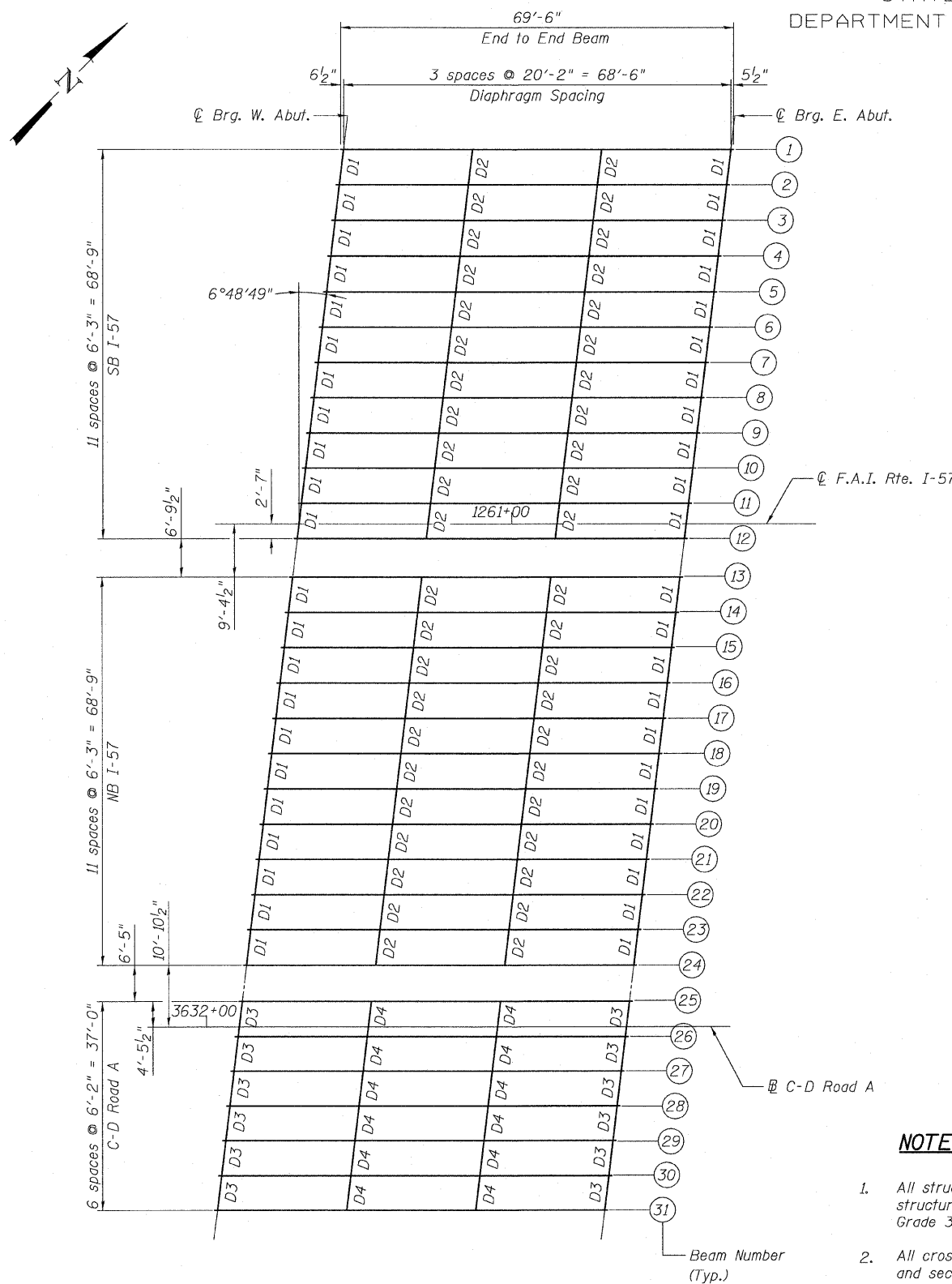


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



FRAMING PLAN

	Abutment
R _{DC1}	(k) 28.5
R _{DC2}	(k) 4.4
R _{DW}	(k) 10.6
R _{ℓ + IM}	(k) 73.1
R _{Total}	(k) 116.6

(Controlling case are beams over C-D Road A)

TOP OF BEAM ELEVATIONS
For Fabrication Only.

Beam	℄ Brg. W. Abut	℄ Brg. E. Abut
1	634.04	633.61
2	634.17	633.75
3	634.30	633.87
4	634.40	633.98
5	634.40	633.98
6	634.32	633.90
7	634.21	633.79
8	634.08	633.66
9	633.95	633.54
10	633.83	633.41
11	633.70	633.29
12	633.58	633.16
13	633.72	633.30
14	633.86	633.45
15	634.00	633.58
16	634.13	633.72
17	634.25	633.84
18	634.36	633.95
19	634.36	633.95
20	634.27	633.86
21	634.16	633.75
22	634.03	633.63
23	633.91	633.50
24	633.78	633.38
25	634.19	633.78
26	634.31	633.90
27	634.41	634.00
28	634.41	634.00
29	634.33	633.93
30	634.25	633.85
31	634.12	633.72

	0.5 Sp.
I _s	(in ⁴) 9,040
I _c (n)	(in ⁴) 22,430
I _c (3n)	(in ⁴) 16,488
S _s	(in ³) 504
S _c (n)	(in ³) 715
S _c (3n)	(in ³) 647
DC1	(k/ft) 0.809
M _{DC1}	(k) 475
DC2	(k/ft) 0.128
M _{DC2}	(k) 75
DW	(k/ft) 0.308
M _{DW}	(k) 181
M _{ℓ + IM}	(k) 922
M _u (Strength I)	(k) 2,573
φ _r M _n	(k) 3,614
f _s DC1	(ksi) 11.3
f _s DC2	(ksi) 1.4
f _s DW	(ksi) 3.4
f _s 1.3(ℓ+IM)	(ksi) 20.1
f _s (Service II)	(ksi) 35.8
V _r	(k) 23.3

(Controlling case are beams over C-D Road A)

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 (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-Strength I, and Service II) 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-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in⁴ and in³).

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 (Strength I): Factored design moment (kip-ft.).
1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{ℓ + IM}

φ_rM_n: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

φ_rM_{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}

V_r: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

NOTES

- All structural steel for beams shall be AASHTO M 270 Grade 50. All other structural steel shall conform to the requirements of AASHTO M270, Grade 36.
- All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

FRAMING PLAN
SN. 016-1252

TYLIN INTERNATIONAL	DESIGNED - DY	REVISIONS		SHEET NO. 40	F.A.I. RTE. 57	SECTION 1414.2B	COUNTY COOK	TOTAL SHEETS 516	SHEET NO. 353
	CHECKED - AD,LS	NAME	DATE						
	DRAWN - DY,EI								
	CHECKED - LS,SP,PDF								
	DATE - 03/18/10								
				62 SHEETS	CONTRACT NO. 60J27				
				FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT					

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