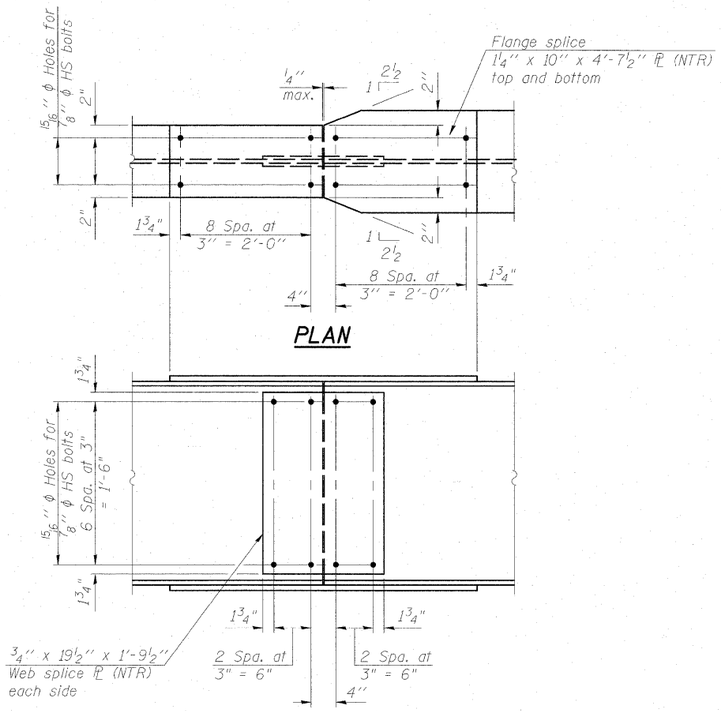
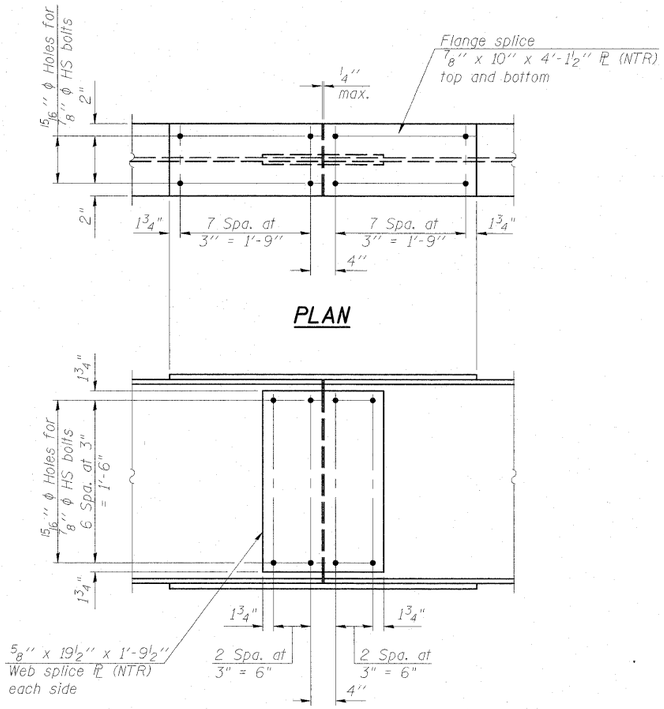
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



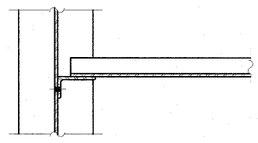


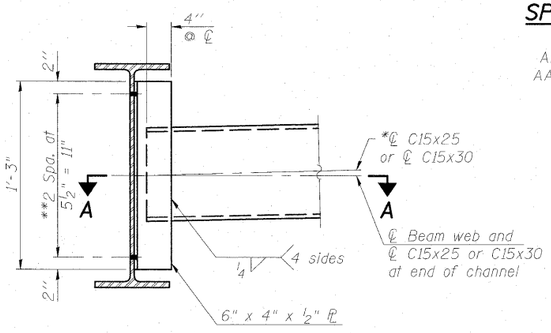
SPLICE #1 DETAIL

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

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" ϕ HS bolts, 15/16" ϕ 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.
RQ	(k)	32.7	107.1	91.9	80.7	26.5
RL	(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
	Is	(in⁴)	4036	5578	5578	4036	4036	3222	3222
	Ic(n)	(in⁴)	12627		15718		12620		10586
	Ic(3n)	(in⁴)	9324		11450		9317		7957
	Ss	(in³)	296	407	407	296	296	239	239
	Sc(n)	(in³)	471		607		471		389
	Sc(3n)	(in³)	425		548		425		353
	Z	(in³)							
	Q	(k/')	0.935	1.510	0.952	1.499	0.918	1.477	0.901
	MQ	('k)	206	594	202	415	112	326	139
	sQ	(k/')	0.569		0.563		0.564		0.569
	MsQ	('k)	152		164		101		101
	ML	('k)	444	258	478	214	353	173	326
	MImp	('k)	122	69	124	57	98	49	96
	5/3 [ML + Imp]	('k)	943	545	1003	452	752	370	703
	Md	('k)	1692	1481	1780	1127	1255	905	1226
*	Mu	('k)	1781		2378		1860		1494
	fs Q non-comp	(ksi)	8.4	17.5	6.0	16.8	4.6	16.3	7.0
	fs Q (comp)	(ksi)	4.3		3.6		2.9		3.4
	fs 5/3 [ML + MImp]	(ksi)	24.0	16.0	19.9	18.4	19.2	18.6	21.7
	fs (Overload)	(ksi)	36.7	33.5	29.5	35.2	26.7	34.9	32.1
**	fs (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

Is, Ss: Non-composite moment of inertia and section modulus of the steel section used for computing fs (Total and Overload) due to non-composite dead loads (in.⁴ and in.³).
Ic(n), Sc(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing fs (Total and Overload) due to short-term composite live loads (in.⁴ and in.³).
Ic(3n), Sc(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing fs (Total and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
Z: Plastic Section Modulus of the steel section in non-composite areas (in.³).
Q: Un-factored non-composite dead load (kips/ft.).
MQ: Un-factored moment due to non-composite dead load (kip-ft.).
sQ: Un-factored long-term composite (superimposed) dead load (kips/ft.)
MsQ: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
ML: Un-factored live load moment (kip-ft.).
MImp: Un-factored moment due to impact (kip-ft.).
Md: Factored design moment (kip-ft.). 1.3 [MQ + MsQ + 5/3 (ML + MImp)]
Mu: 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.).
fs (Overload): Sum of stresses as computed from the moments below (ksi). MQ + MsQ + 5/3 (ML + MImp)
fs (Total): Sum of stresses as computed from the moments below on non-compact section (ksi). 1.3 [MQ + MsQ + 5/3 (ML + MImp)]
VR: Maximum L + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

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

DESIGNED	PMH
CHECKED	MGB
DRAWN	PMH
CHECKED	BB

McDonough Associates Inc.
Engineers / Architects
130 East Randolph Street
Chicago, Illinois 60601
(312) 946-8600

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