

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 55 91 SHEETS
F. A. I. 80/94	0203.1B	COOK	200	117	
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 62854		

GIRDER MOMENT TABLE						
GIRDER 3						
		0.4 Sp.4	Pier 4	0.5 Sp.5	Pier 5	0.6 Sp.6
Is	(10 ⁶ mm ⁴)	35585	74222	35585	84943	35585
Ic (n)	(10 ⁶ mm ⁴)	69559	---	69559	---	69559
Ic (3n)	(10 ⁶ mm ⁴)	50790	---	50790	---	50791
Ss	(10 ³ mm ³)	34254	69081	34254	78319	34254
Sc (n)	(10 ³ mm ³)	46337	---	46337	---	46338
Sc (3n)	(10 ³ mm ³)	40725	---	40725	---	40726
Sb _l	(10 ³ mm ³)	697	2114	697	2466	697
Q	(kN/m)	14	21	14	21	14
M _P	(kN-m)	2375	8734	2346	10988	2911
s _P	(kN/m)	4	---	4	---	4
Ms _P	(kN-m)	891	---	960	---	1113
M _t	(kN-m)	1231	2119	1395	2375	1349
M (Imp)	(kN-m)	246	424	279	475	270
⁵ ₃ [M _t + M (Imp)]	(kN-m)	2462	4238	2790	4751	2698
Ma	(kN-m)	7447	16864	7924	20460	8739
Mb _l	(kN-m)	22	42	34	50	41
f _s P(non-comp)	(MPa)	69	126	68	140	85
f _s P(comp)	(MPa)	22	---	24	---	27
f _s ⁵ ₃ [M _t + M (Imp)]	(MPa)	53	61	60	61	58
f _i	(MPa)	31	20	48	20	60
f _s (Overload)	(MPa)	144	188	152	201	171
f _s (Total)	(MPa)	188	244	198	261	222
F _{cr} (Overload)	(MPa)	328	289	328	290	328
VR	(kN)	258	---	294	---	311
F _{cr}	(MPa)	345	323	345	323	345

GIRDER MOMENT TABLE						
GIRDER 6						
		0.4 Sp.4	Pier 4	0.5 Sp.5	Pier 5	0.6 Sp.6
Is	(10 ⁶ mm ⁴)	45306	84943	41715	106994	73157
Ic (n)	(10 ⁶ mm ⁴)	94307	---	85741	---	125344
Ic (3n)	(10 ⁶ mm ⁴)	67191	---	61625	---	95125
Ss	(10 ³ mm ³)	49547	78319	43447	98190	76805
Sc (n)	(10 ³ mm ³)	66183	---	58402	---	92067
Sc (3n)	(10 ³ mm ³)	58784	---	51842	---	84539
Sb _l	(10 ³ mm ³)	1394	2466	1115	3903	3123
Q	(kN/m)	16	30	15	31	18
M _P	(kN-m)	3890	11077	2712	15627	7598
s _P	(kN/m)	11	---	11	---	11
Ms _P	(kN-m)	1673	---	1487	---	2884
M _t	(kN-m)	2911	3796	3002	4469	3990
M (Imp)	(kN-m)	582	759	600	894	798
⁵ ₃ [M _t + M (Imp)]	(kN-m)	5822	7593	6004	8938	7980
Ma	(kN-m)	14800	24270	13263	31934	24001
Mb _l	(kN-m)	39	44	65	68	145
f _s P(non-comp)	(MPa)	79	141	62	159	99
f _s P(comp)	(MPa)	28	---	29	---	34
f _s ⁵ ₃ [M _t + M (Imp)]	(MPa)	88	97	103	91	87
f _i	(MPa)	29	18	58	17	46
f _s (Overload)	(MPa)	195	238	194	250	220
f _s (Total)	(MPa)	253	310	252	325	286
F _{cr} (Overload)	(MPa)	328	291	328	302	328
VR	(kN)	405	---	427	---	431
F _{cr}	(MPa)	345	323	345	330	345

GIRDER REACTION TABLE					
GIRDER 3					
		Pier 3W	Pier 4	Pier 5	Pier 6E
R _P	(kN)	338	1397	1624	378
R _t	(kN)	167	359	384	171
Imp.	(kN)	42	90	96	43
R (Total)	(kN)	547	1846	2104	592

GIRDER REACTION TABLE					
GIRDER 6					
		Pier 3W	Pier 4	Pier 5	Pier 6E
R _P	(kN)	574	1535	1788	814
R _t	(kN)	246	427	455	285
Imp.	(kN)	61	107	114	71
R (Total)	(kN)	881	2069	2357	1170

F_{cr} - Critical average flange stress (smaller of F_{cr1} or F_{cr2} for partially braced flanges and F_y for continuously braced flanges) computed according to the 2003 AASHTO Guide Specifications for Horizontally Curved Steel Girder Highway Bridges (Sections 5.2, 5.3 and 5.4).

F_{cr} (Overload) - Critical average flange stress at overload computed according to the 2003 AASHTO Guide Specifications for Horizontally Curved Steel Girder Highway Bridges Section 9.5.

Is and Ss are the moment of inertia and section modulus of the steel section used in computing f_s (Total and Overload).

Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing stresses due to live load.

Ic(3n) and Sc(3n) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead load (see AASHTO 10.38).

VR is the maximum ℓ + impact shear range in span.

Ma (Applied Moment) = 1.3 [M_P + Ms_P + 5/3 (M_t + M (Imp))]

f_s (Overload) is the sum of stresses due to M_P + Ms_P + 5/3 (M_t + M (Imp))

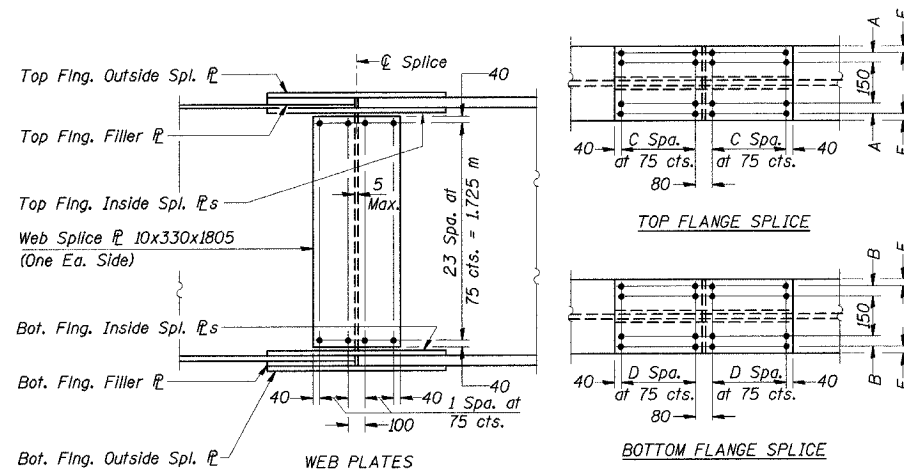
f_s (Total) is the sum of stresses due to 1.3 [M_P + Ms_P + 5/3 (M_t + M (Imp))]

Sb_l is the section modulus for one flange plate for lateral flange bending.

Mb_l is the lateral bending moment for flange plate (factored).

f_i is the calculated normal stress at the edge of flange due to lateral bending (factored).

M_t and R_t include the effects of centrifugal force and superelevation.



FIELD SPLICE 6, 7, 8, 9, & 10

TABLE OF DIMENSIONS													
Girder Location	Field Splice No.	Top Flange Splice P Dimensions		Bottom Flange Splice P Dimensions		Filler P Dimension		Bolt Spacing Dimensions					
		Outside P	Inside P	Outside P	Inside P	Top P	Bottom P	A	B	C	D	E	F
Girders G1, G2, & G3	6	20x410x910	25x170x910	20x410x910	25x170x910	10x410x450	10x410x450	90	90	5	5	40	40
	7	20x410x910	25x170x910	20x410x910	25x170x910	10x410x450	10x410x450	90	90	5	5	40	40
	8	20x410x910	25x170x910	20x410x910	25x170x910	-	-	90	90	5	5	40	40
	9	20x410x910	25x170x910	20x410x910	25x170x910	-	-	90	90	5	5	40	40
Girders G4, G5, & G6	6	20x410x910	25x170x910	25x410x1510	30x170x1510	10x410x450	15x460x600	90	90	5	9	40	40
	7	20x410x910	25x170x910	30x410x1360	35x170x1360	10x410x450	5x410x675	90	90	5	8	40	40
	8	20x410x910	25x170x910	30x410x1360	35x170x1360	10x410x450	5x410x675	90	90	5	8	40	40
	9	30x560x1960	35x245x1960	30x560x1960	35x245x1960	-	-	165	165	12	12	40	40
	10	25x560x1810	30x245x1810	35x560x2860	40x245x2860	5x560x900	-	165	165	11	18	40	40

Notes:
1. All field splice plates, except fill plates to be AASHTO M270M, Grade 345 and meet N.T.R.

2. All Bolts are 22mm ϕ AASHTO M164 (ASTM A325).

3. Bolt Spacing Dimensions E and F are measured from the edge of the smaller width flange when flange plates at field splices are different widths.

DESIGNED	MAS
CHECKED	GPM
DRAWN	LK
CHECKED	GPM/ACF

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ILLINOIS DEPARTMENT OF TRANSPORTATION
I-94/IL 394 SOUTH BOUND
MOMENT & REACTION TABLES & FIELD
SPLICES, SPANS 4-6
WB I-80/94 TO SB IL 394 - RAMP G
FAI 80/94 - FAP 332 SECTION 0203.1B
COOK COUNTY
STA. 120+796.063 STRUCTURE NO. 016-2804
DATE 3/23/05
SCALE ---
HNTB