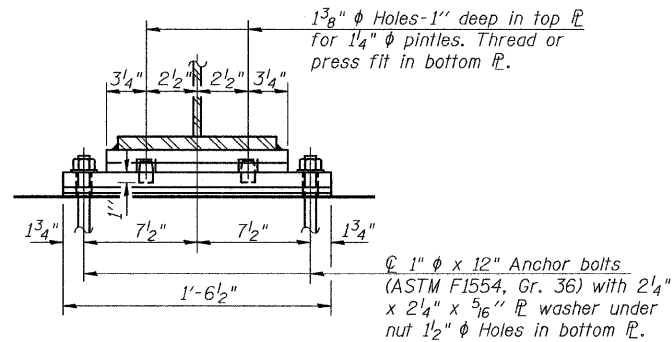
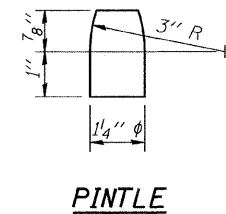


**ELEVATION AT PIER**



**SECTION B-B**



**PINTLE**

**FIXED BEARING**

14 Required

**NOTES**

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

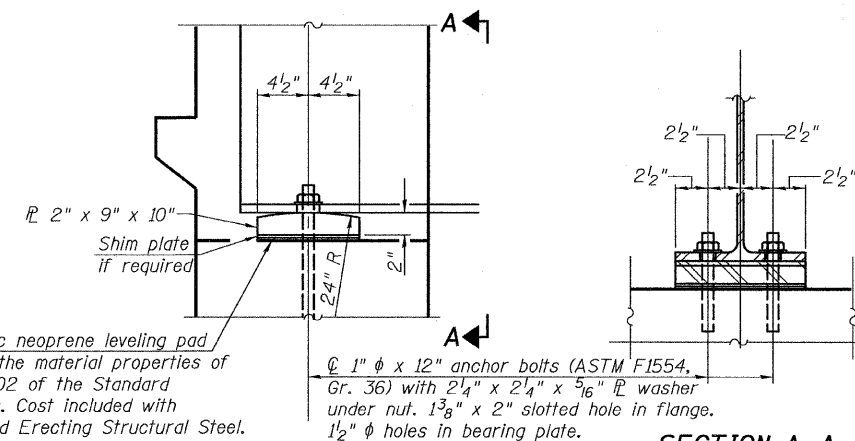
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 or 0.6 Sp. 3	Pier 1 or 2	0.5 Span 2
$I_s$	(in <sup>4</sup> )	4090	4090	4090
$I_c(n)$	(in <sup>4</sup> )	11351	---	11351
$I_c(3n)$	(in <sup>4</sup> )	8333	---	8333
$S_s$	(in <sup>3</sup> )	299	299	299
$S_c(n)$	(in <sup>3</sup> )	448	---	448
$S_c(3n)$	(in <sup>3</sup> )	404	---	404
DC1	(k/')	0.76	0.76	0.76
M <sub>DC1</sub>	(k)	80.7	202.4	129.9
DC2	(k/')	0.13	0.13	0.13
M <sub>DC2</sub>	(k)	13.5	34.0	21.8
DW	(k/')	0.29	0.29	0.29
M <sub>DW</sub>	(k)	30.2	75.7	48.6
M <sub>ℓ + Imp</sub>	(k)	395.1	374.4	446.9
M <sub>u</sub> (Strength I)	(k)	851.0	1064.2	1044.6
φ <sub>r</sub> M <sub>n</sub> , φ <sub>r</sub> M <sub>nc</sub>	(k)	2347	1198	2347
f <sub>s</sub> DC1	(ksi)	3.24	8.12	5.21
f <sub>s</sub> DC2	(ksi)	0.36	1.36	0.58
f <sub>s</sub> DW	(ksi)	0.89	3.04	1.44
f <sub>s</sub> 1.3(ℓ+I)	(ksi)	13.7	19.5	15.6
f <sub>s</sub> (Service II)	(ksi)	18.2	32.0	22.8
V <sub>r</sub>	(k)	19		18

- $I_s, S_s$ : 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 (in.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(n), S_c(n)$ : 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) due to short-term composite live loads (in.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(3n), S_c(3n)$ : 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) due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).
- DC1: Un-factored non-composite dead load (kips/ft.).
- M<sub>DC1</sub>: 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<sub>DC2</sub>: 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<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
- M<sub>ℓ + Imp</sub>: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
- M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).  
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{ℓ + Imp}$
- φ<sub>r</sub>M<sub>n</sub>: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
- φ<sub>r</sub>M<sub>nc</sub>: Compact non-composite negative moment capacity computed according to Article A6.11.1 (kip-ft.).
- f<sub>s</sub> (Service II): Sum of stresses as computed from the moments below (ksi).  
 $M_{DC1} + M_{DC2} + M_{DW} + 1.3 M_{ℓ + Imp}$
- V<sub>r</sub>: Factored shear range computed according to Article 6.10.10.

INTERIOR GIRDER REACTION TABLE		
HL93 Loading		
	Abut.	Pier
R <sub>DC1</sub>	(k) 11.2	43.4
R <sub>DC2</sub>	(k) 1.9	7.3
R <sub>DW</sub>	(k) 4.1	16.2
R <sub>ℓ + Imp</sub>	(k) 58.1	110.6
R <sub>Total</sub>	(k) 75.3	177.5



**SECTION A-A**

**BEARING AT INTEGRAL ABUTMENTS**

14 Required

**BEARING DETAILS**  
**IL ROUTE 4/15 OVER**  
**KASKASKIA OVERFLOW**  
**F.A.P. RT. 817 SEC. 421B-1**  
**ST. CLAIR COUNTY**  
**STATION 149+50.00**  
**STRUCTURE NO. 082-0275**

COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	PROJECT NO. 06001-13	SHEET NO. 14 28 SHEETS	F.A.P. RTE. 817	SECTION 421B-1	COUNTY ST. CLAIR	TOTAL SHEETS 56	SHEET NO. 33
	DATE 11/20/08 DRAWN BY TFG CHECKED BY RM/CME/MCB		CONTRACT NO.		FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT		