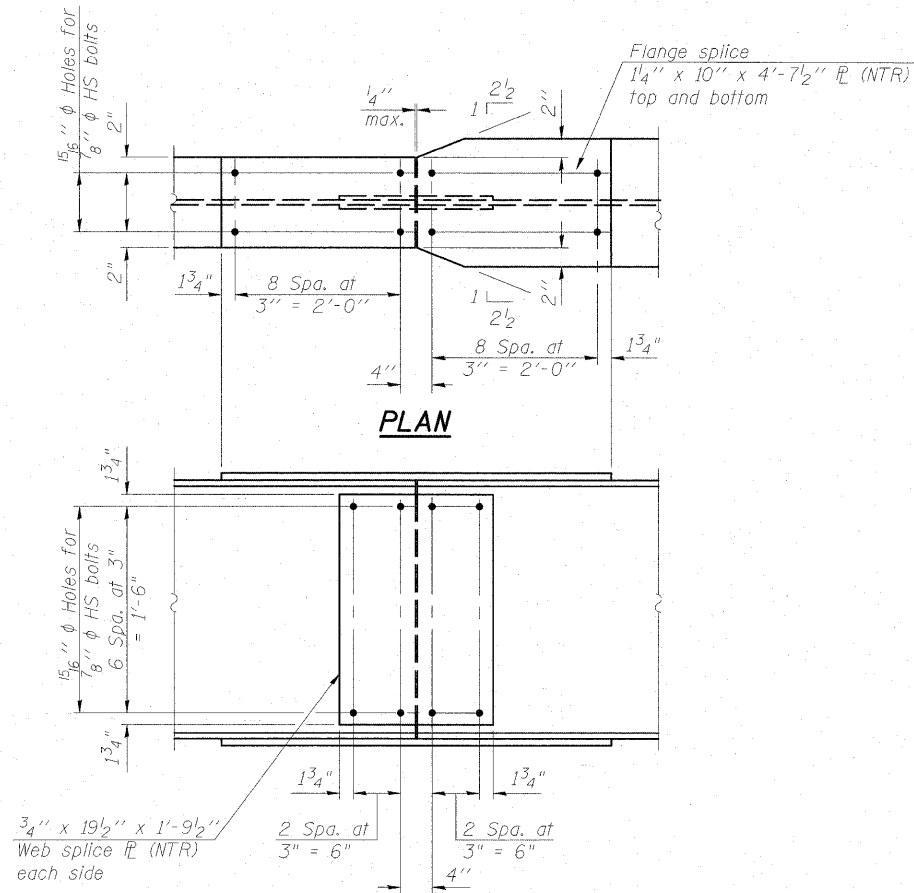


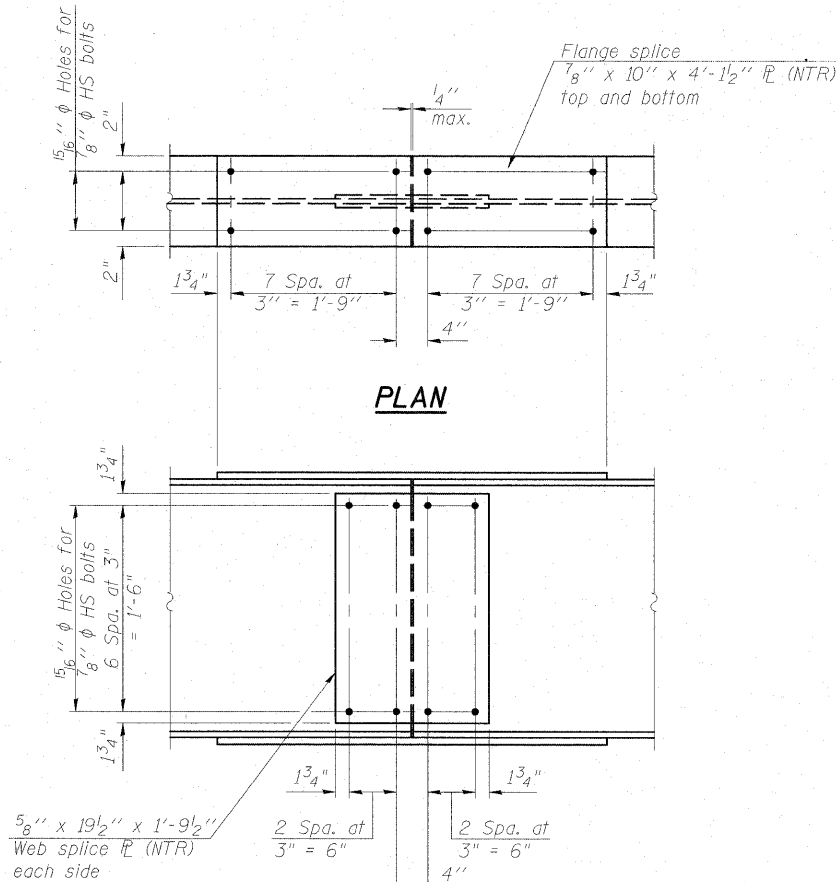
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



ELEVATION

SPLICE #1 DETAIL

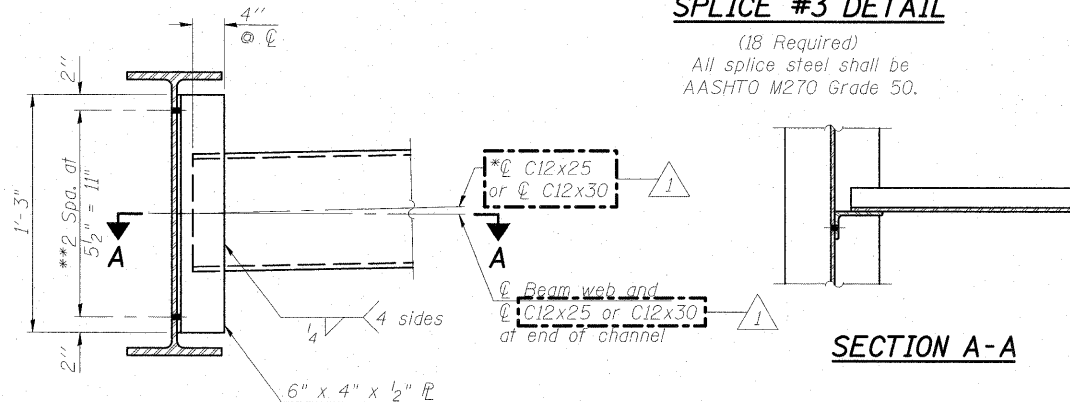
(Splice #2 Similar)
(36 required)
All splice steel shall be
AASHTO M270 Grade 50.



ELEVATION

SPLICE #3 DETAIL

(18 Required)
All splice steel shall be
AASHTO M270 Grade 50.



INTERIOR DIAPHRAGM

Two hardened washers required for each set of oversized holes.

* Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.

** 3/4 inch HS bolts, 15/16 inch holes

Note:
Load carrying components designated "NTR" shall conform to the supplemental requirements for notch toughness, zone 2.

INTERIOR BEAM REACTION TABLE						
	E. Abut.	Pier 1	Pier 2	Pier 3	W. Abut.	
R _ℓ	(k)	32.7	107.1	91.9	80.7	26.5
R _ℓ	(k)	40.2	46.4	45.5	44.9	38.0
Imp.	(k)	11.0	12.3	12.1	12.8	11.1
R _{Total}	(k)	83.9	165.8	149.5	138.4	75.6

INTERIOR BEAM MOMENT TABLE								
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.6 Sp. 4
I _s	(in ⁴)	4036	5578	5578	4036	4036	3222	3222
I _c (n)	(in ⁴)	12627		15718		12620		10586
I _c (3n)	(in ⁴)	9324		11450		9317		7957
S _s	(in ³)	296	407	407	296	296	239	239
S _c (n)	(in ³)	471		607		471		389
S _c (3n)	(in ³)	425		548		425		353
Z	(in ³)							
ℓ	(k/')	0.935	1.510	0.952	1.499	0.918	1.477	0.901
M _ℓ	(k)	206	594	202	415	112	326	139
s _ℓ	(k/')	0.569		0.563		0.564		0.569
M _{sℓ}	(k)	152		164		101		101
M _ℓ	(k)	444	258	478	214	353	173	326
M _{Imp}	(k)	122	69	124	57	98	49	96
⁵ / ₃ [M _ℓ + M _{Imp}]	(k)	943	545	1003	452	752	370	703
M _a	(k)	1692	1481	1780	1127	1255	905	1226
M _u	(k)	1781		2378		1860		1494
f _s ℓ non-comp	(ksi)	8.4	17.5	6.0	16.8	4.6	16.3	7.0
f _s ℓ (comp)	(ksi)	4.3		3.6		2.9		3.4
f _s ⁵ / ₃ [M _ℓ + M _{Imp}]	(ksi)	24.0	16.0	19.9	18.4	19.2	18.6	21.7
f _s (Overload)	(ksi)	36.7	33.5	29.5	35.2	26.7	34.9	32.1
** f _s (Total)	(ksi)		43.6		45.8		45.4	
VR	(k)	50.3		51.8		51.1		47.7

* Compact section

** Braced non-compact and partially braced section

- I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) 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 and Overload) 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 and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).
- Z: Plastic Section Modulus of the steel section in non-composite areas (in³).
- ℓ: Un-factored non-composite dead load (kips/ft.).
- M_ℓ: Un-factored moment due to non-composite dead load (kip-ft.).
- s_ℓ: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- M_{sℓ}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- M_ℓ: Un-factored live load moment (kip-ft.).
- M_{Imp}: Un-factored moment due to impact (kip-ft.).
- M_a: Factored design moment (kip-ft.).
1.3 [M_ℓ + M_{sℓ} + ⁵/₃ (M_ℓ + M_{Imp})]
- M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
- f_s (Overload): Sum of stresses as computed from the moments below (ksi).
M_ℓ + M_{sℓ} + ⁵/₃ (M_ℓ + M_{Imp})
- f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.3 [M_ℓ + M_{sℓ} + ⁵/₃ (M_ℓ + M_{Imp})]
- VR: Maximum ℓ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

DESIGNED	PMH
CHECKED	MGB
DRAWN	PMH
CHECKED	BB

STEEL DETAILS 2 OF 2
STRUCTURE NO. 046-0144 (S.B.)
& STRUCTURE NO. 046-0145 (N.B.)

SHEET NO.	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
SH-35	57	(46-2) HBR	KANKAKEE	558	306
SHEETS			CONTRACT NO. 66409		
SH-56			FED. ROAD DIST. NO. 3 ILLINOIS FED. AID PROJECT		