

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1	Pier	0.6 Sp. 2
I_s	(in ⁴)	24,929	50,090	24,929
$I_c(n)$	(in ⁴)	67,413	57,050	67,413
$I_c(3n)$	(in ⁴)	47,912	57,050	47,912
S_s	(in ³)	1218	1908	1218
$S_c(n)$	(in ³)	1659	2000	1659
$S_c(3n)$	(in ³)	1525	2000	1525
ρ	(k/')	1.063	1.185	1.063
$M\rho$	(k)	470	1448	760
$s\rho$	(k/')	0.528	0.528	0.528
$M_s\rho$	(k)	269	676	400
M_L	(k)	789	815	934
M_{Imp}	(k)	183	183	205
$^5_3 [M_L + M_{Imp}]$	(k)	1620	1663	1898
M_a	(k)	3067	4923	3975
M_u	(k)	5860	5848	5860
$f_s \rho$ non-comp	(ksi)	4.63	9.11	7.49
$f_s \rho$ (comp)	(ksi)	2.12	4.06	3.15
$f_s ^5_3 [M_L + M_{Imp}]$	(ksi)	11.72	9.98	13.73
f_s (Overload)	(ksi)	18.47	23.15	24.37
f_s (Total)	(ksi)	-	-	-
VR	(k)	48.1	58.4	59.9

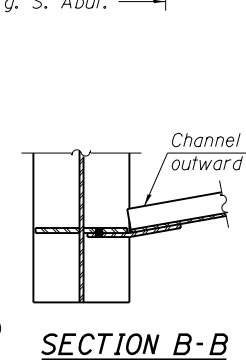
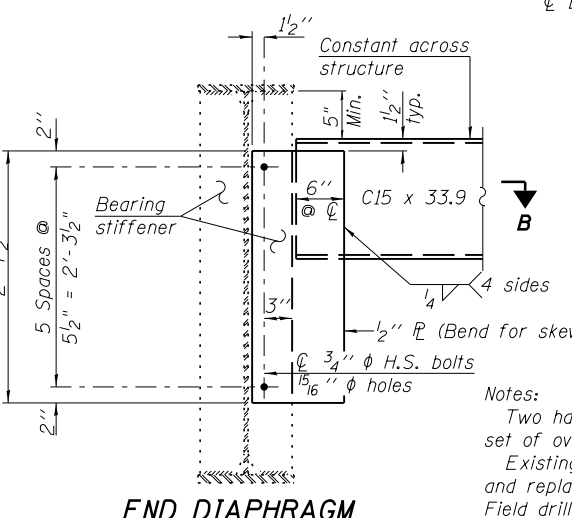
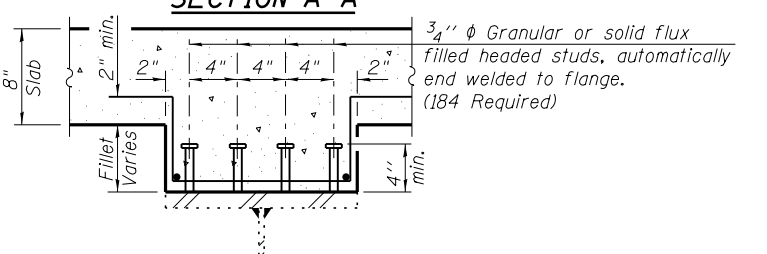
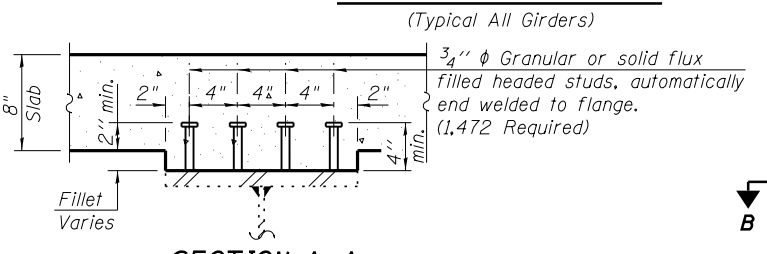
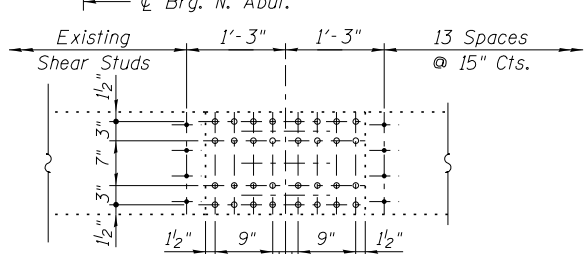
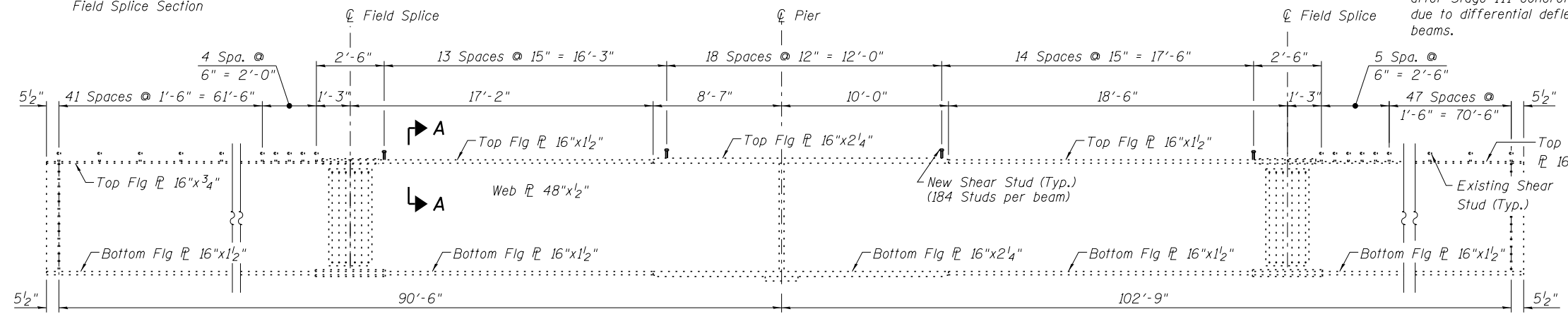
* Compact Section
 ** Braced non-compact and partially braced section

INTERIOR GIRDER REACTION TABLE				
		N. Abut.	Pier	S. Abut.
$R\rho$	(k)	47.6	199.7	59.1
R_L	(k)	44.4	71.2	45.1
Imp.	(k)	10.3	16.5	9.9
R_{Total}	(k)	102.3	287.4	114.1

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 (in.4 and in.3).
 $I_c(n), S_c(n)$: 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 (in.4 and in.3).
 $I_c(3n), S_c(3n)$: 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 (in.4 and in.3).

ρ : Un-factored non-composite dead load (kips/ft.).
 $M\rho$: Un-factored moment due to non-composite dead load (kip-ft.).
 $s\rho$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
 $M_s\rho$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
 M_L : Un-factored live load moment (kip-ft.).
 M_I : Un-factored moment due to impact (kip-ft.).
 M_a : Factored design moment (kip-ft.).
 $1.3 [M\rho + M_s\rho + \frac{5}{8} (M_L + M_I)]$
 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).
 $M\rho + M_s\rho + \frac{5}{8} (M_L + M_I)$
 f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M\rho + M_s\rho + \frac{5}{8} (M_L + M_I)]$
 VR: Maximum \pm impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

* See Top Flange Field Splice Section



Notes:
 Two hardened washers required for each set of oversized holes.
 Existing end diaphragms at abutments shall be removed and replaced. Cost included with Structural Steel Removal.
 Field drill 1 5/16" ϕ holes for 3/4" bolts.
 Contractor will be responsible for checking to see if proposed hole locations conflict with existing holes. In such a case, match existing holes.

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	4,940
Structural Steel Removal	Pound	6,800

FILE NAME = CH12 over FAI-72.dgn	USER NAME =	DESIGNED - SAL	REVISIONS -
		CHECKED - MTH	REVISIONS -
		DRAWN - TJW	REVISIONS -
		CHECKED - MTH	REVISIONS -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

FRAMING PLAN & BEAM DETAILS
 MECHANICSBURG RD. OVER F.A.I.-72 - S.N. 084-0150

SHEET NO. 17 OF 27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
72	(84-10-1,2) R5-3	SANGAMON	194	129
FED. ROAD DIST. NO. 6 ILLINOIS FED. AID PROJECT			CONTRACT NO. 72C90	