**1.05**	**1.89**	**2.53**	**2.75**	**2.49**	**1.83**	**0.98**	**0.29**	**0.00**
141-180 ft. span - steel only, in.	0.00	0.19	0.35	0.45	0.48	0.45	0.36	0.25	0.13	0.04	0.00	0.00	0.07	0.21	0.39	0.52	0.57	0.51	0.38	0.21	0.06	0.00
slab, in.	0.00	0.80	1.46	1.89	2.03	1.90	1.54	1.04	0.54	0.16	0.00	0.00	0.25	0.84	1.54	2.08	2.27	2.07	1.52	0.82	0.24	0.00
barrier rails, in.	0.00	0.11	0.20	0.26	0.28	0.26	0.22	0.15	0.08	0.02	0.00	0.00	0.04	0.14	0.24	0.32	0.34	0.31	0.23	0.13	0.04	0.00
141-180 ft. span - total, in.	**0.00**	**1.10**	**2.01**	**2.59**	**2.79**	**2.61**	**2.12**	**1.44**	**0.74**	**0.21**	**0.00**	**0.00**	**0.36**	**1.19**	**2.17**	**2.91**	**3.18**	**2.89**	**2.14**	**1.16**	**0.34**	**0.00**
153-195 ft. span - steel only, in.	0.00	0.21	0.39	0.50	0.53	0.50	0.40	0.27	0.14	0.04	0.00	0.00	0.08	0.25	0.44	0.59	0.64	0.58	0.43	0.24	0.07	0.00
slab, in.	0.00	0.87	1.57	2.02	2.15	2.00	1.62	1.10	0.56	0.17	0.00	0.00	0.26	0.87	1.61	2.17	2.37	2.17	1.61	0.87	0.26	0.00
barrier rails, in.	0.00	0.13	0.23	0.29	0.31	0.29	0.24	0.17	0.09	0.02	0.00	0.00	0.05	0.15	0.26	0.34	0.37	0.34	0.25	0.14	0.04	0.00
153-195 ft. span - total, in.	**0.00**	**1.21**	**2.19**	**2.81**	**3.00**	**2.80**	**2.27**	**1.53**	**0.79**	**0.23**	**0.00**	**0.00**	**0.38**	**1.27**	**2.30**	**3.10**	**3.38**	**3.09**	**2.29**	**1.25**	**0.37**	**0.00**
164-210 ft. span - steel only, in.	0.00	0.27	0.48	0.62	0.66	0.61	0.49	0.33	0.16	0.04	0.00	0.00	0.09	0.31	0.56	0.75	0.81	0.74	0.54	0.29	0.08	0.00
slab, in.	0.00	1.06	1.93	2.47	2.62	2.43	1.96	1.31	0.65	0.17	0.00	0.00	0.31	1.08	1.99	2.69	2.95	2.68	1.98	1.06	0.30	0.00
barrier rails, in.	0.00	0.15	0.28	0.36	0.38	0.36	0.29	0.20	0.10	0.03	0.00	0.00	0.06	0.18	0.32	0.43	0.46	0.42	0.32	0.17	0.05	0.00
164-210 ft. span - total, in.	**0.00**	**1.48**	**2.69**	**3.45**	**3.67**	**3.41**	**2.74**	**1.83**	**0.90**	**0.24**	**0.00**	**0.00**	**0.46**	**1.57**	**2.87**	**3.86**	**4.22**	**3.84**	**2.83**	**1.53**	**0.43**	**0.00**
176-225 ft. span - steel only, in.	0.00	0.30	0.54	0.69	0.73	0.68	0.54	0.36	0.18	0.05	0.00	0.00	0.10	0.33	0.60	0.82	0.90	0.82	0.61	0.33	0.09	0.00
slab, in.	0.00	1.13	2.05	2.62	2.77	2.55	2.04	1.35	0.68	0.20	0.00	0.00	0.32	1.09	2.04	2.80	3.09	2.84	2.10	1.13	0.31	0.00
barrier rails, in.	0.00	0.17	0.31	0.39	0.42	0.39	0.32	0.21	0.11	0.03	0.00	0.00	0.06	0.19	0.35	0.46	0.50	0.46	0.35	0.19	0.05	0.00
176-225 ft. span - total, in.	**0.00**	**1.60**	**2.90**	**3.70**	**3.92**	**3.62**	**2.89**	**1.92**	**0.97**	**0.27**	**0.00**	**0.00**	**0.49**	**1.61**	**2.99**	**4.07**	**4.49**	**4.12**	**3.05**	**1.65**	**0.45**	**0.00**
188-240 ft. span - steel only, in.	0.00	0.38	0.70	0.90	0.96	0.89	0.73	0.49	0.25	0.07	0.00	0.00	0.11	0.38	0.71	0.95	1.04	0.95	0.69	0.37	0.10	0.00
slab, in.	0.00	1.21	2.21	2.84	3.02	2.80	2.26	1.52	0.77	0.22	0.00	0.00	0.34	1.19	2.20	2.98	3.26	2.95	2.15	1.14	0.32	0.00
barrier rails, in.	0.00	0.19	0.34	0.44	0.47	0.44	0.36	0.24	0.12	0.03	0.00	0.00	0.07	0.21	0.38	0.51	0.55	0.50	0.37	0.20	0.06	0.00
188-240 ft. span - total, in.	**0.00**	**1.78**	**3.25**	**4.18**	**4.45**	**4.14**	**3.34**	**2.25**	**1.14**	**0.32**	**0.00**	**0.00**	**0.52**	**1.78**	**3.29**	**4.44**	**4.86**	**4.40**	**3.22**	**1.71**	**0.48**	**0.00**
199-255 ft. span - steel only, in.	0.00	0.42	0.76	0.99	1.06	0.99	0.80	0.54	0.28	0.09	0.00	0.00	0.12	0.41	0.76	1.04	1.15	1.04	0.76	0.41	0.12	0.00
slab, in.	0.00	1.26	2.29	2.94	3.14	2.92	2.34	1.57	0.80	0.23	0.00	0.00	0.37	1.25	2.34	3.20	3.51	3.18	2.31	1.22	0.36	0.00
barrier rails, in.	0.00	0.20	0.36	0.46	0.50	0.47	0.38	0.25	0.13	0.04	0.00	0.00	0.07	0.23	0.42	0.56	0.61	0.56	0.41	0.22	0.07	0.00
199-255 ft. span - total, in.	**0.00**	**1.87**	**3.41**	**4.39**	**4.70**	**4.37**	**3.52**	**2.36**	**1.21**	**0.35**	**0.00**	**0.00**	**0.56**	**1.89**	**3.52**	**4.80**	**5.27**	**4.78**	**3.49**	**1.85**	**0.54**	**0.00**
211-270 ft. span - steel only, in.	0.00	0.49	0.89	1.15	1.24	1.16	0.95	0.64	0.33	0.10	0.00	0.00	0.12	0.46	0.87	1.19	1.31	1.19	0.87	0.46	0.14	0.00
slab, in.	0.00	1.45	2.64	3.39	3.65	3.40	2.74	1.84	0.94	0.28	0.00	0.00	0.33	1.33	2.55	3.50	3.85	3.48	2.52	1.33	0.39	0.00
barrier rails, in.	0.00	0.23	0.42	0.54	0.58	0.54	0.44	0.30	0.15	0.04	0.00	0.00	0.07	0.25	0.46	0.62	0.67	0.61	0.45	0.24	0.07	0.00
211-270 ft. span - total, in.	**0.00**	**2.17**	**3.95**	**5.08**	**5.47**	**5.11**	**4.13**	**2.78**	**1.42**	**0.42**	**0.00**	**0.00**	**0.52**	**2.04**	**3.88**	**5.31**	**5.83**	**5.28**	**3.84**	**2.04**	**0.60**	**0.00**
223-285 ft. span - steel only, in.	0.00	0.54	0.99	1.27	1.37	1.28	1.03	0.69	0.35	0.10	0.00	0.00	0.14	0.52	0.98	1.33	1.45	1.31	0.94	0.50	0.15	0.00
slab, in.	0.00	1.58	2.87	3.69	3.97	3.71	3.01	2.03	1.05	0.33	0.00	0.00	0.30	1.30	2.54	3.50	3.85	3.48	2.51	1.31	0.38	0.00
barrier rails, in.	0.00	0.26	0.46	0.60	0.65	0.61	0.50	0.34	0.17	0.05	0.00	0.00	0.07	0.25	0.47	0.64	0.69	0.63	0.46	0.25	0.07	0.00
223-285 ft. span - total, in.	**0.00**	**2.38**	**4.32**	**5.56**	**5.99**	**5.60**	**4.53**	**3.06**	**1.58**	**0.48**	**0.00**	**0.00**	**0.51**	**2.08**	**3.99**	**5.47**	**6.00**	**5.41**	**3.91**	**2.06**	**0.60**	**0.00**
234-300 ft. span - steel only, in.	0.00	0.59	1.07	1.38	1.48	1.39	1.12	0.75	0.38	0.11	0.00	0.00	0.16	0.60	1.12	1.53	1.67	1.50	1.08	0.57	0.16	0.00
slab, in.	0.00	1.57	2.85	3.67	3.94	3.67	2.95	1.97	0.99	0.29	0.00	0.00	0.41	1.57	2.98	4.10	4.49	4.05	2.91	1.51	0.42	0.00
barrier rails, in.	0.00	0.26	0.47	0.61	0.66	0.61	0.50	0.34	0.17	0.05	0.00	0.00	0.09	0.30	0.55	0.74	0.81	0.73	0.53	0.28	0.08	0.00
234-300 ft. span - total, in.	**0.00**	**2.42**	**4.40**	**5.65**	**6.08**	**5.67**	**4.57**	**3.06**	**1.54**	**0.44**	**0.00**	**0.00**	**0.66**	**2.47**	**4.65**	**6.36**	**6.97**	**6.28**	**4.53**	**2.37**	**0.66**	**0.00**



DEFLECTION VERSUS SPAN TENTH POINT, SYMMETRIC ABOUT PIER 2

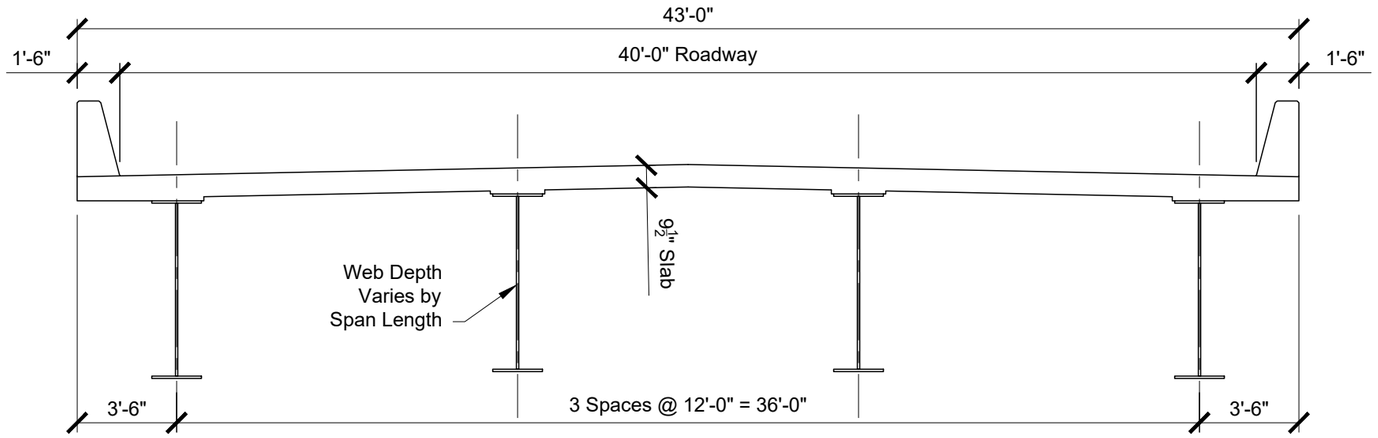
All Girders

Deflection Assumptions

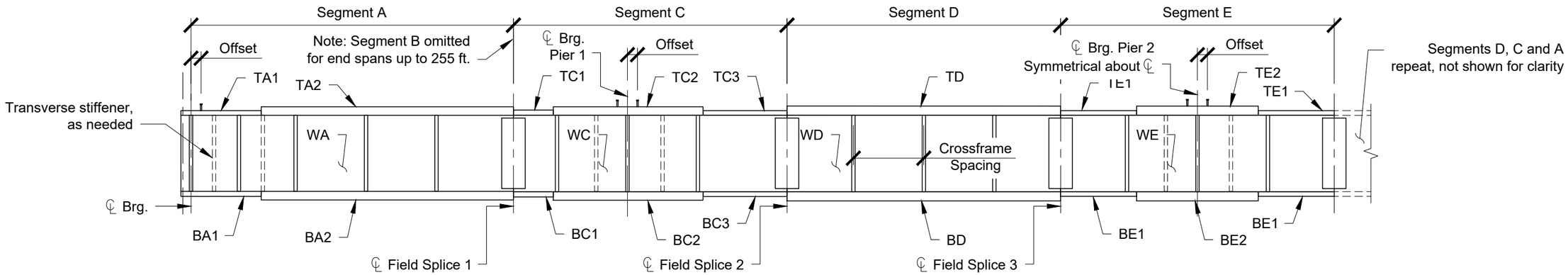
"Steel Only" = self weight of girders

"Slab" = deflection due to user-input non composite uniform dead load (slab, haunch, allowance for bracing)

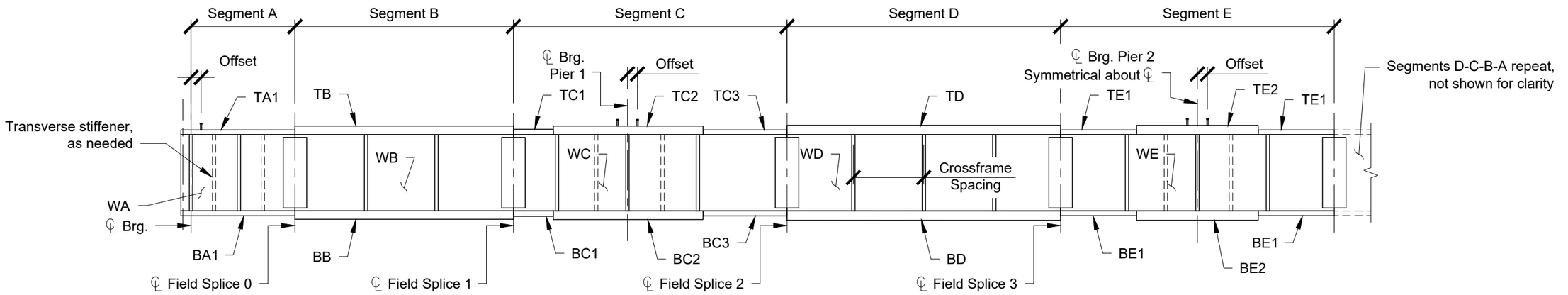
"Barrier Rails" = deflection due to barrier rail loading distributed evenly to exterior and first interior girder.



TYPICAL SECTION



GIRDER ELEVATION INTERIOR SPANS 150-255 FT



GIRDER ELEVATION INTERIOR SPANS 270-300 FT

FOUR SPAN 150-300 FT 12 FT SPACING

Issued January 2025
Revision 0

Span, ft. End-Interior	SEGMENT A					SEGMENT B (as needed)			SEGMENT C						
	WA (in. x in. x ft.)	TA1 (in. x in. x ft.)	TA2 (in. x in. x ft.)	BA1 (in. x in. x ft.)	BA2 (in. x in. x ft.)	WB (in. x in. x ft.)	TB (in. x in. x ft.)	BB (in. x in. x ft.)	WC (in. x in. x ft.)	TC1 (in. x in. x ft.)	TC2 (in. x in. x ft.)	TC3 (in. x in. x ft.)	BC1 (in. x in. x ft.)	BC2 (in. x in. x ft.)	BC3 (in. x in. x ft.)
117-150	54 x 0.5 x 79	---	16 x 1 x 79	---	22 x 1.5 x 79	---	---	---	54 x 0.5 x 76	22 x 1 x 24	22 x 1.75 x 28	22 x 1.75 x 24	22 x 1.5 x 24	22 x 2.25 x 28	22 x 1.25 x 24
129-165	60 x 0.625 x 89	---	16 x 1 x 89	---	22 x 1.5 x 89	---	---	---	60 x 0.625 x 80	22 x 1 x 25	22 x 2 x 30	22 x 1 x 25	22 x 1.25 x 25	22 x 2.25 x 30	22 x 1.25 x 25
141-180	68 x 0.625 x 98	---	16 x 1.25 x 98	22 x 1.25 x 49	22 x 1.5 x 49	---	---	---	68 x 0.625 x 86	22 x 1 x 26	22 x 2 x 34	22 x 1 x 26	22 x 1.25 x 26	22 x 2.5 x 34	22 x 1.25 x 26
153-195	74 x 0.625 x 106	---	18 x 1 x 106	22 x 1 x 53	22 x 1.5 x 53	---	---	---	74 x 0.625 x 94	24 x 1 x 28	24 x 2 x 38	24 x 1 x 28	24 x 1.25 x 28	24 x 2.5 x 38	24 x 1.25 x 28
164-210	76 x 0.625 x 113	---	18 x 1 x 113	22 x 1 x 57	22 x 1.5 x 56	---	---	---	76 x 0.625 x 102	24 x 1.25 x 30	24 x 2.5 x 37	24 x 1.25 x 35	24 x 1.5 x 30	24 x 2.75 x 37	24 x 1.5 x 35
176-225	82 x 0.75 x 122	---	18 x 1 x 122	22 x 1 x 56	22 x 1.5 x 66	---	---	---	82 x 0.75 x 108	24 x 1.25 x 32	24 x 2.5 x 44	24 x 1.25 x 32	24 x 1.5 x 32	24 x 2.75 x 44	24 x 1.5 x 32
188-240	88 x 0.75 x 130	---	20 x 1 x 130	20 x 1 x 65	20 x 1.5 x 65	---	---	---	88 x 0.75 x 116	26 x 1.25 x 29	26 x 2.5 x 58	26 x 1.25 x 29	26 x 1.5 x 29	26 x 2.75 x 58	26 x 1.5 x 29
199-255	92 x 0.75 x 138	---	20 x 1 x 138	20 x 1.25 x 69	20 x 1.5 x 69	---	---	---	92 x 0.75 x 122	26 x 1.5 x 30	26 x 2.75 x 62	26 x 1.5 x 30	26 x 1.5 x 30	26 x 3 x 62	26 x 1.5 x 30
211-270	98 x 0.75 x 51	20 x 1 x 51	---	22 x 1.25 x 51	---	98 x 0.75 x 100	20 x 1 x 100	22 x 1.5 x 100	98 x 0.75 x 125	28 x 1.5 x 30	28 x 2.75 x 60	28 x 1.5 x 35	28 x 1.5 x 30	28 x 3 x 60	28 x 1.5 x 35
223-285	102 x 0.75 x 51	22 x 1 x 51	---	24 x 1.25 x 51	---	102 x 0.75 x 110	22 x 1 x 110	24 x 1.25 x 110	102 x 0.75 x 140	30 x 1.5 x 31	30 x 2.75 x 62	30 x 1.5 x 47	30 x 1.5 x 31	30 x 3 x 62	30 x 1.5 x 47
234-300	108 x 0.875 x 54	24 x 1 x 54	---	24 x 1.25 x 54	---	108 x 0.875 x 130	24 x 1 x 130	24 x 1.25 x 130	108 x 0.875 x 140	28 x 1.25 x 25 ▲	28 x 1.75 x 50 ▲	28 x 1.25 x 65 ▲	30 x 1.5 x 25 ▲	30 x 2 x 50 ▲	30 x 1.5 x 65 ▲

Span, ft. End-Interior	SEGMENT D			SEGMENT E					Additional Footnotes
	WD (in. x in. x ft.)	TD (in. x in. x ft.)	BD (in. x in. x ft.)	WE (in. x in. x ft.)	TE1 (in. x in. x ft.)	TE2 (in. x in. x ft.)	BE1 (in. x in. x ft.)	BE2 (in. x in. x ft.)	
117-150	54 x 0.5 x 74	16 x 1 x 74	22 x 1.5 x 74	54 x 0.5 x 76	22 x 1 x 19	22 x 2 x 38	22 x 1.25 x 19	22 x 2.5 x 38	---
129-165	60 x 0.625 x 85	16 x 1 x 85	22 x 1.5 x 85	60 x 0.625 x 80	22 x 1 x 25	22 x 2 x 30	22 x 1.25 x 25	22 x 2.5 x 30	---
141-180	68 x 0.625 x 94	16 x 1 x 94	22 x 1.5 x 94	68 x 0.625 x 86	22 x 1.25 x 26	22 x 2.25 x 34	22 x 1.25 x 26	22 x 2.5 x 34	---
153-195	74 x 0.625 x 101	18 x 1 x 101	22 x 1.25 x 101	74 x 0.625 x 94	24 x 1.25 x 28	24 x 2.25 x 38	24 x 1.25 x 28	24 x 2.5 x 38	---
164-210	76 x 0.625 x 108	18 x 1 x 108	22 x 1.5 x 108	76 x 0.625 x 102	24 x 1.25 x 30	24 x 2.5 x 42	24 x 1.5 x 30	24 x 2.75 x 42	---
176-225	82 x 0.75 x 117	18 x 1 x 117	22 x 1.25 x 117	82 x 0.75 x 108	24 x 1.25 x 32	24 x 2.5 x 44	24 x 1.5 x 32	24 x 2.75 x 44	---
188-240	88 x 0.75 x 124	20 x 1 x 124	20 x 1.5 x 124	88 x 0.75 x 116	26 x 1.25 x 29	26 x 2.5 x 58	26 x 1.5 x 29	26 x 2.75 x 58	---
199-255	92 x 0.75 x 133	20 x 1 x 133	20 x 1.25 x 133	92 x 0.75 x 122	26 x 1.5 x 30	26 x 2.75 x 62	26 x 1.5 x 30	26 x 3 x 62	a
211-270	98 x 0.75 x 140	20 x 1 x 140	20 x 1.25 x 140	98 x 0.75 x 130	28 x 1.5 x 32	28 x 2.75 x 66	28 x 1.5 x 32	28 x 3 x 66	a
223-285	102 x 0.75 x 140	22 x 1 x 140	22 x 1.25 x 140	102 x 0.75 x 134	30 x 1.5 x 33	30 x 2.75 x 68	30 x 1.5 x 33	30 x 3 x 68	a
234-300	108 x 0.875 x 140	22 x 1 x 140	24 x 1 x 140	108 x 0.875 x 140	28 x 1.25 x 35 ▲	28 x 2 x 70 ▲	30 x 1.25 x 35 ▲	30 x 2 x 70 ▲	a

Note: All plates are A709 Gr 50W except those noted with a ▲ are Gr HPS 70W.

Footnotes:

a. AASHTO distribution factor equations were used with girder stiffness and / or span length exceeding AASHTO limits. Check with refined analysis.

TRANSVERSE AND BEARING STIFFENERS										
Span, ft. End-Interior	Transverse Stiffener Size and Location, Distance From End support, Each Span				Bearing Stiffeners, End		Bearing Stiffeners, Pier 1		Bearing Stiffeners, Pier 2	
	Width in.	Thickness in.	Span 1 Location, ft.	Span 2 Location, ft.	Width in.	Thickness in.	Width in.	Thickness in.	Width in.	Thickness in.
117-150	5.5	0.5	6.75, 20.25, 80, 93.5, 107	9.75, 22.75, 36.25, 39, 51.5, 98.5, 115, 128.5, 140.75	7.25	0.75	10.25	1	10.25	1
129-165	5.5	0.5	114	15, 150	7.25	0.75	10.25	1	10.25	1
141-180	5.5	0.5	107, 124	17, 34, 146, 163	7.25	0.75	10.25	1	10.25	1
153-195	6	0.5	9.25, 116, 134.5	18.5, 37, 158, 176.5	8.25	0.75	11.25	1	11.25	1
164-210	7	0.5	9.5, 126, 145	19, 38, 172, 191	8.25	0.75	11.25	1	11.25	1
176-225	6	0.5	155.5	20.5, 204.5	8	0.75	11	1	11	1
188-240	6.5	0.5	166	22, 44, 196, 218	9	0.875	12	1.125	12	1.125
199-255	6.5	0.5	153, 176	23, 46, 209, 232	9	0.875	12	1.125	12	1.125
211-270	8	0.625	162, 186.5	24.5, 49, 65, 221, 245.5	9	0.875	13	1.125	13	1.125
223-285	8.5	0.625	12.75, 172, 197.5	25.5, 51, 76.5, 234, 259.5	10	0.875	14	1.25	14	1.25
234-300	7.5	0.5	207	27, 273	10	0.875	13	1.125	13	1.125

DEAD LOAD AND LIVE LOAD REACTIONS												
Span, ft. End-Interior	End Reaction				Pier 1 / 3 Reaction				Pier 2 Reaction			
	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips
117-150	88	10	100	41	317	36	173	108	326	37	176	114
129-165	98	11	101	44	357	39	177	119	359	40	179	125
141-180	109	12	101	48	393	43	180	130	398	44	181	135
153-195	117	13	102	52	431	47	184	142	433	47	184	147
164-210	124	14	102	56	471	50	185	152	472	51	186	159
176-225	136	15	103	60	517	54	187	163	512	54	187	169
188-240	144	16	103	64	564	58	188	175	556	58	188	181
199-255	153	17	103	68	605	62	189	186	596	61	189	193
211-270	165	18	103	72	646	65	190	197	641	65	190	205
223-285	175	19	103	75	692	69	190	208	685	69	191	216
234-300	196	20	104	79	716	72	190	215	728	73	191	226

Note: Truck and lane reactions include distribution factors, skew correction, and impact on the truck loading.

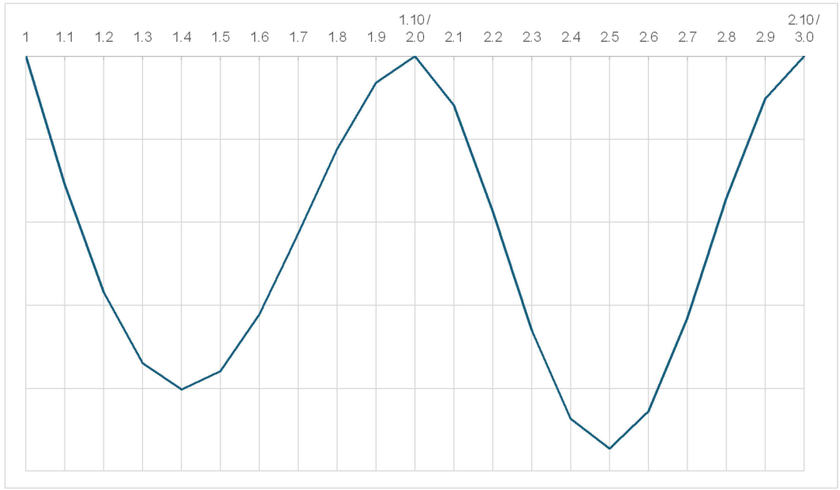
SHEAR STUD LAYOUT																					
Span, ft. End-Interior	Studs per row	Span 1										Span 2									
		Offset in.	Group 1			Group 2			Group 3			Offset in.	Group 1			Group 2			Group 3		
			Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.		Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.
117-150	4	0	21	10	17.5	71	12	71	11	30	27.5	12	14	24	28	91	12	91	15	24	30
129-165	4	0	16	10	13.33	84	12	84	12	30	30	0	13	30	32.5	100	12	100	13	30	32.5
141-180	4	0	106	12	106	7	36	21	3	48	12	0	14	30	35	110	12	110	14	30	35
153-195	4	0	115	12	115	7	42	24.5	3	48	12	0	13	36	39	117	12	117	13	36	39
164-210	4	0	123	12	123	10	48	40	---	---	---	0	12	42	42	126	12	126	12	42	42
176-225	4	6	132	12	132	10	48	40	---	---	---	6	11	48	44	136	12	136	11	48	44
188-240	4	0	19	12	19	92	16	122.67	11	48	44	0	12	48	48	108	16	144	12	48	48
199-255	4	0	30	12	30	80	18	120	12	48	48	0	12	48	48	159	12	159	12	48	48
211-270	4	0	21	12	21	92	18	138	13	48	52	3	12	48	48	105	18	157.5	16	48	64
223-285	4	0	23	12	23	97	18	145.5	13	48	52	12	14	48	56	105	18	157.5	17	48	68
234-300	4	0	12	12	12	109	18	163.5	14	48	56	0	15	48	60	120	18	180	15	48	60

GIRDER WEIGHT						
Span, ft. End-Interior	Segment A tons	Segment B tons	Segment C tons	Segment D tons	Segment E tons	Total tons
117-150	10.22	---	12.62	9.57	13.09	77.91
129-165	13.10	---	14.09	12.51	14.37	93.76
141-180	15.46	---	16.32	14.63	17.13	109.98
153-195	16.55	---	19.52	15.77	20.48	124.16
164-210	17.87	---	23.47	18.10	23.98	142.87
176-225	22.30	---	27.92	21.30	27.92	170.97
188-240	24.55	---	33.55	24.47	33.55	198.70
199-255	27.35	---	38.05	25.80	38.05	220.46
211-270	10.50	21.52	41.36	28.23	43.48	246.69
223-285	11.15	24.05	48.36	30.01	47.50	274.65
234-300	13.64	32.85	44.03	33.47	44.96	292.93

Note: Girder weight is total weight of web and flanges only measured between CL brg at each end. Does not include girder extension at end bearings, stiffeners, shear studs, bracing, or any other allowances.

CROSS-FRAME SPACING			
Span, ft. End-Interior	End Span	Interior Span	Type
117-150	4 @ 20.5 + 2 @ 17.5 = 117	2 @ 17.5 + 3 @ 26.66 + 2 @ 17.5 = 150	K-Frame
129-165	4 @ 23 + 2 @ 18.5 = 129	2 @ 18.5 + 4 @ 22.75 + 2 @ 18.5 = 165	K-Frame
141-180	4 @ 25.25 + 2 @ 20 = 141	2 @ 20 + 4 @ 25 + 2 @ 20 = 180	K-Frame
153-195	5 @ 22 + 2 @ 21.5 = 153	2 @ 21.5 + 4 @ 27.25 + 2 @ 21.5 = 195	K-Frame
164-210	5 @ 23 + 3 @ 16.33 = 164	3 @ 16.25 + 5 @ 22.5 + 3 @ 16.25 = 210	K-Frame
176-225	5 @ 25 + 3 @ 17 = 176	3 @ 16.66 + 5 @ 25 + 3 @ 16.66 = 225	K-Frame
188-240	5 @ 26.5 + 3 @ 18.5 = 188	3 @ 17.91 + 5 @ 26.5 + 3 @ 17.91 = 240	K-Frame
199-255	6 @ 23.5 + 3 @ 19.33 = 199	3 @ 18.75 + 5 @ 28.5 + 3 @ 18.75 = 255	K-Frame
211-270	6 @ 24.67 + 3 @ 21 = 211	3 @ 21 + 6 @ 24 + 3 @ 21 = 270	K-Frame
223-285	7 @ 23 + 3 @ 20.66 = 223	4 @ 17.5 + 6 @ 24.16 + 4 @ 17.5 = 285	K-Frame
234-300	8 @ 23.25 + 3 @ 16 = 234	4 @ 19 + 6 @ 24.66 + 4 @ 19 = 300	K-Frame

DEAD LOAD DEFLECTIONS																						
Span, ft.	Span Tenth Points and Deflections, in. Span 1 Shown. Span 4 Symmetric											Span Tenth Points and Deflections, in. Span 2 Shown. Span 3 Symmetric										
End-Interior	**1.0**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**	**1.9**	**1.10**	**2.0**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**	**2.10**
117-150 ft. span - steel only, in.	0.00	0.13	0.23	0.30	0.33	0.31	0.26	0.18	0.09	0.03	0.00	0.00	0.03	0.13	0.25	0.33	0.36	0.33	0.24	0.13	0.04	0.00
slab, in.	0.00	0.75	1.37	1.77	1.93	1.82	1.49	1.02	0.53	0.16	0.00	0.00	0.21	0.79	1.47	1.97	2.14	1.93	1.41	0.75	0.22	0.00
barrier rails, in.	0.00	0.07	0.12	0.16	0.18	0.17	0.14	0.10	0.05	0.01	0.00	0.00	0.03	0.09	0.16	0.21	0.22	0.20	0.15	0.08	0.03	0.00
117-150 ft. span - total, in.	**0.00**	**0.94**	**1.72**	**2.24**	**2.43**	**2.30**	**1.88**	**1.29**	**0.67**	**0.20**	**0.00**	**0.00**	**0.27**	**1.01**	**1.87**	**2.51**	**2.72**	**2.46**	**1.80**	**0.96**	**0.28**	**0.00**
129-165 ft. span - steel only, in.	0.00	0.16	0.29	0.37	0.40	0.38	0.31	0.21	0.10	0.03	0.00	0.00	0.05	0.18	0.34	0.45	0.49	0.45	0.33	0.18	0.05	0.00
slab, in.	0.00	0.82	1.50	1.95	2.11	1.98	1.61	1.08	0.54	0.15	0.00	0.00	0.26	0.95	1.74	2.34	2.56	2.33	1.72	0.92	0.25	0.00
barrier rails, in.	0.00	0.08	0.15	0.19	0.21	0.20	0.16	0.11	0.06	0.01	0.00	0.00	0.03	0.11	0.19	0.25	0.27	0.25	0.19	0.10	0.03	0.00
129-165 ft. span - total, in.	**0.00**	**1.06**	**1.94**	**2.51**	**2.72**	**2.56**	**2.07**	**1.40**	**0.69**	**0.19**	**0.00**	**0.00**	**0.35**	**1.24**	**2.27**	**3.04**	**3.32**	**3.02**	**2.23**	**1.20**	**0.32**	**0.00**
141-180 ft. span - steel only, in.	0.00	0.18	0.32	0.42	0.45	0.43	0.35	0.24	0.12	0.03	0.00	0.00	0.05	0.20	0.37	0.50	0.55	0.50	0.37	0.20	0.05	0.00
slab, in.	0.00	0.86	1.56	2.01	2.17	2.03	1.65	1.11	0.55	0.15	0.00	0.00	0.28	1.01	1.84	2.47	2.69	2.44	1.80	0.96	0.26	0.00
barrier rails, in.	0.00	0.09	0.17	0.21	0.23	0.22	0.18	0.12	0.06	0.02	0.00	0.00	0.04	0.12	0.21	0.27	0.30	0.27	0.20	0.11	0.03	0.00
141-180 ft. span - total, in.	**0.00**	**1.12**	**2.05**	**2.65**	**2.85**	**2.68**	**2.17**	**1.47**	**0.73**	**0.20**	**0.00**	**0.00**	**0.37**	**1.32**	**2.42**	**3.24**	**3.53**	**3.21**	**2.37**	**1.27**	**0.35**	**0.00**
153-195 ft. span - steel only, in.	0.00	0.22	0.40	0.51	0.55	0.51	0.42	0.28	0.14	0.04	0.00	0.00	0.06	0.22	0.41	0.55	0.61	0.55	0.41	0.22	0.06	0.00
slab, in.	0.00	1.05	1.92	2.45	2.61	2.43	1.97	1.32	0.66	0.19	0.00	0.00	0.28	1.05	1.98	2.69	2.94	2.67	1.96	1.05	0.28	0.00
barrier rails, in.	0.00	0.11	0.20	0.26	0.28	0.26	0.21	0.14	0.07	0.02	0.00	0.00	0.04	0.13	0.24	0.32	0.34	0.31	0.23	0.13	0.04	0.00
153-195 ft. span - total, in.	**0.00**	**1.38**	**2.51**	**3.22**	**3.44**	**3.20**	**2.59**	**1.74**	**0.88**	**0.25**	**0.00**	**0.00**	**0.37**	**1.40**	**2.63**	**3.56**	**3.90**	**3.54**	**2.60**	**1.39**	**0.38**	**0.00**
164-210 ft. span - steel only, in.	0.00	0.26	0.48	0.61	0.65	0.61	0.49	0.33	0.16	0.05	0.00	0.00	0.07	0.27	0.50	0.68	0.74	0.67	0.49	0.26	0.07	0.00
slab, in.	0.00	1.27	2.31	2.95	3.13	2.90	2.33	1.56	0.79	0.23	0.00	0.00	0.28	1.13	2.16	2.96	3.26	2.96	2.16	1.14	0.32	0.00
barrier rails, in.	0.00	0.14	0.25	0.32	0.34	0.32	0.26	0.18	0.09	0.03	0.00	0.00	0.04	0.15	0.27	0.36	0.39	0.36	0.27	0.15	0.04	0.00
164-210 ft. span - total, in.	**0.00**	**1.67**	**3.03**	**3.88**	**4.12**	**3.82**	**3.07**	**2.06**	**1.04**	**0.31**	**0.00**	**0.00**	**0.39**	**1.54**	**2.93**	**4.00**	**4.39**	**3.99**	**2.92**	**1.55**	**0.43**	**0.00**
176-225 ft. span - steel only, in.	0.00	0.33	0.59	0.76	0.81	0.76	0.61	0.41	0.21	0.06	0.00	0.00	0.08	0.32	0.60	0.83	0.91	0.83	0.61	0.33	0.09	0.00
slab, in.	0.00	1.34	2.43	3.10	3.29	3.05	2.44	1.63	0.81	0.23	0.00	0.00	0.35	1.32	2.49	3.40	3.74	3.41	2.50	1.33	0.36	0.00
barrier rails, in.	0.00	0.15	0.27	0.35	0.37	0.34	0.28	0.19	0.09	0.03	0.00	0.00	0.05	0.18	0.32	0.42	0.46	0.42	0.31	0.17	0.05	0.00
176-225 ft. span - total, in.	**0.00**	**1.81**	**3.29**	**4.21**	**4.47**	**4.15**	**3.33**	**2.23**	**1.11**	**0.31**	**0.00**	**0.00**	**0.49**	**1.82**	**3.41**	**4.65**	**5.11**	**4.65**	**3.42**	**1.83**	**0.50**	**0.00**
188-240 ft. span - steel only, in.	0.00	0.35	0.64	0.82	0.87	0.81	0.65	0.43	0.22	0.07	0.00	0.00	0.10	0.34	0.64	0.87	0.96	0.87	0.64	0.34	0.10	0.00
slab, in.	0.00	1.44	2.61	3.33	3.53	3.26	2.61	1.75	0.90	0.28	0.00	0.00	0.32	1.18	2.28	3.17	3.51	3.20	2.34	1.24	0.36	0.00
barrier rails, in.	0.00	0.17	0.30	0.39	0.42	0.39	0.31	0.21	0.11	0.03	0.00	0.00	0.05	0.17	0.31	0.42	0.46	0.42	0.31	0.17	0.05	0.00
188-240 ft. span - total, in.	**0.00**	**1.96**	**3.56**	**4.54**	**4.82**	**4.45**	**3.57**	**2.39**	**1.23**	**0.38**	**0.00**	**0.00**	**0.47**	**1.69**	**3.23**	**4.45**	**4.92**	**4.49**	**3.29**	**1.76**	**0.52**	**0.00**
199-255 ft. span - steel only, in.	0.00	0.40	0.74	0.95	1.01	0.94	0.76	0.51	0.27	0.08	0.00	0.00	0.10	0.36	0.68	0.95	1.05	0.96	0.70	0.37	0.11	0.00
slab, in.	0.00	1.52	2.77	3.54	3.77	3.48	2.77	1.84	0.94	0.28	0.00	0.00	0.37	1.34	2.58	3.60	3.99	3.62	2.62	1.38	0.40	0.00
barrier rails, in.	0.00	0.18	0.33	0.42	0.45	0.42	0.34	0.23	0.11	0.03	0.00	0.00	0.06	0.20	0.36	0.49	0.53	0.49	0.36	0.19	0.06	0.00
199-255 ft. span - total, in.	**0.00**	**2.11**	**3.83**	**4.91**	**5.23**	**4.84**	**3.87**	**2.57**	**1.32**	**0.40**	**0.00**	**0.00**	**0.53**	**1.89**	**3.62**	**5.03**	**5.57**	**5.06**	**3.67**	**1.94**	**0.57**	**0.00**
211-270 ft. span - steel only, in.	0.00	0.46	0.83	1.07	1.14	1.07	0.86	0.57	0.29	0.08	0.00	0.00	0.12	0.40	0.76	1.06	1.17	1.06	0.77	0.41	0.12	0.00
slab, in.	0.00	1.59	2.89	3.70	3.95	3.65	2.89	1.89	0.92	0.24	0.00	0.00	0.44	1.48	2.81	3.88	4.28	3.87	2.78	1.45	0.42	0.00
barrier rails, in.	0.00	0.19	0.34	0.44	0.47	0.44	0.35	0.24	0.11	0.03	0.00	0.00	0.07	0.22	0.40	0.53	0.58	0.53	0.38	0.21	0.06	0.00
211-270 ft. span - total, in.	**0.00**	**2.24**	**4.06**	**5.21**	**5.57**	**5.15**	**4.10**	**2.70**	**1.32**	**0.35**	**0.00**	**0.00**	**0.63**	**2.10**	**3.97**	**5.47**	**6.03**	**5.45**	**3.93**	**2.07**	**0.60**	**0.00**
223-285 ft. span - steel only, in.	0.00	0.51	0.92	1.18	1.27	1.17	0.93	0.61	0.29	0.08	0.00	0.00	0.15	0.50	0.92	1.25	1.37	1.24	0.90	0.47	0.14	0.00
slab, in.	0.00	1.77	3.23	4.16	4.45	4.11	3.27	2.14	1.05	0.29	0.00	0.00	0.44	1.54	2.95	4.10	4.53	4.10	2.96	1.55	0.45	0.00
barrier rails, in.	0.00	0.22	0.40	0.51	0.55	0.51	0.41	0.28	0.14	0.04	0.00	0.00	0.07	0.23	0.42	0.57	0.63	0.57	0.42	0.22	0.07	0.00
223-285 ft. span - total, in.	**0.00**	**2.50**	**4.55**	**5.85**	**6.27**	**5.80**	**4.61**	**3.02**	**1.48**	**0.40**	**0.00**	**0.00**	**0.67**	**2.27**	**4.30**	**5.92**	**6.53**	**5.91**	**4.27**	**2.25**	**0.65**	**0.00**
234-300 ft. span - steel only, in.	0.00	0.63	1.15	1.49	1.61	1.51	1.23	0.83	0.42	0.11	0.00	0.00	0.25	0.79	1.40	1.86	2.01	1.82	1.33	0.73	0.22	0.00
slab, in.	0.00	1.91	3.50	4.54	4.91	4.62	3.76	2.55	1.30	0.35	0.00	0.00	0.72	2.35	4.20	5.63	6.12	5.54	4.07	2.21	0.66	0.00
barrier rails, in.	0.00	0.24	0.43	0.56	0.61	0.58	0.47	0.32	0.16	0.04	0.00	0.00	0.10	0.32	0.56	0.74	0.81	0.73	0.54	0.30	0.09	0.00
234-300 ft. span - total, in.	**0.00**	**2.77**	**5.07**	**6.58**	**7.13**	**6.71**	**5.46**	**3.70**	**1.88**	**0.51**	**0.00**	**0.00**	**1.07**	**3.46**	**6.16**	**8.23**	**8.94**	**8.09**	**5.94**	**3.23**	**0.97**	**0.00**



DEFLECTION VERSUS SPAN TENTH POINT, SYMMETRIC ABOUT PIER 2

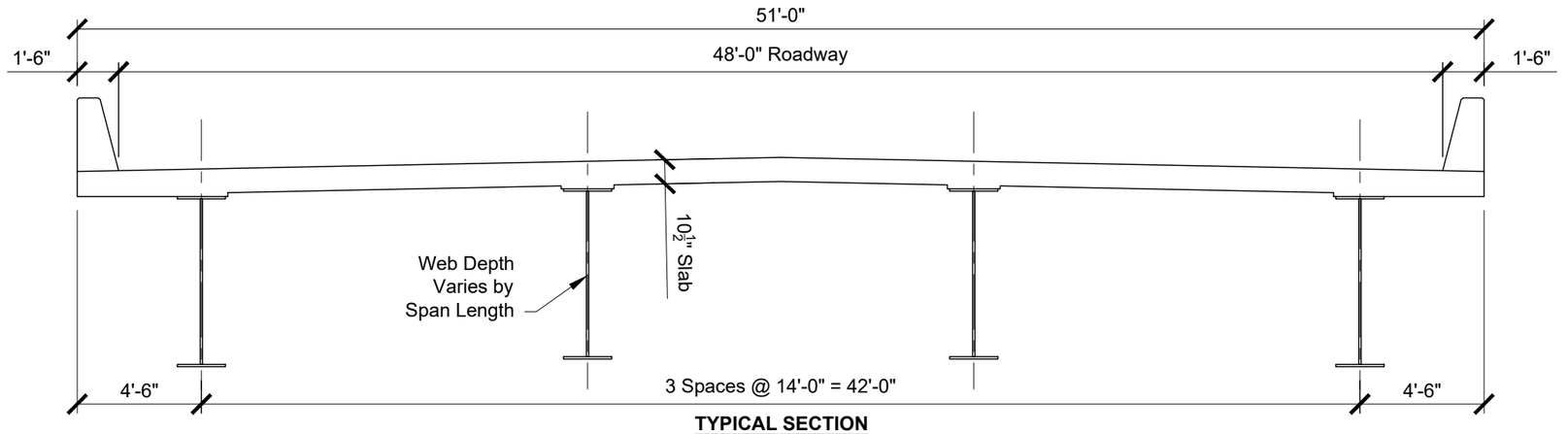
All Girders

Deflection Assumptions

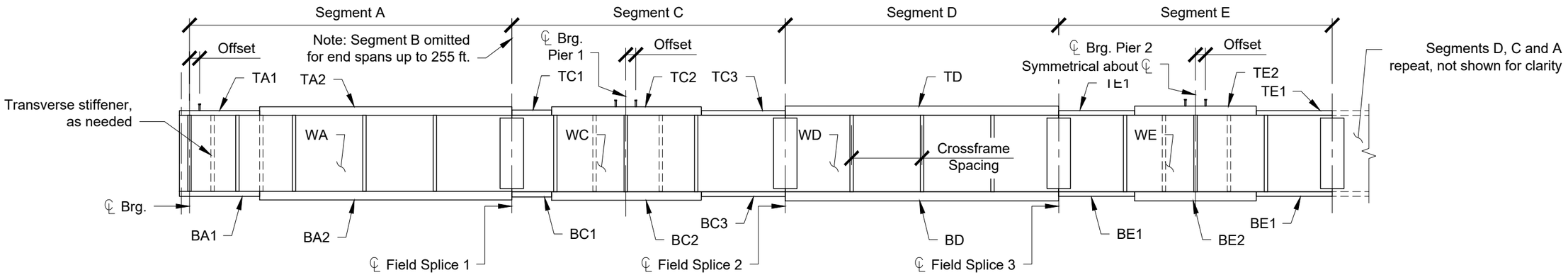
"Steel Only" = self weight of girders

"Slab" = deflection due to user-input non composite uniform dead load (slab, haunch, allowance for bracing)

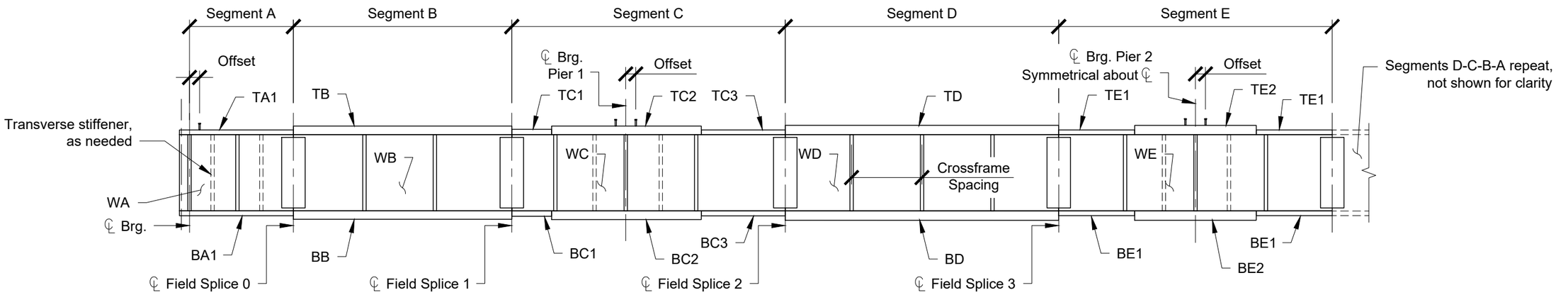
"Barrier Rails" = deflection due to barrier rail loading distributed evenly to exterior and first interior girder.



TYPICAL SECTION



GIRDER ELEVATION INTERIOR SPANS 150-255 FT



GIRDER ELEVATION INTERIOR SPANS 270-300 FT

FOUR SPAN 150-300 FT 14 FT SPACING

Issued January 2025
Revision 0

Span, ft. End-Interior	SEGMENT A					SEGMENT B (as needed)			SEGMENT C						
	WA (in. x in. x ft.)	TA1 (in. x in. x ft.)	TA2 (in. x in. x ft.)	BA1 (in. x in. x ft.)	BA2 (in. x in. x ft.)	WB (in. x in. x ft.)	TB (in. x in. x ft.)	BB (in. x in. x ft.)	WC (in. x in. x ft.)	TC1 (in. x in. x ft.)	TC2 (in. x in. x ft.)	TC3 (in. x in. x ft.)	BC1 (in. x in. x ft.)	BC2 (in. x in. x ft.)	BC3 (in. x in. x ft.)
117-150	54 x 0.625 x 79	---	16 x 1.25 x 79	---	22 x 1.75 x 79	---	---	---	54 x 0.625 x 76	22 x 1.25 x 19	22 x 2.25 x 38	22 x 1.25 x 19	22 x 1.5 x 19	22 x 2.75 x 38	22 x 1.5 x 19
129-165	60 x 0.625 x 89	---	18 x 1.25 x 89	---	22 x 1.75 x 89	---	---	---	60 x 0.625 x 80	22 x 1 x 20	22 x 2.25 x 40	22 x 1 x 20	22 x 1.5 x 20	22 x 2.75 x 40	22 x 1.5 x 20
141-180	66 x 0.625 x 98	---	18 x 1.25 x 98	22 x 1.5 x 49	22 x 1.75 x 49	---	---	---	66 x 0.625 x 86	22 x 1.25 x 21	22 x 2.5 x 44	22 x 1.25 x 21	22 x 1.5 x 21	22 x 3 x 44	22 x 1.5 x 21
153-195	72 x 0.625 x 106	---	20 x 1 x 106	22 x 1.5 x 53	22 x 1.75 x 53	---	---	---	72 x 0.625 x 94	24 x 1.25 x 28	24 x 2.5 x 38	24 x 1.25 x 28	24 x 1.5 x 28	24 x 3 x 38	24 x 1.5 x 28
164-210	76 x 0.75 x 113	---	20 x 1 x 113	22 x 1.25 x 57	22 x 1.75 x 56	---	---	---	76 x 0.75 x 102	24 x 1.5 x 25	24 x 2.75 x 52	24 x 1.5 x 25	26 x 1.5 x 25	26 x 3 x 52	26 x 1.5 x 25
176-225	82 x 0.75 x 122	---	20 x 1.25 x 122	22 x 1.25 x 61	22 x 1.75 x 61	---	---	---	82 x 0.75 x 108	28 x 1.5 x 27	28 x 2.5 x 54	28 x 1.25 x 27	28 x 1.5 x 27	28 x 3 x 54	28 x 1.5 x 27
188-240	88 x 0.75 x 130	---	20 x 1.25 x 130	22 x 1.25 x 65	22 x 1.75 x 65	---	---	---	88 x 0.75 x 116	28 x 1.5 x 29	28 x 2.75 x 58	28 x 1.5 x 29	28 x 1.5 x 29	28 x 3 x 58	28 x 1.5 x 29
199-255	92 x 0.75 x 138	---	24 x 1 x 138	24 x 1.25 x 69	24 x 1.5 x 69	---	---	---	92 x 0.75 x 122	30 x 1.5 x 30	30 x 2.75 x 62	30 x 1.5 x 30	32 x 1.5 x 30	32 x 3 x 62	32 x 1.5 x 30
211-270	96 x 0.75 x 51	24 x 1 x 51	---	24 x 1.25 x 51	---	96 x 0.75 x 100	24 x 1.25 x 100	24 x 1.5 x 100	96 x 0.75 x 125	34 x 1.5 x 25	34 x 2.75 x 65	34 x 1.5 x 35	34 x 1.5 x 25	34 x 3 x 65	34 x 1.5 x 35
223-285	106 x 0.875 x 51	24 x 1 x 51	---	24 x 1.25 x 51	---	106 x 0.875 x 110	24 x 1 x 110	24 x 1.25 x 110	106 x 0.875 x 140	36 x 1.5 x 31	36 x 1.75 x 62 ▲	36 x 1.5 x 47	36 x 1.5 x 31	36 x 2 x 62 ▲	36 x 1.5 x 47
234-300	110 x 0.875 x 54	24 x 1.25 x 54	---	24 x 1.25 x 54	---	110 x 0.875 x 130	24 x 1.25 x 130	24 x 1.25 x 130	110 x 0.875 x 140	30 x 1.25 x 25 ▲	30 x 2 x 50 ▲	30 x 1.25 x 65 ▲	30 x 1.5 x 25 ▲	30 x 2.25 x 50 ▲	30 x 1.5 x 65 ▲

Span, ft. End-Interior	SEGMENT D			SEGMENT E					Additional Footnotes
	WD (in. x in. x ft.)	TD (in. x in. x ft.)	BD (in. x in. x ft.)	WE (in. x in. x ft.)	TE1 (in. x in. x ft.)	TE2 (in. x in. x ft.)	BE1 (in. x in. x ft.)	BE2 (in. x in. x ft.)	
117-150	54 x 0.625 x 74	18 x 1.25 x 74	22 x 1.5 x 74	54 x 0.625 x 76	22 x 1.25 x 19	22 x 2.25 x 38	22 x 1.5 x 19	22 x 2.75 x 38	---
129-165	60 x 0.625 x 85	16 x 1.25 x 85	22 x 1.5 x 85	60 x 0.625 x 80	22 x 1 x 20	22 x 2.5 x 40	22 x 1.5 x 20	22 x 3 x 40	---
141-180	66 x 0.625 x 94	18 x 1 x 94	22 x 1.75 x 94	66 x 0.625 x 86	24 x 1.25 x 21	24 x 2.5 x 44	24 x 1.5 x 21	24 x 3 x 44	---
153-195	72 x 0.625 x 101	20 x 1 x 101	22 x 1.75 x 101	72 x 0.625 x 94	24 x 1.5 x 28	24 x 2.75 x 38	24 x 1.5 x 28	24 x 3 x 38	---
164-210	76 x 0.75 x 108	20 x 1 x 108	22 x 1.5 x 108	76 x 0.75 x 102	24 x 1.5 x 25	24 x 3 x 52	26 x 1.5 x 25	26 x 3 x 52	---
176-225	82 x 0.75 x 117	20 x 1 x 117	24 x 1.5 x 117	82 x 0.75 x 108	28 x 1.5 x 27	28 x 2.75 x 54	28 x 1.5 x 27	28 x 3 x 54	---
188-240	88 x 0.75 x 124	20 x 1 x 124	24 x 1.5 x 124	88 x 0.75 x 116	28 x 1.5 x 29	28 x 2.75 x 58	30 x 1.5 x 29	30 x 3 x 58	---
199-255	92 x 0.75 x 133	22 x 1 x 133	24 x 1.5 x 133	92 x 0.75 x 122	30 x 1.5 x 30	30 x 3 x 62	32 x 1.5 x 30	32 x 3 x 62	a
211-270	96 x 0.75 x 140	22 x 1 x 140	24 x 1.5 x 140	96 x 0.75 x 130	34 x 1.5 x 32	34 x 2.75 x 66	34 x 1.5 x 32	34 x 3 x 66	a
223-285	106 x 0.875 x 140	22 x 1 x 140	24 x 1.25 x 140	106 x 0.875 x 134	36 x 1.5 x 33	36 x 1.75 x 68 ▲	36 x 1.5 x 33	36 x 2 x 68 ▲	a
234-300	110 x 0.875 x 140	22 x 1 x 140	24 x 1.25 x 140	110 x 0.875 x 140	30 x 1.25 x 35 ▲	30 x 2.25 x 70 ▲	30 x 1.5 x 35 ▲	30 x 2.5 x 70 ▲	a

Note: All plates are A709 Gr 50W except those noted with a ▲ are Gr HPS 70W.

Footnotes:

a. AASHTO distribution factor equations were used with girder stiffness and / or span length exceeding AASHTO limits. Check with refined analysis.

Span, ft. End-Interior	TRANSVERSE AND BEARING STIFFENERS									
	Transverse Stiffener Size and Location, Distance From End support, Each Span				Bearing Stiffeners, End		Bearing Stiffeners, Pier 1		Bearing Stiffeners, Pier 2	
	Width in.	Thickness in.	Span 1 Location, ft.	Span 2 Location, ft.	Width in.	Thickness in.	Width in.	Thickness in.	Width in.	Thickness in.
117-150	5.5	0.5	---	13.5, 136.5	7.25	0.75	10.25	1	10.25	1
129-165	5.5	0.5	99, 114	15, 30, 135, 150	8.25	0.75	10.25	1.125	10.25	1.125
141-180	6	0.5	108, 124.5	16.5, 33, 147, 163.5	8.25	0.75	10.25	1.25	11.25	1
153-195	7	0.5	9, 117.75, 135.75	16.75, 34.75, 47, 65, 130, 148, 160.5, 178.5	9.25	0.875	11.25	1.125	11.25	1.125
164-210	6.5	0.5	145	19, 191	9	0.875	11	1.125	11	1.125
176-225	7	0.5	135, 155.5	20.5, 41, 184, 204.5	9	0.875	13	1.125	13	1.125
188-240	7.5	0.5	144, 166	22, 44, 196, 218	9	0.875	13	1.125	13	1.125
199-255	8	0.625	153, 176	23, 46, 61, 209, 232	11	1	14	1.25	14	1.25
211-270	9	0.625	12, 127, 151, 163, 187	24, 48, 65, 222, 246	11	1	16	1.5	16	1.5
223-285	9	0.625	170, 196.5	26.5, 53, 232, 258.5	11	1	17	1.5	17	1.5
234-300	8	0.625	206.5	27.5, 55, 245, 272.5	11	1	14	1.25	14	1.25

Span, ft. End-Interior	DEAD LOAD AND LIVE LOAD REACTIONS											
	End Reaction				Pier 1 / 3 Reaction				Pier 2 Reaction			
	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips	DC kips	DW kips	Truck kips	Lane kips
117-150	108	12	112	45	400	42	195	122	399	42	196	128
129-165	121	13	113	50	439	46	199	134	443	47	201	141
141-180	131	14	113	54	486	50	203	146	490	51	204	153
153-195	143	16	114	58	531	55	205	158	531	55	206	164
164-210	152	16	114	63	588	59	208	171	583	59	208	178
176-225	165	18	114	67	636	63	209	183	633	63	210	190
188-240	177	19	115	71	686	67	210	195	680	68	211	203
199-255	186	20	115	75	738	72	212	208	730	72	212	216
211-270	199	21	115	80	792	76	2126	221	679	76	213	229
223-285	218	22	116	84	835	80	212	231	831	80	212	241
234-300	236	24	116	88	861	83	213	241	884	85	213	254

Note: Truck and lane reactions include distribution factors, skew correction, and impact on the truck loading.

Span, ft. End-Interior	Studs per row	SHEAR STUD LAYOUT																			
		Span 1										Span 2									
		Offset in.	Group 1			Group 2			Group 3			Offset in.	Group 1			Group 2			Group 3		
			Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.		Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.	Spaces	Pitch in.	Length ft.
117-150	4	0	18	8	12	90	10	75	15	24	30	4	14	24	28	112	10	93.33	14	24	28
129-165	4	0	10	8	6.67	97	10	90.5	15	24	30	6	16	24	32	120	10	100	16	24	32
141-180	4	0	26	10	21.67	84	12	84	14	30	35	12	14	30	35	108	12	108	14	30	35
153-195	4	0	21	9	15.75	99	12	99	15	30	37.5	0	15	30	37.5	120	12	120	15	30	37.5
164-210	4	0	20	10	16.67	106	12	106	12	40	40	24	12	40	40	126	12	126	12	40	40
176-225	4	0	12	10	10	123	12	123	12	42	42	24	12	42	42	137	12	137	12	42	42
188-240	4	0	38	12	38	78	16	104	11	48	44	16	11	48	44	128	14	149.33	11	48	44
199-255	4	0	20	12	20	114	14	133	11	48	44	16	12	48	48	134	14	156.33	12	48	48
211-270	4	0	32	12	32	87	16	116	15	48	60	16	13	48	52	140	14	163.33	13	48	52
223-285	4	0	19	14	22.17	110	16	146.67	13	48	52	14	15	48	60	122	16	162.67	15	48	60
234-300	4	0	35	12	35	94	18	141	14	48	56	0	14	48	56	188	12	188	14	48	56

Span, ft. End-Interior	GIRDER WEIGHT					
	Segment A tons	Segment B tons	Segment C tons	Segment D tons	Segment E tons	Total tons
117-150	12.40	---	15.39	11.24	15.39	93.43
129-165	14.92	---	16.33	13.09	17.08	105.75
141-180	16.59	---	19.42	15.63	20.63	123.91
153-195	18.17	---	22.02	17.79	22.98	138.93
164-210	21.14	---	29.01	20.21	29.54	170.27
176-225	24.80	---	32.85	23.39	33.81	195.89
188-240	27.43	---	37.20	25.74	38.09	218.83
199-255	29.58	---	42.65	28.74	43.44	245.37
211-270	10.93	23.48	47.35	30.97	48.98	274.43
223-285	12.73	27.46	50.67	34.48	48.89	299.58
234-300	14.36	34.56	46.41	35.31	49.72	310.99

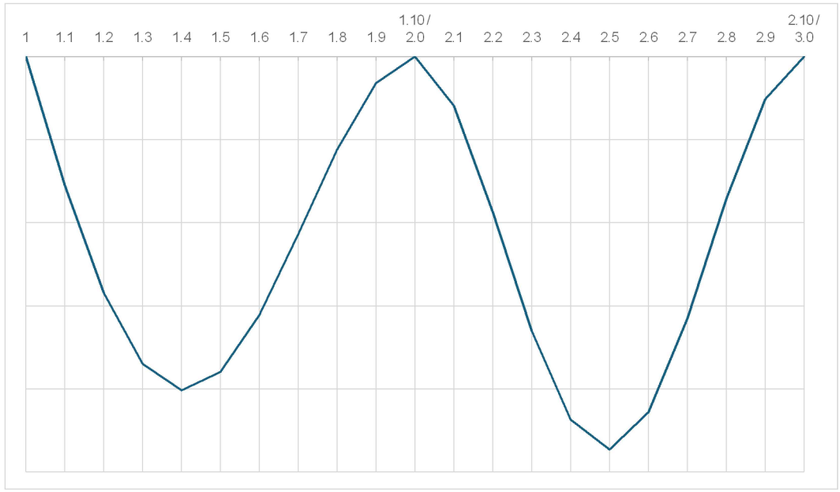
Note: Girder weight is total weight of web and flanges only measured between CL brg at each end. Does not include girder extension at end bearings, stiffeners, shear studs, bracing, or any other allowances.

Span, ft. End-Interior	CROSS-FRAME SPACING		
	End Span	Interior Span	Type
117-150	4 @ 20.5 + 2 @ 17.5 = 117	2 @ 17.5 + 3 @ 26.66 + 2 @ 17.5 = 150	Diaphragm
129-165	4 @ 23 + 2 @ 18.5 = 129	2 @ 18.5 + 4 @ 22.75 + 2 @ 18.5 = 165	Diaphragm
141-180	4 @ 25.25 + 2 @ 20 = 141	2 @ 20 + 4 @ 25 + 2 @ 20 = 180	K-Frame
153-195	5 @ 22 + 2 @ 21.5 = 153	2 @ 21.5 + 4 @ 27.25 + 2 @ 21.5 = 195	K-Frame
164-210	5 @ 23 + 3 @ 16.33 = 164	3 @ 16.25 + 5 @ 22.5 + 3 @ 16.25 = 210	K-Frame
176-225	5 @ 25 + 3 @ 17 = 176	3 @ 16.66 + 5 @ 25 + 3 @ 16.66 = 225	K-Frame
188-240	5 @ 26.5 + 3 @ 18.5 = 188	3 @ 17.91 + 5 @ 26.5 + 3 @ 17.91 = 240	K-Frame
199-255	6 @ 23.5 + 3 @ 19.33 = 199	3 @ 18.75 + 5 @ 28.5 + 3 @ 18.75 = 255	K-Frame
211-270	6 @ 24.67 + 3 @ 21 = 211	3 @ 21 + 6 @ 24 + 3 @ 21 = 270	K-Frame
223-285	7 @ 23 + 3 @ 20.66 = 223	4 @ 17.5 + 6 @ 24.16 + 4 @ 17.5 = 285	K-Frame
234-300	8 @ 23.25 + 3 @ 16 = 234	4 @ 19 + 6 @ 24.66 + 4 @ 19 = 300	K-Frame

FOUR SPAN 150-300 FT 14 FT SPACING

Issued January 2025
Revision 0

DEAD LOAD DEFLECTIONS																							
Span, ft.	Span Tenth Points and Deflections, in. Span 1 Shown. Span 4 Symmetric											Span Tenth Points and Deflections, in. Span 2 Shown. Span 3 Symmetric											
End-Interior	**1.0**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**	**1.9**	**1.10**	**2.0**	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**	**2.10**
117-150 ft. span - steel only, in.	0.00	0.12	0.22	0.29	0.31	0.29	0.24	0.16	0.08	0.03	0.00	0.00	0.04	0.13	0.23	0.32	0.35	0.32	0.23	0.13	0.04	0.00
slab, in.	0.00	0.75	1.37	1.77	1.91	1.79	1.44	0.97	0.49	0.14	0.00	0.00	0.25	0.83	1.53	2.07	2.26	2.06	1.51	0.81	0.24	0.00
barrier rails, in.	0.00	0.05	0.09	0.12	0.13	0.13	0.10	0.07	0.04	0.01	0.00	0.00	0.02	0.07	0.13	0.17	0.18	0.17	0.13	0.07	0.02	0.00
117-150 ft. span - total, in.	**0.00**	**0.92**	**1.69**	**2.18**	**2.36**	**2.20**	**1.78**	**1.20**	**0.61**	**0.17**	**0.00**	**0.00**	**0.31**	**1.03**	**1.89**	**2.56**	**2.80**	**2.54**	**1.87**	**1.01**	**0.30**	**0.00**
129-165 ft. span - steel only, in.	0.00	0.15	0.27	0.36	0.39	0.37	0.30	0.21	0.11	0.04	0.00	0.00	0.04	0.14	0.27	0.37	0.41	0.37	0.27	0.14	0.04	0.00
slab, in.	0.00	0.85	1.56	2.02	2.19	2.05	1.66	1.11	0.55	0.15	0.00	0.00	0.30	1.00	1.84	2.48	2.70	2.43	1.77	0.93	0.27	0.00
barrier rails, in.	0.00	0.06	0.12	0.15	0.16	0.15	0.13	0.09	0.04	0.01	0.00	0.00	0.03	0.09	0.15	0.20	0.22	0.20	0.15	0.08	0.02	0.00
129-165 ft. span - total, in.	**0.00**	**1.07**	**1.95**	**2.53**	**2.74**	**2.57**	**2.08**	**1.40**	**0.71**	**0.20**	**0.00**	**0.00**	**0.37**	**1.23**	**2.26**	**3.05**	**3.32**	**3.00**	**2.18**	**1.15**	**0.33**	**0.00**
141-180 ft. span - steel only, in.	0.00	0.18	0.32	0.41	0.44	0.42	0.34	0.23	0.12	0.04	0.00	0.00	0.05	0.17	0.33	0.44	0.49	0.44	0.32	0.17	0.05	0.00
slab, in.	0.00	1.01	1.85	2.38	2.55	2.38	1.92	1.29	0.65	0.19	0.00	0.00	0.30	1.03	1.94	2.64	2.89	2.61	1.90	1.00	0.29	0.00
barrier rails, in.	0.00	0.08	0.14	0.18	0.20	0.19	0.15	0.11	0.05	0.02	0.00	0.00	0.03	0.09	0.17	0.22	0.24	0.22	0.16	0.09	0.03	0.00
141-180 ft. span - total, in.	**0.00**	**1.27**	**2.31**	**2.98**	**3.20**	**2.99**	**2.41**	**1.62**	**0.83**	**0.24**	**0.00**	**0.00**	**0.38**	**1.30**	**2.43**	**3.30**	**3.61**	**3.27**	**2.38**	**1.26**	**0.37**	**0.00**
153-195 ft. span - steel only, in.	0.00	0.21	0.39	0.50	0.54	0.50	0.40	0.27	0.14	0.04	0.00	0.00	0.06	0.22	0.41	0.56	0.62	0.56	0.41	0.22	0.06	0.00
slab, in.	0.00	1.23	2.25	2.90	3.12	2.91	2.35	1.58	0.79	0.23	0.00	0.00	0.30	1.18	2.25	3.07	3.38	3.07	2.26	1.20	0.32	0.00
barrier rails, in.	0.00	0.09	0.17	0.22	0.23	0.22	0.18	0.12	0.06	0.02	0.00	0.00	0.03	0.11	0.20	0.26	0.29	0.26	0.20	0.11	0.03	0.00
153-195 ft. span - total, in.	**0.00**	**1.54**	**2.81**	**3.62**	**3.89**	**3.63**	**2.94**	**1.97**	**0.99**	**0.29**	**0.00**	**0.00**	**0.39**	**1.52**	**2.86**	**3.90**	**4.28**	**3.89**	**2.86**	**1.53**	**0.41**	**0.00**
164-210 ft. span - steel only, in.	0.00	0.26	0.47	0.61	0.65	0.60	0.49	0.33	0.17	0.05	0.00	0.00	0.07	0.24	0.45	0.62	0.68	0.62	0.45	0.24	0.07	0.00
slab, in.	0.00	1.36	2.47	3.15	3.34	3.09	2.47	1.64	0.84	0.25	0.00	0.00	0.34	1.20	2.30	3.18	3.51	3.18	2.30	1.21	0.35	0.00
barrier rails, in.	0.00	0.11	0.19	0.25	0.26	0.25	0.20	0.14	0.07	0.02	0.00	0.00	0.04	0.12	0.22	0.29	0.32	0.29	0.22	0.12	0.04	0.00
164-210 ft. span - total, in.	**0.00**	**1.73**	**3.14**	**4.01**	**4.26**	**3.94**	**3.15**	**2.11**	**1.08**	**0.32**	**0.00**	**0.00**	**0.44**	**1.56**	**2.97**	**4.09**	**4.51**	**4.09**	**2.97**	**1.57**	**0.46**	**0.00**
176-225 ft. span - steel only, in.	0.00	0.30	0.54	0.70	0.75	0.70	0.57	0.39	0.21	0.07	0.00	0.00	0.07	0.26	0.50	0.69	0.77	0.70	0.51	0.27	0.08	0.00
slab, in.	0.00	1.41	2.57	3.28	3.48	3.22	2.58	1.73	0.89	0.27	0.00	0.00	0.36	1.28	2.46	3.40	3.75	3.39	2.46	1.29	0.37	0.00
barrier rails, in.	0.00	0.12	0.22	0.28	0.30	0.28	0.22	0.15	0.08	0.02	0.00	0.00	0.04	0.13	0.24	0.32	0.35	0.32	0.23	0.13	0.04	0.00
176-225 ft. span - total, in.	**0.00**	**1.83**	**3.33**	**4.26**	**4.53**	**4.20**	**3.38**	**2.27**	**1.17**	**0.35**	**0.00**	**0.00**	**0.47**	**1.67**	**3.19**	**4.41**	**4.86**	**4.41**	**3.20**	**1.69**	**0.49**	**0.00**
188-240 ft. span - steel only, in.	0.00	0.34	0.62	0.79	0.85	0.79	0.64	0.43	0.23	0.07	0.00	0.00	0.08	0.30	0.57	0.79	0.88	0.80	0.58	0.31	0.09	0.00
slab, in.	0.00	1.56	2.83	3.61	3.83	3.54	2.83	1.88	0.96	0.29	0.00	0.00	0.39	1.38	2.65	3.68	4.06	3.68	2.66	1.40	0.41	0.00
barrier rails, in.	0.00	0.14	0.25	0.31	0.34	0.31	0.25	0.17	0.09	0.03	0.00	0.00	0.04	0.14	0.26	0.35	0.38	0.35	0.26	0.14	0.04	0.00
188-240 ft. span - total, in.	**0.00**	**2.03**	**3.69**	**4.72**	**5.01**	**4.64**	**3.72**	**2.49**	**1.27**	**0.38**	**0.00**	**0.00**	**0.52**	**1.82**	**3.48**	**4.82**	**5.32**	**4.83**	**3.50**	**1.85**	**0.54**	**0.00**
199-255 ft. span - steel only, in.	0.00	0.38	0.69	0.89	0.95	0.88	0.71	0.48	0.25	0.08	0.00	0.00	0.10	0.34	0.65	0.90	1.00	0.91	0.66	0.35	0.10	0.00
slab, in.	0.00	1.75	3.17	4.06	4.32	3.99	3.18	2.12	1.09	0.34	0.00	0.00	0.39	1.43	2.80	3.92	4.35	3.94	2.84	1.48	0.43	0.00
barrier rails, in.	0.00	0.15	0.27	0.35	0.38	0.35	0.28	0.19	0.10	0.03	0.00	0.00	0.05	0.16	0.29	0.39	0.43	0.39	0.29	0.15	0.05	0.00
199-255 ft. span - total, in.	**0.00**	**2.28**	**4.14**	**5.30**	**5.65**	**5.23**	**4.18**	**2.78**	**1.43**	**0.44**	**0.00**	**0.00**	**0.53**	**1.93**	**3.74**	**5.21**	**5.77**	**5.23**	**3.78**	**1.98**	**0.58**	**0.00**
211-270 ft. span - steel only, in.	0.00	0.44	0.80	1.03	1.10	1.02	0.83	0.56	0.29	0.09	0.00	0.00	0.10	0.36	0.71	1.00	1.11	1.02	0.74	0.39	0.12	0.00
slab, in.	0.00	1.86	3.35	4.25	4.52	4.16	3.31	2.18	1.11	0.33	0.00	0.00	0.45	1.60	3.11	4.36	4.84	4.38	3.15	1.65	0.48	0.00
barrier rails, in.	0.00	0.17	0.30	0.39	0.42	0.39	0.32	0.21	0.11	0.03	0.00	0.00	0.05	0.17	0.32	0.43	0.48	0.43	0.32	0.17	0.05	0.00
211-270 ft. span - total, in.	**0.00**	**2.47**	**4.45**	**5.66**	**6.03**	**5.58**	**4.45**	**2.95**	**1.51**	**0.46**	**0.00**	**0.00**	**0.60**	**2.14**	**4.15**	**5.79**	**6.43**	**5.83**	**4.21**	**2.21**	**0.64**	**0.00**
223-285 ft. span - steel only, in.	0.00	0.51	0.93	1.20	1.29	1.21	0.97	0.65	0.33	0.09	0.00	0.00	0.20	0.62	1.09	1.44	1.56	1.42	1.05	0.58	0.18	0.00
slab, in.	0.00	2.04	3.72	4.81	5.18	4.84	3.91	2.64	1.36	0.38	0.00	0.00	0.66	2.15	3.89	5.27	5.78	5.26	3.87	2.12	0.64	0.00
barrier rails, in.	0.00	0.18	0.33	0.43	0.47	0.44	0.36	0.24	0.13	0.03	0.00	0.00	0.07	0.22	0.39	0.51	0.56	0.51	0.38	0.21	0.06	0.00
223-285 ft. span - total, in.	**0.00**	**2.73**	**4.98**	**6.44**	**6.94**	**6.49**	**5.24**	**3.53**	**1.81**	**0.50**	**0.00**	**0.00**	**0.93**	**2.98**	**5.37**	**7.22**	**7.90**	**7.18**	**5.29**	**2.91**	**0.88**	**0.00**
234-300 ft. span - steel only, in.	0.00	0.59	1.08	1.40	1.52	1.43	1.16	0.79	0.40	0.11	0.00	0.00	0.21	0.70	1.25	1.67	1.81	1.63	1.19	0.64	0.19	0.00
slab, in.	0.00	2.21	4.05	5.26	5.69	5.35	4.36	2.95	1.50	0.42	0.00	0.00	0.75	2.56	4.65	6.26	6.80	6.13	4.47	2.39	0.71	0.00
barrier rails, in.	0.00	0.20	0.38	0.49	0.53	0.50	0.41	0.28	0.15	0.04	0.00	0.00	0.08	0.25	0.45	0.60	0.65	0.59	0.44	0.24	0.07	0.00
234-300 ft. span - total, in.	**0.00**	**3.01**	**5.50**	**7.14**	**7.74**	**7.28**	**5.93**	**4.02**	**2.05**	**0.57**	**0.00**	**0.00**	**1.03**	**3.51**	**6.35**	**8.52**	**9.26**	**8.35**	**6.09**	**3.27**	**0.97**	**0.00**



DEFLECTION VERSUS SPAN TENTH POINT, SYMMETRIC ABOUT PIER 2

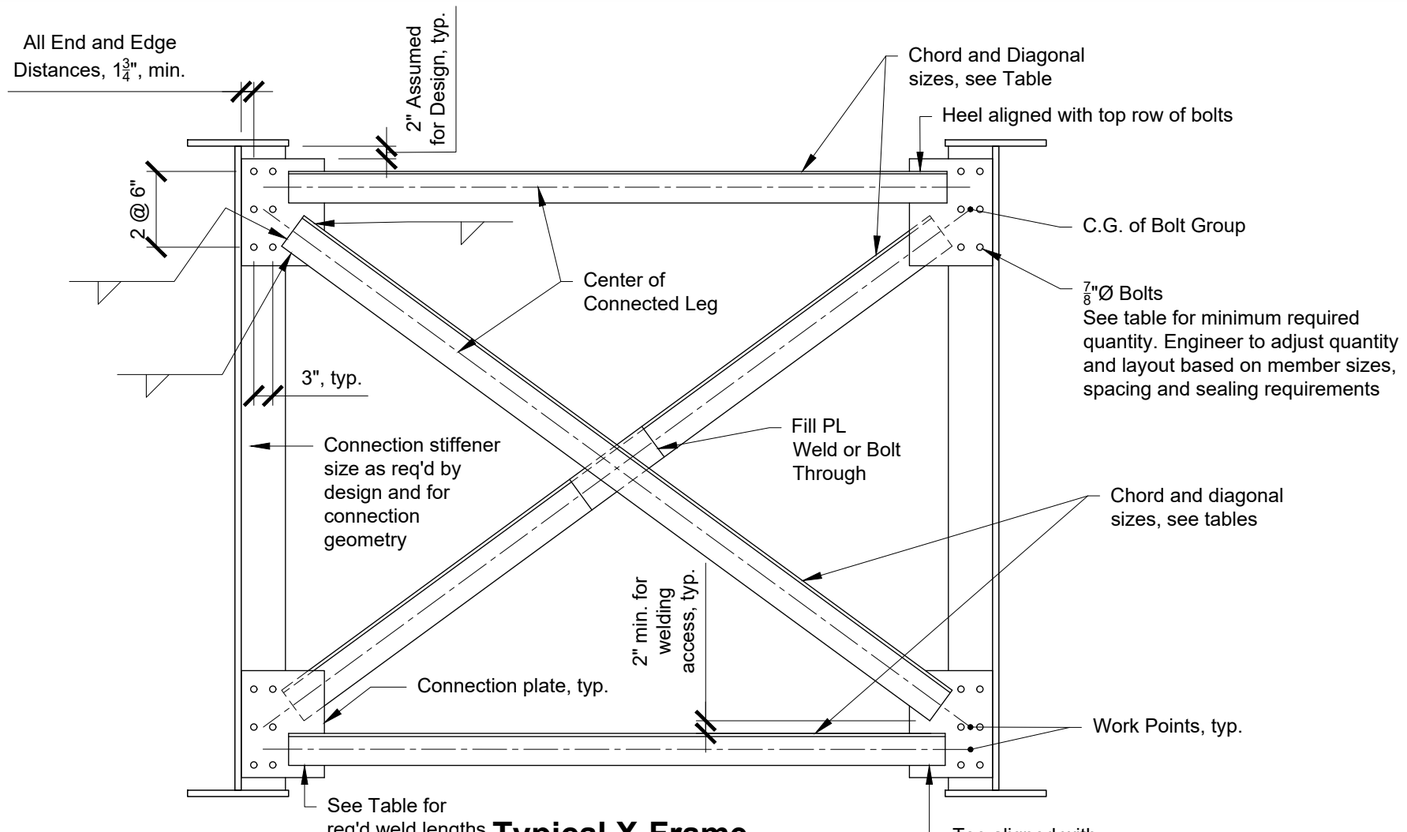
All Girders

Deflection Assumptions

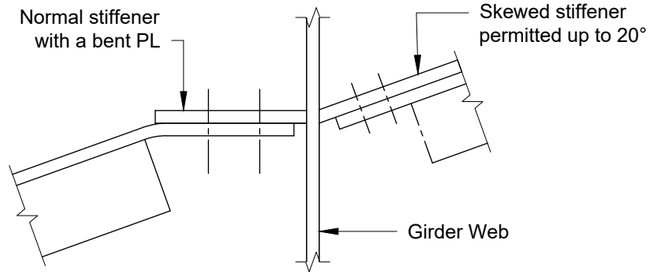
"Steel Only" = self weight of girders

"Slab" = deflection due to user-input non composite uniform dead load (slab, haunch, allowance for bracing)

"Barrier Rails" = deflection due to barrier rail loading distributed evenly to exterior and first interior girder.



Typical X-Frame



Connection Options

Not to Scale

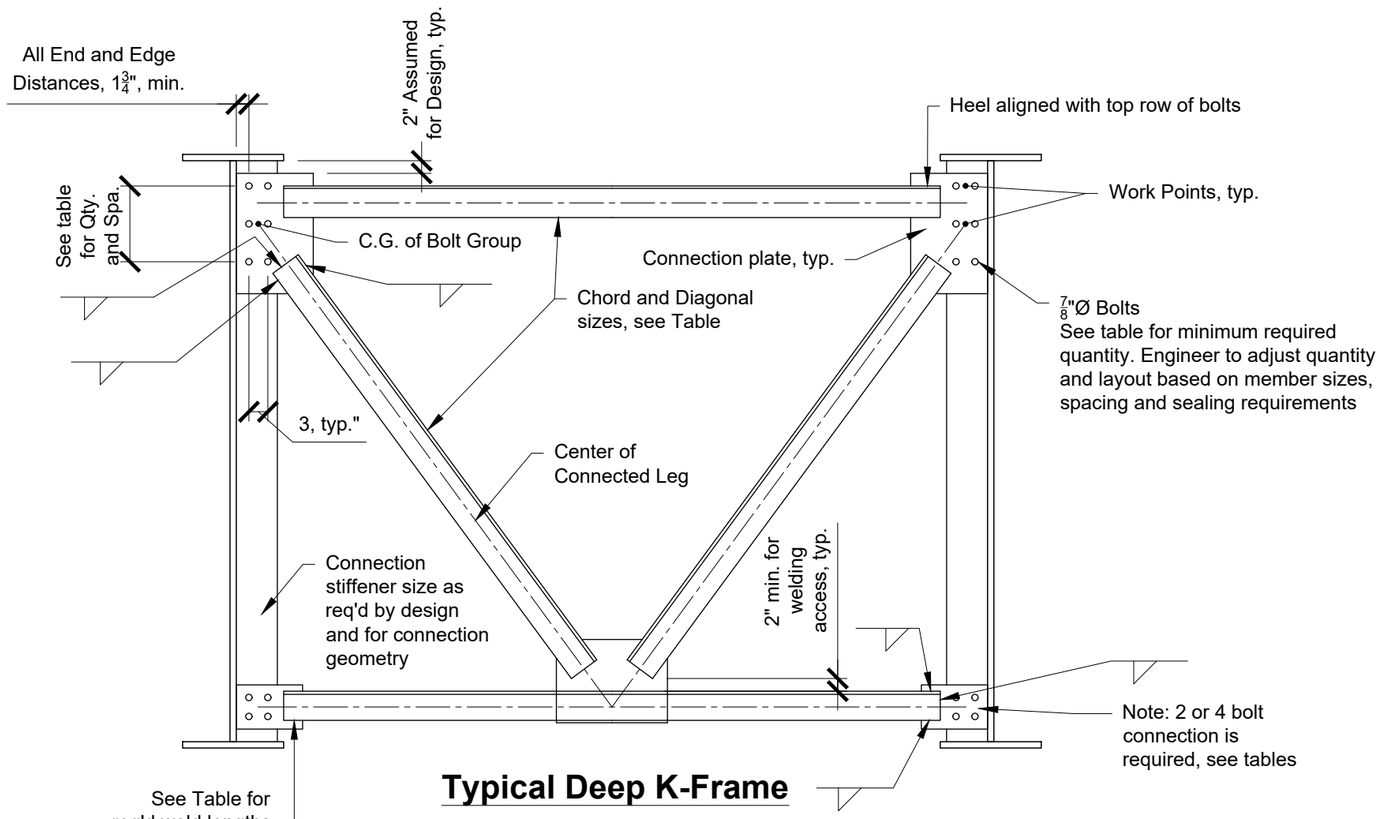
CROSS-FRAME DETAILS				
Beam Spacing, ft.	Span, ft. End - Interior	Type	Chord	Diagonal
8	117-150 through 164-210	K-Frame	L5X5X3/8	L5X5X3/8
	176-225 through 234-300	X-Frame	L5X5X3/8	L6x6x3/8
10	117-150 through 199-255	K-Frame	L5X5X3/8	L5X5X3/8
	211-270 through 234-300	X-Frame	L5X5X3/8	L6X6X3/8
12	All spans	K-Frame	L6X6X3/8	L5X5X3/8
14	141-180 through 234-300	K-Frame	L8X6X1/2	L5X5X3/8

CROSS-FRAME WELD DETAILS		
Angle Size	Toe Length	Heel Length
L5x5x3/8	2 in. min. See notes regarding toe weld length	4 in.
L6x6x3/8		4 in.
L8x6x1/2		4

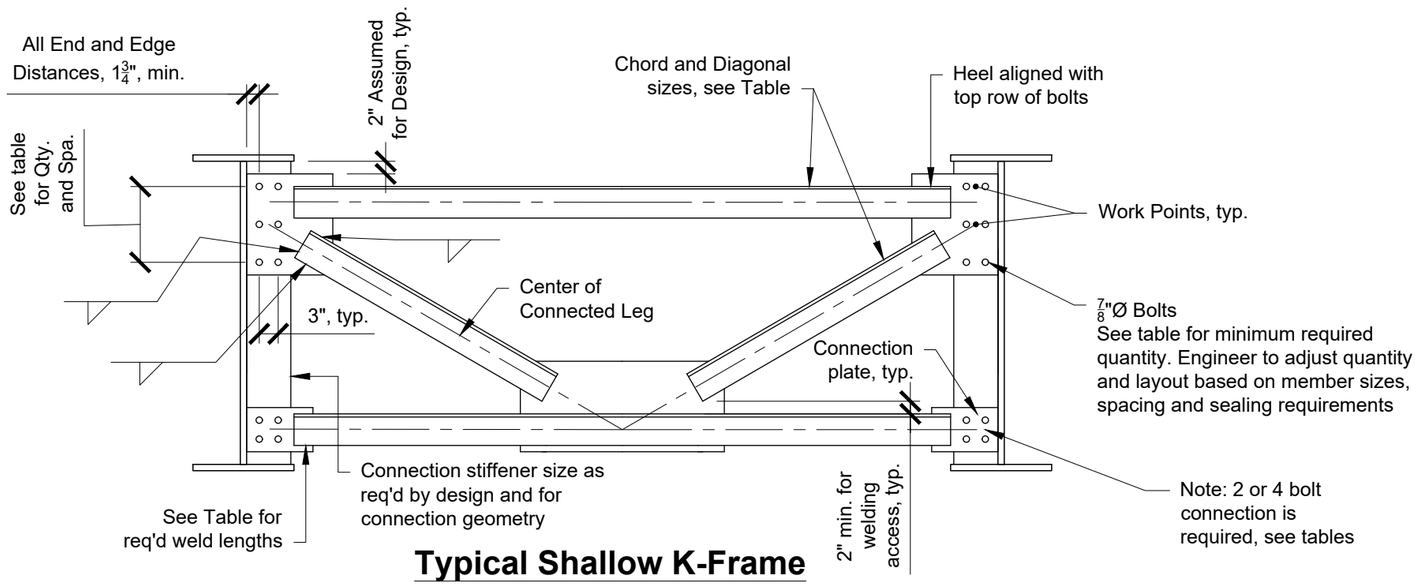
CROSS-FRAME BOLTED CONNECTION DETAILS					
Beam Spacing, ft.	Type	Top Connection		Bottom Connection	
		Total Num Bolts	Vertical Spacing	Total Num Bolts	Vertical Spacing
8	K-Frame	6	6 in.	2	3 in.
	X-Frame	6	6 in.	6	6 in.
10	K-Frame	6	6 in.	2	3 in.
	X-Frame	6	6 in.	6	6 in.
12	K-Frame	6	6 in.	2	3 in.
14	K-Frame	8	4.75	4	4.75

Notes:

1. All bolts for bent plate diaphragms 7/8 in. diameter ASTM F3125 Grade A325 bolts assumed in single shear with threads in the shear plane.
2. All bolts for K and X cross-frames 7/8 in. diameter ASTM F3125 Grade A325 bolts assumed in single shear with threads in the shear plane.
3. All welds 5/16 in. fillet welds. The minimum heel and toe dimensions provided meet load and eccentricity requirements. The toe may be lengthened to equal the heel dimension provided in the tables; the resulting eccentricity was considered in design. Other weld geometries may be needed for dimensional or sealing requirements and are to be designed.
4. Member and connection designs based on stability, construction, and wind forces.
5. General layout and details follow industry preferences. Provide details in accordance with owner preferences and modify these details accordingly.
6. Determine cross-frame forces for specific designs and proportion members and connections accordingly. Bolt connection layout, quantity and spacing provided on this sheet are approximate based on member loads and several representative geometries. Deck cross-slope was not considered in developing the details. Given a wide range of beam depths and spacing, the geometry of each connection was not fully studied. A scale drawing of the connection including chosen work points should be used for layout of the members, final bolt patterns, and determination of connection plate sizes. The selection of work points, member axes and orientation shown represent one acceptable approach. Engineers may choose alternate work point locations and overall connection geometries that consider the effects of eccentricity on the welded and bolted connections.



Typical Deep K-Frame



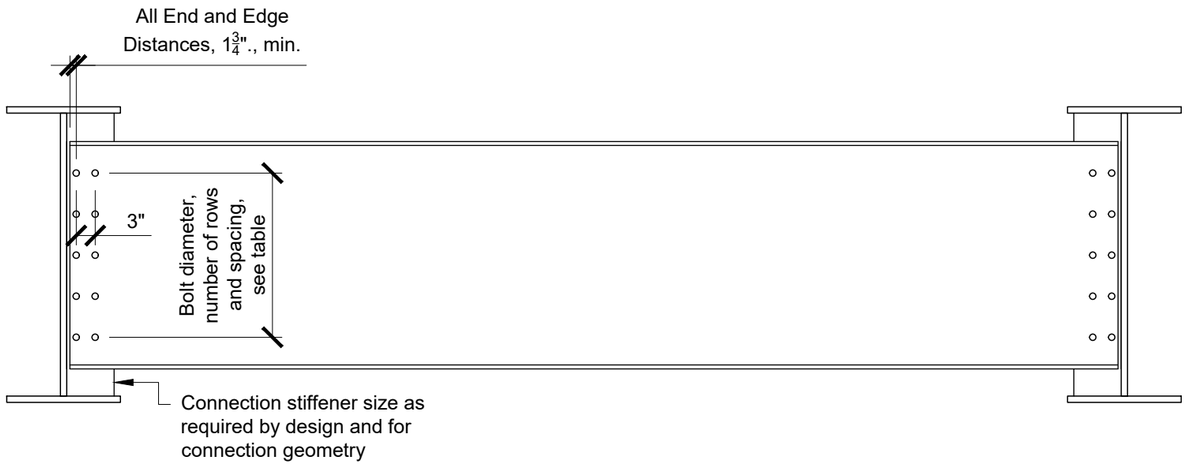
Typical Shallow K-Frame

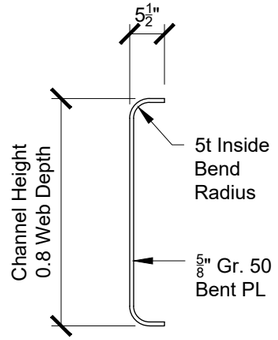
CROSS-FRAME DETAILS				
Beam Spacing, ft.	Span, ft. End - Interior	Type	Chord	Diagonal
8	117-150 through 164-210	K-Frame	L5X5X3/8	L5X5X3/8
	176-225 through 234-300	X-Frame	L5X5X3/8	L6x6x3/8
10	117-150 through 199-255	K-Frame	L5X5X3/8	L5X5X3/8
	211-270 through 234-300	X-Frame	L5X5X3/8	L6X6X3/8
12	All spans	K-Frame	L6X6X3/8	L5X5X3/8
14	141-180 through 234-300	K-Frame	L8X6X1/2	L5X5X3/8

CROSS-FRAME WELD DETAILS		
Angle Size	Toe Length	Heel Length
L5x5x3/8	2 in. min. See notes regarding toe weld length	4 in.
L6x6x3/8		4 in.
L8x6x1/2		4

CROSS-FRAME BOLTED CONNECTION DETAILS					
Beam Spacing, ft.	Type	Top Connection		Bottom Connection	
		Total Num Bolts	Vertical Spacing	Total Num Bolts	Vertical Spacing
8	K-Frame	6	6 in.	2	3 in.
	X-Frame	6	6 in.	6	6 in.
10	K-Frame	6	6 in.	2	3 in.
	X-Frame	6	6 in.	6	6 in.
12	K-Frame	6	6 in.	2	3 in.
14	K-Frame	8	4.75	4	4.75

Notes:
1. For general notes, see sheet **Cross-Frame & Diaphragm Details 1**.

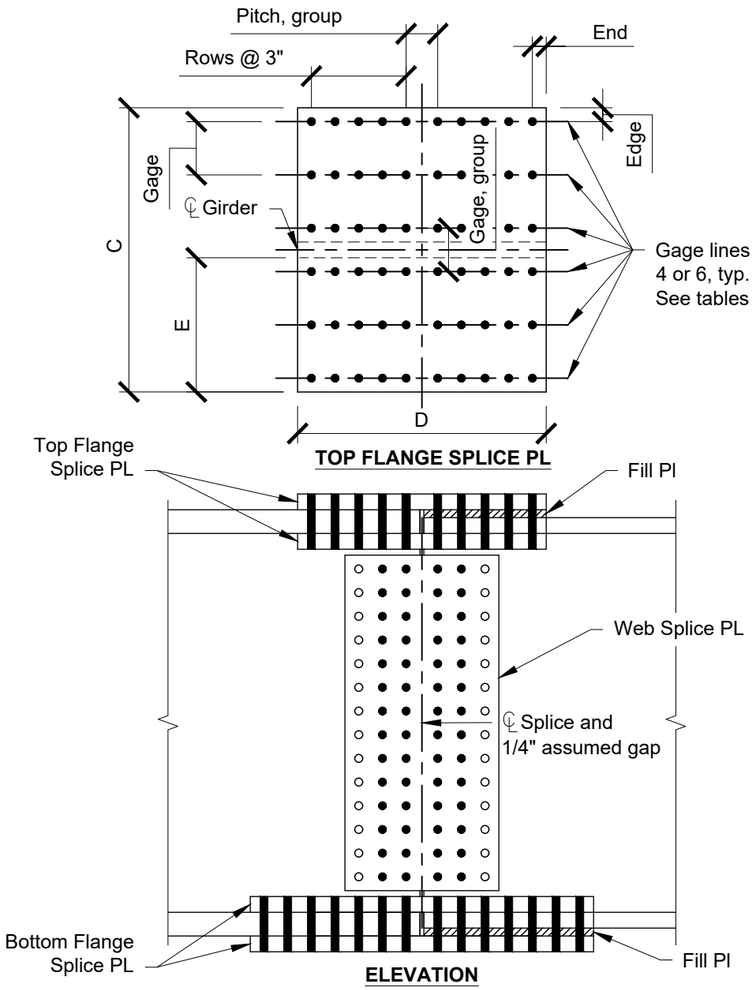




SOLID DIAPHRAGM DETAILS					
Beam Spacing, ft.	Span, ft.	Web Depth, in.	Channel Height, in.	Rows and Spacing	Bolt Diameter, in
14	117-150	55	44	6 @ 6.5 in.	7/8
	129-165	60	48	7 @ 6.25 in.	

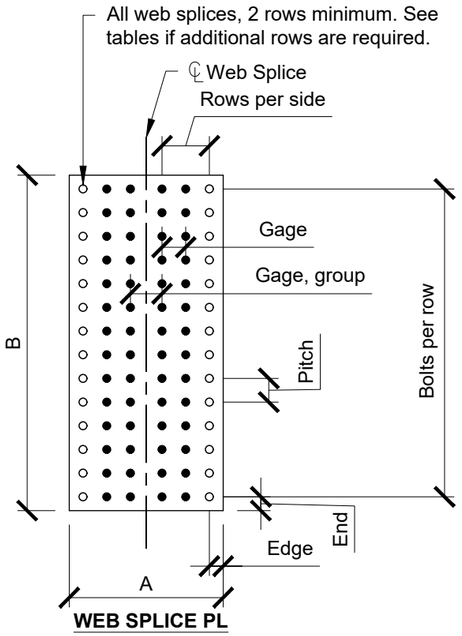
Bent Plate Diaphragm Typical Details

Notes:
1. For general notes, see sheet **Cross-Frame & Diaphragm Details 1**.

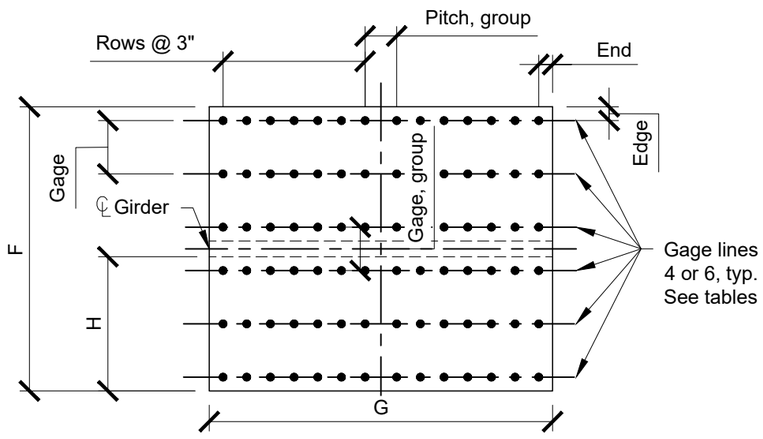


TOP FLANGE SPLICE PL

ELEVATION



WEB SPLICE PL



BOTTOM FLANGE SPLICE PL

NOTES:

All bolted field splices designed using NSBA Splice Version 03_15. Design assumptions listed below. For bolt quantity and plate dimensions, see Sheets **Bolted Field Splice Dimensions 1 - 4**.

1. Bolts F3125 Grade A325, Type 3 weathering, 1 in. diameter in 1.125 in. diameter holes. All plates A709 Grade 50W.
2. Threads excluded from flange shear planes. Threads included in web shear planes.
3. Class B surface condition for slip resistance.
4. For continuous spans in which "Splice 0" is used to control the field section lengths, a large moment must be carried by the web (AASHTO LRFD 6.13.6.1.3c). If the combined tension due to the bottom flange force plus the web force, H_w, exceeds the compression capacity of the slab, these splices are designed as noncomposite and noted in the design tables.
5. Top and bottom flange bolt group dimension, "Gage, Group" exceeds the 7 in. maximum spacing for sealing for some splices (AASHTO LRFD 6.13.2.6.2). This is due to girder tension flange net section requirements at the splice, the choice of 1 in. diameter bolts, and enforced symmetry requirements for the inner flange splice plates. The engineer may choose to accept the proposed designs, or redesign the splice. Solutions could include using asymmetric inner plates, staggered bolts, or smaller diameter fasteners. If additional and smaller diameter bolts are used to decrease the "Gage, Group" dimension, check the net section. See AASHTO LRFD 6.10.1.8.

BOLTED FIELD SPLICE LAYOUT

Issued January 2025
Revision 0

Spacing-Span	Web Splice Plates				Top Flange Plates, Outer				Top Flange Plates, Inner, 2 req'd.			Bottom Flange Plates, Outer				Bottom Flange Plates, Inner, 2 req'd.			Web Bolts					Top Flange Bolts					Bottom Flange Bolts					Composite Note
	Width, A	Length, B	Thk.	Edge / End Distance	Width, C	Length, D	Thk.	Edge / End Distance	Width, E	Length, D	Thk.	Width, F	Length, G	Thk.	Edge / End Distance	Width, H	Length, G	Thk.	Bolts per Row	Rows per Side	Pitch	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	
8-117-150 Splice 1	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	9	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-117-150 Splice 2	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	9	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-117-150 Splice 3	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	9	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-129-165 Splice 1	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	10	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-129-165 Splice 2	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	10	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-129-165 Splice 3	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	10	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-141-180 Splice 1	12.25	60.5	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	11	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-141-180 Splice 2	12.25	60.5	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	11	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-141-180 Splice 3	12.25	60.5	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	11	2	5.75	3	3.25	3	3.25	4	4	5	4	3.25	4	4	5	Composite
8-153-195 Splice 1	12.25	66.25	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	12	2	5.75	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-153-195 Splice 2	12.25	66.25	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	12	2	5.75	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-153-195 Splice 3	12.25	66.25	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	12	2	5.75	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-164-210 Splice 1	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	13	2	5.625	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-164-210 Splice 2	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	13	2	5.625	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-164-210 Splice 3	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	13	2	5.625	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-176-225 Splice 1	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	14	2	5.625	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-176-225 Splice 2	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	14	2	5.625	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-176-225 Splice 3	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	7.875	18.25	0.625	18	18.25	0.75	1.5 / 1.5	7.875	18.25	0.75	14	2	5.625	3	3.25	3	3.25	4	4.875	5.25	3	3.25	4	4.875	5.25	Composite
8-188-240 Splice 1	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	15	2	5.625	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-188-240 Splice 2	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	15	2	5.625	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-188-240 Splice 3	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	15	2	5.625	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-199-255 Splice 1	12.25	85.5	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	16	2	5.5	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-199-255 Splice 2	12.25	85.5	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	16	2	5.5	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-199-255 Splice 3	12.25	85.5	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	16	2	5.5	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-211-270 Splice 0	12.25	91.125	0.5	1.5 / 1.5	20	18.25	0.625	1.5 / 1.5	8.875	18.25	0.625	20	18.25	0.75	1.5 / 1.5	8.875	18.25	0.75	16	2	5.875	3	3.25	3	3.25	4	5.875	5.25	3	3.25	4	5.875	5.25	Composite
8-211-270 Splice 1	12.25	91.125	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	16	2	5.875	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-211-270 Splice 2	12.25	91.125	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	16	2	5.875	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-211-270 Splice 3	12.25	91.125	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	8.875	24.25	0.625	20	24.25	0.75	1.5 / 1.5	8.875	24.25	0.75	16	2	5.875	3	3.25	4	3.25	4	5.875	5.25	4	3.25	4	5.875	5.25	Composite
8-223-285 Splice 0	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	17	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite
8-223-285 Splice 1	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	17	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite
8-223-285 Splice 2	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	17	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite
8-223-285 Splice 3	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	17	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite
8-234-300 Splice 0	12.25	102.875	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	18	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite
8-234-300 Splice 1	12.25	102.875	0.5	1.5 / 1.5	24	30.25	0.75	1.5 / 1.5	10	30.25	0.75	24	30.25	0.75	1.5 / 1.5	10	30.25	0.75	18	2	5.875	3	3.25	5	3.25	4	7	7	5	3.25	4	7	7	Composite
8-234-300 Splice 2	12.25	102.875	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	18	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite
8-234-300 Splice 3	12.25	102.875	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	22	24.25	0.75	1.5 / 1.5	9.875	24.25	0.75	18	2	5.875	3	3.25	4	3.25	4	6.875	5.25	4	3.25	4	6.875	5.25	Composite

8 FT SPACING - 4 SPAN

NOTES:

1. All dimensions / spacing shown in tables in inch units.

Spacing-Span	Web Splice Plates				Top Flange Plates, Outer				Top Flange Plates, Inner, 2 req'd.			Bottom Flange Plates, Outer				Bottom Flange Plates, Inner, 2 req'd.			Web Bolts					Top Flange Bolts					Bottom Flange Bolts					Composite Note
	Width, A	Length, B	Thk.	Edge / End Distance	Width, C	Length, D	Thk.	Edge / End Distance	Width, E	Length, D	Thk.	Width, F	Length, G	Thk.	Edge / End Distance	Width, H	Length, G	Thk.	Bolts per Row	Rows per Side	Pitch	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	
10-117-150 Splice 1	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	18	30.25	1.125	1.5 / 1.5	8	30.25	1.125	9	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	5	5	Composite
10-117-150 Splice 2	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	36.25	1.125	1.5 / 1.5	10	36.25	1.125	9	2	5.75	3	3.25	3	3.25	4	4	5	6	3.25	4	7	5	Composite
10-117-150 Splice 3	12.25	49	0.5	1.5 / 1.5	16	24.25	0.625	1.5 / 1.5	7	24.25	0.625	18	30.25	1.125	1.5 / 1.5	8	30.25	1.125	9	2	5.75	3	3.25	4	3.25	4	4	5	5	3.25	4	5	5	Composite
10-129-165 Splice 1	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	18	36.25	1	1.5 / 1.5	8	36.25	1	10	2	5.75	3	3.25	3	3.25	4	4	5	6	3.25	4	5	5	Composite
10-129-165 Splice 2	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	18	36.25	1	1.5 / 1.5	8	36.25	1	10	2	5.75	3	3.25	3	3.25	4	4	5	6	3.25	4	5	5	Composite
10-129-165 Splice 3	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	18	36.25	1	1.5 / 1.5	8	36.25	1	10	2	5.75	3	3.25	3	3.25	4	4	5	6	3.25	4	5	5	Composite
10-141-180 Splice 1	12.25	60.5	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	11	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	6	5	Composite
10-141-180 Splice 2	12.25	60.5	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	11	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	6	5	Composite
10-141-180 Splice 3	12.25	60.5	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	11	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	6	5	Composite
10-153-195 Splice 1	12.25	69	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	13	2	5.5	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-153-195 Splice 2	12.25	69	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	13	2	5.5	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-153-195 Splice 3	12.25	69	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	13	2	5.5	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-164-210 Splice 1	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	13	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-164-210 Splice 2	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	13	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-164-210 Splice 3	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	13	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-176-225 Splice 1	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	14	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-176-225 Splice 2	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	14	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-176-225 Splice 3	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	14	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	6	5	Composite
10-188-240 Splice 1	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	15	2	5.625	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
10-188-240 Splice 2	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	24.25	0.875	1.5 / 1.5	9	24.25	0.875	15	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	4	6	5	Composite
10-188-240 Splice 3	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	24.25	0.875	1.5 / 1.5	9	24.25	0.875	15	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	4	6	5	Composite
10-199-255 Splice 1	12.25	87	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	15	2	6	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
10-199-255 Splice 2	12.25	87	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	24.25	0.875	1.5 / 1.5	9	24.25	0.875	15	2	6	3	3.25	4	3.25	4	6	5	4	3.25	4	6	5	Composite
10-199-255 Splice 3	12.25	87	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	24.25	0.875	1.5 / 1.5	9	24.25	0.875	15	2	6	3	3.25	4	3.25	4	6	5	4	3.25	4	6	5	Composite
10-211-270 Splice 0	12.25	91	0.5	1.5 / 1.5	20	18.25	0.625	1.5 / 1.5	9	18.25	0.625	22	24.25	0.875	1.5 / 1.5	10	24.25	0.875	17	2	5.5	3	3.25	3	3.25	4	6	5	4	3.25	4	7	5	Composite
10-211-270 Splice 1	12.25	91.125	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	22	30.25	0.875	1.5 / 1.5	10	30.25	0.875	16	2	5.875	3	3.25	4	3.25	4	6	5	5	3.25	4	7	5	Composite
10-211-270 Splice 2	12.25	91.125	0.5	1.5 / 1.5	26	18.25	0.75	1.5 / 1.5	12	18.25	0.75	26	24.25	1	1.5 / 1.5	12	24.25	1	16	2	5.875	3	3.25	3	3.25	6	4.5	5	4	3.25	6	4.5	5	Composite
10-211-270 Splice 3	12.25	91.125	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	20	30.25	1	1.5 / 1.5	9	30.25	1	16	2	5.875	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
10-223-285 Splice 0	12.25	96.5	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	10	24.25	0.75	22	24.25	0.875	1.5 / 1.5	10	24.25	0.875	18	2	5.5	3	3.25	4	3.25	4	7	5	4	3.25	4	7	5	Composite
10-223-285 Splice 1	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	10	24.25	0.75	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	17	2	5.875	3	3.25	4	3.25	4	7	5	5	3.25	4	7	5	Composite
10-223-285 Splice 2	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	10	24.25	0.75	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	17	2	5.875	3	3.25	4	3.25	4	7	5	5	3.25	4	7	5	Composite
10-223-285 Splice 3	12.25	97	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	17	2	5.875	3	3.25	5	3.25	4	7	5	5	3.25	4	7	5	Composite
10-234-300 Splice 0	12.25	102.875	0.5	1.5 / 1.5	24	24.25	0.75	1.5 / 1.5	10	24.25	0.75	24	30.25	0.75	1.5 / 1.5	10	30.25	0.75	18	2	5.875	3	3.25	4	3.25	4	7	7	5	3.25	4	7	7	Composite
10-234-300 Splice 1	14.25	103	0.5	2 / 2	24	18.25	0.75	1.5 / 1.5	11	18.25	0.75	24	24.25	0.875	1.5 / 1.5	11	24.25	0.875	19	2	5.5	3	4.25	3	3.25	6	4	5	4	3.25	6	4	5	Composite
10-234-300 Splice 2	12.25	102.875	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	10	24.25	0.75	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	18	2	5.875	3	3.25	4	3.25	4	7	5	5	3.25	4	7	5	Composite
10-234-300 Splice 3	12.25	102.875	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	18	2	5.875	3	3.25	5	3.25	4	7	5	5	3.25	4	7	5	Composite

10 FT SPACING - 4 SPAN

NOTES:

1. All dimensions / spacing shown in tables in inch units.

Spacing-Span	Web Splice Plates				Top Flange Plates, Outer				Top Flange Plates, Inner, 2 req'd.			Bottom Flange Plates, Outer				Bottom Flange Plates, Inner, 2 req'd.			Web Bolts					Top Flange Bolts					Bottom Flange Bolts					Composite Note
	Width, A	Length, B	Thk.	Edge / End Distance	Width, C	Length, D	Thk.	Edge / End Distance	Width, E	Length, D	Thk.	Width, F	Length, G	Thk.	Edge / End Distance	Width, H	Length, G	Thk.	Bolts per Row	Rows per Side	Pitch	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	
12-117-150 Splice 1	12.25	48	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	1	1.5 / 1.5	10	30.25	1	9	2	5.625	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-117-150 Splice 2	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	9	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-117-150 Splice 3	12.25	49	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	9	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-129-165 Splice 1	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	10	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-129-165 Splice 2	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	10	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-129-165 Splice 3	12.25	54.75	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	10	2	5.75	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-141-180 Splice 1	12.25	62.125	0.5	1.5 / 1.5	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	12	2	5.375	3	3.25	4	3.25	4	4	5	5	3.25	4	7	5	Composite
12-141-180 Splice 2	12.25	62.125	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	12	2	5.375	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-141-180 Splice 3	12.25	62.125	0.5	1.5 / 1.5	16	18.25	0.625	1.5 / 1.5	7	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	12	2	5.375	3	3.25	3	3.25	4	4	5	5	3.25	4	7	5	Composite
12-153-195 Splice 1	12.25	69	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	0.875	1.5 / 1.5	10	30.25	0.875	12	2	6	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-153-195 Splice 2	12.25	69	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	24.25	0.75	1.5 / 1.5	10	24.25	0.75	13	2	5.5	3	3.25	3	3.25	4	5	5	4	3.25	4	7	5	Composite
12-153-195 Splice 3	12.25	69	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	24.25	0.75	1.5 / 1.5	10	24.25	0.75	13	2	5.5	3	3.25	3	3.25	4	5	5	4	3.25	4	7	5	Composite
12-164-210 Splice 1	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	1	1.5 / 1.5	10	30.25	1	13	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-164-210 Splice 2	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	1	1.5 / 1.5	10	30.25	1	13	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-164-210 Splice 3	12.25	70.5	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	1	1.5 / 1.5	10	30.25	1	13	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-176-225 Splice 1	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	1	1.5 / 1.5	10	30.25	1	14	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-176-225 Splice 2	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	14	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-176-225 Splice 3	12.25	76.125	0.5	1.5 / 1.5	18	18.25	0.625	1.5 / 1.5	8	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	14	2	5.625	3	3.25	3	3.25	4	5	5	5	3.25	4	7	5	Composite
12-188-240 Splice 1	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	15	2	5.625	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-188-240 Splice 2	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	15	2	5.625	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-188-240 Splice 3	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	15	2	5.625	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-199-255 Splice 1	12.25	87	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.875	1.5 / 1.5	9	30.25	0.875	15	2	6	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-199-255 Splice 2	12.25	85.5	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	16	2	5.5	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-199-255 Splice 3	12.25	85.5	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	16	2	5.5	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-211-270 Splice 0	12.25	93	0.5	1.5 / 1.5	20	18.25	0.625	1.5 / 1.5	9	18.25	0.625	22	30.25	0.75	1.5 / 1.5	10	30.25	0.75	17	2	5.625	3	3.25	3	3.25	4	6	5	5	3.25	4	7	5	Composite
12-211-270 Splice 1	12.25	92.25	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	22	30.25	1	1.5 / 1.5	10	30.25	1	18	2	5.25	3	3.25	4	3.25	4	6	5	5	3.25	4	7	5	Composite
12-211-270 Splice 2	12.25	89.25	0.5	1.5 / 1.5	22	30.25	0.875	1.5 / 1.5	9	30.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	16	2	5.75	3	3.25	5	3.25	4	6	7	4	3.25	6	3.5	7	Composite
12-211-270 Splice 3	12.25	93	0.5	1.5 / 1.5	20	24.25	0.625	1.5 / 1.5	9	24.25	0.625	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	17	2	5.625	3	3.25	4	3.25	4	6	5	5	3.25	4	6	5	Composite
12-223-285 Splice 0	12.25	97	0.5	1.5 / 1.5	22	24.25	0.75	1.5 / 1.5	9	24.25	0.75	24	30.25	0.875	1.5 / 1.5	10	30.25	0.875	17	2	5.875	3	3.25	4	3.25	4	6	7	5	3.25	4	7	7	Composite
12-223-285 Splice 1	12.25	96.5	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	9	30.25	0.75	24	36.25	0.75	1.5 / 1.5	10	36.25	0.75	18	2	5.5	3	3.25	5	3.25	4	6	7	6	3.25	4	7	7	Composite
12-223-285 Splice 2	12.25	97	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	9	30.25	0.75	22	30.25	0.875	1.5 / 1.5	9	30.25	0.875	17	2	5.875	3	3.25	5	3.25	4	6	7	5	3.25	4	6	7	Composite
12-223-285 Splice 3	12.25	97	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	9	30.25	0.75	22	30.25	0.875	1.5 / 1.5	9	30.25	0.875	17	2	5.875	3	3.25	5	3.25	4	6	7	5	3.25	4	6	7	Composite
12-234-300 Splice 0	12.25	102.875	0.5	1.5 / 1.5	24	24.25	0.75	1.5 / 1.5	10	24.25	0.75	24	30.25	0.875	1.5 / 1.5	10	30.25	0.875	18	2	5.875	3	3.25	4	3.25	4	7	7	5	3.25	4	7	7	Composite
12-234-300 Splice 1	12.25	103	0.5	1.5 / 1.5	24	24.25	0.875	1.5 / 1.5	10	24.25	0.875	24	24.25	0.875	1.5 / 1.5	10	24.25	0.875	21	2	5	3	3.25	4	3.25	6	3.5	7	4	3.25	6	3.5	7	Composite
12-234-300 Splice 2	12.25	102	0.5	1.5 / 1.5	22	24.25	0.875	1.5 / 1.5	9	24.25	0.875	24	24.25	0.875	1.5 / 1.5	10	24.25	0.875	19	2	5.5	3	3.25	4	3.25	6	3	7	4	3.25	6	3.5	7	Composite
12-234-300 Splice 3	12.25	102.875	0.5	1.5 / 1.5	22	24.25	0.875	1.5 / 1.5	9	24.25	0.875	24	24.25	0.875	1.5 / 1.5	10	24.25	0.875	18	2	5.875	3	3.25	4	3.25	6	3	7	4	3.25	6	3.5	7	Composite

12 FT SPACING - 4 SPAN

NOTES:

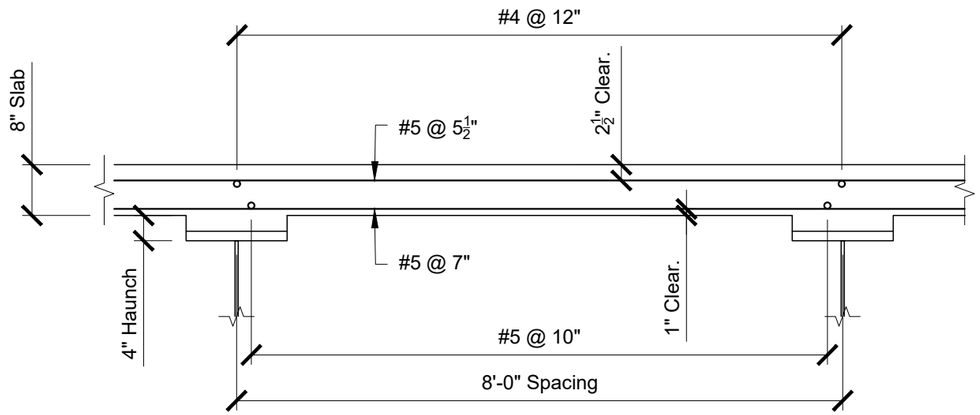
1. All dimensions / spacing shown in tables in inch units.

Spacing-Span	Web Splice Plates				Top Flange Plates, Outer				Top Flange Plates, Inner, 2 req'd.			Bottom Flange Plates, Outer				Bottom Flange Plates, Inner, 2 req'd.			Web Bolts					Top Flange Bolts					Bottom Flange Bolts					Composite Note
	Width, A	Length, B	Thk.	Edge / End Distance	Width, C	Length, D	Thk.	Edge / End Distance	Width, E	Length, D	Thk.	Width, F	Length, G	Thk.	Edge / End Distance	Width, H	Length, G	Thk.	Bolts per Row	Rows per Side	Pitch	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	Num Rows Ea Side	Pitch, group	Gage Lines	Gage	Gage, group	
14-117-150 Splice 1	12.25	48	0.5	1.5 / 1.5	16	18.25	0.75	1.5 / 1.5	7	18.25	0.75	22	24.25	1	1.5 / 1.5	10	24.25	1	9	2	5.625	3	3.25	3	3.25	4	4	5	4	3.25	6	3.5	5	Composite
14-117-150 Splice 2	12.25	48	0.5	1.5 / 1.5	18	24.25	0.75	1.5 / 1.5	8	24.25	0.75	22	18.25	1	1.5 / 1.5	10	18.25	1	9	2	5.625	3	3.25	4	3.25	4	5	5	3	3.25	6	3.5	5	Composite
14-117-150 Splice 3	12.25	48	0.5	1.5 / 1.5	18	24.25	0.75	1.5 / 1.5	8	24.25	0.75	22	18.25	1	1.5 / 1.5	10	18.25	1	9	2	5.625	3	3.25	4	3.25	4	5	5	3	3.25	6	3.5	5	Composite
14-129-165 Splice 1	12.25	54.75	0.5	1.5 / 1.5	18	24.25	0.75	1.5 / 1.5	8	24.25	0.75	22	24.25	1	1.5 / 1.5	10	24.25	1	10	2	5.75	3	3.25	4	3.25	4	5	5	4	3.25	6	3.5	5	Composite
14-129-165 Splice 2	12.25	54.75	0.5	1.5 / 1.5	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	22	18.25	1	1.5 / 1.5	10	18.25	1	10	2	5.75	3	3.25	4	3.25	4	4	5	3	3.25	6	3.5	5	Composite
14-129-165 Splice 3	12.25	54.75	0.5	1.5 / 1.5	16	24.25	0.75	1.5 / 1.5	7	24.25	0.75	22	18.25	1	1.5 / 1.5	10	18.25	1	10	2	5.75	3	3.25	4	3.25	4	4	5	3	3.25	6	3.5	5	Composite
14-141-180 Splice 1	12.25	60.5	0.5	1.5 / 1.5	18	24.25	0.75	1.5 / 1.5	8	24.25	0.75	22	24.25	1	1.5 / 1.5	10	24.25	1	11	2	5.75	3	3.25	4	3.25	4	5	5	4	3.25	6	3.5	5	Composite
14-141-180 Splice 2	12.25	60.5	0.5	1.5 / 1.5	18	18.25	0.75	1.5 / 1.5	8	18.25	0.75	22	24.25	1	1.5 / 1.5	10	24.25	1	11	2	5.75	3	3.25	3	3.25	4	5	5	4	3.25	6	3.5	5	Composite
14-141-180 Splice 3	12.25	60.5	0.5	1.5 / 1.5	18	18.25	0.75	1.5 / 1.5	8	18.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	11	2	5.75	3	3.25	3	3.25	4	5	5	4	3.25	6	3.5	5	Composite
14-153-195 Splice 1	12.25	66.25	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	12	2	5.75	3	3.25	4	3.25	4	6	5	4	3.25	6	3.5	5	Composite
14-153-195 Splice 2	12.25	66.25	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	12	2	5.75	3	3.25	4	3.25	4	6	5	4	3.25	6	3.5	5	Composite
14-153-195 Splice 3	12.25	66.25	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	12	2	5.75	3	3.25	4	3.25	4	6	5	4	3.25	6	3.5	5	Composite
14-164-210 Splice 1	12.25	70.5	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	13	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	6	3.5	5	Composite
14-164-210 Splice 2	12.25	70.5	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	22	18.25	1.125	1.5 / 1.5	10	18.25	1.125	13	2	5.625	3	3.25	4	3.25	4	6	5	3	3.25	6	3.5	5	Composite
14-164-210 Splice 3	12.25	70.5	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	22	18.25	1.125	1.5 / 1.5	10	18.25	1.125	13	2	5.625	3	3.25	4	3.25	4	6	5	3	3.25	6	3.5	5	Composite
14-176-225 Splice 1	12.25	76.125	0.5	1.5 / 1.5	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	14	2	5.625	3	3.25	5	3.25	4	6	5	4	3.25	6	3.5	5	Composite
14-176-225 Splice 2	12.25	76.125	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	24	24.25	1.125	1.5 / 1.5	11	24.25	1.125	14	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	6	4	5	Composite
14-176-225 Splice 3	12.25	76.125	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	24	24.25	1.125	1.5 / 1.5	11	24.25	1.125	14	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	6	4	5	Composite
14-188-240 Splice 1	12.25	81.75	0.5	1.5 / 1.5	20	30.25	0.75	1.5 / 1.5	9	30.25	0.75	22	24.25	1.125	1.5 / 1.5	10	24.25	1.125	15	2	5.625	3	3.25	5	3.25	4	6	5	4	3.25	6	3.5	5	Composite
14-188-240 Splice 2	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	24	24.25	1.125	1.5 / 1.5	11	24.25	1.125	15	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	6	4	5	Composite
14-188-240 Splice 3	12.25	81.75	0.5	1.5 / 1.5	20	24.25	0.75	1.5 / 1.5	9	24.25	0.75	24	24.25	1.125	1.5 / 1.5	11	24.25	1.125	15	2	5.625	3	3.25	4	3.25	4	6	5	4	3.25	6	4	5	Composite
14-199-255 Splice 1	12.25	85.25	0.5	1.5 / 1.5	24	18.25	0.75	1.5 / 1.5	11	18.25	0.75	24	24.25	1	1.5 / 1.5	11	24.25	1	15	2	5.875	3	3.25	3	3.25	6	4	5	4	3.25	6	4	5	Composite
14-199-255 Splice 2	12.25	85.25	0.5	1.5 / 1.5	22	18.25	0.75	1.5 / 1.5	10	18.25	0.75	24	24.25	1	1.5 / 1.5	11	24.25	1	15	2	5.875	3	3.25	3	3.25	6	3.5	5	4	3.25	6	4	5	Composite
14-199-255 Splice 3	12.25	85.25	0.5	1.5 / 1.5	22	18.25	0.75	1.5 / 1.5	10	18.25	0.75	24	24.25	1	1.5 / 1.5	11	24.25	1	15	2	5.875	3	3.25	3	3.25	6	3.5	5	4	3.25	6	4	5	Composite
14-211-270 Splice 0	12.25	90.75	0.5	1.5 / 1.5	24	30.25	0.75	1.5 / 1.5	10	30.25	0.75	24	36.25	1	1.5 / 1.5	10	36.25	1	19	2	4.875	3	3.25	5	3.25	4	7	7	6	3.25	4	7	7	Composite
14-211-270 Splice 1	12.25	89.25	0.5	1.5 / 1.5	24	24.25	0.875	1.5 / 1.5	10	24.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	16	2	5.75	3	3.25	4	3.25	6	3.5	7	4	3.25	6	3.5	7	Composite
14-211-270 Splice 2	12.25	89.25	0.5	1.5 / 1.5	22	30.25	0.875	1.5 / 1.5	9	30.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	16	2	5.75	3	3.25	5	3.25	4	6	7	4	3.25	6	3.5	7	Composite
14-211-270 Splice 3	12.25	89.25	0.5	1.5 / 1.5	22	30.25	0.875	1.5 / 1.5	9	30.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	16	2	5.75	3	3.25	5	3.25	4	6	7	4	3.25	6	3.5	7	Composite
14-223-285 Splice 0	12.25	100.375	0.5	1.5 / 1.5	24	24.25	0.75	1.5 / 1.5	10	24.25	0.75	24	30.25	1	1.5 / 1.5	10	30.25	1	20	2	5.125	3	3.25	4	3.25	4	7	7	5	3.25	4	7	7	Composite
14-223-285 Splice 1	12.25	100.75	0.5	1.5 / 1.5	24	30.25	0.75	1.5 / 1.5	10	30.25	0.75	24	24.25	1	1.5 / 1.5	10	24.25	1	18	2	5.75	3	3.25	5	3.25	4	7	7	4	3.25	6	3.5	7	Composite
14-223-285 Splice 2	12.25	100.75	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	9	30.25	0.75	24	24.25	1	1.5 / 1.5	10	24.25	1	18	2	5.75	3	3.25	5	3.25	4	6	7	4	3.25	6	3.5	7	Composite
14-223-285 Splice 3	12.25	100.75	0.5	1.5 / 1.5	22	30.25	0.75	1.5 / 1.5	9	30.25	0.75	24	24.25	1	1.5 / 1.5	10	24.25	1	18	2	5.75	3	3.25	5	3.25	4	6	7	4	3.25	6	3.5	7	Composite
14-234-300 Splice 0	12.25	103	0.5	1.5 / 1.5	24	30.25	0.875	1.5 / 1.5	10	30.25	0.875	24	30.25	1	1.5 / 1.5	10	30.25	1	21	2	5	3	3.25	5	3.25	4	7	7	5	3.25	4	7	7	Composite
14-234-300 Splice 1	12.25	103	0.5	1.5 / 1.5	24	24.25	0.875	1.5 / 1.5	10	24.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	26	2	4	3	3.25	4	3.25	6	3.5	7	4	3.25	6	3.5	7	Composite
14-234-300 Splice 2	12.25	104.25	0.5	1.5 / 1.5	22	24.25	0.875	1.5 / 1.5	9	24.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	19	2	5.625	3	3.25	4	3.25	6	3	7	4	3.25	6	3.5	7	Composite
14-234-300 Splice 3	12.25	104.25	0.5	1.5 / 1.5	22	24.25	0.875	1.5 / 1.5	9	24.25	0.875	24	24.25	1	1.5 / 1.5	10	24.25	1	19	2	5.625	3	3.25	4	3.25	6	3	7	4	3.25	6	3.5	7	Composite

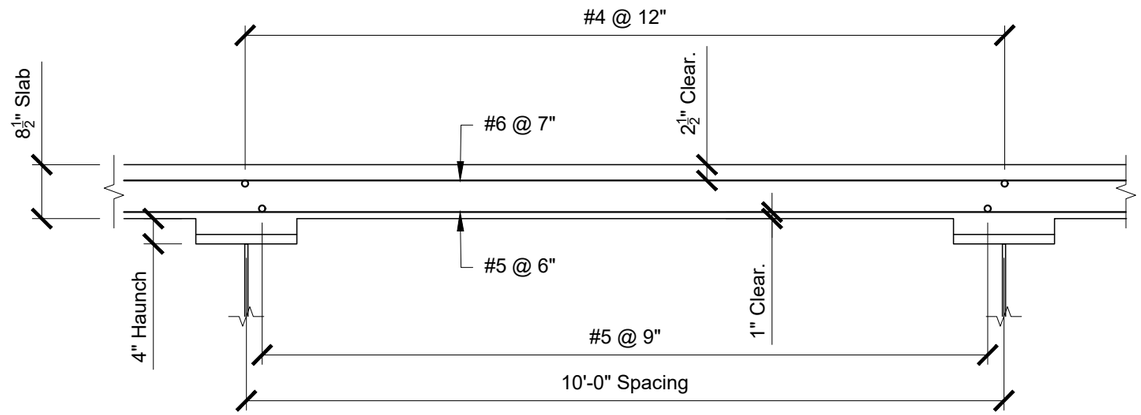
14 FT SPACING - 4 SPAN

NOTES:

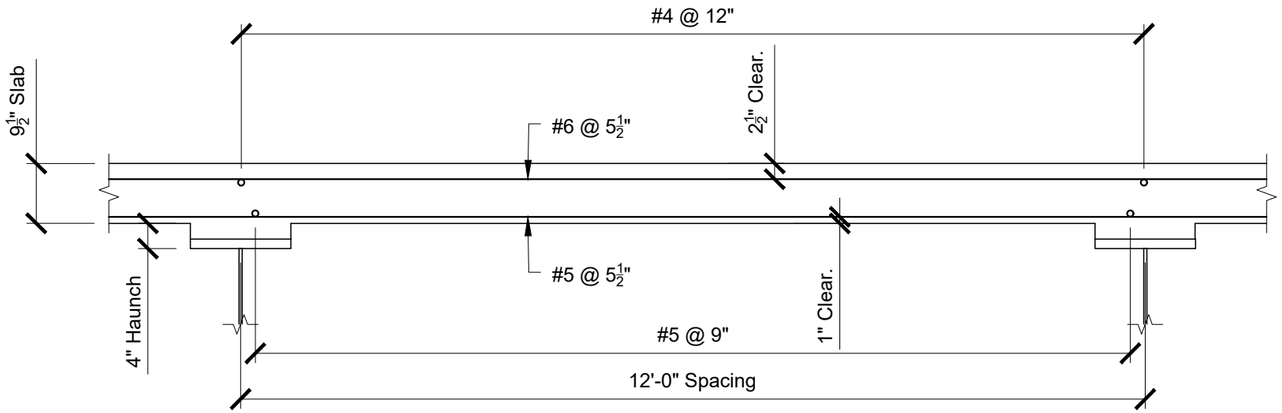
1. All dimensions / spacing shown in tables in inch units.



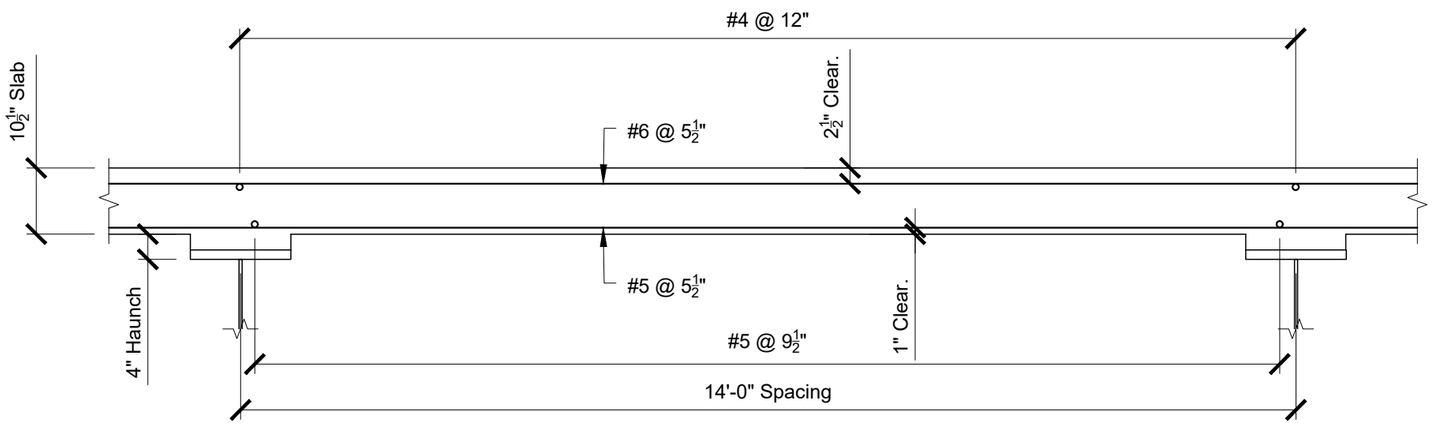
8 FT SPACING



10 FT SPACING



12 FT SPACING



14 FT SPACING

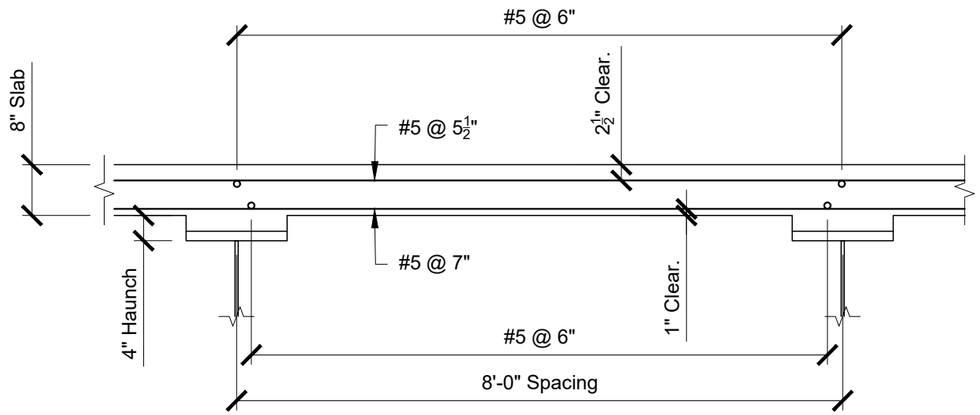
DECK DESIGN NOTES

1. Deck details are representative of slab designs for the beam spacings used in these plans.
2. The gross thickness shown is used for weight calculations. Structural capacity assumes a 1/2 in. loss in deck thickness due to wear.
3. The details on this sheet are for positive moment regions of the span and represent an acceptable transverse and longitudinal reinforcing steel design complying with AASHTO LRFD 9.7.3.
4. The slab thickness, cover, bar sizes and spacing are based on decks designed using the AASHTO equivalent strip method.

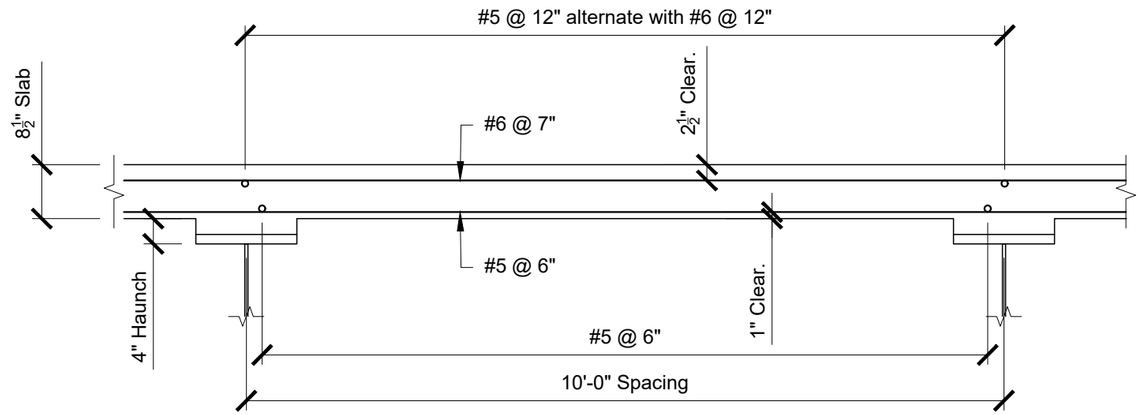
DECK DETAILS

Simple Spans and Positive Moment Region of Continuous Spans

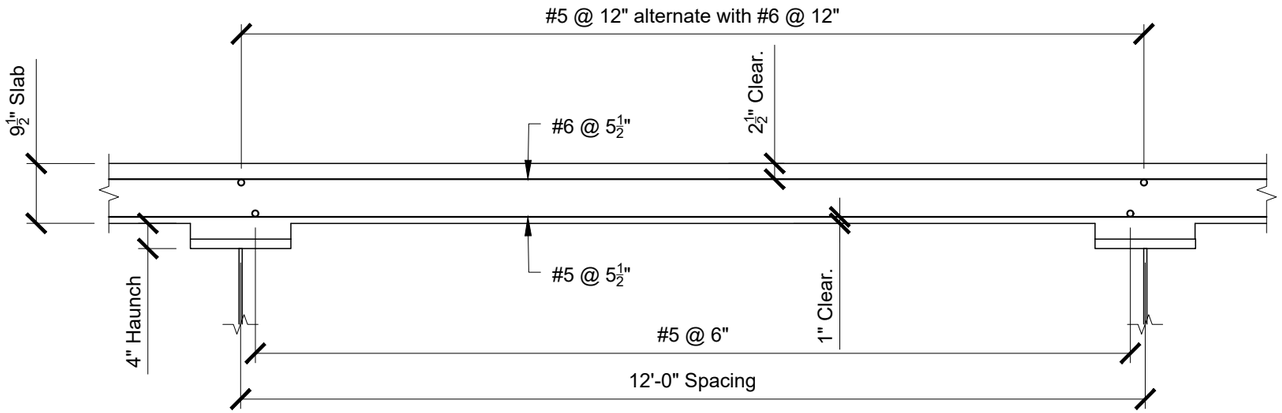
Issued January 2025
Revision 0



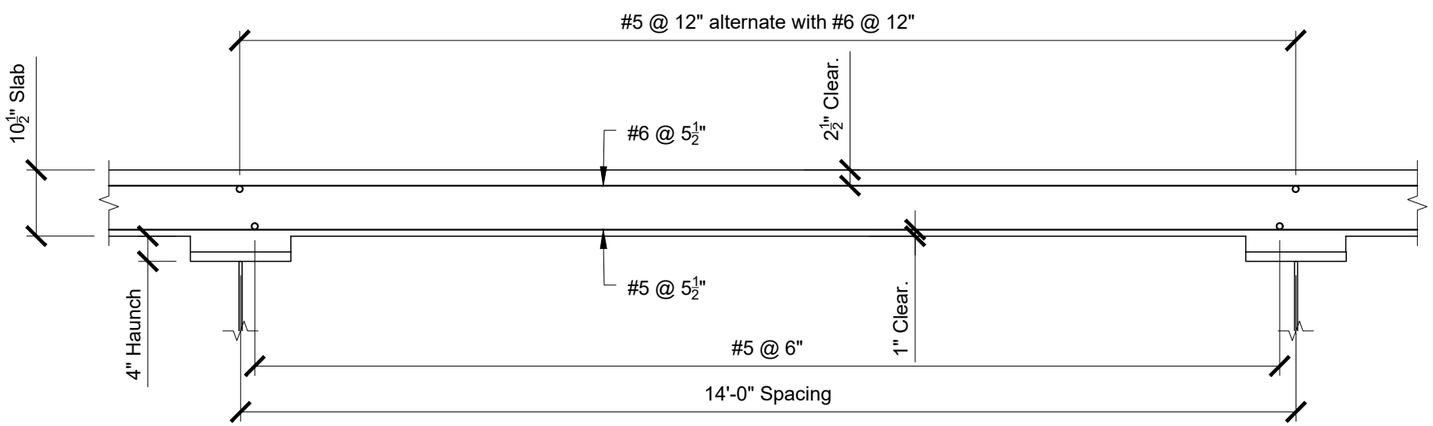
8 FT SPACING



10 FT SPACING



12 FT SPACING



14 FT SPACING

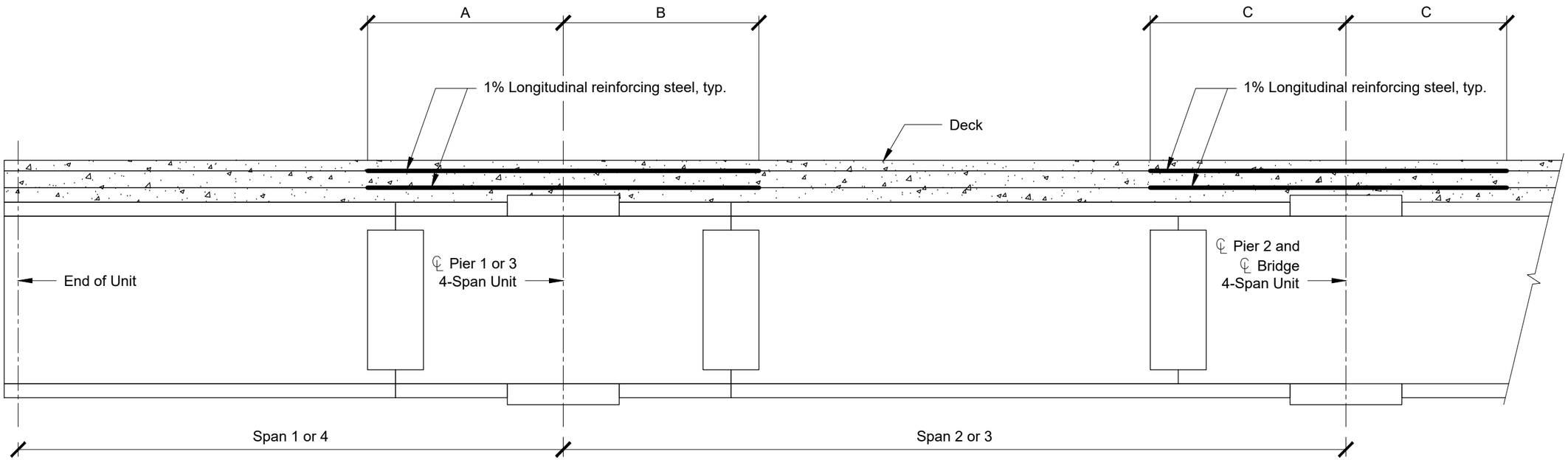
DECK DESIGN NOTES

1. Deck details are representative of slab designs for the beam spacings used in these plans.
2. The gross thickness shown is used for weight calculations. Structural capacity assumes a 1/2 in. loss in deck thickness due to wear.
3. The details on this sheet are for negative moment regions of the span and represent an acceptable longitudinal reinforcing steel design complying with AASHTO LRFD 6.10.1.7.
4. The slab thickness, cover, bar sizes and spacing are based on decks designed using the AASHTO equivalent strip method.
5. Because owner policies and preferences for deck detailing vary, the negative moment region longitudinal reinforcing steel used for the beam designs is assumed to be 1%. The specific bar patterns in these plans are not used in design. The bar pattern in these plans was used to estimate the c.g. of the longitudinal reinforcing steel for negative moment region girder design.
6. See Sheet 32 **Deck Details Longitudinal Steel Termination** for cutoff limits.

DECK DETAILS

Continuous Spans
Negative Moment Regions

Issued January 2025
Revision 0



LONGITUDINAL REINFORCING STEEL TERMINATION LIMITS

Notes:

1. Dimension "A" defines the limit of required one percent longitudinal reinforcing steel extending from Pier 1 or 3 into either Span 1 or 4.
2. Dimension "B" defines the limit of required one percent longitudinal reinforcing steel extending from Pier 1 or 3 into Span 2 or 3.
3. Dimension "C" defines the limit of required one percent longitudinal reinforcing steel extending symmetrically from Pier 2 into Spans 2 and 3.
4. Dimensions "A" through "C" are at a minimum the distance to each field splice or as required by Note (5) below.
5. Longitudinal reinforcing steel is designed to meet the requirements of Service II Limit State, AASHTO LRFD 6.10.1.7 in the completed bridge only. The cutoff locations are approximate and are to be refined in final design.
6. Designer to determine if the factored deck casting and construction loads require this reinforcing steel to be extended.
7. For beam design, the longitudinal reinforcing steel was assumed to be exactly one percent and meeting the preferred two-thirds top mat placement. Sample reinforcing patterns for the positive and negative moment region longitudinal reinforcing steel are provided in the Deck Details, Sheet 30 and 31.

1% Longitudinal Steel, Distances A, B, and C, ft. Versus Beam Spacing, ft.								
Span, ft.	8 ft.			10 ft.			12 ft.			14 ft.		
End-Int.-End	Length A, B, C			Length A, B, C			Length A, B, C			Length A, B, C		
117-150-150-117	43	38	46	38	38	40	38	38	40	38	38	38
129-165-165-129	44	40	49	43	40	43	40	40	40	40	40	41
141-180-180-141	53	45	47	48	43	46	43	43	43	43	43	45
153-195-195-153	58	49	58	52	47	53	51	47	53	47	47	47
164-210-210-164	62	56	64	60	51	60	59	51	59	59	51	57
176-225-225-176	67	61	65	67	56	64	65	54	65	64	54	61
188-240-240-188	71	64	70	69	61	72	71	61	69	68	58	66
199-255-255-199	74	69	74	74	67	74	75	67	73	73	61	71
211-270-270-211	78	69	84	78	68	84	78	72	84	78	68	80
223-285-285-223	82	78	85	82	78	85	90	78	85	82	78	81
234-300-300-234	86	90	93	86	90	93	86	90	93	76	90	77

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