

Contract #83984

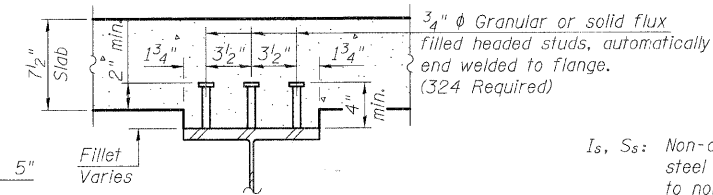
	W. Abut.	Pier 1
R _Q (k)	3.3	3.3
R _L (k)	16.3	16.3
Imp. (k)	---	---
R _{Total} (k)	49.3	49.3

Beam	Q Brg. W. Abut.	Q Brg. Pier 1
1.1	817.63	821.44
1.2	817.63	821.44

	0.5 Span
I _s	(in ⁴) 6,680
I _c (n)	(in ⁴) 15,924
I _c (3n)	(in ⁴) 11,574
S _s	(in ³) 436
S _c (n)	(in ³) 609
S _c (3n)	(in ³) 548
Z	(in ³) ---
Q	(k/ft) 0.771
M _Q	(k) 568
s _Q	(k/ft) 0.07
M _{sQ}	(k) 52
M _L	(k) 313
M _{Imp}	(k) ---
M ₃ [M _L + M _{Imp}]	(k) 522
M _a	(k) 1,485
M _u	(k) 2,880
f _s Q non-comp	(ksi) 15.63
f _s Q (comp)	(ksi) 1.14
f _s M ₃ [M _L + M _{Imp}]	(ksi) 10.29
f _s (Overload)	(ksi) 27.06
f _s (Total)	(ksi) ---
VR	(k) 16.3

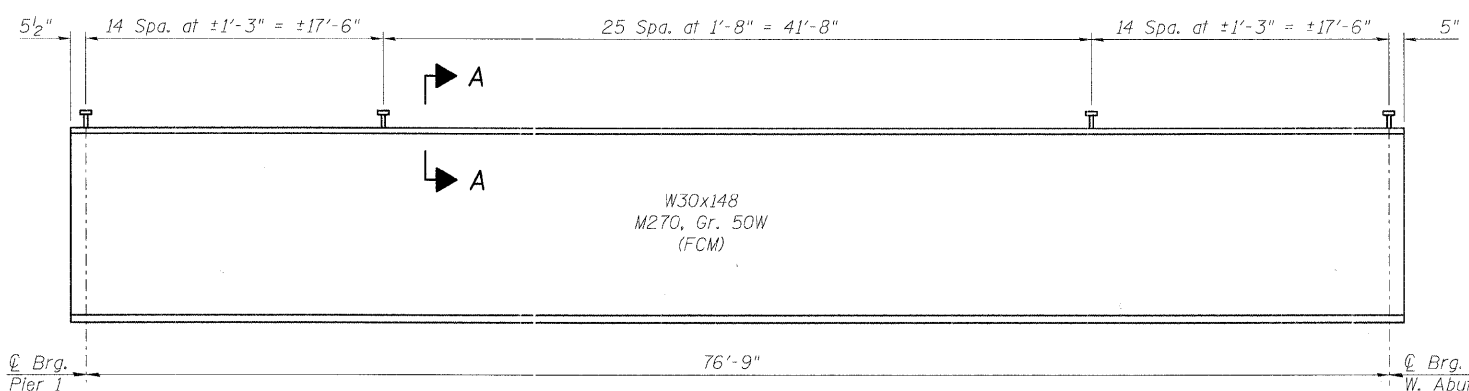
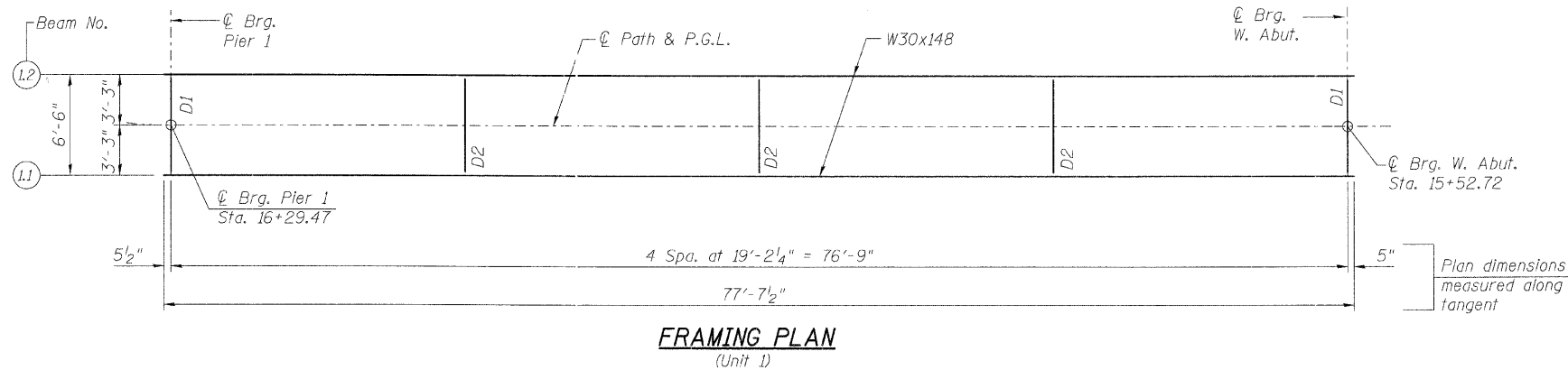
* Compact section

- 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 (in⁴ and in³).
- 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 (in⁴ and in³).
- 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 (in⁴ and in³).
- Z: Plastic Section Modulus of the steel section in non-composite areas (in³).
- Q: Un-factored non-composite dead load (kips/ft.).
- M_Q: Un-factored moment due to non-composite dead load (kip-ft.).
- s_Q: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- M_{sQ}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- M_L: Un-factored live load moment (kip-ft.).
- M_{Imp}: 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 L + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).



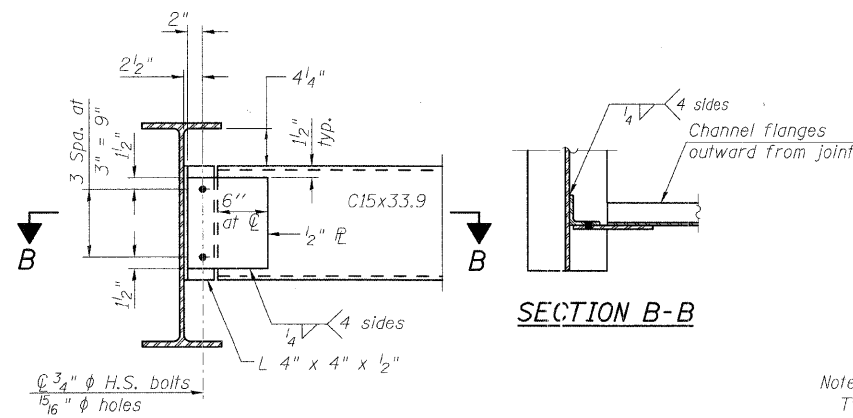
NOTES:

All Structural Steel shall be AASHTO M270 Grade 50W.



BEAM ELEVATION

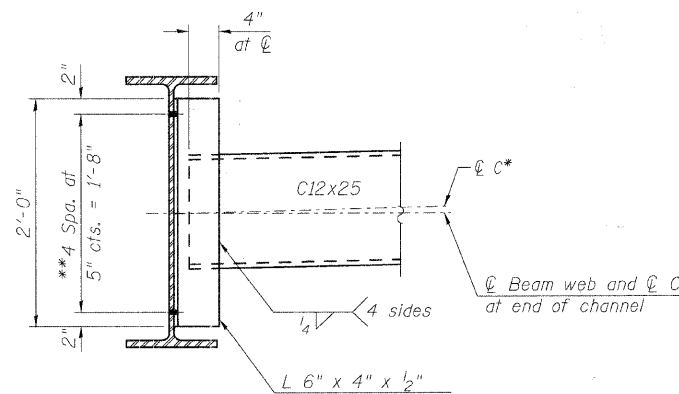
"FCM" Indicates Fracture Critical Member



DIAPHRAGM D1

(2 Required)

Note: Two hardened washers required for each set of oversized holes.



DIAPHRAGM D2

(3 Required)

Note: Two hardened washers required for each set of oversized holes.

* Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.
** 3/4 inch H.S. bolts, 5/16 inch holes

DESIGNED	MJD
CHECKED	AEU
DRAWN	MJD
CHECKED	AEU

BILL OF MATERIAL

Item	Unit	Total
Stud Shear Connectors	Each	324



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STRUCTURAL STEEL UNIT 1

PEDESTRIAN BRIDGE OVER RANDALL ROAD
AT SILVER GLEN ROAD
FAU 2505, SECTION 94-P4008-01-BR
KANE COUNTY
STRUCTURE NO. 045-9000

DATE: OCTOBER 31, 2008