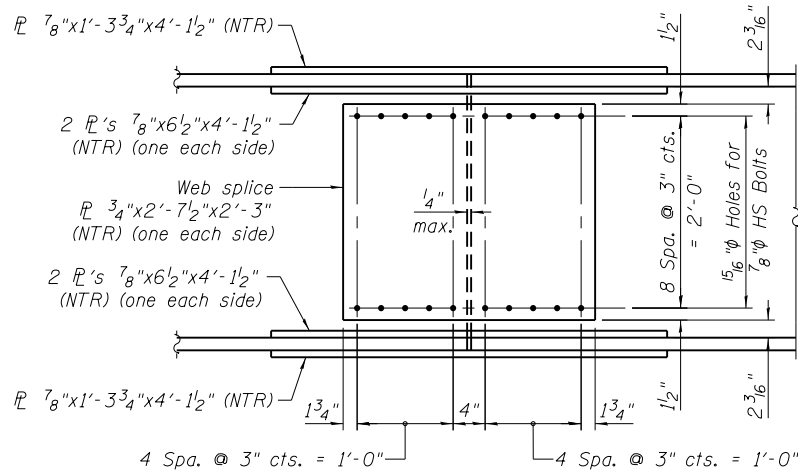


TOP FLANGE PLAN

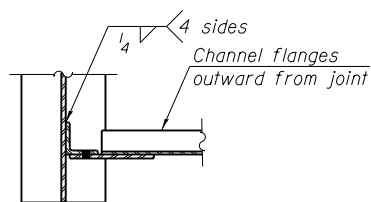
(Bottom Flange Similar)



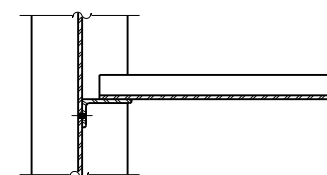
ELEVATION

SPLICE DETAIL

(36 Required)



SECTION A-A



SECTION B-B

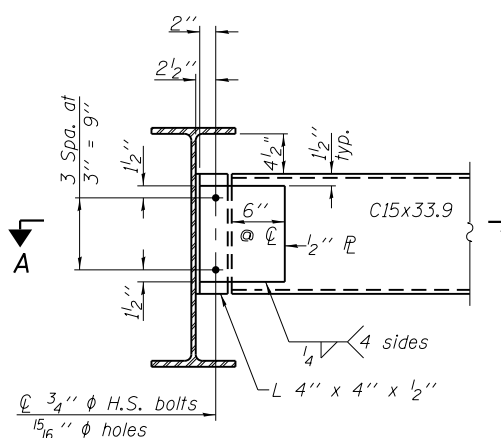
INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1	Pier	0.6 Sp. 2
I_s	(in ⁴)	15,900	15,900	15,900
$I_c(n)$	(in ⁴)	33,166	-	33,166
$I_c(3n)$	(in ⁴)	24,097	-	24,097
$I_c(cr)$	(in ⁴)	-	18,338	-
S_s	(in ³)	919	919	919
$S_c(n)$	(in ³)	1,219	-	1,219
$S_c(3n)$	(in ³)	1,095	-	1,095
$S_c(cr)$	(in ³)	-	1,157	-
$DC1$	(k/')	1.08	1.08	1.08
M_{DC1}	(k)	806	979	206
$DC2$	(k/')	0.62	0.62	0.62
M_{DC2}	(k)	465	573	117
DW	(k/')	0.27	0.27	0.27
M_{DW}	(k)	203	250	51
$M_L + IM$	(k)	1,233	1,176	846
M_u (Strength I)	(k)	4,051	4,373	1,961
$\phi_r M_n$	(k)	5,444	-	5,444
f_s DC1	(ksi)	10.52	12.78	2.69
f_s DC2	(ksi)	5.10	5.94	1.28
f_s DW	(ksi)	2.22	2.59	0.56
f_s (L+IM)	(ksi)	12.14	12.20	8.33
f_s (Service II)	(ksi)	33.62	37.18	15.36
$0.95R_n F_{yr}$	(ksi)	47.50	47.50	47.50
f_s (Total)(Strength I)	(ksi)	-	48.64	-
$\phi_r F_n$	(ksi)	-	50.00	-
V_r	(k)	46.20	51.40	50.00

INTERIOR BEAM REACTION TABLE				
		W. Abut.	Pier	E. Abut.
R_{DC1}	(k)	42	113	23
R_{DC2}	(k)	24	66	13
R_{DW}	(k)	11	29	6
R_{L+IM}	(k)	83	149	73
R_{Total}	(k)	160	357	115

TOP OF BEAM ELEVATIONS**						
Girder	℄ Brg. W. Abut.	℄ Splice 1	℄ Splice 2	℄ Pier	℄ Splice 3	℄ Brg. E. Abut.
1	597.12	597.69	598.76	598.90	598.66	597.70
2	597.21	597.78	598.85	598.99	598.75	597.79
3	597.30	597.87	598.94	599.08	598.84	597.88
4	597.39	597.96	599.03	599.17	598.93	597.97
5	597.48	598.05	599.12	599.26	599.02	598.06
6	597.57	598.14	599.21	599.35	599.11	598.15
7	597.57	598.14	599.21	599.35	599.11	598.15
8	597.48	598.05	599.12	599.26	599.02	598.06
9	597.39	597.96	599.03	599.17	598.93	597.97
10	597.30	597.87	598.94	599.08	598.84	597.88
11	597.21	597.78	598.85	598.99	598.75	597.79
12	597.12	597.69	598.76	598.90	598.66	597.70

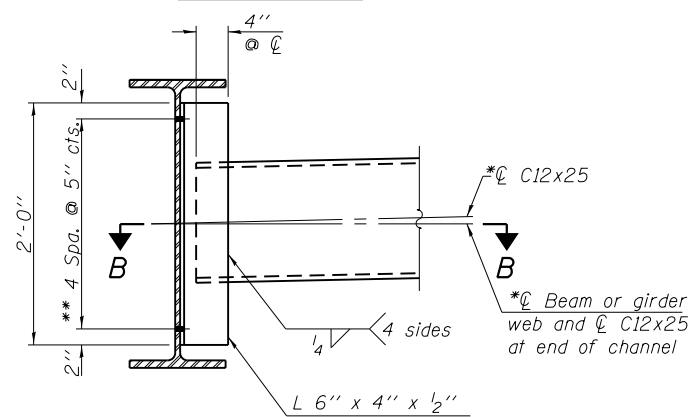
**For fabrication use only.

***For Beams 10 and 11, the load due to ComEd ductbank is 43 pounds per linear foot per beam.
For Beams 8 and 9, the load due to City of Chicago ductbank is 53 pounds per linear foot per beam.



END DIAPHRAGM - D-1

(22 Required)



INTERIOR DIAPHRAGM - D-2

(110 Required)

Note:
*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
**3/4" φ HS bolts, 1 5/16" φ holes

- I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in⁴ and in³).
- $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections due to short-term composite live loads (in⁴ and in³).
- $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads (in⁴ and in³).
- $I_c(cr), S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in⁴ and in³).
- $DC1$: Un-factored non-composite dead load (kips/ft.).
- M_{DC1} : Un-factored moment due to non-composite dead load (kip-ft.).
- $DC2$: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
- M_{DC2} : Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).
- DW : Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
- M_{DW} : Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- $M_L + IM$: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
- M_u (Strength I): Factored design moment (kip-ft.).
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_L + IM$
- $\phi_r M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).
- f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
 M_{DC1} / S_s
- f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
 $M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.
- f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
 $M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.
- f_s (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
 $M_L + IM / S_c(n)$ or $M_L + IM / S_c(cr)$ as applicable.
- f_s (Service II): Sum of stresses as computed below (ksi).
 $f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (L + IM)$
- $0.95R_n F_{yr}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).
- f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
 $1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (L + IM)$
- $\phi_r F_n$: Non-Compact composite positive or negative strength capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).
- V_r : Maximum factored shear range in span computed according to Article 6.10.10.

NOTES:

- Structural steel for flange and splice plates shall be AASHTO M270 Grade 50 - galvanized. Structural steel for diaphragms, connection plates and angles may be AASHTO M270 Grade 36 - galvanized.
- Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
- All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
- Two hardened washers required for each set of oversized holes.
- E.S. = Each Side

0161711-60W71-S28-SuperStruct



USER NAME = dunkerleyb	DESIGNED - DD	REVISED
	CHECKED - EJO	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 12/17/2013	CHECKED - EJO	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEAM DETAILS AND TABLES
STRUCTURE NO. 016-1711

SHEET NO. S-28 OF S-47 SHEETS

F.A.I. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2013-036R	COOK	256	120
CONTRACT NO.			60W71	
ILLINOIS FED. AID PROJECT -NUMBER-				