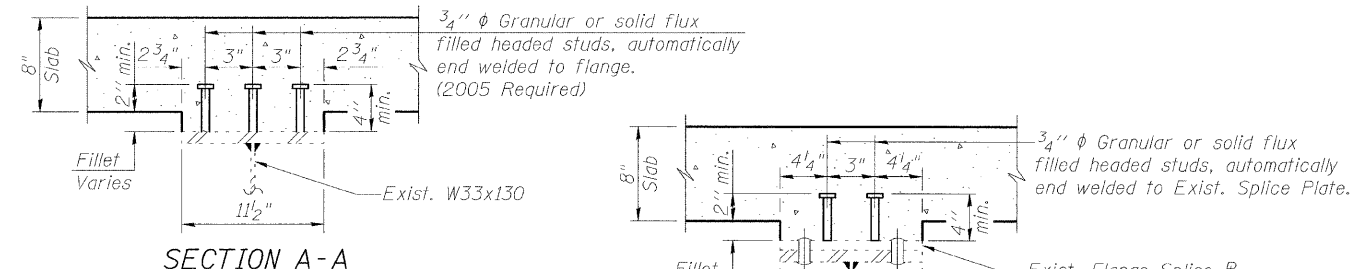


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INTERIOR BEAM MOMENT TABLE

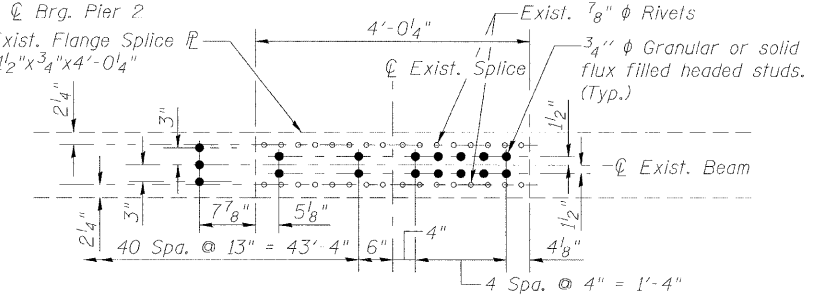
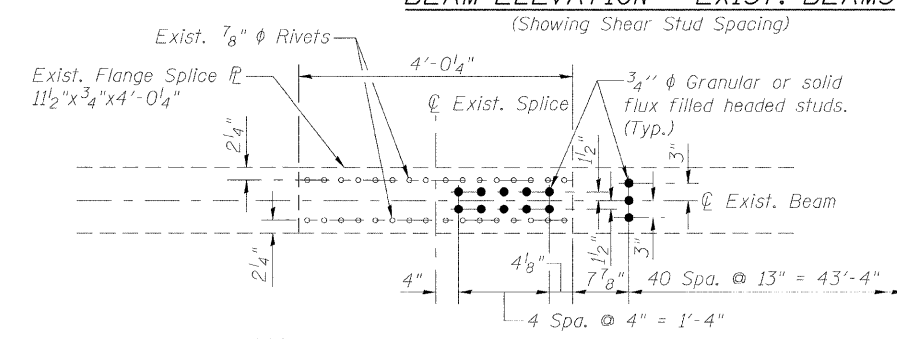
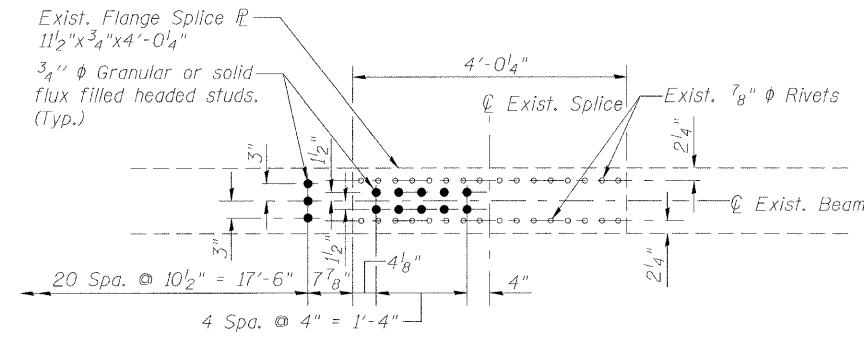
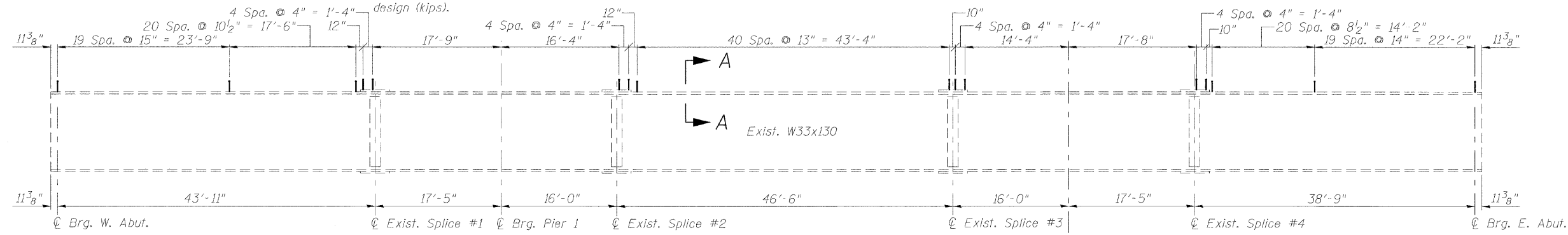
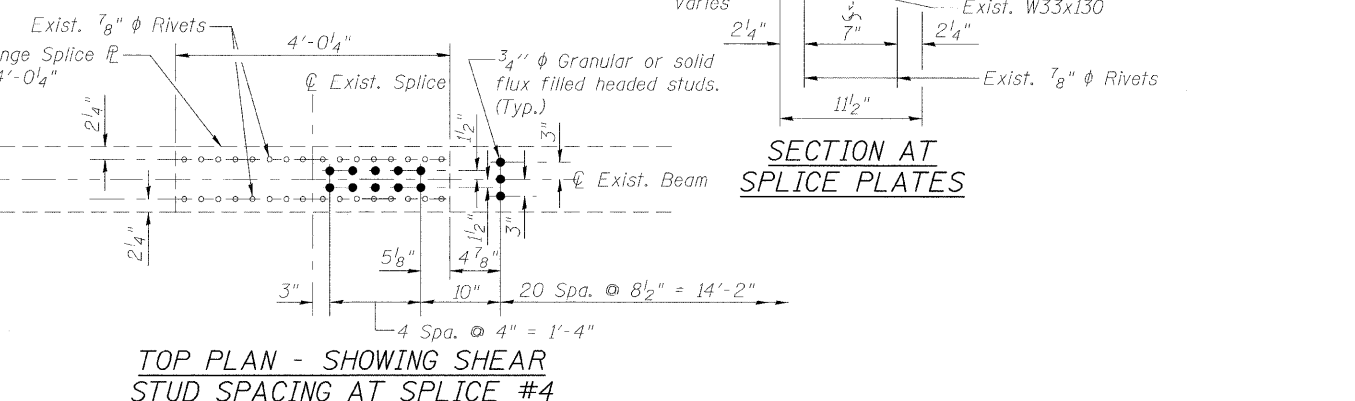
	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
I_s	(in ⁴) 6710	8915	6710	8915	6710
I_c (n)	(in ⁴) 16542	—	16542	—	16542
I_c (3n)	(in ⁴) 12048	—	12048	—	12048
S_s	(in ³) 406	527	406	527	406
S_c (n)	(in ³) 577	—	577	—	577
S_c (3n)	(in ³) 519	—	519	—	519
Z	(in ³) —	597	—	597	—
ϕ	(k/')	0.99	0.68	0.99	0.68
$M\phi$	(k)	504	179	462	126
$s\phi$	(k/')	—	0.31	—	0.31
$M_s\phi$	(k)	—	101	—	65
$M\phi$	(k)	224	371	214	293
M (Imp)	(k)	58	91	56	81
$S_3 [M\phi + M(\text{Imp})]$	(k)	470	770	450	623
M_a	(k)	1266	1364	1185	1057
M_u	(k)	1642	2207	1642	2207
$f_s\phi$ non-comp	(ksi)	11.5	5.3	10.5	3.7
$f_s\phi$ comp	(ksi)	—	2.3	—	1.5
$f_s^{S_3}$ (k + Imp)	(ksi)	10.7	16.0	10.2	12.9
f_s (Overload)	(ksi)	22.2	23.6	20.8	18.2
f_s (Total)	(ksi)	—	—	—	—
VR	(k)	—	40.5	—	38.9

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).
 Z : Plastic Section Modulus of the steel section in non-composite areas (in.³).
 ϕ : Un-factored non-composite dead load (kips/ft.).
 $M\phi$: Un-factored moment due to non-composite dead load (kip-ft.).
 $s\phi$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
 $M_s\phi$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
 $M\phi$: Un-factored live load moment (kip-ft.).
 M (Imp): Un-factored moment due to impact (kip-ft.).
 M_a : Factored design moment (kip-ft.).
 $1.3 [M\phi + M_s\phi + \frac{5}{3} (M\phi + M_1)]$
 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).
 $M\phi + M_s\phi + \frac{5}{3} (M\phi + M_1)$
 f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M\phi + M_s\phi + \frac{5}{3} (M\phi + M_1)]$
 VR: Maximum $L + \text{Impact}$ horizontal shear range within the composite portion of the span for stud shear connector design (kips).



INTERIOR BEAM REACTION TABLE

	W. Abut.	Pier 1	Pier 2	E. Abut.
$R\phi$	(k) 22.2	78.0	74.4	19.6
$R\phi$	(k) 27.9	36.4	35.5	27.3
Imp.	(k) 7.5	9.3	9.2	7.5
R (Total)	(k) 57.6	123.7	119.1	54.4



BILL OF MATERIAL

Item	Unit	Total
Stud Shear Connectors	Each	2,005

STRUCTURAL STEEL DETAILS

FAS ROUTE 1807 SECTION (51-23HB)-6B-1
LAWRENCE COUNTY
STATION 94A+66.74
STRUCTURE NO. 051-0031

DESIGNED - MJP
CHECKED - KWB
DRAWN - REZ
CHECKED - TDN



345 E. ASH AVE., SUITE B
DECATUR, IL. 62526
TEL. 217-875-4800

SHEET NO. 14	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
24 SHEETS	1807	(51-23HB)-6B-1	LAWRENCE	60	30
CONTRACT NO. 74115					
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					