F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90	1213B-1	COOK	94	64
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

CONTRACT NO. 60640

INTERIOR BEAM MOMENT TABLE					
		0.5 Sp. 3	0.4 Sp. 2	Pier 2	0.6 Sp. 1
Is	(10^6 mm^4)	3,412	7,886	14,547	7,181
Ic (n)	(10^6 mm^4)	10,001	18,870	-	16,762
Ic (3n)	(10^6 mm^4)	7,134	13,174	-	11,882
Ss	(10^3 mm^3)	8,947	19,674	29,355	16,874
Sc (n)	(10^3 mm^3)	13,200	26,495	-	22,824
Sc (3n)	(10^3 mm^3)	11,995	23,825	-	20,522
Z	(10^3 mm^3)	-	-	30,143	-
MD	(kN/m)	12.99	15.16	21.49	14.97
MD	(kN.m)	398	968	2,688	720
sD	(kN/m)	6.57	6.42	-	6.42
MsD	(kN.m)	202	477	-	380
ML	(kN.m)	570	1,166	936	1,018
M (Imp)	(kN.m)	162	256	209	231
5/3 [M L+M(Imp)]	(KN.m)	1,220	2,370	1,908	2,082
Ma	(kN.m)	2,366	4,960	5,975	4,137
* Mu	(kN.m)	4,073	7,426	-	6,543
fs D non-comp	(MPa)	44.5	49.2	91.6	42.7
fs D (comp)	(MPa)	16.8	20.0	-	18.5
fs 5/3 (L+Imp)	(MPa)	92.5	89.5	65.0	91.2
fs (Overload)	(MPa)	153.8	158.7	156.6	152.4
** fs (Total)	(MPa)	-	-	203.6	-
VR	(kN)	219	238	-	242

* Compact Braced Section

** Non-Compact Section

NOTES:

Is and Ss are the Moment of Inertia and Section Modulus of the steel section used in computing fs (Total and 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 Load. (See AASHTO 10.38).

VR is the maximum L + Impact Shear Range in span.

Z is the Plastic Section Modulus used to determine the fully Plastic Moments in the Non-Composite areas.

The Plastic Moment Capacity (Mu) is computed according to AASHTO 10.48.1 & 10.50.1.1.

fs (Total) (Non-Compact Section) the sum of the stresses due to
1.3[MD + MsD + 5/3 (ML + M(Imp))].

fs (Overload) is the sum of the stresses due to
MD + MsD + 5/3 (ML + M(Imp))

MD - moment due to Dead Loads on Non-Composite Section.

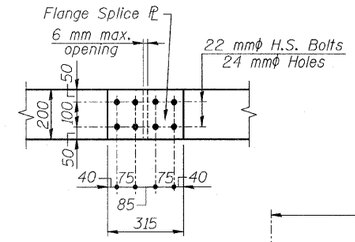
MsD - moment due to Dead Loads on Composite Section.

M L - moment due to Live Load on Non-Composite or Composite Section.

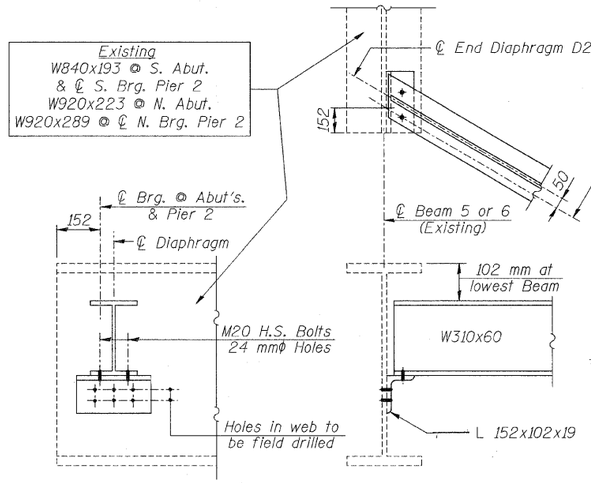
M(Imp) - moment due to Live Load Impact on Non-Composite or Composite Sections.

Ma (Applied Moment) = 1.3[MD + MsD + 5/3(ML + M(IMP))]

INTERIOR BEAM REACTION TABLE						
		South Abutment	Pier 2		Pier 1	North Abutment
			Sp. 3	Sp. 2		
RD	(kN)	153	153	250	827	218
RL	(kN)	171	171	186	302	183
Imp.	(kN)	48	48	41	68	42
R (Total)	(kN)	372	372	477	1,197	443

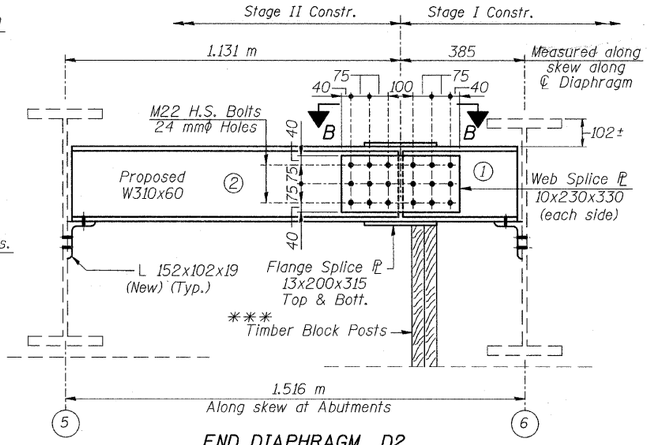


VIEW B-B



NEW END DIAPHRAGM D2

At Abutments & ℄ South
& ℄ North Bearings @ Pier 2
(4 Required)



*** Cost of Timber Block Posts is included with "Furnishing and Erecting Structural Steel".

END DIAPHRAGM D2
AT ABUTMENTS & PIER 2
(4 Required)

NOTES:

Two hardened washers shall be required over all oversize holes for diaphragms.

All dimensions are in millimeters (mm) except as noted.

DIAPHRAGM D2 CONSTRUCTION SEQUENCE

1. Order Diaphragm D2 in two sections with lengths of 1.11m and 365.
2. Attach Section (1) of Diaphragm to Beam 6 and Top Flange Splice Plate during Stage I Construction.
3. Place Timber Block Posts between Section (1) of Diaphragm and Abutment Bearing Seat.
4. Attach Section (2) of Diaphragm to both Beam 5 and Top Flange Splice Plate during Stage II Construction.
5. Attach Web Splice Plates to Sections (1) and (2) of Diaphragms.
6. Remove Timber Block Posts.
7. Attach Bottom Flange Splice Plate to Sections 1 and 2 of Diaphragms.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS
CENTRAL AVENUE (F.A.U. RTE. 2798)
OVER
INTERSTATE 90 (KENNEDY EXPWY.) & C.T.A.
F.A.I. RTE. 90 SECTION: 1213B-1
COOK COUNTY STATION 1+000.000
STRUCTURE NO. 016-0659

SCALE: NONE DRAWN BY: D.L./F.M.
DATE: JANUARY 16, 2009 CHECKED BY: B.N.S./J.C.N.

CHRISTIAN-ROGE & ASSOC., INC.
CHICAGO ILLINOIS

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