

INTERIOR GIRDER D AND BEAM D MOMENT TABLE

	0.4 Span 1	Pier 17	0.5 Span 2	Pier 18	0.6 Span 3	0.5 Span 4
I_s	18,240	29,123	18,411	51,136	30,375	8,507
$I_c(n)$	48,232	29,123	44,923	51,136	77,868	24,977
$I_c(3n)$	36,334	---	34,392	---	56,297	18,011
S_s	710	1040	663	1794	1350	585
$S_c(n)$	993	---	913	---	1743	846
$S_c(3n)$	918	---	843	---	1625	773
Z	---	---	---	---	---	---
ρ	0.931	1.128	0.931	1.250	1.013	0.958
M_D	472	847	209	1,789	1,148	418
s_D	0.131	---	0.131	---	0.131	0.156
M_{sD}	69	---	49	---	157	68
M_L	707.8	571.3	752.0	861.3	1098.5	552.5
M_{IM}	170.2	129.5	161.2	179.6	222.9	150.1
M_a	1466	1170	1525	1738	2207	1173
M_u	2609.7	2622.9	2318.9	4585.6	4565.1	2156.8
$f_s \rho$ non-comp	8.0	9.8	3.8	12.0	10.2	8.6
$f_s \rho$ (comp)	0.9	---	0.7	---	1.2	1.1
$f_s \rho_3 [M_L + M_I]$	17.7	13.5	20.1	11.6	19.6	24.0
f_s (Overload)	26.6	23.3	24.5	23.6	31.0	33.7
f_s (Total)	---	30.3	---	30.7	---	---
VR	65.6	---	54.1	---	64.7	61.1

INTERIOR GIRDER D & BEAM D REACTION TABLE

	Pier 16 North	Pier 17	Pier 18	Pier 19 South	Pier 19 North	North Abutment
R_D	34.4	104.6	154.1	54.6	33.1	33.1
R_L	52.2	80.3	94.2	54.5	51.8	51.8
R_I	12.5	12.7	13.3	11.1	14.1	14.1
R_{Total}	99.1	197.5	261.7	120.2	99.0	99.0

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

EXISTING FRAMING PLAN

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).

ρ : Un-factored non-composite dead load (kips/ft.).

M_D : Un-factored moment due to non-composite dead load (kip-ft.).

s_D : Un-factored long-term composite (superimposed) dead load (kips/ft.).

M_{sD} : 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.).

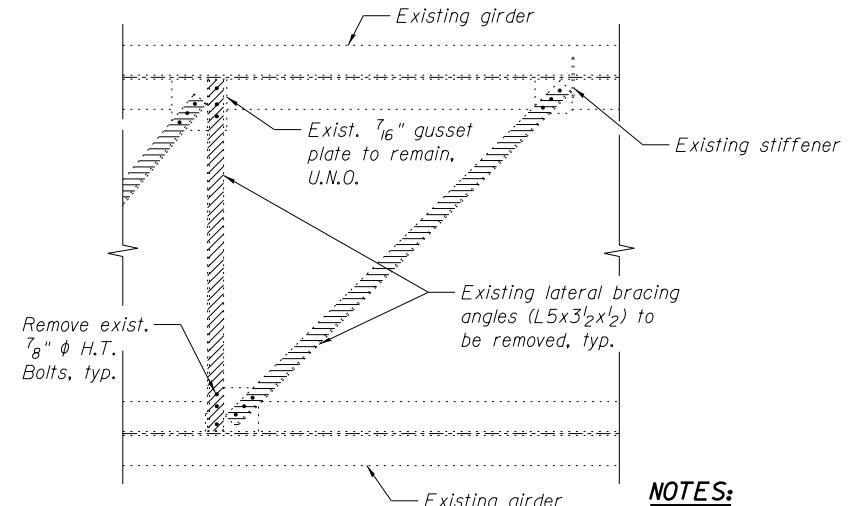
M_a : Factored design moment (kip-ft.).

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).

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).

VR: Maximum t + impact shear range within the composite portion of the span for stud shear connector design (kips).



DETAIL A

(Removal of lateral bracing and gusset plates paid for as "Structural Steel Removal")

LEGEND

- Existing electrical conduit, wiring and appurtenances to be removed, See Conduit Removal Detail on sheet SC27 of SC49.
- Location of Cover Plate Ends to be Retrofitted
- △ Remove existing gusset plates per "Structural Steel Removal" Special Provision, See Detail A. (12 Locations)
- Remove lateral bracing angles per "Structural Steel Removal" Special Provision.

NOTES:

- For Cover Plate Retrofit, see sheet SC27 of SC49.
- The Engineer will inspect all existing bearing anchor bolts to ascertain their condition. Any damaged anchor bolts shall be reported to the BBS for further direction. The Contractor shall provide all means and access for the Engineer to perform the anchor bolt inspections. All costs associated with providing the access shall be considered included in the unit price for "Furnishing and Erecting Structural Steel".
- Install new 1/2" dia. anchor bolt, 1'-9" long, with hexagonal nut and 3"x3"x3/16" plate washer, at existing bearing. Anchor Bolts shall be ASTM F1554, Grade 105, all-thread or an Engineer-approved alternate material. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554. If a drilled hole in the existing concrete does not exist, or is not deep enough to allow for the new anchor bolt projection above the existing side retainer angle to match the projection of the other existing anchor bolts, then a hole shall be drilled in the existing concrete to the appropriate depth. Holes in the existing concrete may be drilled through the existing holes in the bottom bearing plate, if this can be done without damaging the bearing. Drilled and set anchors shall be installed according to Article 521.06 of the Standard Specifications. The cost of this work shall be included with "Anchor Bolts, 1/2".

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Anchor Bolts, 1/2"	Each	1



Alfred Benesch & Company
 205 North Michigan Avenue, Suite 2400
 Chicago, Illinois 60601
 312-565-0450 Job No. 10093

DESIGNED - GJK/DTS	REVISED -
CHECKED - RDK/TJJ	REVISED -
DRAWN - MAK/RMG	REVISED -
CHECKED - JDM/TPS	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**FRAMING PLAN
 STRUCTURE NO. 016-2455**

SHEET NO. SC25 OF SC35 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
372	2013-038B-R	COOK	821	351

CONTRACT NO. 60J16
 ILLINOIS FED. AID PROJECT