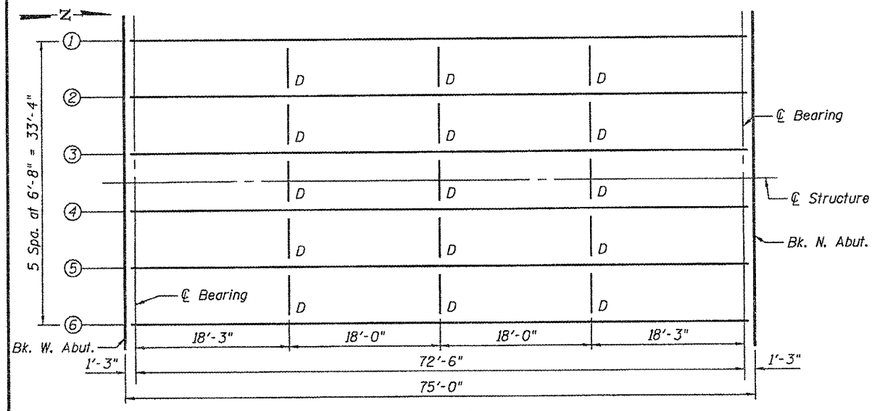
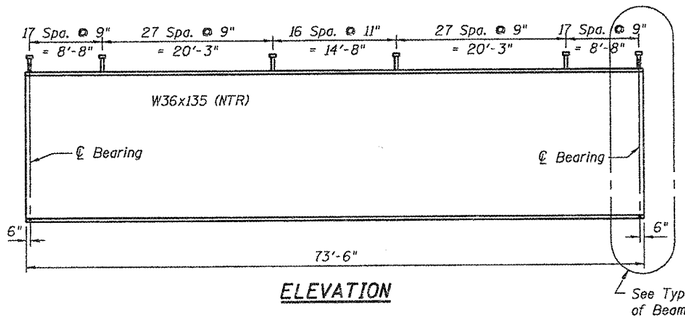
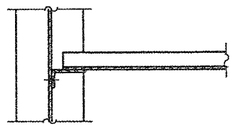


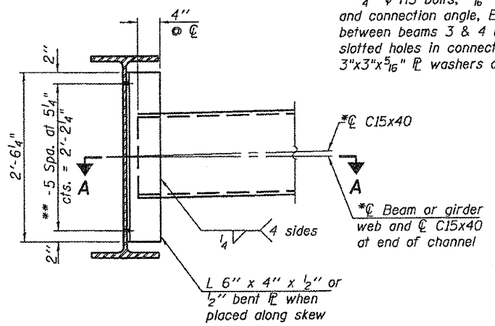
FRAMING PLAN



ELEVATION



SECTION A-A



INTERIOR DIAPHRAGM

Note:
Two hardened washers required for each set of oversized holes.
*Alternate C15x50 channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.
The alternate, if utilized, shall be provided at no additional cost to the Department.

**¾" ϕ HS bolts, 15/16" ϕ holes in beam web and connection angle, EXCEPT for diaphragms between beams 3 & 4 use 13/16" x 1⅛" vertical slotted holes in connection angle, and provide 3"x3"x5/16" ℙ washers over sloted holes.

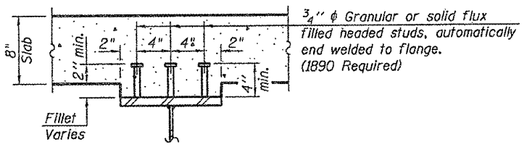
INTERIOR GIRDER MOMENT TABLE		
		0.5 Span
I_s	(in^4)	7800
$I_c(n)$	(in^4)	20397
$I_c(3n)$	(in^4)	15531
S_s	(in^3)	439
$S_c(n)$	(in^3)	638
$S_c(3n)$	(in^3)	583
Z	(in^3)	509
DC1	(k/')	0.84
M_{DC1}	('k)	551.9
DC2	(k/')	0.15
M_{DC2}	('k)	98.6
DW	(k/')	0.34
M_{DW}	('k)	223.4
M_{L+IM}	('k)	1049.5
M_u (Strength I)	('k)	2984.9
* $\phi_f M_n$, $\phi_f M_{nc}$	('k)	3343.7
f_s DC1	(ksi)	15.1
f_s DC2	(ksi)	2.0
f_s DW	(ksi)	4.6
f_s 1.3(L+IM)	(ksi)	24.0
f_s (Service II)	(ksi)	45.7
** f_s (Total)(Strength I)	(ksi)	--
V_r	(k)	53.4

* Compact sections
** Non-Compact and slender sections

INTERIOR GIRDER REACTION TABLE		
		Abut.
R_{DC1}	(k)	30.5
R_{DC2}	(k)	5.4
R_{DW}	(k)	12.3
R_{L+IM}	(k)	82.2
R_{Total}	(k)	130.4

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^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-Strength I, and Service II) 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-Strength I, and Service II) 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. Omit line in Moment Table if not used in design calculations (in^3).
DC1: Un-factored non-composite dead load (kips/ft.).
M_{DC1}: 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_{DC2}: 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_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).
M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$
$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).
$\phi_f M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).
f_s (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_{L+IM}$
f_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$
V_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

Notes:
1. All structural steel shall be AASHTO M270 Grade 50W.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
3. All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
4. For Stage II Construction, diaphragms between Beam 3 & 4 shall be installed with bolts at both beams only finger-tight and with slots positioned to allow maximum differential deflection the deck pour. Bolts shall be fully tightened as soon as possible after deck pour to minimize differential deflections due to traffic.

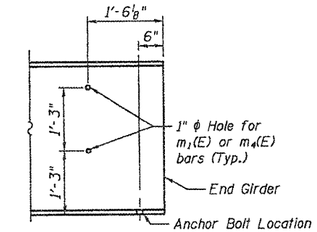


SECTION A-A

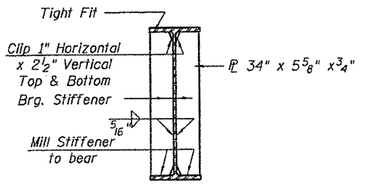
TOP OF BEAM ELEVATION TABLE

(For Fabrication Use Only)

Girder	℄ S. Abut.	℄ N. Abut.
1	583.56	583.61
2	583.68	583.73
3	583.79	583.84
4	583.79	583.84
5	583.68	583.73
6	583.56	583.61



TYPICAL END OF BEAM DETAIL



BEARING STIFFENERS