



BEAM ELEVATION

"NTR" denotes elements to which notch toughness requirements are applicable.

Note:

All steel beams, plates, channels & anchors shall be galvanized after shop fabrication according to AASHTO M 111 or AASHTO M232 and ASTM A 385 and Standard Specification for Steel Hardware M234 except stainless steel bolts.

INTERIOR GIRDER MOMENT TABLE

0.5 Span		
Is	(in ⁴)	1480
Ic (n)	(in ⁴)	4829
Ic (3n)	(in ⁴)	3617
Ss	(in ³)	140
Sc (n)	(in ³)	227
Sc (3n)	(in ³)	204
Z	(in ³)	160
DC1	(k/')	0.61
M DC1	(k)	91.2
DC2	(k/')	0.41
M DC2	(k)	61.3
DW	(k/')	0.27
M DW	(k)	40.4
M 1/4+Imp	(k)	36.4
Mu (Strength I)	(k)	888
φf Mn, φr Mnc	(k)	1258
fs DC1	(ksi)	7.8
fs DC2	(ksi)	3.6
fs DW	(ksi)	2.4
fs 1.3(1/4+I)	(ksi)	25.0
fs (Service II)	(ksi)	38.8
fs (Total)(Strength I)	(ksi)	51.5
Vf	(k)	51.4

INTERIOR GIRDER REACTION TABLE
HL93 Loading

Abutment		
R DC1	(k)	10.7
R DC2	(k)	7.0
R DW	(k)	4.7
R 1/4+Imp	(k)	55.5
R Total	(k)	77.9

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs due to non-composite loads.

Ic(n) and Sc(n) are the moment of inertia and section modulus of the composite section used in computing fs due to short-term composite loads.

Ic(3n) and Sc(3n) are the moment of inertia and section modulus of the composite section used in computing fs due to long-term composite loads.

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

DC1 is the dead load acting on the non-composite section.

DC2 is the dead load acting on the long-term composite section.

DW is the dead load acting on the long-term composite section due to wearing surface.

Mu (Strength I) = 1.25 M(DC1+DC2) + 1.5 M DW + 1.75 M(1/4+Imp)
φf Mn is the Compact positive moment capacity computed in accordance with 6.10.7.1.

fs (Service II) is the sum of the stresses due to DC1+DC2+DW+1.3(1/4+Imp)

fs (Total) (Strength I) (Non-Compact Section) is the sum of the stresses due to 1.25(DC1+DC2)+1.5DW+1.75(1/4+Imp)

Vf is the maximum shear range computed in accordance with Article 6.10.10

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THE CITY OF LAKE FOREST
CHARTERED 1861

ILLINOIS DEPARTMENT OF TRANSPORTATION
BUREAU OF LOCAL ROADS AND STREETS

PROJECT:
OLD ELM ROAD OVER EAST SKOKIE DITCH
STA. 187+46 LAKE COUNTY
STRUCTURE NO. 049-6870

TITLE:
BEAM ELEVATION

SCALE: N.T.S. DRAWN BY: IMG
DATE: JANUARY 2008 CHECKED BY: NSA

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REV. NO.	DATE	REVISION RECORD	MADE BY	CHECKED BY	