

PROJECT - MASS. D.P.W. - 1690

MADE BY TTE DATE 9 JAN 82

SUBJECT BRIDGE C-18-19 RATING

CHECKED BY CKD DATE 3/1/82

CONCRETE FRAME BRIDGE - 1937.

ASSUME $f'_c = 3300$ PSI

 $f_c = 1300$ PSI INV. RATING

 $= 1750$ PSI OP. RATING

 $n = 10$
 $E_c = W^{1.5} 33 \sqrt{f'_c} = 150^{1.5} 33 \sqrt{3300} = 2,470$ KSI

 $f_s = 18$ KSI INV. RATING

 $= 25$ KSI OP. RATING

TEMP. AV. = 60° EARTH. $.035 \times 23.60848^2 \times 6$
RISE $35^\circ = 9.75' \approx 7.87$ ABOVE
FALL 45° A

ROTATION OF CONCRETE SEGMENTS :

$$\Delta = \frac{PL}{AE} = \frac{f_c L}{E}$$

$$\theta = \frac{\Delta}{kd} = \frac{f_c L}{kdE}$$

$$f_c = \frac{M}{jd} / \frac{1}{2} kdb = \frac{M}{\frac{1}{2} j k b d^2} = \frac{M}{\frac{1}{2} \times \frac{7}{8} \times \frac{3}{8} d^2} = \frac{128}{21} \frac{M}{d^2}$$

$$\theta = \frac{ML}{\frac{1}{2} j k^2 b d^3 E} = \frac{ML}{EI} \text{ WHERE } I = \frac{1}{2} j k^2 b d^3$$

$$\text{FOR } j = \frac{7}{8}, k = \frac{3}{8} \quad I = \frac{1}{2} \times \frac{7}{8} \times \frac{3}{8} \times \frac{3}{8} b d^3 = \frac{63 b d^3}{2 \times 8 \times 64} \approx \frac{b d^3}{16}$$

ALL DIMENSIONS IN FEET.

$$f_s = \frac{M}{jd A_s} = \frac{M}{\frac{7}{8} d A_s} = \frac{8}{7} \frac{M}{d A_s} \text{ OR } M = \frac{7}{8} f_s d A_s$$

$$= 15.75 d A_s \text{ INV.}$$

$$\text{ALSO } M = f_c \frac{21}{128} d^2 \times 144$$

$$= 30.71 d^2 \text{ INV.}$$

$$= 41.34 d^2 \text{ OP.}$$

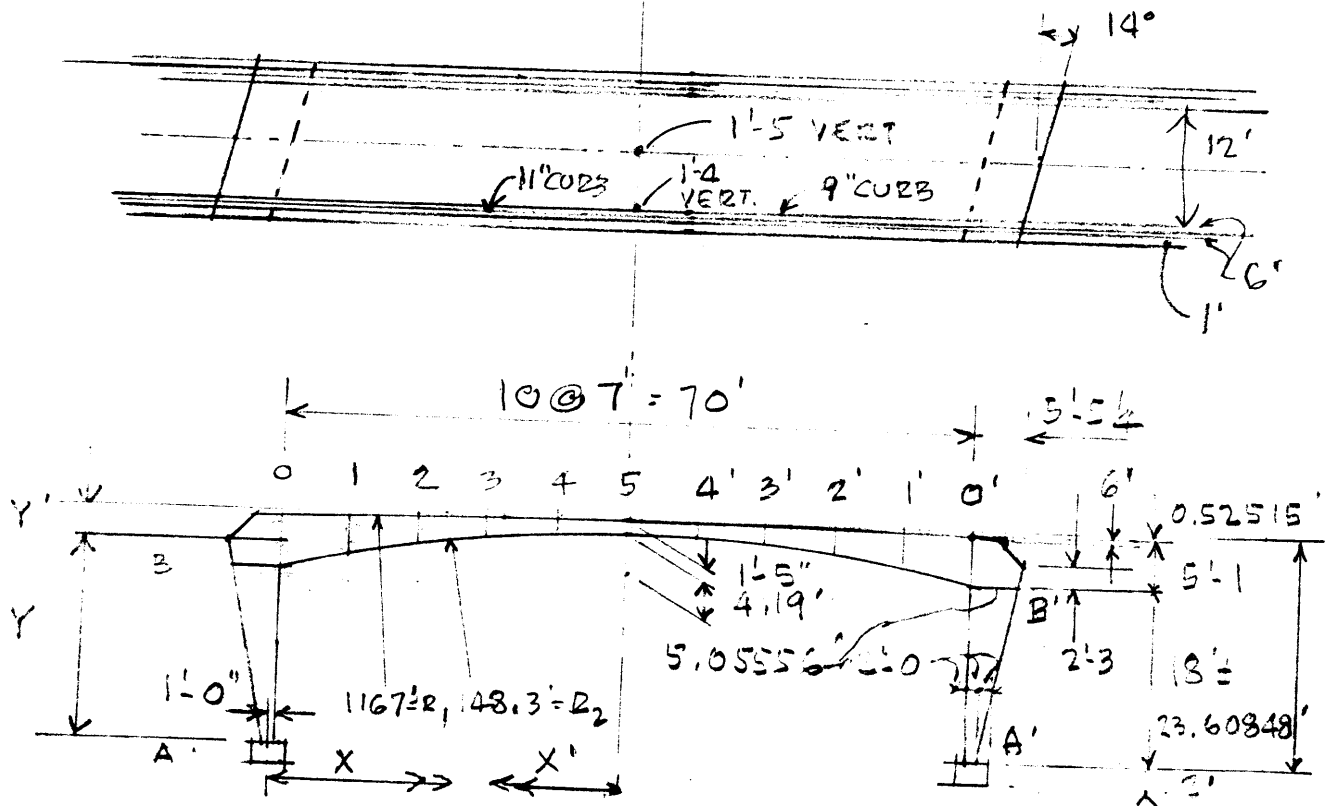
$$\frac{1}{2} j k^2 b d^3$$

PROJECT MASS D.P.W. - 1690

MADE BY TIE DATE 9 JAN 82

SUBJECT BRIDGE C-18-19 RATING

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ASSUME EFFECT OF SKEW NEGLIGIBLE BECAUSE OF THE LENGTH OF SPAN AND THE NARROW WIDTH OF THE BRIDGE.

PT.	X'	SIN θ_1	θ_1	$(1 - \cos \theta_1) \times R_1$	DIFF.	T (DOWN)
A						
B						1.00000
0	35	.03000	1°43.13'	.00045	.52515	4.94444
1	28	.02400	1°22.52'	.29	.33843	
2	21	.01800	1°01.90'	.16	.18672	
3	14	.01200	0°41.24'	.07	.08169	
4	7	.00600	0°20.62'	.02	.02334	
5	0	0	0	0	0	
	X'	SIN θ_2	θ_2	$(1 - \cos \theta_2) \times R_2$		
0		.23601	13°39.04'	.02825	4.18948	3.66433
1		.18881	10°53.00'	.01799	2.66792	2.32949
2		.14161	8°08.46'	.01008	1.49486	1.30814
3		.09440	5°25.00'	.00447	.66290	.58121
4		.04720	2°42.31'	.00111	.16461	.14127

PROJECT MASS. D.P.W. - 1290

MADE BY DE DATE 10 JAN 82

SUBJECT BRIDGE C-18-19 ZATING

CHECKED BY CKD DATE 3/1/82

PT.	Y' AT SECT.	Y' FOR SECT.	T	d = T - 3 1/2" (cover)	I = bd ³ /16
A			2.0	1.70833	
			3.52778	3.23611	5.093
B			5.05556	4.76389	
0	3.06565		5.08100	4.78933	
		2.63858	4.41358	4.12191	4.377
1	2.21151				
		1.88032	3.23548	2.94381	1.544
2	1.54912				
		1.31436	2.36134	2.06967	0.554
3	1.08061				
		.94146	1.76791	1.47624	0.201
4	.80231				
		.75532	1.48730	1.19563	0.107
5	.70834		1.41667	1.12500	.089

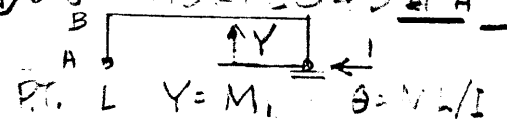
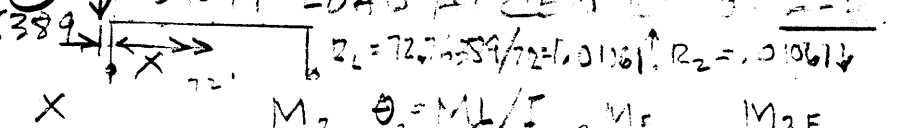
EXT.	REINF.	INT.	D.L. FOR CROWN SECTION
			1.33 x 15.83 = 21.11
			0.08 x 6. = .48
A	8 # 5" = .90 SI	8 @ 16	2 x .75 x 1.92 = 2.88
	"	"	2 x 0.52 x .33 = .05
B	1 # 4" = 3.0 SI	"	2 x .92 x 1.5 = 2.75
	"	"	2 x .5 x .5 = .50
0	"	"	2 x .33 x .75 = .50
	"	"	2 x .83 x .58 x 3.67 / 8.08 = .44
1	"	"	W.C. .21 x 12.00 = 2.52
	"	"	31.23 x .150 = 4.68 k' / 15.83 = .295 k' / ft. D.L.
2	1 # 4" = 3.0 SI	"	- T ₅ x .10 = .213
	1 # 8" = 1.5 SI	8 @ 16: 0.45	.082 k' /
3	1 # 8" = 1.5 SI	8 @ 8: 0.90	x 7' = .574 k' / seg.
	1 # 16" = 0.75 SI	3 # 4" = 1.80	= SUPERIMPOSED D.L.
4	"	"	
	"	"	
5	"	"	

PROJECT MASS. D.P.W. - 1690

MADE BY TE DATE 6 FEB 82

SUBJECT BRIDGE C-18-19 RATING

CHECKED BY CKD DATE 3/1/82

① UNIT HOR. LOAD AT A'			② UNIT LOAD AT CENTER OF A-B		
					
PT. L	$Y = M_1$	$\theta = YL/I$	X	M_2	$\theta_2 = M_2/I$
A					
18'	9.0	$\theta = -38.700$	-0.76389	-0.772	$\theta_2 = 3.320$
B	18.0		-1.52778	-0.780	
0	20.01283		+1.0	-0.753	
7'	20.96990	-33.537	4.5	-0.714	-1.141
1	7'	21.72816	-95.418	11.5	-0.640
2	7'	22.29362	-281.688	18.5	-0.566
3	7'	22.66702	-789.397	25.5	-0.492
4	7'	22.85316	-1495.067	32.5	-0.418
5	7'	22.90012		36.0	-0.381
6	7'			39.5	-0.344
7		-2735.807			
8	7'		46.5	-0.270	-9.530
9	7'		53.5	-0.196	-2.480
10	7'		60.5	-0.122	-0.540
11	7'		67.5	-0.048	-0.077
12	7'		71.0	-0.011	
13	18'		73.52778	+0.012	
14	18'		72.76389	+0.005	

$$\Delta H \text{ AT } A' : M_1 / (EI)$$

$$= 5467.614 \times 18' / (3170 \times 121)$$

$$\theta_2 = -94.474$$

$$M_F = (-94.47 / -5467.614) M_1$$

$$M_{F2} = M_2 + M_F$$

MADE BY TE DATE 7 FEB 82

CHECKED BY CKD DATE 3/1/82

④ UNIT LOAD AT $X = 11.5$ [0.5972]

A $- .7164 = 2.079$ $-.875$ -1.591 $-.6424 = 2.761$ -2.225 -2.867
B -1.432 -1.749 -3.185 -1.234 -4.442 -5.726

+ ,840 - 5,068 - 1,238
 3,781 4,450 - 5,172 - 1,391

$$9.663 \ 42.421 \ -5.362 \ -2.301$$

8,545 107.838 - 7,528 = 3,320

7,427 058,652 - 7,600 = 1,827

$$6,307 + 12,738 - 5,640 + 0,669$$

0.150 - 0.005 + 0.075

5. 191 339, 398 5.4 m. - 0.4-1.2

1,273 141,846 ↘ - 1,227

5,951 37,292 - 2550

1,357 8,064 -3,005

719 1.150 - 1453

160 -4.923

244 -4 681

1525 525 2347

$$52.1 + \frac{1350.763}{5467.614}$$

PROJECT MASS. D.P.W. - 1690

MADE BY TLE DATE 7 FEB 82

SUBJECT BRIDGE C-18-19 RATING

CHECKED BY CKD DATE 3/1/82

⑤ UNIT AT X=18.5 (2-3)

R=35.5/25.74306 R=18.5/11.25694
M_B θ_B M_F M_{5F}

A - .5685 2.142 - 3.530 - 4.098
B - 1.135 - 7.060 - 8.195

0 + .743 - 8.055 - 7.312
3.344 5.350 - 8.210 - 4.866

8.545 37.513 - 8.515 + .030

10.747 173.487 - 8.745 + 5.002

11.948 246.100 - 8.895 + 3.053

10.149 663.960 - 8.960 + 1.189

9.250 - 8.980 + 0.270

8.351 546.327. SYM - 0.609

6.552 228.120 , - 2.343

4.753 59.983 , - 3.992

2.955 12.972 , - 5.560

1.156 1.850 , - 7.054

.257 , - 7.798

0 - .893 , - 8.588

- .1965 .543 , - 4.294

+ 2142.677
5467.612

⑥ UNIT AT X=25.5 (3-4)

R=46.5/12.64533 R=25.5/23.35467
M_B θ_B M_F M_{6F}

- .423 2.120 - 4.651 - 5.173
- .987 - 9.365 - 10.352

+ .646 - 10.680 - 10.234
2.906 4.650 - 10.900 - 7.494

7.427 32.605 - 11.305 - 5.878

11.948 150.782 - 11.600 + 0.348

16.469 572.547 - 11.800 + 2.367

13.490 915.284 - 11.855 + 2.105

12.750 - 11.915 + 0.835

11.511 752.056 SYM - 0.572

9.031 314.572 , - 2.769

6.552 59.686 , - 5.048

4.073 17.880 , - 7.232

1.534 2.850 , - 9.306

- .354 , - 10.286

- .541 , - 9.906

- .0715 7.165 , - 4.151

+ 2543.279
5267.512

PROJECT MASS. D. D. W. - 16 90

MADE BY TE DATE 13 FEB 82

SUBJECT BRIDGE C-18-14 RATING

CHECKED BY CKD DATE 3/1/82

⑦ UNIT AT $E = 33.5$ (4-5) $E_L = 33.5/72 = .464$ $E_R = 33.5/72 = .464$ M₇ θ_7 M_F M_{7F}

A

-1.802 -5.428 -5.847

B -1.838 -10.856 -11.694

C +.549 -12.375 -11.826

2.429 3.950 -12.625 -10.156

6.309 27.697 -13.100 -6.791

10.149 128.080 -13.460 -3.311

13.990 487.214 -13.690 +0.306

17.830 116.449 -13.790 +4.040

16.250 -13.810 +2.440

14.670 459.720 0.Y.M. +1.080

11.510 400.346 \downarrow -2.1808.351 105.390 \downarrow -5.1095.191 22.788 \downarrow -7.9092.031 3.250 \downarrow -10.5941.101 \downarrow -11.934-1.690 \downarrow -10.166-1.825 \downarrow -5.083

+ 3302.098

3467.314

⑧ UNIT AT $E = 36$ $E_L = E_R = .5$ M₈ θ_8 M_F M_{8F}-1.382 \downarrow -1.643 -5.428 -5.810-1.764 \downarrow -10.856 -11.620+1.500 \downarrow -12.375 -11.875

2.250 3.600 -12.625 -10.375

5.750 25.242 -13.100 -7.350

9.250 116.735 -13.460 -2.310

12.750 444.030 -13.690 -0.340

16.250 1063.084 -13.790 +2.460

18.000 \downarrow -13.810 +4.19016.250 0.Y.M. \downarrow 12.750 \downarrow \downarrow \downarrow 9.250 \downarrow \downarrow \downarrow 5.750 \downarrow \downarrow \downarrow 2.250 \downarrow \downarrow \downarrow +1.500 \downarrow \downarrow \downarrow -1.764 \downarrow \downarrow \downarrow -1.382 \downarrow -1.643 \downarrow \downarrow

3302.098

MADE BY TAI DATE 12 25 82

-CHECKED BY CKD DATE 3/1/82

[illegible]

	1	2	3
L. M.	-114,331	-211,110	-199,105
d	3,236	4,764	4,789
As	EX: 3.00 INT: .45	EX: 3.00 INT: .45	EX: 3.00 INT: .45
Memoval.: INV./bal.: 321.60	432.91	696.86 938.07	704.91 948.51

PROJECT MASS, D.P.W., - 1690

MADE BY TE DATE 15 FEB 82

SUBJECT BRIDGE C-18-19 RATINGS

CHECKED BY CKD DATE 3/1/82

	0-1	1-2	2-3
A	1 ^K x W	1 ^K x W	1 ^K x W
3	- .352 - 4.805	- .265 - 3.625	- .181 - 2.475
0			
1	+ 2.184 + 11.385	+ 1.666 + 8.680	+ 1.179 + 6.140
2	- 1.391 - 5.525	- 4.301 - 17.080	- 3.040 - 12.075
3	- 4.566 - 14.805	- 0.030 + 0.091	+ 2.003 + 15.208
4	- 7.994 - 18.425	- 3.878 - 9.426	+ 0.345 - 3.846
5	- 10.156 - 21.655	- 6.791 - 14.500	- 3.311 - 7.070
4	- 10.594 - 22.600	- 7.909 - 16.900	- 5.109 - 10.900
3	- 9.306 - 22.605	- 7.232 - 17.590	- 5.045 - 12.262
2	- 7.052 - 21.150	- 5.560 - 16.925	- 3.992 - 12.135
1	- 4.453 - 17.680	- 3.525 - 14.000	- 2.550 - 10.125
0	- 1.754 - 9.140	- 1.396 - 7.273	- 1.009 - 5.250
3			
A	+ .314 + 4.295	+ .253 + 3.455	+ .189 + 2.580
L.M.	- 144.020	- 70.983	- 23.384
d	4.122	2.944	2.070
As	EX: 3.00 INT: .45	EX: 3.00 INT: .45	EX: 1.50 INT: .45
W corner			

PROJECT MASS. D.O.W. - 1690

MADE BY TTE DATE 10 SEP 82

SUBJECT BRIDGE 2-18-19 RATING

CHECKED BY SKD DATE 3/1/82

	3-4	4-5	5 = CROWN
A	1K x W	1K x W	1K x W
B	-1.100 -1.368	-1.023 -0.314	+0.015 +0.205
0			
1	+0.701 +3.653	+0.249 +1.297	+0.022 +0.115
2	+1.827 +7.325	+0.669 +2.655	+0.022 +0.577
3	+3.053 +9.278	+1.189 +3.616	+0.270 +0.821
4	+4.669 +11.345	+2.105 +5.110	+0.835 +0.950
5	+0.300 +0.641	+4.040 +8.630	+2.450 +5.212
6	-2.180 -4.655	+1.080 +2.307	SYM.
7	-2.769 -6.730	-0.374 -0.909	
8	-2.343 -7.135	-0.609 -1.850	
9	-1.527 -6.055	-0.449 -1.780	
0'	-0.611 -3.185	-0.189 -0.985	
B'			
H'	+0.122 +1.667	+0.051 +0.697	
1. M.	+4.781	+18.472	+17.520
d	1.476	1.196	1.125
As	EX: 1.75 INT: 1.80	EX: 1.75 INT: 1.80	EX: 1.75 INT: 1.80
Measures			

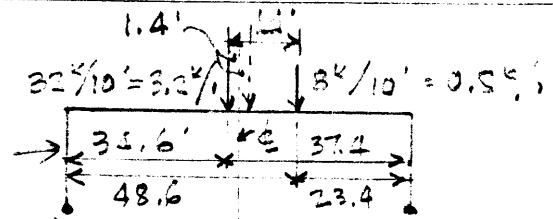
PROJECT MASS. D. S. W. - 1640

MADE BY TFE DATE 20 FEB 82

SUBJECT BRIDGE C-15-19 RATING

CHECKED BY CKD DATE 3/2/82

4 2D LOAD : ASSUME 10' DISTRIB. WIDTH
 DISTANCE BETWEEN TF & RF = 3.5'



$$32.5 < 34.6 < 36$$

(7)

(8F)

INTERPOLATE

M_{7F} M_{8F} M_{TOT.} M_{3.2}
 $\frac{1.4}{3.5} = \frac{2.1}{3.5}$ (UNIT
 LOAD)

M_{5F} M_{6F} M_{TOT.} M_{0.8} M_{12.20}
 $\frac{3.25}{7} = \frac{4.9}{7}$ $25.5 > 23.4 > 18.5$

2	- 2.339	- 3.486	- 5.825	- 18.640	- 1.288	- 3.466	- 4.754	- 3.503	- 22.443
3	- 4.678	- 6.972	- 11.650	- 37.280	- 2.576	- 6.934	- 9.510	- 7.608	- 44.888
4	- 4.730	- 7.125	- 11.855	- 37.936	- 2.339	- 7.228	- 9.567	- 7.654	- 45.590
5	- 4.062	- 6.225	- 10.287	- 32.918	- 2.116	- 6.514	- 8.630	- 6.904	- 39.522
6	- 2.716	- 4.400	- 7.116	- 22.761	- 1.668	- 5.062	- 6.730	- 5.384	- 28.145
7	- 1.324	- 2.526	- 3.850	- 12.320	- 1.198	- 3.534	- 4.732	- 3.786	- 16.106
8	- .130	- .564	- .442	- 1.421	- .703	- 1.938	- 2.641	- 2.113	- 3.534
9	+ 1.616	+ 1.476	+ 3.092	+ 9.894	- .183	- .262	- .445	- .336	+ 9.538
10	+ .976	+ 2.514	+ 3.490	+ 11.168	+ .081	+ .585	+ .666	+ .533	+ 11.701
11	+ .432	+ 1.476	+ 1.908	+ 6.106	+ .357	+ 1.474	+ 1.831	+ 1.465	+ 7.571
12	- .872	- .564	- 1.436	- 4.295	+ .916	+ 3.268	+ 4.184	+ 3.347	- 1.248
13	- 2.044	- 2.526	- 4.570	- 14.624	+ 1.501	+ .244	+ 1.745	+ 1.396	- 13.228
14	- 3.164	- 4.400	- 7.564	- 24.205	+ .090	- 2.715	- 2.625	- 2.100	- 26.305
15	- 4.238	- 6.225	- 10.463	- 33.482	- 1.460	- 5.596	- 7.056	- 5.645	- 39.127
16	- 4.770	- 7.125	- 11.895	- 38.064	- 2.194	- 7.024	- 9.218	- 7.374	- 45.438
17	- 4.066	- 6.972	- 11.038	- 35.322	- 2.458	- 7.246	- 9.704	- 7.763	- 43.035
18	- 2.983	- 3.486	- 5.519	- 17.661	- 1.229	- 3.621	- 4.850	- 3.580	- 21.541

(1009)

PROJECT MASS. D.R.W. - 1690

MADE BY TIE DATE 20 FEB 82

SUBJECT BRIDGE C-18-19 RATING

CHECKED BY CKD DATE 3/2/82

H 20 - CONTINUED

$$I = 50 / (72 + 125) = .25$$

ASSUME LL OVER 15.83' WIDTH

VALUES FOR 10' WILL THEN BE MULT. BY $\frac{10}{15.83} \times .25 = .79$

$$** \text{SUBTRACT VERT. LOAD } M = 3 \times d \times (16.788 + 4.16) = 37.5' \times 16.788 + 4.16 = 37.5' \times 16.788 + 4.16$$

CAP INV.	DL	MNET LL+I	RATING INV.	CAP OP. DL	MNET RATING
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-152.92	-114.38	= 38.59 / 17.95 = 20 = 42.9	-212.37	98.04	109.0
-225.10	-211.11	** 51.49 / 35.91 = 28.6	-312.62	139.03	77.4

-236.28	-197.11	= 27.17 / 36.47 = 14.97	-312.28	115.17	66.3
-171.76	-141.02	= 30.74 / 31.86 = 31.9	-270.71	126.47	79.1

-122.10	-70.28	= 65.12 / 23.52 = 60.6	-121.10	132.22	106.0
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-68.30	-23.35	= 25.52 / 12.38 = 39.6	-67.92	41.54	67.1
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-41.80	+4.78	= 37.06 / 2.83 = 260.9	+55.72	53.34	37.1
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-181.21	+18.47	= 15.14 / 7.63 = 40.5	-162.74	28.62	75.2
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-31.89	+17.52	= 14.37 / 9.36 = 30.7	-14.37	26.77	57.1
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SYM.	SYM	SYM / 6.06			
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4'					
----	--	--	--	--	--

3'					
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2'					
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1'					
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0'					
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0'					
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0'					
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0'					
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0'					
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0'					
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0'					
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MADE BY ME DATE 20 JAN 82

CHECKED BY CKD DATE 3/2/82

Diagram of a beam with three point loads: 1.6^k , 1.4^k , and 1.6^k . The distances between the loads are $30.4'$, $15'$, and $22.6'$. The total length of the beam is $72'$.

REQUIRES $M_{TYP3} \times .80^*$ (SEE P.12) FOR RATING. SEE P.12 FOR NET M.

	M _{3.2} = 3.2 M _{7F}	M _{51F} = M _{61F} × 2.9/7	M _{61F} × 4.1/7	TOT ⇒ M _{1.4}	M _{TP3} FOR 10'	M _{TP3} *	RATING (23T) INV. * OP. *
A	(1)			(2)	(142) × 0.8		(M _{NET} /M _{TP3}) 23
	-19.003	+1.779	-2.900	-4.679	-6.551	-25.534	-20.443
B	-37.421	-3.558	-5.802	-9.360	-13.104	-50.525	-40.420 29.3 79.4
0	-37.843	-3.231	-6.048	-9.279	-12.991	-50.834	-40.667 15.3 ← 65.3 ←
1	-32.499	-2.922	-5.451	-8.373	-11.722	-44.221	-35.377 33.0 82.4
	-21.731	-2.303	-4.236	-6.539	-9.155	-30.886	-24.709 63.6 165.0
	-10.595	-1.654	-2.957	-4.611	-6.455	-17.050	-13.640 43.0 75.1
3	+0.960	-0.971	-1.622	-2.593	-3.630	-3.330	-2.664 320.0 462.0
4	+12.928	-0.252	-.230	-0.482	-0.675	+12.253	+9.802 36.2 67.2
5	+7.808	+0.112	+.489	+0.601	+.841	+8.649	+6.919 47.7 83.8
4	+3.456	+0.493	+1.233	+1.726	+2.316	+5.872	+4.693 75.5 140.5
	-6.976	+1.265	+2.735	+4.000	+5.600	-1.376	-1.101 775. 1113.0
3	-16.349	+2.072	+.204	+2.276	+3.186	-13.163	-10.530 55.7 97.3
2	-25.309	+0.012	-2.271	-2.259	-3.163	-28.472	-22.778 69.1 182.5
1	-33.901	-2.016	-4.682	-6.698	-9.377	-43.278	-34.622 33.7 84.2
0	-38.157	-3.029	-5.877	-8.906	-12.468	-50.625	-40.500 15.4 65.5
3	-32.531	-3.395	-6.063	-9.453	-13.241	-45.772	-36.618 32.3 87.4
A	-16.266	-1.678	-3.030	-4.728	-6.619	-22.885	-18.308

PROJECT MASS. D.P.W.

MADE BY TJE DATE 21 JAN 82

SUBJECT BRIDGE C-18-19 RATING

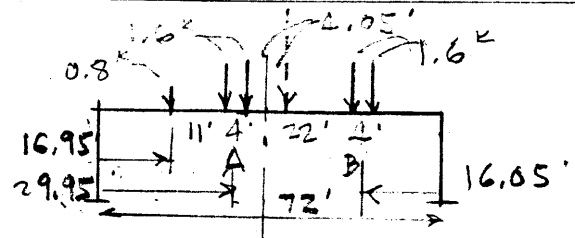
REV 27 FEB 82

CHECKED BY CKD DATE 3/2/82

TYPE 3S2 ASSUME 10' LANE

FINAL LL + I MOM

$$= \frac{10}{15.83} \times 1.25 = \text{SAY } .80$$



M _{4F}	M _{5F}	TOT.	M _{6.8}	M _{6F}	M _{7F}	TOT.	M _{3.2A}	TOT. FOR PAGE
× 1.55/7	× 5.45/7			× 2.55/7	× 4.45/7			

A 0

- .635 - 3.268 - 3.903 - 3.122 - 1.384 - 3.717 - 5.601 - 17.923 - 21.045

B - 1.268 - 6.380 - 7.648 - 6.118 - 3.771 - 7.434 - 11.205 - 35.856 - 41.974

0 - .936 - 5.693 - 6.629 - 5.303 - 3.654 - 7.518 - 11.172 - 35.750 - 41.053

- .308 - 3.786 - 4.094 - 3.275 - 2.912 - 6.456 - 9.368 - 29.478 - 32.753

+ .952 + .023 + .975 + .780 - 1.413 - 4.317 - 5.730 - 18.336 - 17.556

+ .673 + 3.894 + 4.567 + 3.654 + .127 - 2.105 - 1.978 - 6.330 - 2.676

+ .105 + 2.373 + 2.778 + 2.222 + 1.701 + .191 + 1.892 + 6.054 + 8.276

+ .148 + 0.926 + 1.074 + .859 + .767 + 2.568 + 3.335 + 10.672 + 11.531

+ .021 + .210 + .231 + .185 + .306 + 1.551 + 1.357 + 5.942 + 6.127

- .099 - .474 - .573 - .458 - .136 + 0.687 + .551 + 1.763 + 1.305

- .338 - 1.824 - 2.162 - 1.730 - 1.009 - 1.386 - 2.395 - 7.664 - 9.394

- .564 - 3.108 - 3.672 - 2.938 - 1.839 - 3.248 - 5.087 - 16.278 - 19.216

- .781 - 4.329 - 5.110 - 4.088 - 2.635 - 5.028 - 7.663 - 23.522 - 27.610

- .986 - 5.492 - 6.478 - 5.182 - 3.390 - 6.735 - 10.125 - 32.400 - 37.582

- 1.084 - 6.071 - 7.155 - 5.724 - 3.762 - 7.580 - 11.342 - 36.294 - 42.018

B' - 1.038 - 6.686 - 7.724 - 6.179 - 3.609 - 6.463 - 10.072 - 32.230 - 38.409

- .520 - 3.343 - 3.863 - 3.090 - 1.804 - 3.231 - 5.035 - 16.112 - 19.102

A

PROJECT MASS. D.P.W.MADE BY TE DATE 21 JAN 82SUBJECT BRIDGE C-18-19 RATINGCHECKED BY CKD DATE 3/2/82

TYPE 3 S2 - CONTIN.

$$RATING = (M_{NET} / M_{3S2})^{36}$$

SEE P. 12 FOR NET M.

	M4F * 2.45/7	M5F * 4.55/7	TOT	M _{3/23}	M _{3S2} FOR 10'	M _{3S2} *	RATING (36 T)	
							INV.	OP.
A								
	- .819	- 2.791	- 3.610	- 11.552	- 32.597	- 26.078		
B	- 1.640	- 5.582	- 7.222	- 23.110	- 65.084	- 52.067	35.6 ^T	70.2 ^T ←
	- 1.718	- 5.069	- 6.787	- 21.718	- 62.771	- 50.217	19.5 ^T ←	82.6 ^T
	- 1.558	- 4.585	- 6.143	- 19.658	- 52.411	- 41.939	43.6 ^T	108.6 ^T
1								
	- 1.238	- 3.614	- 4.852	- 15.526	- 33.082	- 26.466	92.6 ^T	166.2 ^T
2								
	- .892	- 2.595	- 3.487	- 11.158	- 13.834	- 11.067	83.0 ^T	144.9 ^T
3								
	- .534	- 1.523	- 2.057	- 6.582	+ 2.314	+ 1.848	722.0 ^T	1040.0 ^T
4								
	- .157	- .396	- .553	- 1.770	- 9.761	+ 7.809	71.2 ^T	132 ^T
5								
	+ .033	+ .177	+ .213	+ 0.672	- 6.799	+ 5.439	95.0 ^T	177 ^T
	+ .234	+ .773	+ 1.007	+ 3.222	+ 4.527	+ 3.622	153.5 ^T	285 ^T
4'								
	+ .639	+ 1.984	+ 2.623	+ 8.394	- 1.000	- 0.800	1667 ^T	2400 ^T
3'								
	+ 1.064	+ 3.251	+ 4.315	+ 13.808	- 5.408	- 4.326	212 ^T	371 ^T
2'								
	+ 1.505	+ .020	+ 1.525	+ 4.880	- 22.730	- 18.184	135 ^T	242 ^T
1'								
	- .487	- 3.163	- 3.650	- 11.680	- 49.262	- 39.410	46.3 ^T	115 ^T
0'	- 1.480	- 4.752	- 6.232	- 19.942	- 61.960	- 49.568	19.7 ^T	84 ^T
	- 2.004	- 5.327	- 7.331	- 23.459	- 61.868	- 49.494	37.5 ^T	74 ^T
B'	- 1.008	- 2.664	- 3.672	- 11.750	- 30.952	- 24.762	?	
A'								