COMPOSITE PLATE GIRDERS (9' GIRDER SPACING, 0 DEGREE SKEW)

SPAN LENGTH	DIAPHRAGM SPACING	PLATE GIRDER SIZE			SHEAR CONNECTOR MAX. SPACING		TABLE NOTES
		TOP FLANGE PLATE	WEB PLATE	BOT FLANGE PLATE	(D)	(E)	
60	20.00	14 x 0.750	28 x 0.5000	14 x 1.125	-	6	B,D
65	21.67	14 x 0.875	30 x 0.5000	16 x 1.000	52 @ 6	9	D
70	23.33	16 x 0.750	32 x 0.5000	16 x 1.125	56 @ 6	9	B,D
75	25.00	16 x 0.875	32 x 0.5000	16 x 1.375	60 @ 6	9	B,D
80	20.00	14 x 1.000	34 x 0.5000	16 x 1.375	64 @ 6	9	D
85	21.25	16 x 0.875	34 x 0.5000	18 x 1.375	68 @ 6	9	D
90	22.50	16 x 1.000	36 x 0.5000	18 x 1.500	54 @ 6	9	D
95	23.75	18 x 1.000	40 x 0.5000	20 x 1.250	38 @ 6	9	F
100	25.00	18 x 1.000	40 x 0.5000	20 x 1.375	20 @ 6	9	F
105	21.00	18 x 1.000	44 x 0.5000	18 x 1.500	22 @ 6	9	F
110	22.00	18 x 1.000	46 x 0.5000	20 x 1.375	-	9	F
115	23.00	18 x 1.000	46 x 0.5000	18 x 1.625	-	9	F
120	24.00	18 x 1.000	48 x 0.5000	20 x 1.500	-	9	F
125	25.00	18 x 1.000	50 x 0.5625	18 x 1.625	-	9	F
130	26.00	20 x 1.000	52 x 0.5625	20 x 1.500	-	9	F
135	27.00	20 x 1.000	54 x 0.5625	20 x 1.500	54 @ 9	12	F
140	28.00	20 x 1.000	58 x 0.5625	20 x 1.500	38 @ 9	12	F

COMPOSITE PLATE GIRDERS (9' GIRDER SPACING, 30 DEGREE SKEW)

SPAN LENGTH	DIAPHRAGM SPACING	PLATE GIRDER SIZE			SHEAR CONNECTOR MAX. SPACING		TABLE NOTES
		TOP FLANGE PLATE	WEB PLATE	BOT FLANGE PLATE	(D)	(E)	
60	20.00	16 x 1.000	32 x 0.5000	18 x 1.375	-	6	D
65	21.67	18 x 1.000	32 x 0.5000	18 x 1.625	66 @ 6	9	D
70	23.33	18 x 1.125	32 x 0.5000	18 x 1.875	70 @ 6	9	D
75	25.00	16 x 1.125	34 x 0.5000	18 x 1.625	76 @ 6	9	B,D
80	20.00	14 x 1.125	34 x 0.5000	18 x 2.000	-	6	B,D
85	21.25	14 x 1.125	36 x 0.5000	18 x 2.000	86 @ 6	9	B,D
90	22.50	16 x 1.125	36 x 0.5000	18 x 1.875	-	6	B,D
95	23.75	16 x 1.125	36 x 0.5000	18 x 1.875	-	6	B,D
100	25.00	18 x 1.000	40 x 0.5625	18 x 1.625	50 @ 6	9	F
105	21.00	18 x 1.000	40 x 0.5625	18 x 1.625	-	6	F
110	22.00	18 x 1.000	44 x 0.5625	18 x 1.500	88 @ 6	9	F
115	23.00	18 x 1.000	44 x 0.5000	20 x 1.500	-	6	F
120	24.00	18 x 1.000	48 x 0.5000	18 x 1.625	72 @ 6	9	F
125	25.00	18 x 1.000	52 x 0.5625	18 x 1.500	50 @ 6	9	F
130	26.00	20 x 1.000	54 x 0.5625	20 x 1.375	26 @ 6	9	F
135	27.00	20 x 1.000	56 x 0.5625	20 x 1.375	28 @ 6	9	F
140	28.00	20 x 1.000	58 x 0.5625	20 x 1.500	28 @ 6	9	B,F

TABLE NOTES:

A. SKEW INDEX EXCEEDS 0.30 ASSUMING 30° MAX SKEW

B. CONTRACTIBILITY OF THE EXTERIOR BEAM CONTROLS OVER ALL STRENGTH LIMIT STATES. A MORE THOROUGH EVALUATION MAY REDUCE BEAM SIZES.

C. LIVE LOAD DEFLECTION REQUIREMENTS CONTROL OVER ALL STRENGTH LIMIT STATES. A MORE THOROUGH EVALUATION MAY REDUCE BEAM SIZES.

D. DIAPHRAGMS ARE RECOMMENDED.

E. X SHAPED CROSSFRAMES ARE RECOMMENDED.

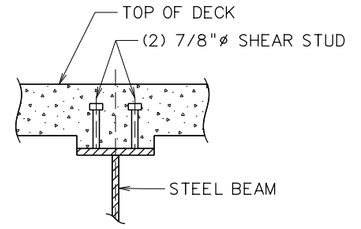
F. K SHAPED CROSSFRAMES ARE RECOMMENDED.

COMPOSITE ROLLED BEAMS (9 FT GIRDER SPACING, 0 DEGREE SKEW)

SPAN LENGTH	DIAPHRAGM SPACING	STANDARD DESIGN				OPTIONAL DESIGN			
		ROLLED SECTION	SHEAR CONNECTOR SPACING		TABLE NOTES	ROLLED SECTION	SHEAR CONNECTOR SPACING		TABLE NOTES
			(D)	(E)			(D)	(E)	
30	15.00	W30X90	30 @ 6	9	D				
35	17.50	W30X90	-	6	B,D				
40	20.00	W24X104	-	6	D				
45	22.50	W33X130	18 @ 6	9	B,D				
50	25.00	W27X146	-	6	D				
55	18.33	W27X146	-	6	D				
60	20.00	W36X150	36 @ 6	9	D				
65	21.67	W36X160	40 @ 6	9	D				
70	23.33	W36X182	56 @ 6	9	B,D				
75	25.00	W33X201	60 @ 6	9	D	W40X199	46 @ 6	9	F
80	20.00	W36X231	64 @ 6	9	D	W40X211	48 @ 6	9	F
85	21.25	W36X247	68 @ 6	9	D	W44X230	34 @ 6	9	F
90	22.50	W36X262	72 @ 6	9	D	W44X230	36 @ 6	9	F
95	23.75	W36X282	76 @ 6	9	D	W44X262	38 @ 6	9	F
100	25.00	W36X302	80 @ 6	9	D	W44X290	40 @ 6	9	F
105	21.00	W36X330	84 @ 6	9	D	W44X290	42 @ 6	9	F
110	22.00	W36X361	78 @ 6	9	D	W44X335	44 @ 6	9	F

COMPOSITE ROLLED BEAMS (9 FT GIRDER SPACING, 30 DEGREE SKEW)

SPAN LENGTH	DIAPHRAGM SPACING	STANDARD DESIGN				OPTIONAL DESIGN			
		ROLLED SECTION	SHEAR CONNECTOR SPACING		TABLE NOTES	ROLLED SECTION	SHEAR CONNECTOR SPACING		TABLE NOTES
			(D)	(E)			(D)	(E)	
30	15.00	W30X90	-	6	A,D				
35	17.50	W30X90	-	6	A,B,D				
40	20.00	W33X118	-	6	A,B,D				
45	22.50	W33X130	-	6	A,B,D				
50	25.00	W36X150	-	6	A,B,D				
55	18.33	W36X170	-	6	D	W40X167	44 @ 6	9	F
60	20.00	W36X210	-	6	D	W40X167	-	6	F
65	21.67	W36X231	66 @ 6	9	D	W40X183	66 @ 6	9	B,F
70	23.33	W36X262	70 @ 6	9	D	W40X199	70 @ 6	9	F
75	25.00	W36X282	76 @ 6	9	D	W40X215	76 @ 6	9	F
80	20.00	W36X302	-	6	D	W44X230	64 @ 6	9	F
85	21.25	W36X330	-	6	D	W44X230	68 @ 6	9	F
90	22.50	W36X361	-	6	D	W44X230	-	6	F
95	23.75	W36X361	-	6	D	W44X262	-	6	F
100	25.00	W36X395	-	6	D	W44X262	-	6	F
105	21.00	W36X395	-	6	D	W44X290	-	6	F
110	22.00	W36X395	-	6	D	W40X324	-	6	F



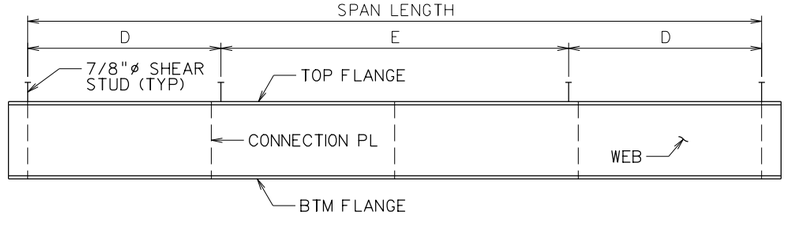
SHEAR STUD DETAIL

NOTES:

1. THE ENGINEER SHOULD NOTE THAT DATA WITHIN THE TABLES ARE BASED ON THE DESIGN METHODS NOTED ON STANDARD SHEETS 3300GN1 AND 3300GN2. DEVIATIONS FROM THE CRITERIA USED MAY NECESSITATE MODIFICATION TO THE BEAM SIZES.
2. THE ENGINEER, FABRICATOR, AND ERECTOR SHALL BE AWARE THAT THE BEAM ENDS MAY TWIST OR WARP DURING ERECTION. THE CONTRACTOR IS REQUIRED TO MAKE ANY CORRECTIONS BEFORE THE BEAMS ARE SECURED IN PLACE.
3. THE ENGINEER MAY USE PLATE SIZES OR ROLLED BEAMS LARGER THAN THOSE NOTED WITHIN THE TABLE GIVEN THE MOMENT OF INERTIA AND SECTION MODULUS IN BOTH AXIS ARE GREATER OR EQUAL TO THOSE SPECIFIED FOR BOTH THE NON-COMPOSITE AND COMPOSITE CASES AS APPLICABLE.
4. THE ENGINEER MAY SUBSTITUTE THREE (3) SHEAR STUDS PER ROW GIVEN THE TOTAL NUMBER OF SHEAR STUDS PER FOOT REMAINS EQUAL OR GREATER AND ALL MINIMUM SPACING'S NOTED WITHIN AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS ARE MET WITHOUT FURTHER EVALUATION.
5. THE ENGINEER SHOULD VERIFY AVAILABILITY OF ROLLED BEAMS LARGER THAN W36. INFREQUENT ROLL SCHEDULES MAY DELAY FABRICATION AND CONSTRUCTION.
6. ROLLED BEAMS SHALL NOT BE CAMBERED FOR LESS THAN ¾". NATURAL MILL CAMBER SHOULD BE PLACED TO MINIMIZE HAUNCH THICKNESS FROM UNCAMBERED BEAMS.
7. THE ENGINEER SHOULD VERIFY WITH LOCAL FABRICATORS IF THEY ARE CAPABLE OF CAMBERING ROLLED BEAMS LARGER THAN W27 WITHOUT THE USE OF HEAD. A PLATE GIRDER SOLUTION MAY WARRANT CONSIDERATION IF LOCAL FABRICATOR DOES NOT HAVE THIS CAPABILITY.

NOTES (CONT.):

8. THE ENGINEER SHOULD CONSIDER TRANSPORTATION FOR LONG BEAMS. THE DESIGN AND DETAILING OF OPTIONAL FIELD SPLICES MAY BE PRUDENT IF TRANSPORTATION IS IN QUESTION.
9. THE ENGINEER MAY SUBSTITUTE A DECK SYSTEM WHICH IS LIGHTER THAN ASSUMED HEREIN WITHOUT FURTHER EVALUATION.
10. THE ENGINEER MAY UTILIZE DATA WITHIN THE TABLES FOR BEAM SPACINGS NOT SHOWN WITHOUT FURTHER EVALUATION GIVEN THE LARGER BEAM FOR ADJACENT SPACINGS IS SELECTED.



BEAM ELEVATION

NOT TO SCALE

PRINT DATE 19-SEP-2022 09:57

19-SEP-2022 09:57

NO.	REVISION	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

DESIGNED	DATE	CHECKED	DATE
DRAWN	DATE	REVIEWED	DATE

STANDARD BRIDGE PLANS
COMPOSITE STEEL BEAM
SHEET 4 OF 6
SHEET NUMBER 3320SB4