$PE$$DL$$PL$$VS$

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2843	3249B-R	COOK	64	36
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-		

Sheet 12 of 22 Contract No. 62539

INTERIOR BEAM MOMENT TABLE						
		0.4 Sp. 1	S. Pier	0.5 Sp. 2	N. Pier	0.6 Sp. 3
Is	(in^4)	3990	3990	3990	3990	3990
Ic (n)	(in^4)	11961		11961		11961
Ic (3n)	(in^4)	8864		8864		8864
Ss	(in^3)	269	269	269	269	269
Sc (n)	(in^3)	419		419		419
Sc (3n)	(in^3)	378		378		378
Z	(in^3)		312		312	
M_D	(k/ft.)	0.87	1.44	0.87	1.44	0.87
M_D	('k)	169	404	124	404	169
s_D	(k/ft.)	0.57		0.57		0.57
M_{SD}	('k)	127		121		127
M_L	('k)	363	191	362	191	363
M (Imp)	('k)	101	53	98	53	101
$5/3[M_L+M(Imp)]$	('k)	773.3	406.7	766.7	406.7	773.3
Ma	('k)	1390.1	1053.9	1315.2	1053.9	1390.1
Mu	('k)	2062	1300	2073	1300	2062
fs M_D non-comp	(k.s.i.)	7.5	18.0	5.5	18.0	7.5
fs M_D (comp)	(k.s.i.)	4.0		3.8		4.0
fs $5/3(M_L+Imp)$	(k.s.i.)	22.1	18.1	22.0	18.1	22.1
fs (Overload)	(k.s.i.)	33.6	36.1	31.3	36.1	33.6
fs (Total)	(k.s.i.)					
VR	(k)	50.4		40.2		50.4

*Compact Braced Sections

**Non-Compact Section

INTERIOR BEAM REACTION TABLE					
		S. Abut.	S. Pier	N. Pier	N. Abut.
R_D	(k)	29.2	88.1	88.1	29.2
R_L	(k)	36.7	42.8	42.8	36.7
Imp.	(k)	10.3	12.0	12.0	10.3
R (Total)	(k)	76.2	142.9	142.9	76.2

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).

Ic (n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

Ic (3n) and Sc(3n) are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads.

VR is the maximum Live Load + Impact shear within the composite portion of the span.

Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

Ma (Applied Moment) = $1.3[M_D + M_{SD} + 5/3(M_L + M(Imp))]$.

The Plastic Moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.

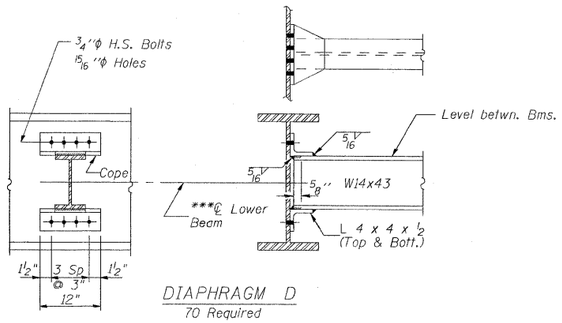
fs (Overload) is the sum of the stresses due to $M_D + M_{SD} + 5/3(M_L + M(Imp))$.

fs (Total) (Non-compact section) is the sum of the stresses due to $1.3[M_D + M_{SD} + 5/3(M_L + M(Imp))]$.

TOP OF BEAM ELEVATIONS

For Fabrication Only

Location	Beam B1	Beam B2	Beam B3	Beam B4	Beam B5	Beam B6	Beam B7	Beam B8
℄ Bearing South Abutment	643.438	643.263	643.088	642.911	642.734	642.557	642.378	642.199
℄ South Pier	643.495	643.329	643.163	642.996	642.828	642.660	642.491	642.322
℄ Field Splice 1	643.506	643.342	643.178	643.013	642.847	642.681	642.514	642.347
℄ Field Splice 2	643.481	643.324	643.167	643.009	642.851	642.692	642.532	642.372
℄ North Pier	643.456	643.301	643.146	642.990	642.834	642.677	642.519	642.361
℄ Bearing North Abutment	643.333	643.188	643.043	642.896	642.749	642.602	642.453	642.304



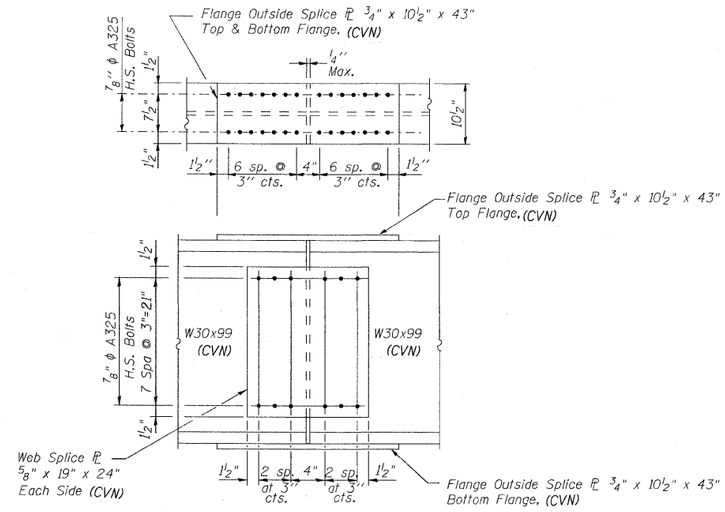
DIAPHRAGM D

70 Required

***For Diaphragm Adjacent to Field Splice 2. Use ℄ Higher Beam

Notes: Two hardened washers shall be required over all oversize holes

For future diaphragm D1, apply 15/16"ϕ holes at location specified on Framing Plan.



FIELD SPLICE

16 Field Splices Required

Components designated (CVN) shall conform to the toughness requirements given in the Special Provision for Wide-Flange Rolled Sections for Bridges.

All Splice Plates except Filler Plates shall be Grade 50 (CVN). See the Speical Provision for Wide-Flange Rolled Sections for Bridges.

REVISIONS	
NAME	DATE
Rev.-BK	9/25/09

RME Rubinos & Mesia Engineers, Inc.

STEEL DETAILS & TOP OF BEAM ELEVATIONS

DIXIE HIGHWAY OVER
BUTTERFIELD CREEK
F.A.U. ROUTE 2843 SECTION 3249B-R
STA. 78+55.00
COOK COUNTY
STRUCTURE NUMBER 016-7946

SCALE: NOT-TO-SCALE
DATE 4-27-09

DRAWN BY BV
DESIGNED BY BS
CHECKED BY PK

$FILES$
$DATE$
$TIME$