APPENDIX 'A'

$$\varphi = 0{,}4 \cdot k_{v,(t_2-t_1)} + \varphi_{t0} \cdot (k_{t,t2} - k_{t,t1}) - 0{,}4 \cdot k_{v,(t_2-t_1)} \cdot k_{v,(t-t_2)} \qquad (1.2)$$

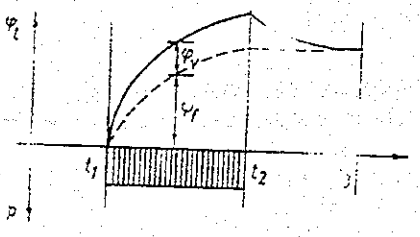


図 1.2 (1.2)式の説明

ここで

k_v 図1.3 による遅れ弾性変形の経時変化についての係数

φ_{t0} 表1.2 による基本流動係数

k_t 図1.4 による流動の経時変化についての係数

l_i 流動の場合のコンクリートの有効材令: $l_i = k_z \cdot k_T \cdot l$ (1.3)

係数 k_T は，コンクリートが激しい温度にさらされるときに役立つ。例えば，蒸中コンクリートなどの場合．一般の場合には $k_T = 1$ であり，従って $l_i = k_z \cdot l$

k_z セメントの硬化速度を考慮するため係数で，次のものを用いる。

$k_z = 1$ Z 250, 350 L, 450 L (訳註：普通セメント相当)
$k_z = 2$ Z 350 F, 450 F (〃 ：早強セメント相当)
$k_z = 3$ Z 550 (〃 ：超早強セメント相当)

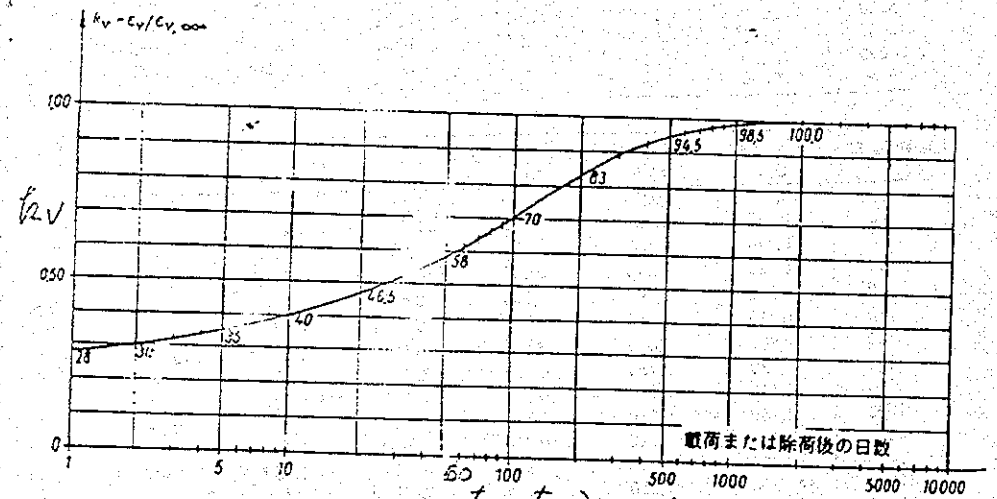


図 1.3 遅れ弾性変形の経時変化に対する係数 k_v (表1.3も参照)

Figure 1

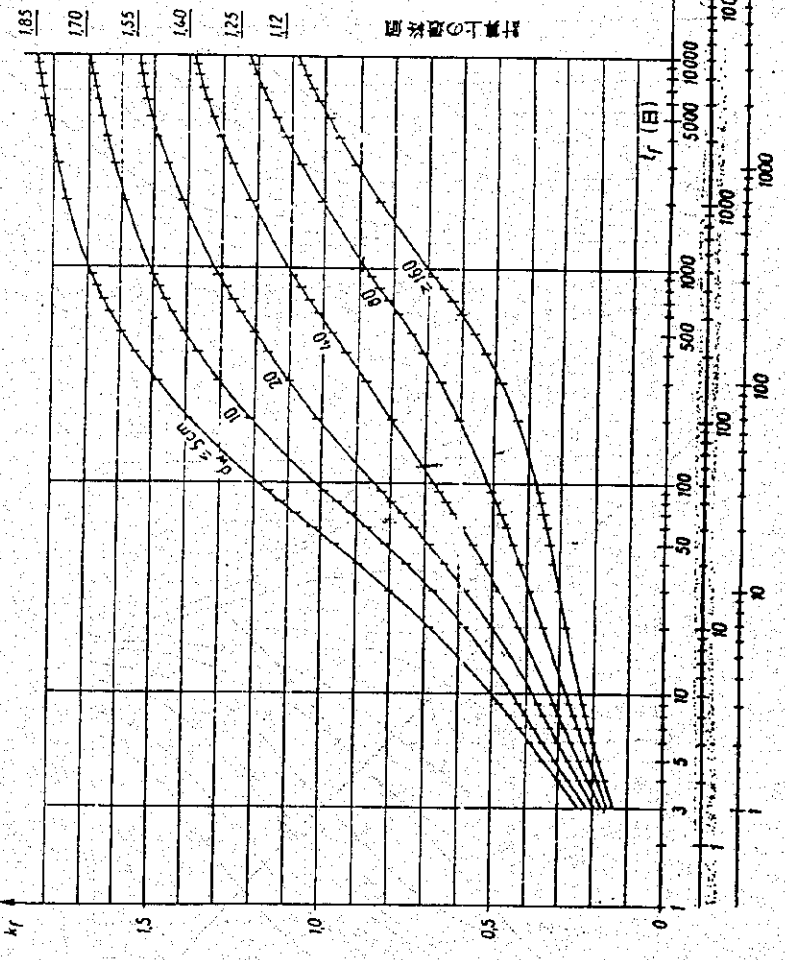


図 1.4 クリープ変形の時間的進展についてコンクリートの有効材令 l_i に関係のある係数 k_t (表1.3も参照)

Figure 2 t or t_0

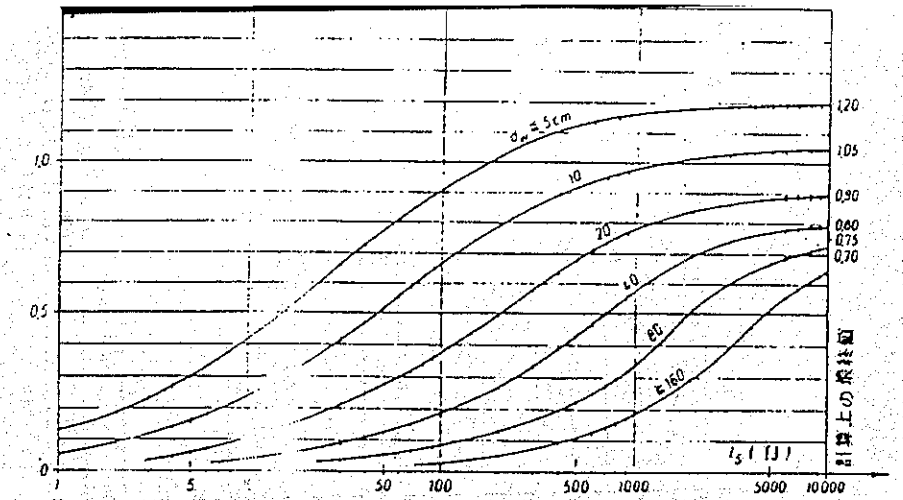


図 1.6 乾燥収縮度の時間的進展についてコンクリートの有効材令 t_s に関係のある係数 k_s
（表1.3も参照）

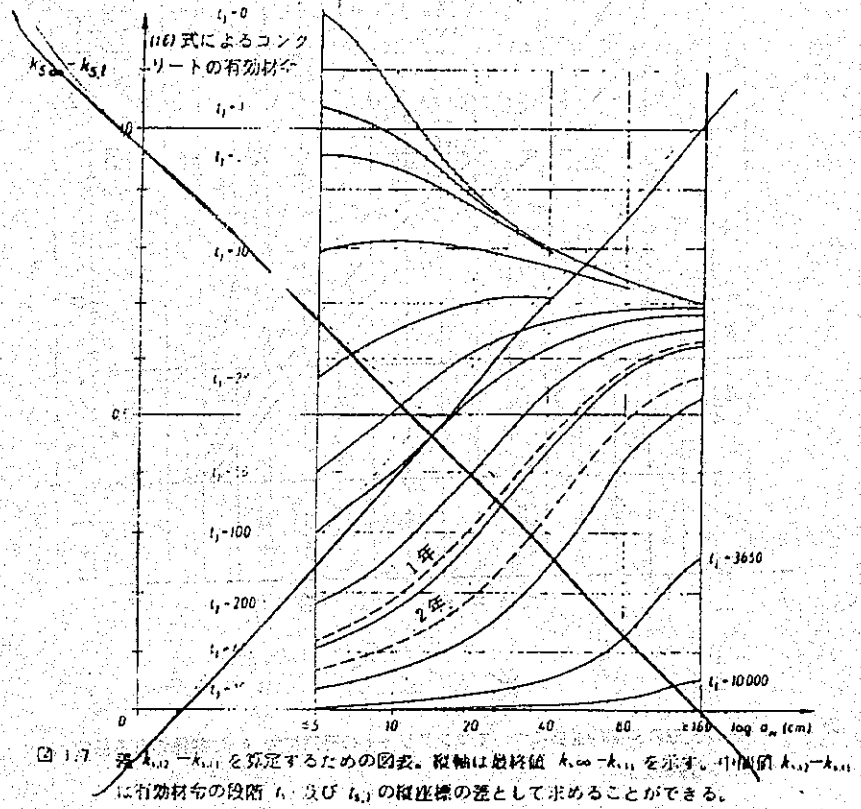


図 1.7 差 $k_{s,12} - k_{s,t_1}$ を決定するための図表。縦軸は最終値 $k_{s\infty} - k_{s,t_1}$ を示す。中間値 $k_{s,12} - k_{s,t_1}$ に有効材令の段階 t_1 及び $t_{s,1}$ の縦座標の差として求めることができる。

1.4. k_v, k_f 及び k_s の値の一覧表

図1.3 数値一覧表 k_v, k_f 及び k_s の値

(a)

時間(日)	k_v 値
1	0,280
2	0,300
5	0,350
10	0,400
20	0,465
50	0,580
100	0,700
200	0,830
500	0,945
1000	0,985
2000	1,000
5000	1,000
10000	1,000
20000	1,000
∞	1,000

電子計算機の利用の便のために 図1.3,図1.4 及び 図1.6 に図表で示した値を表の形（表1.3）で一覧表示。

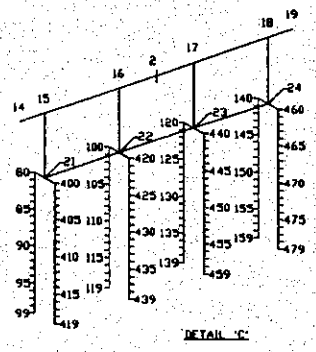
(b)

時間(日)	有効厚さ (cm) に対する k_f の値 ≤5	10	20	40	80	≥160
3	0,240	0,210	0,190	0,170	0,155	0,140
5	0,345	0,310	0,270	0,235	0,210	0,185
10	0,505	0,440	0,380	0,328	0,280	0,235
20	0,685	0,575	0,500	0,420	0,350	0,280
50	0,964	0,810	0,690	0,562	0,443	0,330
100	1,195	1,025	0,850	0,680	0,520	0,375
200	1,395	1,215	1,020	0,800	0,603	0,435
500	1,600	1,413	1,208	0,980	0,750	0,566
000	1,698	1,514	1,320	1,107	0,884	0,703
2000	1,762	1,589	1,416	1,217	1,010	0,842
5000	1,820	1,660	1,516	1,330	1,148	1,000
10000	1,846	1,695	1,545	1,383	1,225	1,085
20000	1,850	1,700	1,550	1,400	1,250	1,120
∞	1,850	1,700	1,550	1,400	1,250	1,120

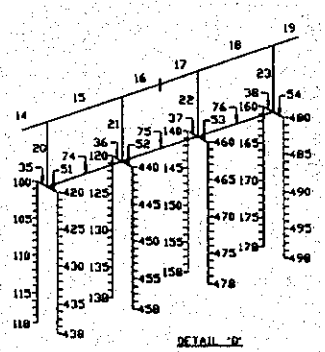
(c)

時間(日)	有効厚さ (cm) に対する k_s の値 ≤5	10	20	40	80	≥160
1	0,110	0,040	0,010	0,0	0,0	0,0
2	0,170	0,080	0,020	0,0	0,0	0,0
5	0,290	0,160	0,055	0,005	0,005	0,0
10	0,420	0,240	0,100	0,030	0,020	0,0
20	0,560	0,340	0,160	0,060	0,030	0,0
50	0,760	0,510	0,270	0,120	0,055	0,010
100	0,900	0,650	0,375	0,185	0,085	0,020
200	1,020	0,780	0,490	0,260	0,120	0,045
500	1,110	0,910	0,660	0,410	0,210	0,090
1000	1,160	0,980	0,770	0,550	0,340	0,175
2000	1,190	1,040	0,840	0,660	0,500	0,310
5000	1,200	1,050	0,885	0,750	0,660	0,510
10000	1,200	1,050	0,895	0,790	0,725	0,640
20000	1,200	1,050	0,900	0,800	0,750	0,700
∞	1,200	1,050	0,900	0,800	0,750	0,700

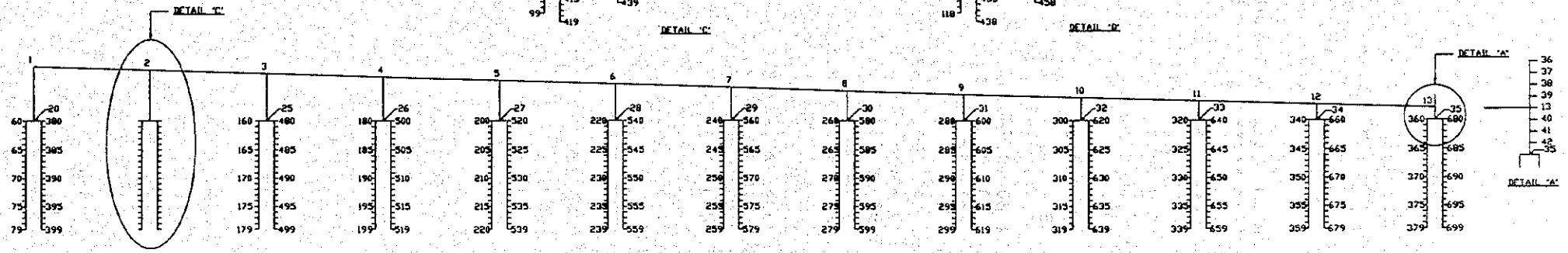
APPENDIX 'B'



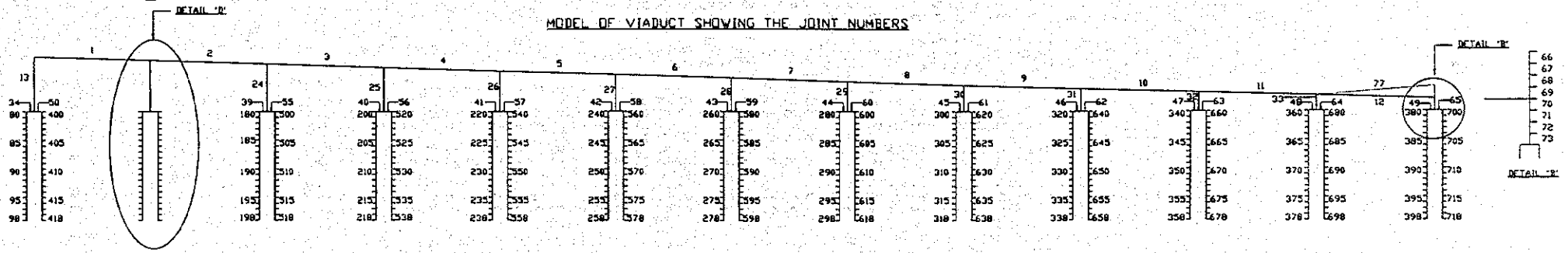
DETAIL 'C'



DETAIL 'D'



MODEL OF VIADUCT SHOWING THE JOINT NUMBERS



MODEL OF VIADUCT SHOWING THE MEMBER NUMBERS

(NOTE : MEMBER 77 EXISTS ONLY WHEN THERE IS THERMAL EXPANSION)

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*****************************************************
*                                                   *
*           S T A A D - III                         *
*           Revision 22.3                           *
*           Proprietary Program of                  *
*           Research Engineers, Inc.                *
*           Date=    FEB 15, 2000                   *
*           Time=    14:39: 0                       *
*                                                   *
*      USER ID: Pacific Consultants Internationa    *
*****************************************************
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 1. STAAD SPACE RUPSA BRIDGE VIADUCT (THERMAL CONTRACTION)
 2. UNIT KN METER
 3. JOINT COORDINATES
 4. 1 0. 14. 0. 13 360. 3.2 0.
 5. 14 30. 13.1 8.05
 6. 15 30. 13.1 6.3 18 30. 13.1 -6.3
 7. 19 30. 13.1 -8.05
 8. 20 0. 0. 0.
 9. 21 30. 0. 6.3 24 30. 0. -6.3
10. 25 60. 0. 0. 34 330. 0. 0.
11. 35 360. 0.7 0.
12. 36 360. 5.2 0.  39 360. 3.7 0.
13. 40 360. 2.575 0.  42 360. 1.325 0.
15. 60 -1.35 0. 0. 79 -1.35 -28.5 0.
16. 80 28.65 0. 6.3 99 28.65 -28.5 6.3
17. R 3 0. 0. -4.2
18. 160 58.65 0. 0. 179 58.65 -28.5 0
19. R 9 30.0 0. 0.
20. 360 358.65 0.7 0. 379 358.65 -27.8 0.
21. 380 1.35 0. 0. 399 1.35 -28.5 0.
22. 400 31.35 0. 6.3 419 31.35 -28.5 6.3
23. R 3 0. 0. -4.2
24. 480 61.35 0. 0. 499 61.35 -28.5 0.
25. R 9 30. 0. 0.
26. 680 361.35 0.7 0. 699 361.35 -27.8 0.
28. MEMBER INCIDENCE
30. 1 1 2 12
31. 13 1 20
32. 14 14 15 15
33. 16 16 2
34. 17 2 17
35. 18 17 18 19
36. 20 15 21 23
37. 24 3 25 33
38. 34 60 20
39. 35 80 21
40. 36 100 22
41. 37 120 23
42. 38 140 24
43. 39 160 25
44. 40 180 26
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46. 42 220 28
47. 43 240 29
48. 44 260 30
49. 45 280 31
50. 46 300 32
51. 47 320 33
52. 48 340 34
53. 49 360 35
55. 50 20 380
56. 51 21 400
57. 52 22 420
58. 53 23 440
59. 54 24 460
60. 55 25 480
61. 56 26 500
62. 57 27 520
63. 58 28 540
64. 59 29 560
65. 60 30 580
66. 61 31 600
67. 62 32 620
68. 63 33 640
69. 64 34 660
70. 65 35 680
71. 66 36 37 68
72. 69 39 13
73. 70 13 40
74. 71 40 41 72
75. 73 42 35
76. 74 21 22 76
77. *PILE
78. 80 60 61 98
79. R 31 20 20
81. MEMBER PROPERETY
83. 1 TO 12          PRI YD 2.853 ZD 2.853
84. 13               PRI IZ 23.22
85. 14 TO 19         PRI YD 0.9 ZD 1.65
86. 20 TO 23         PRI YD 1.5 ZD 1.5
87. 24 TO 33         PRI YD 1.5 ZD 6.0
88. 34 50            PRI YD 3.0 ZD 11.0
89. 35 38 51 54      PRI YD 1.2 ZD 3.3
90. 36 37 52 53      PRI YD 1.2 ZD 4.2
91. 39 TO 48         PRI YD 1.2 ZD 15.0
92. 55 TO 64         PRI YD 1.2 ZD 15.0
93. 49 65            PRI YD 1.0 ZD 16.2
94. 66 TO 69         PRI YD 0.45 ZD 16.2
95. 70 TO 73         PRI YD 1.35 ZD 16.2
96. 74 TO 76         PRI YD 1.35 ZD 4.2
98. 80  TO  98 400 TO 418 PRI IZ 3.835
100. 100 TO 118 420 TO 438 PRI YD 0.9
101. 120 TO 138 440 TO 458 PRI YD 0.9
102. 140 TO 158 460 TO 478 PRI YD 0.9
103. 160 TO 178 480 TO 498 PRI YD 0.9
105. 180 TO 198 500 TO 518 PRI IZ 0.129
106. 200 TO 218 520 TO 538 PRI IZ 0.129
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108. 240 TO 258 560 TO 578 PRI IZ 0.129
109. 260 TO 278 580 TO 598 PRI IZ 0.129
110. 280 TO 298 600 TO 618 PRI IZ 0.129
111. 300 TO 318 620 TO 638 PRI IZ 0.129
112. 320 TO 338 640 TO 658 PRI IZ 0.129
113. 340 TO 358 660 TO 678 PRI IZ 0.129
114. 360 TO 378 680 TO 698 PRI IZ 0.129
115. 380 TO 398 700 TO 718 PRI YD 1.408
116. *
117. MEMBER RELEASES
118. 1 TO 12  START FY FZ MX MY MZ
119. 1 TO 12  END FY FZ MX MY MZ
120. 13 20 TO 33 START MZ
122. CONSTANTS
123. E 27.98E6 LIST 1 TO 12
124. E 25.91E6 LIST 13 TO 76 80 TO 98 700 TO 718
125. E 25.91E6 LIST 100 TO 118 120 TO 138 140 TO 158 160 TO 178 180 TO 198
126. E 25.91E6 LIST 200 TO 218 220 TO 238 240 TO 258 260 TO 278 280 TO 298
127. E 25.91E6 LIST 300 TO 318 320 TO 338 340 TO 358 360 TO 378 380 TO 398
128. E 25.91E6 LIST 400 TO 418 420 TO 438 440 TO 458 460 TO 478 480 TO 498
129. E 25.91E6 LIST 500 TO 518 520 TO 538 540 TO 558 560 TO 578 580 TO 598
130. E 25.91E6 LIST 600 TO 618 620 TO 638 640 TO 658 660 TO 678 680 TO 698
131. ALPHA 1.08E-5 1 TO 12
132. DEN CON LIST 14 TO 23 35 TO 38 49 51 TO 54 65 TO 76 100 TO 118
133. *
134. SUPPORT
135. * MP8
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137. 61 381 FIXED BUT FY MX MY MZ  KFX 24990  KFZ 24990
138. 62 382 FIXED BUT FY MX MY MZ  KFX 49091  KFZ 49091
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140. 64 384 FIXED BUT FY MX MY MZ  KFX 54944  KFZ 54944
141. 65 385 FIXED BUT FY MX MY MZ  KFX 57464  KFZ 57464
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154. 78 398 FIXED BUT FY MX MY MZ  KFX 280744 KFZ 280744
155. * P11
156. 80 TO 140 BY 20 FIXED BUT FY MX MY MZ  KFX 14783  KFZ  4139
157. 81 TO 141 BY 20 FIXED BUT FY MX MY MZ  KFX  9648  KFZ  9648
158. 82 TO 142 BY 20 FIXED BUT FY MX MY MZ  KFX 10791  KFZ 10791
159. 83 TO 143 BY 20 FIXED BUT FY MX MY MZ  KFX 11704  KFZ 11704
160. 84 TO 144 BY 20 FIXED BUT FY MX MY MZ  KFX 12498  KFZ 12498
161. 85 TO 145 BY 20 FIXED BUT FY MX MY MZ  KFX 13212  KFZ 13212
162. 86 TO 146 BY 20 FIXED BUT FY MX MY MZ  KFX 13871  KFZ 13871
163. 87 TO 147 BY 20 FIXED BUT FY MX MY MZ  KFX 39798  KFZ 39798
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166.  90 TO 150 BY 20 FIXED BUT FY MX MY MZ  KFX 41457  KFZ 41457
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251. 376 696 FIXED BUT FY MX MY MZ  KFX 265372 KFZ 265372
252. 377 697 FIXED BUT FY MX MY MZ  KFX 267907 KFZ 267907
253. 378 698 FIXED BUT FY MX MY MZ  KFX 270383 KFZ 270383
254. 79 TO 699 BY 20 PINNED
255. *
256. LOAD 1 : DEAD LOAD
257. SELFWEIGHT Y -1.0
258. MEM LOAD
259. 14    CON GY -1230.0 0.85
260. 15    CON GY -1230.0 1.50
261. 15    CON GY -1230.0 3.90
262. 16    CON GY -1230.0 2.10
263. 18    CON GY -1230.0 0.30
264. 18    CON GY -1230.0 2.70
265. 19    CON GY -1230.0 0.90
266. 65    UNI GY -990.0
267. JOINT LOAD
268. 13    FY  -4625.0 MZ 1039.0
270. LOAD 2 : LIVE LOAD FROM SUPERSTRUCTURE
271. MEM LOAD
272. 14    CON GY -300.0 0.85
273. 15    CON GY -300.0 1.50
274. 15    CON GY -300.0 3.90
275. 16    CON GY -300.0 2.10
276. 18    CON GY -300.0 0.30
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277. 18    CON GY -300.0 2.70
278. 19    CON GY -300.0 0.90
279. JOINT LOAD
280. 13    FY  -1050.0 MZ 290.0
282. LOAD 3 : WIND LOAD ON STRUCTURE
283. JOI LOAD
284. 2     FX -144.0 FZ -600.0
285. 1 3 TO 12 FX -144.0
287. LOAD 4 : WIND LOAD ON LIVE LOAD
288. JOI LOAD
289. 2     FX -48.0   FZ -120.0
290. 1 3 TO 12 FX -48.0
292. LOAD 5 : LONGITUDINAL FORCES
293. JOI LOAD
294. 1 TO 13     FX -40.0
296. LOAD 6 : TEMPARATURE LOAD
297. TEMP LOAD
298. 1 TO 12 TEMP -19.0
299. 1 TO 12 STRAIN -9.39E-3
300. * BACK FILL PRESSURE
301. MEMBER LOAD
302. 66 TRAP GX    0.  -47.4
303. 67 TRAP GX -47.4  -94.9
304. 68 TRAP GX -94.9  -142.3
305. 69 TRAP GX -142.3 -189.8
306. 70 TRAP GX -189.8 -249.1
307. 71 TRAP GX -249.1 -308.4
308. 72 TRAP GX -308.4 -367.7
309. 73 TRAP GX -367.7 -427.0
311. *
312. LOAD COMB 7 : AASHTO LOAD COMB. I 1.3[(DL+1.67(LL+I)]
313. 1 1.3 2 2.17
314. LOAD COMB 8 : AASHTO LOAD COMB. II 1.3(0.75DL+W)
315. 1 0.975 3 1.3
316. LOAD COMB 9 : AASHTO LOAD COMB. III 1.3(0.75DL+(LL+I)+0.3W+WL+LF)
317. 1 0.975 2 1.3 3 0.39 4 1.3 5 1.3
319. LOAD COMB 10 : AASHTO LOAD COMB. IV 1.3[(0.75DL+(LL+I)+(R+S+T)]
320. 1 0.975 2 1.3 6 1.3
321. LOAD COMB 11 : AASHTO LOAD COMB. V 1.25[(0.75DL+W+(R+S+T)]
322. 1 0.9375 3 1.25 6 1.25
323. LOAD COMB 12 : AASHTO LOAD COMB. VI 1.25[(0.75DL+(LL+I)+0.3W+WL+LF+(R+S+T)
324. 1 0.9375 2 1.25 3 0.375 4 1.25 5 1.25 6 1.25
325. *
326. LOAD COMB 13 : DEAD LOAD + LIVE LOAD (SERVICE LOAD)
327. 1 1.0 2 1.0
328. LOAD COMB 14  : DEAD LOAD + WIND LOAD + (R+S+T) (SERVICE LOAD)
329. 1 1.0 3 1.0 6 1.0
330. *
331. PDELTA ANALYSIS
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P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 682/ 684/ 638
ORIGINAL/FINAL BAND-WIDTH = 628/ 31
TOTAL PRIMARY LOAD CASES = 6, TOTAL DEGREES OF FREEDOM = 3996
SIZE OF STIFFNESS MATRIX = 767232 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE = 17.46/ 1435.0 MB, EXMEM = 1965.6 MB

++ Processing Element Stiffness Matrix. 14:39: 1
++ Processing Global Stiffness Matrix. 14:39: 1
++ Processing Triangular Factorization. 14:39: 2

***WARNING - IMPROPER LOAD WILL CAUSE INSTABILITY AT JOINT 19
DIRECTION = MZ PROBABLE CAUSE MODELING PROBLEM .000E+00
++ Calculating Joint Displacements. 14:39: 4
++ Adjusting Displacements 14:39: 6
++ Calculating Member Forces. 14:39: 8

332. LOAD LIST 14
333. PRINT JOINT DISPLACEMENT LIST 1 TO 24

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	14	12.0070	-.1552	-.0001	.0000	.0000	.0000
2	14	10.4747	-.4346	-.8054	.0000	.0000	.0000
3	14	8.9964	-.0280	-.0004	.0000	.0000	.0000
4	14	7.5172	-.0272	.0000	.0000	.0000	.0000
5	14	6.0489	-.0257	.0000	.0000	.0000	.0000
6	14	4.5910	-.0234	.0000	.0000	.0000	.0000
7	14	3.1425	-.0199	.0000	.0000	.0000	.0000
8	14	1.7021	-.0146	.0000	.0000	.0000	.0000
9	14	.2676	-.0066	.0000	.0000	.0000	.0000
10	14	-1.1640	.0056	.0000	.0000	.0000	.0000
11	14	-2.5977	.0246	.0000	.0000	.0000	.0000
12	14	-4.0409	.0544	.0000	.0000	.0000	.0000
13	14	-5.5180	-.3103	.0000	.0000	.0000	.0062
14	14	9.8163	-.3231	-.8024	-.0001	-.0010	.0000
15	14	9.9852	-.3358	-.8024	-.0003	-.0010	.0000
16	14	10.3801	-.3937	-.8038	-.0002	-.0007	.0000
17	14	10.3861	-.4172	-.8037	-.0002	.0006	.0000
18	14	10.0026	-.4531	-.8025	-.0004	.0009	.0000
19	14	9.8381	-.5564	-.8025	-.0006	.0009	.0000
20	14	2.1153	-.0783	.0000	.0000	.0000	-.0034
21	14	1.3185	-.2816	-.2715	-.0002	.0000	-.0036
22	14	1.3274	-.3345	-.2715	-.0001	.0000	-.0036
23	14	1.3292	-.3578	-.2715	-.0001	.0000	-.0036
24	14	1.3238	-.3868	-.2714	-.0001	.0000	-.0036

********** END OF LATEST ANALYSIS RESULT **********

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334. LOAD LIST 13 14
335. PRINT MEMBER FORCES LIST 100 TO 160 BY 20 420 TO 480 BY 20 380 700
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MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
100	13	80	1966.44	-9.09	2.55	.00	-10.80	-40.25
		81	-1988.92	9.09	-2.55	.00	7.01	26.76
	14	80	-1305.94	101.60	-59.20	.00	131.63	-270.21
		81	1283.46	-101.60	59.20	.00	-42.91	408.89
120	13	100	2206.45	-8.57	.56	.00	-1.28	-38.72
		101	-2206.45	8.57	-.56	.00	.43	26.04
	14	100	-856.26	96.98	-65.92	.00	165.10	-298.27
		101	856.26	-96.98	65.92	.00	-66.21	429.50
140	13	120	2174.26	-8.54	-1.00	.00	6.17	-39.51
		121	-2174.26	8.54	1.00	.00	-4.73	26.89
	14	120	-732.82	96.36	-66.92	.00	171.66	-302.27
		121	732.82	-96.36	66.92	.00	-71.25	432.57
160	13	140	2058.30	-10.15	-3.27	.00	17.06	-48.13
		141	-2058.30	10.15	3.27	.00	-12.25	33.13
	14	140	-544.67	96.96	-63.50	.00	156.73	-295.57
		141	544.67	-96.96	63.50	.00	-61.35	427.23
420	13	400	2111.73	12.58	2.87	.00	-11.67	63.04
		401	-2111.73	-12.58	-2.87	.00	7.41	-44.51
	14	400	4204.02	108.32	-57.32	.00	126.23	-177.07
		401	-4204.02	-108.32	57.32	.00	-40.42	353.28
440	13	420	2171.44	9.78	.87	.00	-2.15	48.76
		421	-2171.44	-9.78	-.87	.00	.82	-34.34
	14	420	4577.28	103.80	-64.93	.00	162.12	-202.76
		421	-4577.28	-103.80	64.93	.00	-64.81	372.76
460	13	440	2150.88	9.59	-.69	.00	5.32	46.89
		441	-2150.88	-9.59	.69	.00	-4.34	-32.74
	14	440	4712.31	104.27	-67.45	.00	172.87	-201.46
		441	-4712.31	-104.27	67.45	.00	-71.77	372.16
480	13	460	2040.22	11.63	-2.97	.00	16.21	55.70
		461	-2040.22	-11.63	2.97	.00	-11.86	-38.50
	14	460	4801.78	111.06	-64.92	.00	160.33	-167.12
		461	-4801.78	-111.06	64.92	.00	-62.97	347.38
380	13	360	4922.78	-36.82	.00	.00	.00	-160.17
		361	-4922.78	36.82	.00	.00	.00	105.26
	14	360	15129.95	-3870.96	.00	.00	.00	-5728.22
		361	-15129.95	3870.96	.00	.00	.00	-167.66

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
700	13	680	4751.75	59.18	.00	.00	.00	300.95
		681	-4751.75	-59.18	.00	.00	.00	-212.70
	14	680	-6709.71	-3870.96	.00	.00	.00	-5227.38
		681	6709.71	3870.96	.00	.00	.00	-488.15

********** END OF LATEST ANALYSIS RESULT **********

336. LOAD LIST 7 TO 12
337. PRINT MAXF ENV LIST 14 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
14	MAX	.00	.00	7	2094.65	1.75	7			
		.27	.00	10	.32	1.75	10	.00 T	.00	10
	MIN	-2329.60	1.75	7	.00	.00	8			
		.00	1.75	7	-.26	.00	10	.03 T	1.75	8
15	MAX	1847.61	.00	7	1834.90	.00	7			
		31.71	.00	8	778.98	.00	10	11.54 T	.00	10
	MIN	-2843.43	4.20	7	-766.27	1.75	7			
		-779.20	4.20	10	-2493.70	4.20	10	159.98 T	4.20	8
16	MAX	1223.55	.00	7	1253.57	.00	7			
		68.59	.00	8	231.78	2.10	8	2.53 T	.00	10
	MIN	-1121.97	2.10	7	-1215.59	2.10	7			
		-1623.76	2.10	10	-5366.98	2.10	10	391.49 T	2.10	8
17	MAX	-841.15	.00	10	1432.15	2.10	8			
		1619.67	.00	10	231.78	.00	8	388.47 C	.00	8
	MIN	-1217.57	2.10	7	-1215.59	.00	7			
		-72.53	2.10	8	-5366.92	.00	10	14.00 T	2.10	7
18	MAX	2840.81	.00	7	1839.78	4.20	7			
		775.93	.00	10	768.33	4.20	10	146.91 C	.00	8
	MIN	-1850.22	4.20	7	-765.96	2.45	7			
		-34.79	4.20	8	-2490.55	.00	10	18.75 T	4.20	7
19	MAX	2329.60	.00	7	2094.65	.00	7			
		.00	.00	7	.14	.00	11	.02 C	.00	9
	MIN	.00	1.75	11	.00	1.75	7			
		-.18	1.75	11	-.16	1.75	11	.00 C	1.75	10

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

338. PRINT MEMBER FORCES LIST 20 TO 23 29 33

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
20	7	15	4177.21	3.58	-19.88	8.29	259.75	.00
		21	-5080.03	-3.58	19.88	-8.29	.12	46.15
	8	15	1922.04	-31.71	-160.00	-28.15	941.32	.00
		21	-2599.15	31.71	160.00	28.15	1152.33	-414.48
	9	15	2784.57	-29.85	-89.83	-26.21	590.02	.00
		21	-3461.68	29.85	89.83	26.21	585.75	-391.10
	10	15	2961.19	779.19	-11.54	778.94	171.19	.00
		21	-3638.31	-779.19	11.54	-778.94	-20.44	10206.99
	11	15	1849.50	715.99	-152.17	715.77	896.64	.00
		21	-2500.57	-715.99	152.17	-715.77	1094.49	9380.54
	12	15	2678.86	717.78	-84.70	717.64	558.86	.00
		21	-3329.93	-717.78	84.70	-717.64	549.70	9403.02
21	7	16	4066.98	.57	5.88	8.57	-27.45	.00
		22	-4969.80	-.57	-5.88	-8.57	-50.11	6.83
	8	16	2190.98	-36.88	-231.50	-17.25	1382.48	.00
		22	-2868.09	36.88	231.50	17.25	1649.69	-483.52
	9	16	2874.26	-34.92	-113.82	-15.86	683.19	.00
		22	-3551.37	34.92	113.82	15.86	807.47	-457.93
	10	16	2926.81	844.55	9.01	536.62	-58.05	.00
		22	-3603.93	-844.55	-9.01	-536.62	-60.31	11067.59
	11	16	2152.17	776.02	-218.37	493.10	1294.84	.00
		22	-2803.24	-776.02	218.37	-493.10	1565.36	10169.83
	12	16	2809.18	777.90	-105.22	494.44	622.45	.00
		22	-3460.25	-777.90	105.22	-494.44	755.53	10194.43
22	7	17	4058.39	-.56	-4.75	7.01	20.99	.00
		23	-4961.20	.56	4.75	-7.01	40.75	-7.78
	8	17	2207.57	-37.74	-241.55	28.44	1435.66	.00
		23	-2884.68	37.74	241.55	-28.44	1728.35	-494.69
	9	17	2879.34	-35.77	-122.28	27.37	723.48	.00
		23	-3556.45	35.77	122.28	-27.37	878.07	-468.97
	10	17	2920.37	843.70	-8.16	-524.92	53.20	.00
		23	-3597.48	-843.70	8.16	524.92	53.29	11056.64
	11	17	2168.13	775.20	-236.49	-482.33	1414.91	.00
		23	-2819.20	-775.20	236.49	482.33	1682.76	10159.09
	12	17	2814.06	777.09	-121.81	-483.37	730.12	.00
		23	-3465.13	-777.09	121.81	483.37	865.18	10183.83
23	7	18	4179.82	-.75	18.75	5.77	-254.87	.00
		24	-5082.64	.75	-18.75	-5.77	8.74	-10.21
	8	18	2624.79	-34.79	-146.91	38.24	702.72	.00
		24	-3301.90	34.79	146.91	-38.24	1223.28	-457.42
	9	18	3136.93	-33.04	-64.04	36.59	233.84	.00
		24	-3814.04	33.04	64.04	-36.59	605.40	-433.61

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	10	18	2963.15	775.95	10.69	-768.39	-167.53	.00
		24	-3640.26	-775.95	-10.69	768.39	27.08	10164.74
	11	18	2525.22	713.04	-142.93	-706.07	684.16	.00
		24	-3176.29	-713.04	142.93	706.07	1189.75	9339.27
	12	18	3017.66	714.72	-63.26	-707.65	233.32	.00
		24	-3668.73	-714.72	63.26	707.65	595.64	9362.16
29	7	8	-.12	-3.87	.00	.00	.00	.00
		30	.12	3.87	.00	.00	.00	-29.79
	8	8	2.33	-109.69	.00	.00	.00	.00
		30	-2.33	109.69	.00	.00	.00	-844.61
	9	8	1.99	-104.08	.00	.00	.00	.00
		30	-1.99	104.08	.00	.00	.00	-801.41
	10	8	15.02	500.69	.00	.00	.00	.00
		30	-15.02	-500.69	.00	.00	.00	3855.60
	11	8	16.75	378.33	.00	.00	.00	.00
		30	-16.75	-378.33	.00	.00	.00	2913.38
	12	8	16.43	383.72	.00	.00	.00	.00
		30	-16.43	-383.72	.00	.00	.00	2954.92
33	7	12	-.31	-10.35	.00	.00	.00	.00
		34	.31	10.35	.00	.00	.00	-42.43
	8	12	-2.09	-256.93	.00	.00	.00	.00
		34	2.09	256.93	.00	.00	.00	-1053.43
	9	12	-2.24	-245.35	.00	.00	.00	.00
		34	2.24	245.35	.00	.00	.00	-1005.94
	10	12	-62.89	-2103.06	.00	.00	.00	.00
		34	62.89	2103.06	.00	.00	.00	-8621.13
	11	12	-62.30	-2262.93	.00	.00	.00	.00
		34	62.30	2262.93	.00	.00	.00	-9276.63
	12	12	-62.44	-2251.79	.00	.00	.00	.00
		34	62.44	2251.79	.00	.00	.00	-9230.97

********** END OF LATEST ANALYSIS RESULT **********

339. PRINT MAXF ENV LIST 35 TO 38 51 TO 54

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
35	MAX	2785.74	.00	7	3330.99	1.35	11			
		91.60	.00	8	123.65	1.35	8	26.17 C	.00	9
	MIN	-2282.63	1.35	11	-3592.18	1.35	7			
		-3.51	1.35	7	-4.74	1.35	7	401.76 T	1.35	10
36	MAX	3099.87	.00	7	2729.30	1.35	11			
		100.19	.00	8	135.23	1.35	8	26.14 C	.00	9
	MIN	-1827.02	1.35	11	-3989.28	1.35	7			
		-.85	1.35	7	-1.15	1.35	7	399.69 T	1.35	10
37	MAX	3058.00	.00	7	2530.07	1.35	10			
		101.73	.00	8	137.33	1.35	8	26.28 C	.00	9
	MIN	-1662.66	1.35	11	-3931.74	1.35	7			
		.37	1.35	10	-.06	.00	11	399.82 T	1.35	10
38	MAX	2905.15	.00	7	2558.20	1.35	10			
		97.03	.00	8	130.96	1.35	8	29.05 C	.00	8
	MIN	-1671.68	1.35	10	-3743.14	1.35	7			
		2.10	1.35	10	-.01	.00	11	401.31 T	1.35	10
51	MAX	-1083.66	.00	8	88.05	1.35	7			
		4.53	.00	10	123.47	.00	8	412.86 C	.00	10
	MIN	-5799.73	1.35	10	-7987.34	.00	10			
		-91.47	1.35	8	-6.13	.00	10	10.47 T	1.35	8
52	MAX	-1436.89	.00	8	68.30	1.35	7			
		1.71	.00	10	134.97	.00	8	407.01 C	.00	10
	MIN	-5938.55	1.35	10	-8193.52	.00	10			
		-100.00	1.35	8	-2.32	.00	10	10.59 T	1.35	8
53	MAX	-1619.10	.00	8	65.87	1.35	7			
		-.67	.00	7	136.92	.00	8	407.06 C	.00	10
	MIN	-5918.46	1.35	10	-8168.24	.00	10			
		-101.40	1.35	8	.00	1.35	7	9.66 T	1.35	8
54	MAX	-1883.98	.00	8	78.50	1.35	7			
		-3.70	.00	7	130.48	.00	8	412.42 C	.00	10
	MIN	-5730.01	1.35	10	-7900.34	.00	10			
		-96.65	1.35	8	-.03	1.35	10	5.88 T	1.35	8

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

340. PRINT MAXF ENV LIST 74 TO 76

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
74	MAX	348.80	.00	7	693.19	4.20	8			
		2.90	.00	8	40.50	4.20	8	27.37 C	.00	7
	MIN	-795.12	4.20	8	-1497.50	.00	8			
		-35.82	4.20	10	-925.28	4.20	10	23.29 T	4.20	11
75	MAX	382.80	.00	7	1542.93	4.20	8			
		2.69	.00	7	66.38	4.20	8	23.66 C	.00	7
	MIN	-970.49	4.20	8	-1384.31	.00	8			
		1.94	4.20	11	-1459.81	.00	10	2.93 C	4.20	11
76	MAX	356.82	.00	7	1622.01	4.20	8			
		38.64	.00	10	38.34	.00	8	46.74 C	.00	8
	MIN	-809.32	4.20	8	-643.54	.00	11			
		-.14	4.20	8	-927.64	.00	10	17.12 C	4.20	10

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

341. PRINT MAXF ENV LIST 66 TO 73

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
66	MAX	-.02	.00	7	2.89	.50	10			
		.00	.00	7	.00	.00	7	111.61 C	.50	7
	MIN	-16.69	.50	10	-.18	.00	11			
		.00	.50	12	.00	.50	12	.04 T	.00	7
67	MAX	.06	.00	9	20.11	.50	10			
		.00	.00	7	.00	.00	7	223.32 C	.50	7
	MIN	-60.16	.50	10	-.02	.46	9			
		.00	.50	12	.00	.50	12	80.52 C	.00	11
68	MAX	.07	.00	8	69.63	.50	10			
		.00	.00	7	.00	.00	7	334.72 C	.50	7
	MIN	-139.89	.50	10	-.02	.50	8			
		.00	.50	12	.00	.50	12	160.88 C	.46	12
69	MAX	.03	.00	9	164.15	.50	10			
		.00	.00	7	.00	.00	7	446.75 C	.50	7
	MIN	-246.24	.50	10	.00	.00	8			
		.00	.50	12	.00	.50	12	241.67 C	.46	12
70	MAX	45.75	.00	7	6947.64	.63	12			
		.00	.00	7	.00	.00	7	9157.47 C	.63	7
	MIN	-8891.10	.63	11	1013.07	.00	8			
		.00	.63	12	.00	.63	12	4403.22 C	.00	11
71	MAX	45.67	.00	7	12522.45	.62	12			
		.00	.00	7	.00	.00	7	9576.37 C	.62	7
	MIN	-9107.95	.62	11	1496.11	.00	8			
		.00	.62	12	.00	.62	12	4705.37 C	.00	11
72	MAX	45.69	.00	7	18245.34	.63	12			
		.00	.00	7	.00	.00	7	9995.34 C	.63	7
	MIN	-9365.53	.63	11	1895.05	.63	7			
		.00	.63	12	.00	.63	12	5007.48 C	.00	11
73	MAX	45.71	.00	7	24151.42	.63	12			
		.00	.00	7	.00	.00	7	10413.65 C	.63	7
	MIN	-9679.87	.63	11	1866.66	.63	7			
		.00	.63	12	.00	.63	12	5309.11 C	.00	11

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

342. PRINT MAXF ENV LIST 49 65

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
49	MAX	18210.41	.00	12	7102.96	.00	11			
		.00	.00	7	.00	.00	7	4833.10 C	.00	11
	MIN	4839.98	1.35	8	-17184.87	1.35	12			
		.00	1.35	12	.00	1.35	12	44.49 C	1.35	7
65	MAX	11460.29	.00	11	7727.90	.00	11			
		.00	.00	7	.00	.00	7	90.19 C	.00	7
	MIN	-6588.73	1.35	7	-6811.04	.00	7			
		.00	1.35	12	.00	1.35	12	4859.15 T	1.35	11

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

343. PRINT MEMBER FORCES LIST 100 TO 700 BY 20

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
100	7	80	2785.76	-13.13	3.37	.00	-14.31	-58.05
		81	-2814.98	13.13	-3.37	.00	9.30	38.55
	8	80	1390.26	-11.41	-76.93	.00	172.90	-7.02
		81	-1412.18	11.41	76.93	.00	-57.58	-9.88
	9	80	1939.05	-14.09	-37.14	.00	80.88	-22.27
		81	-1960.97	14.09	37.14	.00	-25.18	1.29
	10	80	-1638.42	136.60	1.68	.00	-8.99	-374.69
		81	1616.50	-136.60	-1.68	.00	6.49	561.64
	11	80	-2164.55	129.37	-74.77	.00	167.82	-327.24
		81	2143.47	-129.37	74.77	.00	-55.76	504.10
	12	80	-1636.86	126.79	-36.51	.00	79.34	-341.89
		81	1615.79	-126.79	36.51	.00	-24.61	514.84
120	7	100	3099.86	-12.21	.71	.00	-1.57	-54.86
		101	-3099.86	12.21	-.71	.00	.49	36.78
	8	100	1959.18	-12.88	-85.50	.00	214.28	-14.90
		101	-1959.18	12.88	85.50	.00	-86.01	-4.26
	9	100	2343.88	-14.25	-42.49	.00	106.57	-23.79
		101	-2343.88	14.25	42.49	.00	-42.84	2.57
	10	100	-1465.19	132.58	.15	.00	-.41	-401.40
		101	1465.19	-132.58	-.15	.00	.17	581.73
	11	100	-1676.70	123.52	-82.59	.00	206.81	-362.36
		101	1676.70	-123.52	82.59	.00	-82.92	529.80
	12	100	-1306.79	122.20	-41.23	.00	103.25	-370.91
		101	1306.79	-122.20	41.23	.00	-41.41	536.37
140	7	120	3058.01	-12.16	-1.27	.00	7.92	-55.89
		121	-3058.01	12.16	1.27	.00	-6.08	37.89
	8	120	2130.13	-13.70	-87.05	.00	221.93	-19.86
		121	-2130.13	13.70	87.05	.00	-91.29	-.57
	9	120	2413.66	-14.65	-44.02	.00	113.91	-26.65
		121	-2413.66	14.65	44.02	.00	-47.90	4.83
	10	120	-1496.59	132.63	-.57	.00	5.17	-402.16
		121	1496.59	-132.63	.57	.00	-4.35	582.58
	11	120	-1512.34	122.74	-83.33	.00	212.62	-367.12
		121	1512.34	-122.74	83.33	.00	-87.56	533.36
	12	120	-1239.71	121.83	-41.95	.00	108.75	-373.65
		121	1239.71	-121.83	41.95	.00	-45.84	538.56
160	7	140	2905.17	-14.50	-4.31	.00	22.44	-68.29
		141	-2905.17	14.50	4.31	.00	-16.10	46.83
	8	140	2350.07	-17.10	-82.34	.00	199.94	-37.44
		141	-2350.07	17.10	82.34	.00	-76.26	11.88
	9	140	2463.73	-17.46	-42.87	.00	108.58	-41.30
		141	-2463.73	17.46	42.87	.00	-44.29	15.28

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	10	140	-1548.87	135.58	-2.38	.00	15.09	-382.36
		141	1548.87	-135.58	2.38	.00	-11.60	567.87
	11	140	-1241.66	123.91	-78.38	.00	190.68	-356.47
		141	1241.66	-123.91	78.38	.00	-72.93	525.04
	12	140	-1132.37	123.56	-40.42	.00	102.83	-360.18
		141	1132.37	-123.56	40.42	.00	-42.19	528.30
420	7	400	2970.56	17.51	3.78	.00	-15.43	88.04
		401	-2970.56	-17.51	-3.78	.00	9.81	-62.21
	8	400	1206.45	2.22	-76.83	.00	172.27	57.90
		401	-1206.45	-2.22	76.83	.00	-57.26	-54.77
	9	400	1772.11	5.59	-36.96	.00	80.27	71.58
		401	-1772.11	-5.59	36.96	.00	-24.89	-63.47
	10	400	5799.73	147.64	4.22	.00	-15.95	-242.56
		401	-5799.73	-147.64	-4.22	.00	9.67	481.85
	11	400	4676.04	131.88	-72.52	.00	161.34	-238.85
		401	-4676.04	-131.88	72.52	.00	-52.77	453.94
	12	400	5219.94	135.13	-34.19	.00	72.88	-225.70
		401	-5219.94	-135.13	34.19	.00	-21.65	445.58
440	7	420	3050.19	13.63	1.12	.00	-2.69	68.30
		421	-3050.19	-13.63	-1.12	.00	1.01	-48.19
	8	420	1593.21	1.92	-85.34	.00	213.53	55.72
		421	-1593.21	-1.92	85.34	.00	-85.62	-53.02
	9	420	1995.15	3.94	-42.26	.00	105.84	62.98
		421	-1995.15	-3.94	42.26	.00	-42.49	-57.30
	10	420	5938.52	140.05	1.49	.00	-4.09	-283.95
		421	-5938.52	-140.05	-1.49	.00	1.85	512.64
	11	420	5124.68	127.01	-81.44	.00	203.35	-266.93
		421	-5124.68	-127.01	81.44	.00	-81.30	475.41
	12	420	5511.15	128.95	-40.02	.00	99.81	-259.94
		421	-5511.15	-128.95	40.02	.00	-39.82	471.30
460	7	440	3023.45	13.38	-.87	.00	6.81	65.87
		441	-3023.45	-13.38	.87	.00	-5.57	-46.12
	8	440	1775.42	2.62	-86.81	.00	220.93	58.04
		441	-1775.42	-2.62	86.81	.00	-90.79	-54.32
	9	440	2076.23	4.19	-43.71	.00	112.94	63.24
		441	-2076.23	-4.19	43.71	.00	-47.44	-57.17
	10	440	5918.48	139.85	-1.30	.00	7.18	-285.78
		441	-5918.48	-139.85	1.30	.00	-5.28	514.19
	11	440	5299.88	127.67	-84.09	.00	214.39	-264.71
		441	-5299.88	-127.67	84.09	.00	-88.33	474.15
	12	440	5589.13	129.18	-42.64	.00	110.56	-259.71
		441	-5589.13	-129.18	42.64	.00	-46.65	471.41
480	7	460	2877.60	16.28	-3.91	.00	21.33	78.49
		461	-2877.60	-16.28	3.91	.00	-15.60	-54.40

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	8	460	2006.79	6.07	-82.05	.00	198.78	73.21
		461	-2006.79	-6.07	82.05	.00	-75.70	-64.41
	9	460	2137.44	7.05	-42.51	.00	107.47	75.67
		461	-2137.44	-7.05	42.51	.00	-43.77	-65.37
	10	460	5730.01	146.74	-4.31	.00	20.38	-249.71
		461	-5730.01	-146.74	4.31	.00	-14.01	487.72
	11	460	5445.59	135.61	-80.24	.00	195.44	-224.12
		461	-5445.59	-135.61	80.24	.00	-75.07	444.69
	12	460	5571.21	136.55	-42.22	.00	107.65	-221.75
		461	-5571.21	-136.55	42.22	.00	-44.37	443.77
380	7	360	6902.16	-44.49	.00	.00	.00	-188.06
		361	-6902.16	44.49	.00	.00	.00	121.73
	8	360	5342.34	-427.20	.00	.00	.00	-717.24
		361	-5342.34	427.20	.00	.00	.00	75.92
	9	360	6024.39	-397.91	.00	.00	.00	-653.01
		361	-6024.39	397.91	.00	.00	.00	56.02
	10	360	17901.86	-4626.47	.00	.00	.00	-6818.48
		361	-17901.86	4626.47	.00	.00	.00	-236.75
	11	360	17554.58	-4825.98	.00	.00	.00	-7102.97
		361	-17554.58	4825.98	.00	.00	.00	-247.90
	12	360	18210.39	-4797.83	.00	.00	.00	-7041.21
		361	-18210.39	4797.83	.00	.00	.00	-267.03
700	7	680	6588.73	90.18	.00	.00	.00	458.91
		681	-6588.73	-90.18	.00	.00	.00	-324.33
	8	680	3042.73	-345.68	.00	.00	.00	-321.10
		681	-3042.73	345.68	.00	.00	.00	-197.05
	9	680	3729.46	-301.23	.00	.00	.00	-186.22
		681	-3729.46	301.23	.00	.00	.00	-265.71
	10	680	-8369.31	-4638.20	.00	.00	.00	-6228.32
		681	8369.31	4638.20	.00	.00	.00	-611.53
	11	680	-9724.27	-4852.43	.00	.00	.00	-6603.97
		681	9724.27	4852.43	.00	.00	.00	-560.89
	12	680	-9063.95	-4809.69	.00	.00	.00	-6474.27
		681	9063.95	4809.69	.00	.00	.00	-626.91

********** END OF LATEST ANALYSIS RESULT **********

345. PLOT BEN FILE
346. PLOT DISP FILE
347. START CON DESIGN
348. FC 30000

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349. FY 410000
350. * MAXMAIN 25
351. CLEAR 0.065
352. TRACK 2
353. DESIGN COL 22
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C O L U M N N O. 22 D E S I G N R E S U L T S

FY - 410.0 FC - 30.0 MPA, SQRE SIZE -1500.0 X1500.0 MMS, TIED

AREA OF STEEL REQUIRED = 53999.8 SQ. MM

BAR CONFIGURATION	REINF PCT.	LOAD	LOCATION	PHI
28 - 50 MM	2.443	11	END	.700

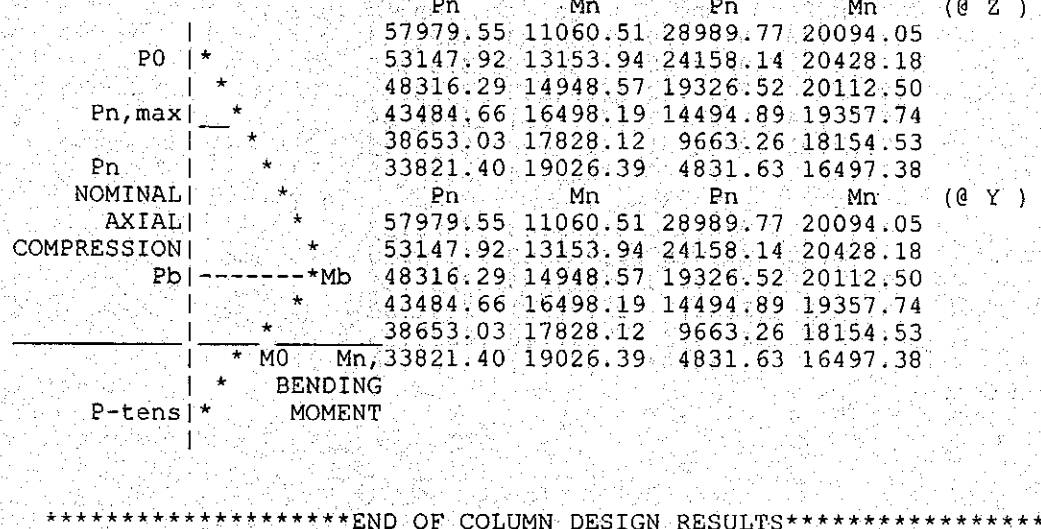
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)

COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)
78513.97	62811.18	27444.02	20410.38	743.7
M0	P-tens.	Des.Pn	Des.Mn	e/h
14363.34	********	4027.43	14512.96	.275

COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)
78513.97	62811.18	27444.02	20410.38	743.7
M0	P-tens.	Des.Pn	Des.Mn	e/h
14363.34	********	4027.43	2403.94	.046



**********END OF COLUMN DESIGN RESULTS**********

354. CLEAR 0.100
355. DESIGN COL 100

C O L U M N N O. 33 D E S I G N R E S U L T S

FY - 410.0 FC - 30.0 MPA, SQRE SIZE -1500.0 X1500.0 MMS, TIED

AREA OF STEEL REQUIRED = 22499.9 SQ. MM

BAR CONFIGURATION	REINF PCT.	LOAD	LOCATION	PHI
28 - 32 MM	1.001	1	STA	.700

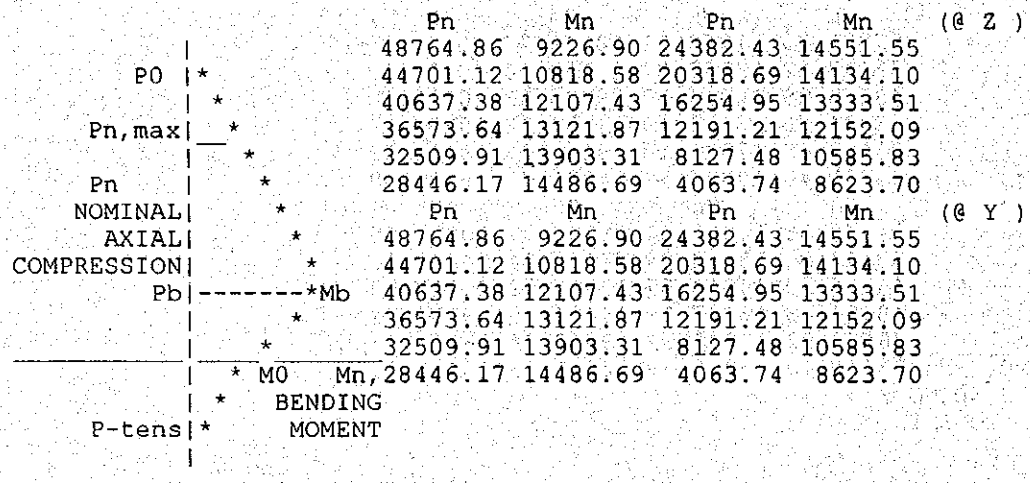
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)

COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)
66035.74	52828.60	27188.90	14631.92	538.2
M0	P-tens.	Des.Pn	Des.Mn	e/h
6252.53	-9235.12	6.35	1328.57	*****

COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)
66035.74	52828.60	27188.90	14631.92	538.2
M0	P-tens.	Des.Pn	Des.Mn	e/h
6252.53	-9235.12	6.35	2042.85	*****



**********END OF COLUMN DESIGN RESULTS**********

36. DESIGN COL 33

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
140	10	120	-1496.59	132.63	-.57	.00	5.17	-402.16
		121	1496.59	-132.63	.57	.00	-4.35	582.58
	11	120	-1512.34	122.74	-83.33	.00	212.62	-367.12
		121	1512.34	-122.74	83.33	.00	-87.56	533.36
	12	120	-1239.71	121.83	-41.95	.00	108.75	-373.65
		121	1239.71	-121.83	41.95	.00	-45.84	538.56
141	10	121	-1496.61	22.36	-.73	.00	4.36	-582.57
		122	1496.61	-22.36	.73	.00	-3.28	601.55
	11	121	-1512.36	21.34	-54.81	.00	87.56	-533.36
		122	1512.36	-21.34	54.81	.00	-5.21	551.31
	12	121	-1239.73	20.33	-27.76	.00	45.84	-538.55
		122	1239.73	-20.33	27.76	.00	-4.16	555.03
142	10	122	-1496.60	-45.47	-.72	.00	3.28	-601.56
		123	1496.60	45.47	.72	.00	-2.20	523.13
	11	122	-1512.35	-41.13	-30.30	.00	5.21	-551.32
		123	1512.35	41.13	30.30	.00	40.39	479.77
	12	122	-1239.72	-42.05	-15.50	.00	4.16	-555.04
		123	1239.72	42.05	15.50	.00	19.15	482.14
143	10	123	-1496.60	-77.51	-.61	.00	2.20	-523.13
		124	1496.60	77.51	.61	.00	-1.28	400.56
	11	123	-1512.35	-70.74	-12.03	.00	-40.39	-479.77
		124	1512.35	70.74	12.03	.00	58.58	367.59
	12	123	-1239.72	-71.47	-6.31	.00	-19.15	-482.14
		124	1239.72	71.47	6.31	.00	28.68	368.86
144	10	124	-1496.62	-84.82	-.46	.00	1.28	-400.56
		125	1496.62	84.82	.46	.00	-.57	270.12
	11	124	-1512.37	-77.60	-.14	.00	-58.58	-367.59
		125	1512.37	77.60	.14	.00	58.89	248.09
	12	124	-1239.75	-78.14	-.30	.00	-28.68	-368.86
		125	1239.75	78.14	.30	.00	29.17	248.56
145	10	125	-1496.59	-78.33	-.33	.00	.57	-270.12
		126	1496.59	78.33	.33	.00	-.07	151.54
	11	125	-1512.35	-71.77	6.38	.00	-58.89	-248.09
		126	1512.35	71.77	-6.38	.00	49.41	139.39
	12	125	-1239.72	-72.12	3.03	.00	-29.17	-248.56
		126	1239.72	72.12	-3.03	.00	24.67	139.32
146	10	126	-1496.61	-66.75	-.22	.00	.07	-151.54
		127	1496.61	66.75	.22	.00	.27	51.56

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	11	126	-1512.36	-61.21	9.02	.00	-49.41	-139.39
		127	1512.36	61.21	-9.02	.00	35.92	47.70
	12	126	-1239.73	-61.44	4.40	.00	-24.67	-139.32
		127	1239.73	61.44	-4.40	.00	18.09	47.29
147	10	127	-1496.57	-36.36	-.04	.00	-.27	-51.56
		128	1496.57	36.36	.04	.00	.34	-2.36
	11	127	-1512.32	-33.43	9.82	.00	-35.92	-47.70
		128	1512.32	33.43	-9.82	.00	21.21	-1.84
	12	127	-1239.69	-33.45	4.89	.00	-18.09	-47.29
		128	1239.69	33.45	-4.89	.00	10.77	-2.30
148	10	128	-1496.60	-14.63	.04	.00	-.34	2.36
		129	1496.60	14.63	-.04	.00	.28	-23.66
	11	128	-1512.35	-13.51	7.64	.00	-21.21	1.84
		129	1512.35	13.51	-7.64	.00	9.75	-21.49
	12	128	-1239.73	-13.45	3.84	.00	-10.77	2.30
		129	1239.73	13.45	-3.84	.00	5.01	-21.84
149	10	129	-1496.60	-2.00	.07	.00	-.28	23.66
		130	1496.60	2.00	-.07	.00	.19	-26.16
	11	129	-1512.35	-1.92	4.79	.00	-9.75	21.49
		130	1512.35	1.92	-4.79	.00	2.57	-23.89
	12	129	-1239.73	-1.83	2.42	.00	-5.01	21.84
		130	1239.73	1.83	-2.42	.00	1.37	-24.11
150	10	130	-1496.59	3.65	.06	.00	-.19	26.16
		131	1496.59	-3.65	-.06	.00	.10	-20.38
	11	130	-1512.35	3.29	2.38	.00	-2.57	23.89
		131	1512.35	-3.29	-2.38	.00	-1.01	-18.65
	12	130	-1239.72	3.37	1.22	.00	-1.37	24.11
		131	1239.72	-3.37	-1.22	.00	-.46	-18.76
151	10	131	-1496.60	5.00	.04	.00	-.10	20.38
		132	1496.60	-5.00	-.04	.00	.04	-12.73
	11	131	-1512.35	4.56	.78	.00	1.01	18.65
		132	1512.35	-4.56	-.78	.00	-2.19	-11.68
	12	131	-1239.73	4.60	.41	.00	.46	18.76
		132	1239.73	-4.60	-.41	.00	-1.08	-11.71
152	10	132	-1496.60	4.25	.02	.00	-.04	12.73
		133	1496.60	-4.25	-.02	.00	.00	-6.32
	11	132	-1512.35	3.88	-.07	.00	2.19	11.68
		133	1512.35	-3.88	.07	.00	-2.09	-5.81
	12	132	-1239.72	3.91	-.02	.00	1.08	11.71
		133	1239.72	-3.91	.02	.00	-1.04	-5.81
153	10	133	-1496.59	2.83	.01	.00	.00	6.32
		134	1496.59	-2.83	-.01	.00	-.01	-2.08

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
	11	133	-1512.34	2.59	-.39	.00	2.09	5.81
		134	1512.34	-2.59	.39	.00	-1.51	-1.92
	12	133	-1239.72	2.60	-.19	.00	1.04	5.81
		134	1239.72	-2.60	.19	.00	-.76	-1.91
154	10	134	-1496.60	1.51	.00	.00	.01	2.08
		135	1496.60	-1.51	.00	.00	-.02	.17
	11	134	-1512.35	1.39	-.42	.00	1.51	1.92
		135	1512.35	-1.39	.42	.00	-.88	.14
	12	134	-1239.73	1.39	-.21	.00	.76	1.91
		135	1239.73	-1.39	.21	.00	-.45	.16
155	10	135	-1496.60	.57	.00	.00	.02	-.17
		136	1496.60	-.57	.00	.00	-.01	1.00
	11	135	-1512.35	.53	-.31	.00	.88	-.14
		136	1512.35	-.53	.31	.00	-.42	.90
	12	135	-1239.73	.52	-.16	.00	.45	-.16
		136	1239.73	-.52	.16	.00	-.21	.92
156	10	136	-1496.60	.01	.00	.00	.01	-1.00
		137	1496.60	-.01	.00	.00	-.01	.99
	11	136	-1512.35	.01	-.18	.00	.42	-.90
		137	1512.35	-.01	.18	.00	-.15	.90
	12	136	-1239.73	.01	-.09	.00	.21	-.92
		137	1239.73	-.01	.09	.00	-.08	.91
157	10	137	-1496.60	-.27	.00	.00	.01	-.99
		138	1496.60	.27	.00	.00	.00	.57
	11	137	-1512.35	-.25	-.08	.00	.15	-.90
		138	1512.35	.25	.08	.00	-.03	.52
	12	137	-1239.73	-.25	-.04	.00	.08	-.91
		138	1239.73	.25	.04	.00	-.02	.53
158	10	138	-1496.60	-.38	.00	.00	.00	-.57
		139	1496.60	.38	.00	.00	.00	.00
	11	138	-1512.35	-.35	-.02	.00	.03	-.52
		139	1512.35	.35	.02	.00	.00	.00
	12	138	-1239.73	-.35	-.01	.00	.02	-.53
		139	1239.73	.35	.01	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

349. PLOT BEN FILE

APPENDIX 'C'

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**************************************************
*                                                *
*           S T A A D - III                      *
*           Revision 22.3                        *
*           Proprietary Program of               *
*           Research Engineers, Inc.             *
*           Date=    FEB 15, 2000                *
*           Time=    15:37:27                    *
*                                                *
*      USER ID: Pacific Consultants Internationa *
**************************************************
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 1. STAAD SPACE RUPSA BRIDGE VIADUCT (THERMAL EXPANSION)
 2. UNIT KN METER
 3. JOINT COORDINATES
 4. 1 0. 14. 0. 13 360. 3.2 0.
 5. 14 30. 13.1 8.05
 6. 15 30. 13.1 6.3 18 30. 13.1 -6.3
 7. 19 30. 13.1 -8.05
 8. 20 0. 0. 0.
 9. 21 30. 0. 6.3 24 30. 0. -6.3
10. 25 60. 0. 0. 34 330. 0. 0.
11. 35 360. 0.7 0.
12. 36 360. 5.2 0.  39 360. 3.7 0.
13. 40 360. 2.575 0.  42 360. 1.325 0.
15. 60 -1.35 0. 0. 79 -1.35 -28.5 0.
16. 80 28.65 0. 6.3 99 28.65 -28.5 6.3
17. R 3 0. 0. -4.2
18. 160 58.65 0. 0. 179 58.65 -28.5 0
19. R 9 30.0 0. 0.
20. 360 358.65 0.7 0. 379 358.65 -27.8 0.
21. 380 1.35 0. 0. 399 1.35 -28.5 0.
22. 400 31.35 0. 6.3 419 31.35 -28.5 6.3
23. R 3 0. 0. -4.2
24. 480 61.35 0. 0. 499 61.35 -28.5 0.
25. R 9 30. 0. 0.
26. 680 361.35 0.7 0. 699 361.35 -27.8 0.
28. MEMBER INCIDENCE
30. 1 1 2 12
31. 13 1 20
32. 14 14 15 15
33. 16 16 2
34. 17 2 17
35. 18 17 18 19
36. 20 15 21 23
37. 24 3 25 33
38. 34 60 20
39. 35 80 21
40. 36 100 22
41. 37 120 23
42. 38 140 24
43. 39 160 25
44. 40 180 26
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 45. 41 200 27
 46. 42 220 28
 47. 43 240 29
 48. 44 260 30
 49. 45 280 31
 50. 46 300 32
 51. 47 320 33
 52. 48 340 34
 53. 49 360 35
 55. 50 20 380
 56. 51 21 400
 57. 52 22 420
 58. 53 23 440
 59. 54 24 460
 60. 55 25 480
 61. 56 26 500
 62. 57 27 520
 63. 58 28 540
 64. 59 29 560
 65. 60 30 580
 66. 61 31 600
 67. 62 32 620
 68. 63 33 640
 69. 64 34 660
 70. 65 35 680
 71. 66 36 37 68
 72. 69 39 13
 73. 70 13 40
 74. 71 40 41 72
 75. 73 42 35
 76. 74 21 22 76
 77. 77 12 36
 78. *PILE
 79. 80 60 61 98
 80. R 31 20 20
 82. MEMBER PROPERETY
 84. 1 TO 12 77     PRI YD 2.853 ZD 2.853
 85. 13             PRI IZ 23.22
 86. 14 TO 19       PRI YD 0.9 ZD 1.65
 87. 20 TO 23       PRI YD 1.5 ZD 1.5
 88. 24 TO 33       PRI YD 1.5 ZD 6.0
 89. 34 50          PRI YD 3.0 ZD 11.0
 90. 35 38 51 54    PRI YD 1.2 ZD 3.3
 91. 36 37 52 53    PRI YD 1.2 ZD 4.2
 92. 39 TO 48       PRI YD 1.2 ZD 15.0
 93. 55 TO 64       PRI YD 1.2 ZD 15.0
 94. 49 65          PRI YD 1.0 ZD 16.2
 95. 66 TO 69       PRI YD 0.45 ZD 16.2
 96. 70 TO 73       PRI YD 1.35 ZD 16.2
 97. 74 TO 76       PRI YD 1.20 ZD 4.2
 99. 80  TO  98 400 TO 418 PRI IZ 3.835
101. 100 TO 118 420 TO 438 PRI YD 0.9
102. 120 TO 138 440 TO 458 PRI YD 0.9
103. 140 TO 158 460 TO 478 PRI YD 0.9
104. 160 TO 178 480 TO 498 PRI YD 0.9
106. 180 TO 198 500 TO 518 PRI IZ 0.129
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107. 200 TO 218 520 TO 538 PRI IZ 0.129
108. 220 TO 238 540 TO 558 PRI IZ 0.129
109. 240 TO 258 560 TO 578 PRI IZ 0.129
110. 260 TO 278 580 TO 598 PRI IZ 0.129
111. 280 TO 298 600 TO 618 PRI IZ 0.129
112. 300 TO 318 620 TO 638 PRI IZ 0.129
113. 320 TO 338 640 TO 658 PRI IZ 0.129
114. 340 TO 358 660 TO 678 PRI IZ 0.129
115. 360 TO 378 680 TO 698 PRI IZ 0.129
116. 380 TO 398 700 TO 718 PRI YD 1.408
117. *
118. MEMBER RELEASES
119. 1 TO 12 77 START FY FZ MX MY MZ
120. 1 TO 12 77 END FY FZ MX MY MZ
121. 13 24 TO 33 START MY
122. 13 24 TO 33 END MY
124. CONSTANTS
125. E 27.98E6 LIST 1 TO 12 77
126. E 25.91E6 LIST 13 TO 76 80 TO 98 700 TO 718
127. E 25.91E6 LIST 100 TO 118 120 TO 138 140 TO 158 160 TO 178 180 TO 198
128. E 25.91E6 LIST 200 TO 218 220 TO 238 240 TO 258 260 TO 278 280 TO 298
129. E 25.91E6 LIST 300 TO 318 320 TO 338 340 TO 358 360 TO 378 380 TO 398
130. E 25.91E6 LIST 400 TO 418 420 TO 438 440 TO 458 460 TO 478 480 TO 498
131. E 25.91E6 LIST 500 TO 518 520 TO 538 540 TO 558 560 TO 578 580 TO 598
132. E 25.91E6 LIST 600 TO 618 620 TO 638 640 TO 658 660 TO 678 680 TO 698
133. ALPHA 1.08E-5 1 TO 12 77
134. DEN CON LIST 14 TO 23 35 TO 38 49 51 TO 54 65 TO 76
135. *
136. SUPPORT
137. * BEHIND THE ABUTMENT
138. 37  FIXED BUT FY  MX MY MZ  KFX 112000
139. 38  FIXED BUT FY  MX MY MZ  KFX 158517
140. 39  FIXED BUT FY  MX MY MZ  KFX 178306
141. 13  FIXED BUT FY  MX MY MZ  KFX 218729
142. 40  FIXED BUT FY  MX MY MZ  KFX 264333
143. 41  FIXED BUT FY  MX MY MZ  KFX 282765
144. 42  FIXED BUT FY  MX MY MZ  KFX 299173
145. 35  FIXED BUT FY  MX MY MZ  KFX 314059
146. * MP8
147. 60 380 FIXED BUT FY MX MY MZ  KFX 22286  KFZ 22286
148. 61 381 FIXED BUT FY MX MY MZ  KFX 24990  KFZ 24990
149. 62 382 FIXED BUT FY MX MY MZ  KFX 49091  KFZ 49091
150. 63 383 FIXED BUT FY MX MY MZ  KFX 52187  KFZ 52187
151. 64 384 FIXED BUT FY MX MY MZ  KFX 54944  KFZ 54944
152. 65 385 FIXED BUT FY MX MY MZ  KFX 57464  KFZ 57464
153. 66 386 FIXED BUT FY MX MY MZ  KFX 259306 KFZ 259306
154. 67 387 FIXED BUT FY MX MY MZ  KFX 261507 KFZ 261507
155. 68 388 FIXED BUT FY MX MY MZ  KFX 263594 KFZ 263594
156. 69 389 FIXED BUT FY MX MY MZ  KFX 265584 KFZ 265584
157. 70 390 FIXED BUT FY MX MY MZ  KFX 267493 KFZ 267493
158. 71 391 FIXED BUT FY MX MY MZ  KFX 269330 KFZ 269330
159. 72 392 FIXED BUT FY MX MY MZ  KFX 271104 KFZ 271104
160. 73 393 FIXED BUT FY MX MY MZ  KFX 272822 KFZ 272822
161. 74 394 FIXED BUT FY MX MY MZ  KFX 274490 KFZ 274490
162. 75 395 FIXED BUT FY MX MY MZ  KFX 276112 KFZ 276112
163. 76 396 FIXED BUT FY MX MY MZ  KFX 277693 KFZ 277693
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164. 77 397 FIXED BUT FY MX MY MZ  KFX 279236 KFZ 279236
165. 78 398 FIXED BUT FY MX MY MZ  KFX 280744 KFZ 280744
166. * P11
167. 80 TO 140 BY 20 FIXED BUT FY MX MY MZ  KFX 14783  KFZ  4139
168. 81 TO 141 BY 20 FIXED BUT FY MX MY MZ  KFX  9648  KFZ  9648
169. 82 TO 142 BY 20 FIXED BUT FY MX MY MZ  KFX 10791  KFZ 10791
170. 83 TO 143 BY 20 FIXED BUT FY MX MY MZ  KFX 11704  KFZ 11704
171. 84 TO 144 BY 20 FIXED BUT FY MX MY MZ  KFX 12498  KFZ 12498
172. 85 TO 145 BY 20 FIXED BUT FY MX MY MZ  KFX 13212  KFZ 13212
173. 86 TO 146 BY 20 FIXED BUT FY MX MY MZ  KFX 13871  KFZ 13871
174. 87 TO 147 BY 20 FIXED BUT FY MX MY MZ  KFX 39798  KFZ 39798
175. 88 TO 148 BY 20 FIXED BUT FY MX MY MZ  KFX 40378  KFZ 40378
176. 89 TO 149 BY 20 FIXED BUT FY MX MY MZ  KFX 40930  KFZ 40930
177. 90 TO 150 BY 20 FIXED BUT FY MX MY MZ  KFX 41457  KFZ 41457
178. 91 TO 151 BY 20 FIXED BUT FY MX MY MZ  KFX 41963  KFZ 41963
179. 92 TO 152 BY 20 FIXED BUT FY MX MY MZ  KFX 42451  KFZ 42451
180. 93 TO 153 BY 20 FIXED BUT FY MX MY MZ  KFX 42923  KFZ 42923
181. 94 TO 154 BY 20 FIXED BUT FY MX MY MZ  KFX 43380  KFZ 43380
182. 95 TO 155 BY 20 FIXED BUT FY MX MY MZ  KFX 43825  KFZ 43825
183. 96 TO 156 BY 20 FIXED BUT FY MX MY MZ  KFX 44257  KFZ 44257
184. 97 TO 157 BY 20 FIXED BUT FY MX MY MZ  KFX 44679  KFZ 44679
185. 98 TO 158 BY 20 FIXED BUT FY MX MY MZ  KFX 45091  KFZ 45091
186. * P11
187. 400 TO 460 BY 20 FIXED BUT FY MX MY MZ  KFX 14783  KFZ  4139
188. 401 TO 461 BY 20 FIXED BUT FY MX MY MZ  KFX  9648  KFZ  9648
189. 402 TO 462 BY 20 FIXED BUT FY MX MY MZ  KFX 10791  KFZ 10791
190. 403 TO 463 BY 20 FIXED BUT FY MX MY MZ  KFX 11704  KFZ 11704
191. 404 TO 464 BY 20 FIXED BUT FY MX MY MZ  KFX 12498  KFZ 12498
192. 405 TO 465 BY 20 FIXED BUT FY MX MY MZ  KFX 13212  KFZ 13212
193. 406 TO 466 BY 20 FIXED BUT FY MX MY MZ  KFX 13871  KFZ 13871
194. 407 TO 467 BY 20 FIXED BUT FY MX MY MZ  KFX 39798  KFZ 39798
195. 408 TO 468 BY 20 FIXED BUT FY MX MY MZ  KFX 40378  KFZ 40378
196. 409 TO 469 BY 20 FIXED BUT FY MX MY MZ  KFX 40930  KFZ 40930
197. 410 TO 470 BY 20 FIXED BUT FY MX MY MZ  KFX 41457  KFZ 41457
198. 411 TO 471 BY 20 FIXED BUT FY MX MY MZ  KFX 41963  KFZ 41963
199. 412 TO 472 BY 20 FIXED BUT FY MX MY MZ  KFX 42451  KFZ 42451
200. 413 TO 473 BY 20 FIXED BUT FY MX MY MZ  KFX 42923  KFZ 42923
201. 414 TO 474 BY 20 FIXED BUT FY MX MY MZ  KFX 43380  KFZ 43380
202. 415 TO 475 BY 20 FIXED BUT FY MX MY MZ  KFX 43825  KFZ 43825
203. 416 TO 476 BY 20 FIXED BUT FY MX MY MZ  KFX 44257  KFZ 44257
204. 417 TO 477 BY 20 FIXED BUT FY MX MY MZ  KFX 44679  KFZ 44679
205. 418 TO 478 BY 20 FIXED BUT FY MX MY MZ  KFX 45091  KFZ 45091
206. *P1-10
207. 160 TO 340 BY 20 FIXED BUT FY MX MY MZ  KFX 59130  KFZ 16556
208. 161 TO 341 BY 20 FIXED BUT FY MX MY MZ  KFX 38592  KFZ 38592
209. 162 TO 342 BY 20 FIXED BUT FY MX MY MZ  KFX 43164  KFZ 43164
210. 163 TO 343 BY 20 FIXED BUT FY MX MY MZ  KFX 46818  KFZ 46818
211. 164 TO 344 BY 20 FIXED BUT FY MX MY MZ  KFX 49990  KFZ 49990
212. 165 TO 345 BY 20 FIXED BUT FY MX MY MZ  KFX 52850  KFZ 52850
213. 166 TO 346 BY 20 FIXED BUT FY MX MY MZ  KFX 55483  KFZ 55483
214. 167 TO 347 BY 20 FIXED BUT FY MX MY MZ  KFX 159193 KFZ 159193
215. 168 TO 348 BY 20 FIXED BUT FY MX MY MZ  KFX 161513 KFZ 161513
216. 169 TO 349 BY 20 FIXED BUT FY MX MY MZ  KFX 163719 KFZ 163719
217. 170 TO 350 BY 20 FIXED BUT FY MX MY MZ  KFX 165827 KFZ 165827
218. 171 TO 351 BY 20 FIXED BUT FY MX MY MZ  KFX 167852 KFZ 167852
219. 172 TO 352 BY 20 FIXED BUT FY MX MY MZ  KFX 169804 KFZ 169804
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220. 173 TO 353 BY 20 FIXED BUT FY MX MY MZ  KFX 171691 KFZ 171691
221. 174 TO 354 BY 20 FIXED BUT FY MX MY MZ  KFX 173521 KFZ 173521
222. 175 TO 355 BY 20 FIXED BUT FY MX MY MZ  KFX 175298 KFZ 175298
223. 176 TO 356 BY 20 FIXED BUT FY MX MY MZ  KFX 177029 KFZ 177029
224. 177 TO 357 BY 20 FIXED BUT FY MX MY MZ  KFX 178716 KFZ 178716
225. 178 TO 358 BY 20 FIXED BUT FY MX MY MZ  KFX 180364 KFZ 180364
226. *P1-10
227. 480 TO 660 BY 20 FIXED BUT FY MX MY MZ  KFX 59130  KFZ 16556
228. 481 TO 661 BY 20 FIXED BUT FY MX MY MZ  KFX 38592  KFZ 38592
229. 482 TO 662 BY 20 FIXED BUT FY MX MY MZ  KFX 43164  KFZ 43164
230. 483 TO 663 BY 20 FIXED BUT FY MX MY MZ  KFX 46818  KFZ 46818
231. 484 TO 664 BY 20 FIXED BUT FY MX MY MZ  KFX 49990  KFZ 49990
232. 485 TO 665 BY 20 FIXED BUT FY MX MY MZ  KFX 52850  KFZ 52850
233. 486 TO 666 BY 20 FIXED BUT FY MX MY MZ  KFX 55483  KFZ 55483
234. 487 TO 667 BY 20 FIXED BUT FY MX MY MZ  KFX 159193 KFZ 159193
235. 488 TO 668 BY 20 FIXED BUT FY MX MY MZ  KFX 161513 KFZ 161513
236. 489 TO 669 BY 20 FIXED BUT FY MX MY MZ  KFX 163719 KFZ 163719
237. 490 TO 670 BY 20 FIXED BUT FY MX MY MZ  KFX 165827 KFZ 165827
238. 491 TO 671 BY 20 FIXED BUT FY MX MY MZ  KFX 167852 KFZ 167852
239. 492 TO 672 BY 20 FIXED BUT FY MX MY MZ  KFX 169804 KFZ 169804
240. 493 TO 673 BY 20 FIXED BUT FY MX MY MZ  KFX 171691 KFZ 171691
241. 494 TO 674 BY 20 FIXED BUT FY MX MY MZ  KFX 173521 KFZ 173521
242. 495 TO 675 BY 20 FIXED BUT FY MX MY MZ  KFX 175298 KFZ 175298
243. 496 TO 676 BY 20 FIXED BUT FY MX MY MZ  KFX 177029 KFZ 177029
244. 497 TO 677 BY 20 FIXED BUT FY MX MY MZ  KFX 178716 KFZ 178716
245. 498 TO 678 BY 20 FIXED BUT FY MX MY MZ  KFX 180364 KFZ 180364
246. * ABUTMENT
247. 361 681 FIXED BUT FY MX MY MZ  KFX  57341 KFZ  57341
248. 362 682 FIXED BUT FY MX MY MZ  KFX  64343 KFZ  64343
249. 363 683 FIXED BUT FY MX MY MZ  KFX  69888 KFZ  69888
250. 364 684 FIXED BUT FY MX MY MZ  KFX  74685 KFZ  74685
251. 365 685 FIXED BUT FY MX MY MZ  KFX  79000 KFZ  79000
252. 366 686 FIXED BUT FY MX MY MZ  KFX  82970 KFZ  82970
253. 367 687 FIXED BUT FY MX MY MZ  KFX 238550 KFZ 238550
254. 368 688 FIXED BUT FY MX MY MZ  KFX 242044 KFZ 242044
255. 369 689 FIXED BUT FY MX MY MZ  KFX 245363 KFZ 245363
256. 370 690 FIXED BUT FY MX MY MZ  KFX 248534 KFZ 248534
257. 371 691 FIXED BUT FY MX MY MZ  KFX 251580 KFZ 251580
258. 372 692 FIXED BUT FY MX MY MZ  KFX 254514 KFZ 254514
259. 373 693 FIXED BUT FY MX MY MZ  KFX 257351 KFZ 257351
260. 374 694 FIXED BUT FY MX MY MZ  KFX 260101 KFZ 260101
261. 375 695 FIXED BUT FY MX MY MZ  KFX 262772 KFZ 262772
262. 376 696 FIXED BUT FY MX MY MZ  KFX 265372 KFZ 265372
263. 377 697 FIXED BUT FY MX MY MZ  KFX 267907 KFZ 267907
264. 378 698 FIXED BUT FY MX MY MZ  KFX 270383 KFZ 270383
265. 79 TO 699 BY 20 PINNED
266. *
267. LOAD 1 : DEAD LOAD
268. SELFWEIGHT Y -1.0
269. MEM LOAD
270. 14    CON GY -1230.0 0.85
271. 15    CON GY -1230.0 1.50
272. 15    CON GY -1230.0 3.90
273. 16    CON GY -1230.0 2.10
274. 18    CON GY -1230.0 0.30
275. 18    CON GY -1230.0 2.70
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276. 19    CON GY -1230.0 0.90
277. 65    UNI GY -990.0
278. JOINT LOAD
279. 13    FY  -4625.0  MZ 1039.0
281. LOAD 2 : LIVE LOAD FROM SUPERSTRUCTURE
282. MEM LOAD
283. 14    CON GY -300.0 0.85
284. 15    CON GY -300.0 1.50
285. 15    CON GY -300.0 3.90
286. 16    CON GY -300.0 2.10
287. 18    CON GY -300.0 0.30
288. 18    CON GY -300.0 2.70
289. 19    CON GY -300.0 0.90
290. JOINT LOAD
291. 13    FY  -1050.0  MZ 290.0
293. LOAD 3 : WIND LOAD ON STRUCTURE
294. JOI LOAD
295. 2     FX 144.0 FZ -600.0
296. 1 3 TO 12 FX -144.0
298. LOAD 4 : WIND LOAD ON LIVE LOAD
299. JOI LOAD
300. 2     FX 48.0   FZ -120.0
301. 1 3 TO 12 FX -48.0
303. LOAD 5 : LONGITUDINAL FORCES
304. JOI LOAD
305. 1 TO 13     FX 40.0
307. LOAD 6 : TEMPARATURE LOAD
308. TEMP LOAD
309. 1 TO 12 77 TEMP 12.0
311. *
312. LOAD COMB 7 : AASHTO LOAD COMB. I 1.3[(DL+1.67(LL+I)]
313. 1 1.3 2 2.17
314. LOAD COMB 8 : AASHTO LOAD COMB. II 1.3(0.75DL+W)
315. 1 0.975 3 1.3
316. LOAD COMB 9 : AASHTO LOAD COMB. III 1.3(0.75DL+(LL+I)+0.3W+WL+LF)
317. 1 0.975 2 1.3 3 0.39 4 1.3 5 1.3
319. LOAD COMB 10 : AASHTO LOAD COMB. IV 1.3[(0.75DL+(LL+I)+(R+S+T)]
320. 1 0.975 2 1.3 6 1.3
321. LOAD COMB 11 : AASHTO LOAD COMB. V 1.25[(0.75DL+W+(R+S+T)]
322. 1 0.9375 3 1.25 6 1.25
323. LOAD COMB 12 : AASHTO LOAD COMB. VI 1.25[(0.75DL+(LL+I)+0.3W+WL+LF+(R+S+T)
324. 1 0.9375 2 1.25 3 0.375 4 1.25 5 1.25 6 1.25
325. *
326. LOAD COMB 13 : DEAD LOAD + LIVE LOAD (SERVICE LOAD)
327. 1 1.0 2 1.0
328. LOAD COMB 14  : DEAD LOAD + WIND LOAD + (R+S+T) (SERVICE LOAD)
329. 1 1.0 3 1.0 6 1.0
330. *
331. PDELTA ANALYSIS
```

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 682/ 685/ 646
ORIGINAL/FINAL BAND-WIDTH = 628/ 31
TOTAL PRIMARY LOAD CASES = 6, TOTAL DEGREES OF FREEDOM = 3988
SIZE OF STIFFNESS MATRIX = 765696 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE = 17.45/ 1434.0 MB, EXMEM = 1964.5 MB

++ Processing Element Stiffness Matrix. 15:37:28
++ Processing Global Stiffness Matrix. 15:37:28
++ Processing Triangular Factorization. 15:37:28
++ Calculating Joint Displacements. 15:37:31
++ Adjusting Displacements 15:37:33
++ Calculating Member Forces. 15:37:34

332. LOAD LIST 14
333. PRINT JOINT DISPLACEMENT LIST 1 TO 13

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1	14	-4.1569	.0413	.0000	.0000	.0000	.0013
2	14	-3.7900	-.4195	-.8416	.0000	.0000	.0031
3	14	-3.4098	.0041	.0000	.0000	.0000	.0026
4	14	-3.0440	.0044	.0000	.0000	.0000	.0025
5	14	-2.6799	.0046	.0000	.0000	.0000	.0023
6	14	-2.3177	.0047	.0000	.0000	.0000	.0021
7	14	-1.9573	.0047	.0000	.0000	.0000	.0019
8	14	-1.5989	.0046	.0000	.0000	.0000	.0017
9	14	-1.2423	.0041	.0000	.0000	.0000	.0014
10	14	-.8875	.0031	.0000	.0000	.0000	.0011
11	14	-.5339	.0013	.0000	.0000	.0000	.0007
12	14	-.1813	-.0169	.0000	.0000	.0000	.0003
13	14	.1663	-.3205	.0000	.0000	.0000	-.0003

********** END OF LATEST ANALYSIS RESULT **********

334. PRINT SUPPORT REACTIONS LIST 37 38 39 13 40 41 42 35

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
37	14	-227.55	.00	.00	.00	.00	.00
38	14	-302.16	.00	.00	.00	.00	.00
39	14	-318.71	.00	.00	.00	.00	.00
13	14	-363.65	.00	.00	.00	.00	.00
40	14	-391.85	.00	.00	.00	.00	.00
41	14	-367.74	.00	.00	.00	.00	.00
42	14	-335.05	.00	.00	.00	.00	.00
35	14	-296.01	.00	.00	.00	.00	.00

********** END OF LATEST ANALYSIS RESULT **********

335. LOAD LIST 10 TO 12
336. PRINT MAXF ENV LIST 66 TO 73 77

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
66	MAX	272.58	.00	10	.04	.00	11			
		.00	.00	10	.00	.00	10	73.58 C	.50	10
	MIN	193.51	.50	11	-136.27	.50	10			
		.00	.50	12	.00	.50	12	10.15 T	.00	10
67	MAX	-88.13	.00	11	-52.65	.50	11			
		.00	.00	10	.00	.00	10	157.69 C	.50	10
	MIN	-138.47	.50	10	-136.24	.00	10			
		.00	.50	12	.00	.50	12	71.34 C	.46	12
68	MAX	-463.83	.00	11	277.15	.50	10			
		.00	.00	10	.00	.00	10	241.38 C	.50	10
	MIN	-688.36	.50	10	-74.09	.00	12			
		.00	.50	12	.00	.50	12	151.81 C	.46	12
69	MAX	-861.96	.00	11	913.42	.50	10			
		.00	.00	10	.00	.00	10	325.07 C	.50	10
	MIN	-1272.56	.50	10	179.23	.00	11			
		.00	.50	12	.00	.50	12	232.29 C	.46	12
70	MAX	2748.55	.00	10	2303.53	.00	10			
		.00	.00	10	.00	.00	10	6653.61 C	.63	10
	MIN	1828.74	.63	11	441.34	.63	11			
		.00	.63	12	.00	.63	12	4744.89 C	.00	11
71	MAX	2024.72	.00	10	594.80	.00	12			
		.00	.00	10	.00	.00	10	6968.25 C	.62	10
	MIN	1338.30	.62	11	-679.74	.62	10			
		.00	.62	12	.00	.62	12	5047.36 C	.00	11
72	MAX	1342.59	.00	10	-395.12	.00	11			
		.00	.00	10	.00	.00	10	7282.00 C	.63	10
	MIN	878.35	.63	11	-1519.00	.63	10			
		.00	.63	12	.00	.63	12	5348.96 C	.00	11
73	MAX	716.68	.00	10	-944.28	.00	11			
		.00	.00	10	.00	.00	10	7595.86 C	.63	10
	MIN	458.75	.63	11	-1967.10	.63	10			
		.00	.63	12	.00	.63	12	5650.87 C	.00	11
77	MAX	-.02	.00	11	.56	27.52	10			
		.00	.00	10	.00	.00	10	272.63 C	.00	10

MIN	-.02	30.02	10	.00	30.02	12				
	.00	30.02	12	.00	30.02	12	193.50 C	30.02	11	

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

337. PRINT MAXF ENV LIST 49 65

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
49	MAX	4049.41	.00	10	442.24	.00	10			
		.00	.00	10	.00	.00	10	3.84 T	.00	11
	MIN	2965.09	1.35	11	-4685.27	1.35	10			
		.00	1.35	12	.00	1.35	12	29.75 T	1.35	10
65	MAX	-2987.82	.00	11	48.57	1.35	12			
		.00	.00	10	.00	.00	10	128.14 C	.00	10
	MIN	-5854.49	1.35	10	-6652.47	.00	10			
		.00	1.35	12	.00	1.35	12	83.82 C	1.35	11

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

338. PRINT MEMBER FORCES LIST 380 700

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KN METE

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
380	10	360	4049.44	29.76	.00	.00	.00	-442.27
		361	-4049.44	-29.76	.00	.00	.00	486.97
	11	360	3448.21	3.88	.00	.00	.00	-370.47
		361	-3448.21	-3.88	.00	.00	.00	376.31
	12	360	3958.73	22.98	.00	.00	.00	-407.26
		361	-3958.73	-22.98	.00	.00	.00	441.76
700	10	680	5854.50	128.17	.00	.00	.00	32.44
		681	-5854.50	-128.17	.00	.00	.00	159.94
	11	680	4723.91	83.89	.00	.00	.00	15.83
		681	-4723.91	-83.89	.00	.00	.00	110.18
	12	680	5551.57	117.45	.00	.00	.00	48.56
		681	-5551.57	-117.45	.00	.00	.00	127.76

********** END OF LATEST ANALYSIS RESULT **********

339. PLOT BEN FILE
340. PLOT DISP FILE
341. FINISH

********** END OF STAAD-III **********

**** DATE= FEB 15,2000 TIME= 15:37:44 ****

APPENDIX 'D'

```
  OOOOOOO     OOOOO     OOOOO     OOOOO     OOOOO    OO
  OO    OO   OO   OO   OO   OO   OO   OO   OO   OO   OO
  OO    OO   OO   OO   OO   OO   OO   OO   OO   OO   OO
  OO    OO   OO        OO   OO   OO        OO   OO   OO
  OO    OO   OO        OOOOOOO   OO        OO   OO   OO
  OOOOOOO    OO   OO   OO   OO   OO   OO   OO   OO   OO
  OO         OO   OO   OO   OO   OO   OO   OO   OO   OO
  OO          OOOOO    OO   OO    OOOOO     OOOOO    OOOOO   (TM)
```

==========
Computer program for the Strength Design of Reinforced Concrete Sections
==========

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General Information:
==========

File Name: C:\AZMAISH\PCACOL\RUPSA1.COL
Project: Rupsa Bridge Project Code: ACI 318-89
Column: 100 Units: SI Metric
Engineer: Date: 16/2/2000 Time: 14:34:05

Run Option: Design Short (nonslender) column
Run Axis: Biaxial Column Type: Structural

Material Properties:
==========

f'c = 30 MPa fy = 410 MPa
Ec = 27691.5 MPa Es = 199955 MPa
fc = 25.5 MPa erup = 0 mm/mm
eu = 0.003 mm/mm
Stress Profile: Block Beta1 = 0.832451

Geometry:
==========

Circular: Diameter = 900 mm

Gross section area, Ag = 636173 mm^2
Ix = 3.22062e+010 mm^4 Xo = 0 mm
Iy = 3.22062e+010 mm^4 Yo = 0 mm

Reinforcement:
==========

Rebar Database: ASTM

Size	Diam	Area	Size	Diam	Area	Size	Diam	Area
10	11	100	15	16	200	20	20	300
25	25	500	30	30	700	35	36	1000
45	44	1500	55	56	2500			

Confinement: Tied; phi(c) = 0.7, phi(b) = 0.9, a = 0.8
N-10 ties with N-30 bars, N-10 with larger bars.

Layout: Circular
Pattern: All Sides Equal [Cover to transverse reinforcement (ties)]

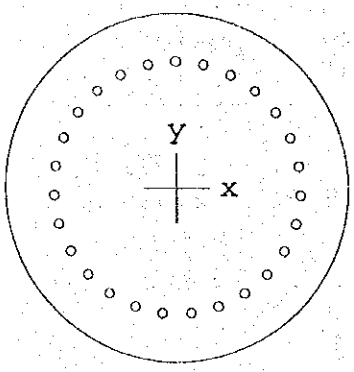
Total steel area, As = 13500 mm^2 at 2.12%

27N-25 Cover = 100 mm

	Applied Loads			Computed Strength			Computed/
Pt.	P (kN)	Mx (kN-m)	My (kN-m)	P (kN)	Mx (kN-m)	My (kN-m)	Applied Ray length
1	-1500	1097	5	-1512	1110	5	1.009
2	-2147	506	56	-2943	698	77	1.371
3	5938	4	284	11991	8	579	2.020

Program completed as requested!

PCACOL V2.30



900 mm diam.

f'c = 30 MPa

fy = 410 MPa

Confinement: Tied

clr cover = 111 mm

spacing = 51 mm

27 N-25 at 2.12%

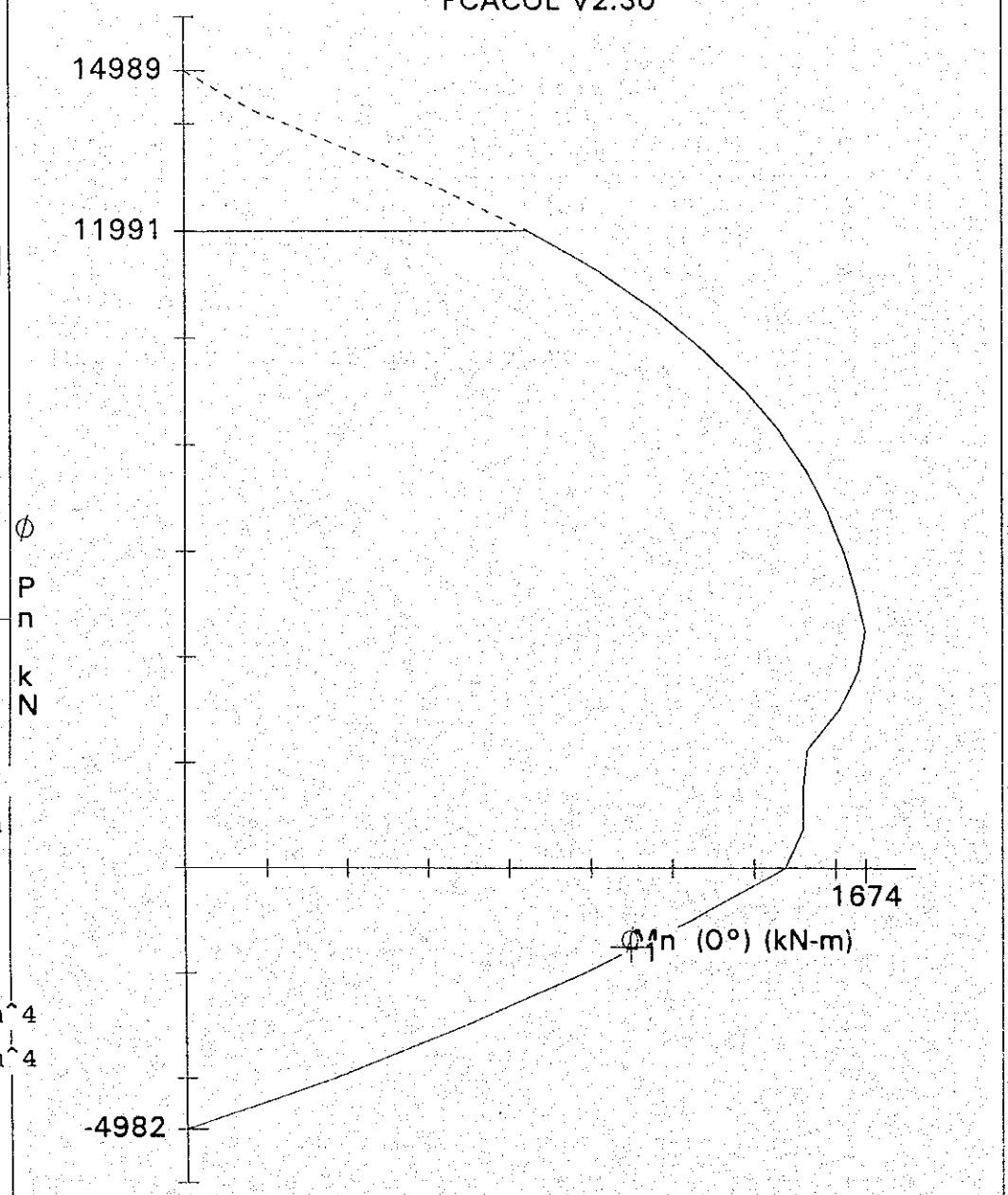
As = 13500 mm^2

Ix = 3.221e+010 mm^4

Iy = 3.221e+010 mm^4

Xo = 0 mm

Yo = 0 mm



Licensed To: Licensee name not yet specified.

File name: C:\AZMAISH\PCACOL\RUPSA1.COL

Project: Rupsa Bridge Project

Column Id: 100

Engineer:

Date: 16/2/2000 Time: 14:34:05

Code: ACI 318-89

Units: Metric

Material Properties:

Ec = 27692 MPa eu = 0.003 mm/mm

fc = 25.50 MPa Es = 199955 MPa

Beta1 = 0.83

Stress Profile: Block

phi(c) = 0.70, phi(b) = 0.90

X-axis slenderness is not considered.

Y-axis slenderness is not considered.

APPENDIX 'E"

Bearing Capacity of a Pile: Bored into the soil layers as indicated by BH1VA1

Diameter of pile = 0.90 m
Footinf depth 0.20 m
Safety Factor = 2.50

Depth	N	γ_s	γ_i	soil type	α_i	s_{ui}	consistency / denseness	z_i	β_i	σ_{vi}	f_{si}	Q_{si}	Q_s	N_c	s_{ut}	q_T	a	b	F_r	q_{TR}	Q_T	W	Q_{ULT}	Q_{ALL}
m		kN/m^3	kN/m^3			kPa		m		kPa	kPa	kPa	kN		kPa	kPa				kPa	kN	kN	kN	kN
0.0	-	15.7	5.9	silty clay	0.00	0.0	-	0.0	-	4.4	0.0	0.0	0.0	7.7	5.6	71.8	0.010	0.500	1.000	0.0	0.0	0.0	0.0	0.0
1.5	1	15.7	5.9	silty clay	0.00	5.0	very soft	1.3	-	13.3	0.0	0.0	0.0	7.7	5.6	71.8	0.010	0.500	1.000	71.8	45.7	11.6	34.1	13.6
3.0	0	15.7	5.9	silty clay	0.55	0.0	very soft	2.8	-	22.1	0.0	0.0	0.0	9.0	4.4	129.3	0.014	0.500	1.000	129.3	82.2	24.9	57.3	22.9
4.5	0	15.7	5.9	silty clay	0.55	0.0	very soft	4.3	-	31.0	0.0	0.0	0.0	9.0	4.4	244.2	0.015	0.500	1.000	244.2	155.3	38.3	117.0	46.8
6.0	4	17.3	7.5	silty clay	0.55	17.5	soft	5.8	-	42.2	9.6	40.8	40.8	9.0	4.4	344.7	0.015	0.500	1.000	344.7	219.3	51.7	208.5	83.4
7.5	5	17.3	7.5	silty sand	0.00	0.0	loose	7.3	0.84	53.5	44.9	190.4	231.2	9.0	0.0	316.0	-	-	1.000	316.0	201.0	65.0	367.2	146.9
9.0	8	17.3	7.5	silty sand	0.00	0.0	medium	8.8	0.77	64.7	50.1	212.6	443.8	9.0	0.0	416.6	-	-	1.000	416.6	265.0	78.4	630.4	252.2
10.5	7	17.3	7.5	silty sand	0.00	0.0	medium	10.3	0.72	76.0	54.3	230.5	674.3	9.0	0.0	603.3	-	-	1.000	603.3	383.8	91.7	966.3	386.5
12.0	2	15.7	5.9	silty sand	0.00	0.0	very loose	11.8	0.66	84.8	56.0	237.4	911.7	9.0	0.0	847.5	-	-	1.000	847.5	539.1	105.1	1345.8	538.3
13.5	12	15.7	5.9	silty sand	0.00	0.0	medium	13.3	0.61	93.7	57.0	241.6	1153.4	9.0	0.0	1220.9	-	-	1.000	1220.9	776.7	118.5	1811.6	724.7
15.0	21	15.7	5.9	silty sand	0.00	0.0	dense	14.8	0.56	102.5	57.3	243.2	1396.6	9.0	0.0	1508.2	-	-	1.000	1508.2	959.5	131.8	2224.2	889.7
16.5	24	18.1	8.3	silty sand	0.00	0.0	dense	16.3	0.51	115.0	59.0	250.0	1646.6	9.0	0.0	1608.8	-	-	1.000	1608.8	1023.5	145.2	2524.9	1010.0
18.0	28	18.1	8.3	silty sand	0.00	0.0	dense	17.8	0.47	127.4	59.7	253.1	1899.7	9.0	0.0	1924.8	-	-	1.000	1924.8	1224.5	158.5	2965.7	1186.3
19.5	32	18.1	8.3	silty sand	0.00	0.0	very dense	19.3	0.43	139.9	59.6	252.6	2152.3	9.0	0.0	2183.3	-	-	1.000	2183.3	1389.0	171.9	3369.4	1347.7
21.0	28	18.1	8.3	silty sand	0.00	0.0	dense	20.8	0.38	152.3	58.6	248.6	2400.9	9.0	0.0	2671.7	-	-	1.000	2671.7	1699.7	185.3	3915.3	1566.1
22.5	46	18.1	8.3	silty sand	0.00	0.0	very dense	22.3	0.35	164.8	56.9	241.3	2642.2	9.0	0.0	3217.5	-	-	1.000	3217.5	2046.9	198.6	4490.5	1796.2
24.0	46	18.1	8.3	silty sand	0.00	0.0	very dense	23.8	0.31	177.2	54.4	230.8	2873.0	9.0	0.0	3619.7	-	-	1.000	3619.7	2302.8	212.0	4963.8	1985.5
25.5	66	18.1	8.3	sand	0.00	0.0	very dense	25.3	0.27	189.7	51.2	217.2	3090.2	9.0	0.0	4165.6	-	-	1.000	4165.6	2650.0	225.3	5514.9	2206.0
27.0	66	18.9	9.1	sand	0.00	0.0	very dense	26.8	0.25	203.3	50.8	215.6	3305.8	9.0	0.0	4122.5	-	-	1.000	4122.5	2622.6	238.7	5689.7	2275.9
28.5	74	18.9	9.1	sand	0.00	0.0	very dense	28.3	0.25	217.0	54.2	230.1	3535.9	9.0	0.0	4065.0	-	-	1.000	4065.0	2586.0	252.1	5869.9	2347.9
30.0	84	18.9	9.1	sand	0.00	0.0	very dense	29.8	0.25	230.6	57.7	244.5	3780.4	9.0	0.0	3605.4	-	-	1.000	3605.4	2293.6	265.4	5808.6	2323.4
31.5	63	18.9	9.1	sand	0.00	0.0	very dense	31.3	0.25	244.3	61.1	259.0	4039.4	9.0	0.0	3002.1	-	-	1.000	3002.1	1909.8	278.8	5670.5	2268.2
33.0	62	18.9	9.1	sand	0.00	0.0	very dense	32.8	0.25	257.9	64.5	273.5	4312.9	9.0	0.0	2887.2	-	-	1.000	2887.2	1836.7	292.1	5857.5	2343.0
34.5	42	18.9	9.1	sand	0.00	0.0	very dense	34.3	0.25	271.6	67.9	287.9	4600.8	9.0	0.0	2757.9	-	-	1.000	2757.9	1754.5	305.5	6049.8	2419.9
36.0	42	18.9	9.1	sand	0.00	0.0	very dense	35.8	0.25	285.2	71.3	302.4	4903.2	9.0	0.0	3102.6	-	-	1.000	3102.6	1973.8	318.8	6558.2	2623.3
37.5	55	18.9	9.1	sand	0.00	0.0	very dense	37.3	0.25	298.9	74.7	316.9	5220.1	9.0	0.0	3433.0	-	-	1.000	3433.0	2184.0	332.2	7071.9	2828.8
39.0	53	18.9	9.1	sand	0.00	0.0	very dense	38.8	0.25	312.5	78.1	331.4	5551.5	9.0	0.0	3533.5	-	-	1.000	3533.5	2247.9	345.6	7453.9	2981.6
40.5	66	18.9	9.1	sand	0.00	0.0	very dense	40.3	0.25	326.2	81.5	345.8	5897.3	9.0	0.0	3835.2	-	-	1.000	3835.2	2439.8	358.9	7978.3	3191.3
42.0	65	18.9	9.1	sand	0.00	0.0	very dense	41.8	0.25	339.8	85.0	360.3	6257.7	9.0	0.0	3691.5	-	-	1.000	3691.5	2348.5	372.3	8233.8	3293.5
43.5	62	18.9	9.1	sand	0.00	0.0	very dense	43.3	0.25	353.5	88.4	374.8	6632.4	9.0	0.0	3576.6	-	-	1.000	3576.6	2275.4	385.6	8522.2	3408.9
45.0	74	18.9	9.1	sand	0.00	0.0	very dense	44.8	0.25	367.1	91.8	389.3	7021.7	9.0	0.0	3581.4	-	-	1.000	3581.4	2278.4	399.0	8901.1	3560.4
46.5	56	18.1	8.3	sand	0.00	0.0	very dense	46.3	0.25	379.6	94.9	402.5	7424.2	9.0	0.0	3246.3	-	-	1.000	3246.3	2065.2	412.4	9077.0	3630.8
48.0	57	18.1	8.3	sand	0.00	0.0	very dense	47.8	0.25	392.0	98.0	415.7	7839.8	9.0	0.0	3275.0	-	-	1.000	3275.0	2083.5	425.7	9497.6	3799.0

96-11

Bearing Capacity of a Pile: Bored into the soil layers as indicated by BH1VP1

Diameter of pile = 0.90 m
Scour depth = 0.00 m
Safety Factor = 2.50

Depth	N	γ_s	γ_i	soil type	α_i	s_{ui}	consistency / denseness	z_i	β_i	σ'_{vi}	f_{si}	Q_{si}	Q_s	N_c	s_{ut}	q_T	a	b	F_r	q_{TR}	Q_T	W	Q_{ULT}	Q_{ALL}
m		kN/m³	kN/m³			kPa		m		kPa	kPa	kPa	kN		kPa	kPa				kPa	kN	kN	kN	kN
0.0	-	14.9	5.1	silty clay	0.00	0.0	-	0.0	-	3.8	0.0	0.0	0.0	0.0	7.5	0.0	-	-	-	0.0	0.0	0.0	0.0	0.0
1.5	3	14.9	5.1	silty clay	0.00	12.5	soft	1.5	-	11.5	0.0	0.0	0.0	8.0	8.8	23.1	0.011	0.500	1.000	23.1	14.7	13.4	1.3	0.5
3.0	4	14.9	5.1	silty clay	0.55	17.5	soft	3.0	-	19.1	9.6	40.8	40.8	9.0	8.1	24.1	0.014	0.500	1.000	24.1	15.4	26.7	29.5	11.8
4.5	0	14.9	5.1	silty clay	0.55	0.0	very soft	4.5	-	26.8	0.0	0.0	40.8	9.0	6.3	0.0	0.015	0.500	1.000	0.0	0.0	40.1	0.7	0.3
6.0	1	14.9	5.1	silty clay	0.55	5.0	very soft	6.0	-	34.4	2.8	11.7	52.5	9.0	8.3	0.0	0.015	0.500	1.000	0.0	0.0	53.4	0.0	0.0
7.5	2	14.9	5.1	silty clay	0.55	10.0	very soft	7.5	-	42.1	5.5	23.3	75.8	9.0	10.0	0.0	0.015	0.500	1.000	0.0	0.0	66.8	9.0	3.6
9.0	2	14.9	5.1	silty clay	0.55	10.0	very soft	9.0	-	49.7	5.5	23.3	99.1	9.0	10.0	0.0	0.015	0.500	1.000	0.0	0.0	80.2	19.0	7.6
10.5	10	17.3	7.5	silty sand	0.00	0.0	medium	10.5	0.71	61.0	43.1	183.0	282.1	9.0	0.0	632.0	-	-	1.000	632.0	402.1	93.5	590.7	236.3
12.0	11	17.3	7.5	silty sand	0.00	0.0	medium	12.0	0.65	72.2	47.2	200.0	482.1	9.0	0.0	718.2	-	-	1.000	718.2	456.9	106.9	832.2	332.9
13.5	11	17.3	7.5	silty sand	0.00	0.0	medium	13.5	0.60	83.5	50.2	213.0	695.1	9.0	0.0	804.4	-	-	1.000	804.4	511.7	120.2	1086.6	434.6
15.0	12	17.3	7.5	silty sand	0.00	0.0	medium	15.0	0.55	94.7	52.4	222.1	917.3	9.0	0.0	1048.6	-	-	1.000	1048.6	667.1	133.6	1450.7	580.3
16.5	16	17.3	7.5	silty sand	0.00	0.0	dense	16.5	0.51	106.0	53.7	227.8	1145.0	9.0	0.0	1292.8	-	-	1.000	1292.8	822.4	147.0	1820.5	728.2
18.0	17	17.3	7.5	silty sand	0.00	0.0	dense	18.0	0.46	117.2	54.2	230.0	1375.0	9.0	0.0	1695.0	-	-	1.000	1695.0	1078.3	160.3	2293.0	917.2
19.5	28	18.9	9.1	silty sand	0.00	0.0	dense	19.5	0.42	130.9	55.0	233.2	1608.2	9.0	0.0	1867.3	-	-	1.000	1867.3	1187.9	173.7	2622.5	1049.0
21.0	29	18.9	9.1	silty sand	0.00	0.0	dense	21.0	0.38	144.5	54.8	232.6	1840.8	9.0	0.0	1953.5	-	-	1.000	1953.5	1242.8	187.0	2896.5	1158.6
22.5	44	18.9	9.1	silty sand	0.00	0.0	very dense	22.5	0.34	158.2	53.8	228.2	2069.0	9.0	0.0	2125.9	-	-	1.000	2125.9	1352.4	200.4	3221.0	1288.4
24.0	29	18.9	9.1	silty sand	0.00	0.0	dense	24.0	0.30	171.8	51.9	220.1	2289.1	9.0	0.0	2097.1	-	-	1.000	2097.1	1334.1	213.8	3409.5	1363.8
25.5	34	18.9	9.1	silty sand	0.00	0.0	very dense	25.5	0.27	185.5	49.2	208.6	2497.7	9.0	0.0	2700.4	-	-	1.000	2700.4	1717.9	227.1	3988.6	1595.4
27.0	41	18.9	9.1	silty sand	0.00	0.0	very dense	27.0	0.25	199.1	49.8	211.1	2708.9	9.0	0.0	3260.6	-	-	1.000	3260.6	2074.3	240.5	4542.7	1817.1
28.5	42	18.9	9.1	silty sand	0.00	0.0	very dense	28.5	0.25	212.8	53.2	225.6	2934.5	9.0	0.0	3461.7	-	-	1.000	3461.7	2202.3	253.8	4882.9	1953.2
30.0	71	18.9	9.1	sand	0.00	0.0	very dense	30.0	0.25	226.4	56.6	240.1	3174.5	9.0	0.0	3591.0	-	-	1.000	3591.0	2284.5	267.2	5191.8	2076.7
31.5	73	18.9	9.1	sand	0.00	0.0	very dense	31.5	0.25	240.1	60.0	254.5	3429.1	9.0	0.0	3461.7	-	-	1.000	3461.7	2202.3	280.6	5350.8	2140.3
33.0	55	18.9	9.1	sand	0.00	0.0	very dense	33.0	0.25	253.7	63.4	269.0	3698.1	9.0	0.0	3160.1	-	-	1.000	3160.1	2010.4	293.9	5414.6	2165.8
34.5	51	18.9	9.1	sand	0.00	0.0	very dense	34.5	0.25	267.4	66.8	283.5	3981.6	9.0	0.0	3217.5	-	-	1.000	3217.5	2046.9	307.3	5721.2	2288.5
36.0	62	18.9	9.1	sand	0.00	0.0	very dense	36.0	0.25	281.0	70.3	298.0	4279.6	9.0	0.0	3447.4	-	-	1.000	3447.4	2193.1	320.6	6152.1	2460.8
37.5	52	18.9	9.1	sand	0.00	0.0	very dense	37.5	0.25	294.7	73.7	312.4	4592.0	9.0	0.0	3648.5	-	-	1.000	3648.5	2321.0	334.0	6579.1	2631.6
39.0	59	18.9	9.1	sand	0.00	0.0	very dense	39.0	0.25	308.3	77.1	326.9	4918.9	9.0	0.0	3863.9	-	-	1.000	3863.9	2458.1	347.4	7029.7	2811.9
40.5	67	18.9	9.1	sand	0.00	0.0	very dense	40.5	0.25	322.0	80.5	341.4	5260.3	9.0	0.0	3950.1	-	-	1.000	3950.1	2512.9	360.7	7412.5	2965.0
42.0	76	18.9	9.1	sand	0.00	0.0	very dense	42.0	0.25	335.6	83.9	355.9	5616.2	9.0	0.0	3978.8	-	-	1.000	3978.8	2531.2	374.1	7773.3	3109.3
43.5	67	18.9	9.1	sand	0.00	0.0	very dense	43.5	0.25	349.3	87.3	370.3	5986.5	9.0	0.0	3605.4	-	-	1.000	3605.4	2293.6	387.4	7892.7	3157.1
45.0	65	18.9	9.1	sand	0.00	0.0	very dense	45.0	0.25	362.9	90.7	384.8	6371.3	9.0	0.0	3389.9	-	-	1.000	3389.9	2156.6	400.8	8127.1	3250.8
46.5	69	18.9	9.1	sand	0.00	0.0	very dense	46.5	0.25	376.6	94.1	399.3	6770.6	9.0	0.0	3275.0	-	-	1.000	3275.0	2083.5	414.1	8439.9	3376.0
48.0	50	18.9	9.1	sand	0.00	0.0	very dense	48.0	0.25	390.2	97.6	413.8	7184.3	9.0	0.0	2930.3	-	-	1.000	2930.3	1864.1	427.5	8621.0	3448.4
49.5	52	18.9	9.1	sand	0.00	0.0	very dense	49.5	0.25	403.9	101.0	428.2	7612.6	9.0	0.0	2987.7	-	-	1.000	2987.7	1900.7	440.9	9072.4	3629.0

11-97

Bearing Capacity of a Pile: Bored into the soil layers as indicated by BH1VP2

Diameter of pile = 0.90 m
Footing depth = 0.20 m
Safety Factor = 2.50

Depth	N	γ_s	γ_s	soil type	α_i	s_{ui}	consistency / denseness	z_i	β_i	σ'_{vi}	f_{si}	Q_{si}	Q_s	N_c	s_{ui}	q_T	a	b	F_r	q_{TR}	Q_T	W	Q_{ULT}	Q_{ALL}
m		kN/m^3	kN/m^3			kPa		m		kPa	kPa	kPa	kN		kPa	kPa				kPa	kN	kN	kN	kN
0.0	-	14.9	5.1	silty clay	0.00	0.0	-	0.0	-	3.8	0.0	0.0	0.0	0.0	6.3	0.0	-	-	-	0.0	0.0	0.0	0.0	0.0
1.5	1	14.9	5.1	silty clay	0.00	5.0	very soft	1.3	-	11.5	0.0	0.0	0.0	7.7	10.6	0.0	0.010	0.500	1.000	0.0	0.0	11.6	0.0	0.0
3.0	2	14.9	5.1	silty clay	0.55	10.0	very soft	2.8	-	19.1	5.5	23.3	23.3	9.0	13.8	0.0	0.014	0.500	1.000	0.0	0.0	24.9	0.0	0.0
4.5	2	14.9	5.1	silty clay	0.55	10.0	very soft	4.3	-	26.8	5.5	23.3	46.7	9.0	15.6	0.0	0.015	0.500	1.000	0.0	0.0	38.3	8.4	3.
6.0	4	14.9	5.1	silty clay	0.55	17.5	soft	5.8	-	34.4	9.6	40.8	87.5	9.0	17.5	52.0	0.015	0.500	1.000	52.0	33.1	51.7	68.9	27.
7.5	4	15.7	5.9	silty clay	0.55	17.5	soft	7.3	-	43.3	9.6	40.8	128.3	9.0	17.5	52.0	0.015	0.500	1.000	52.0	33.1	65.0	96.3	38.
9.0	4	15.7	5.9	silty clay	0.55	17.5	soft	8.8	-	52.1	9.6	40.8	169.1	9.0	17.5	52.0	0.015	0.500	1.000	52.0	33.1	78.4	123.8	49.
10.5	4	15.7	5.9	silty clay	0.55	17.5	soft	10.3	-	61.0	9.6	40.8	209.9	9.0	17.5	52.0	0.015	0.500	1.000	52.0	33.1	91.7	151.3	60.
12.0	15	17.3	7.5	sand	0.00	0.0	medium	11.8	0.66	72.2	47.7	202.2	412.1	9.0	0.0	790.0	-	-	1.000	790.0	502.6	105.1	809.6	323.
13.5	17	17.3	7.5	sand	0.00	0.0	dense	13.3	0.61	83.5	50.8	215.3	627.4	9.0	0.0	746.9	-	-	1.000	746.9	475.2	118.5	984.2	393.
15.0	11	17.3	7.5	sand	0.00	0.0	medium	14.8	0.56	94.7	53.0	224.7	852.1	9.0	0.0	632.0	-	-	1.000	632.0	402.1	131.8	1122.4	449.
16.5	12	17.3	7.5	sand	0.00	0.0	medium	16.3	0.51	106.0	54.3	230.5	1082.6	9.0	0.0	617.7	-	-	1.000	617.7	392.9	145.2	1330.4	532.
18.0	12	17.3	7.5	silty clay	0.55	65.0	stiff	17.8	-	117.2	35.8	151.6	1234.2	9.0	53.1	478.1	0.015	0.500	1.000	478.1	304.2	158.5	1379.9	551.
19.5	9	17.3	7.5	silty clay	0.55	47.5	medium	19.3	-	128.5	26.1	110.8	1345.0	9.0	61.9	556.9	0.015	0.512	1.000	556.9	354.3	171.9	1527.4	611.
21.0	10	17.3	7.5	silty clay	0.55	50.0	stiff	20.8	-	139.7	27.5	116.6	1461.7	9.0	76.9	691.9	0.015	0.570	1.000	691.9	440.2	185.3	1716.6	686.
22.5	10	17.3	7.5	silty clay	0.55	50.0	stiff	22.3	-	151.0	27.5	116.6	1578.3	9.0	80.6	725.6	0.015	0.584	1.000	725.6	461.6	198.6	1841.3	736.
24.0	17	17.3	7.5	silty clay	0.55	100.0	very stiff	23.8	-	162.2	55.0	233.3	1811.6	9.0	86.3	776.3	0.015	0.604	1.000	776.3	493.8	212.0	2093.4	837.
25.5	18	17.3	7.5	silty clay	0.55	107.5	very stiff	25.3	-	173.5	59.1	250.8	2062.3	9.0	81.3	731.3	0.015	0.586	1.000	731.3	465.2	225.3	2302.2	920.
27.0	12	17.3	7.5	silty clay	0.55	65.0	stiff	26.8	-	184.7	35.8	151.6	2213.9	9.0	74.4	669.4	0.015	0.561	1.000	669.4	425.8	238.7	2401.1	960.
28.5	13	17.3	7.5	silty clay	0.55	72.5	stiff	28.3	-	196.0	39.9	169.1	2383.1	9.0	80.0	720.0	0.015	0.582	1.000	720.0	458.0	252.1	2589.0	1035.
30.0	14	17.3	7.5	silty clay	0.55	80.0	stiff	29.8	-	207.2	44.0	186.6	2569.7	9.0	83.8	753.8	0.015	0.595	1.000	753.8	479.5	265.4	2783.8	1113.
31.5	14	17.3	7.5	silty clay	0.55	80.0	stiff	31.3	-	218.5	44.0	186.6	2756.3	9.0	113.8	1023.8	0.015	0.694	1.000	1023.8	651.3	278.8	3128.8	1251.
33.0	15	17.3	7.5	silty clay	0.55	87.5	stiff	32.8	-	229.7	48.1	204.1	2960.4	9.0	143.8	1293.8	0.015	0.780	1.000	1293.8	823.0	292.1	3491.3	1396.
34.5	15	17.3	7.5	silty clay	0.55	87.5	stiff	34.3	-	241.0	48.1	204.1	3164.5	9.0	171.9	1546.9	0.015	0.853	1.000	1546.9	984.1	305.5	3843.1	1537.
36.0	40	17.3	7.5	silty clay	0.55	200.0	hard	35.8	-	252.2	110.0	466.5	3631.0	9.0	200.0	1800.0	0.015	0.920	1.000	1800.0	1145.1	318.8	4457.3	1782.
37.5	45	18.9	9.1	silty clay	0.55	200.0	hard	37.3	-	265.9	110.0	466.5	4097.5	9.0	200.0	1800.0	0.015	0.920	1.000	1800.0	1145.1	332.2	4910.4	1964.
39.0	39	18.9	9.1	silty clay	0.55	200.0	hard	38.8	-	279.5	110.0	466.5	4564.1	9.0	200.0	1800.0	0.015	0.920	1.000	1800.0	1145.1	345.6	5363.6	2145.
40.5	40	18.9	9.1	silty clay	0.55	200.0	hard	40.3	-	293.2	110.0	466.5	5030.6	9.0	200.0	1800.0	0.015	0.920	1.000	1800.0	1145.1	358.9	5816.8	2326.
42.0	50	18.9	9.1	silty clay	0.55	200.0	hard	41.8	-	306.8	110.0	466.5	5497.1	9.0	200.0	1800.0	0.015	0.920	1.000	1800.0	1145.1	372.3	6269.9	2508.
43.5	71	18.9	9.1	sand	0.00	0.0	very dense	43.3	0.25	320.5	80.1	339.8	5836.9	9.0	0.0	4251.7	-	-	1.000	4251.7	2704.8	385.6	8156.1	3262.
45.0	73	18.9	9.1	sand	0.00	0.0	very dense	44.8	0.25	334.1	83.5	354.3	6191.2	9.0	0.0	4309.2	-	-	1.000	4309.2	2741.4	399.0	8533.6	3413.
46.5	69	18.9	9.1	sand	0.00	0.0	very dense	46.3	0.25	347.8	86.9	368.7	6559.9	9.0	0.0	4309.2	-	-	1.000	4309.2	2741.4	412.4	8888.9	3555.
48.0	83	18.9	9.1	sand	0.00	0.0	very dense	47.8	0.25	361.4	90.4	383.2	6943.1	9.0	0.0	4309.2	-	-	1.000	4309.2	2741.4	425.7	9258.8	3703.
49.5	83	18.9	9.1	sand	0.00	0.0	very dense	49.3	0.25	375.1	93.8	397.7	7340.8	9.0	0.0	4309.2	-	-	1.000	4309.2	2741.4	439.1	9643.1	3857.

86-11

Bearing Capacity of a Pile: Bored into the soil layers as indicated by BH1EA1

Diameter of pile = 0.90 m
Footing depth = 3.20 m
Safety Factor = 2.50

Depth	N	γ_s	γ_i	soil type	α_i	s_{ui}	consistency / denseness	z_i	β_i	σ_{vi}	f_{si}	Q_{si}	Q_s	N_c	s_{ut}	q_T	a	b	F_r	q_{TR}	Q_T	W	Q_{ULT}	Q_{ALL}
m		kN/m³	kN/m³			kPa		m		kPa	kPa	kPa	kN		kPa	kPa				kPa	kN	kN	kN	kN
0.0	-	12.0	2.2	silty clay	0.00	0.0	-	0.0	-	1.7	0.0	0.0	0.0	0.0	6.9	0.0	-	-	-	0.0	0.0	0.0	0.0	0
1.5	5	12.0	2.2	silty clay	0.00	17.5	soft	1.3	-	5.0	0.0	0.0	0.0	7.7	6.9	17.5	0.009	1.500	0.139	2.4	1.5	11.6	0.0	0
3.0	0	12.0	2.2	silty clay	0.55	0.0	very soft	2.8	-	8.3	0.0	0.0	0.0	9.0	2.5	0.0	0.012	1.500	0.139	0.0	0.0	24.9	0.0	0
4.5	2	12.0	2.2	silty clay	0.55	10.0	very soft	4.3	-	11.6	5.5	23.3	23.3	9.0	6.9	0.0	0.015	1.500	0.139	0.0	0.0	38.3	0.0	0
6.0	0	12.0	2.2	silty clay	0.55	0.0	very soft	5.8	-	14.9	0.0	0.0	23.3	9.0	5.8	0.0	0.015	1.500	0.139	0.0	0.0	51.7	0.0	0
7.5	0	12.0	2.2	silty clay	0.55	0.0	very soft	7.3	-	18.2	0.0	0.0	23.3	9.0	8.8	0.0	0.015	1.500	0.139	0.0	0.0	65.0	0.0	0
9.0	4	12.0	2.2	silty clay	0.55	17.5	soft	8.8	-	21.5	9.6	40.8	64.1	9.0	17.5	52.0	0.015	1.500	0.139	7.2	4.6	78.4	0.0	0
10.5	11	15.7	5.9	sand	0.00	0.0	medium	10.3	0.72	30.3	21.7	91.9	156.1	9.0	0.0	560.2	-	-	-	560.2	356.4	91.7	420.7	168
12.0	16	17.3	7.5	sand	0.00	0.0	dense	11.8	0.66	41.6	27.4	116.3	272.4	9.0	0.0	560.2	-	-	-	560.2	356.4	105.1	523.7	209
13.5	5	18.1	8.3	sand	0.00	0.0	loose	13.3	0.61	54.0	32.8	139.3	411.7	9.0	0.0	502.7	-	-	-	502.7	319.8	118.5	613.0	245
15.0	7	18.1	8.3	sand	0.00	0.0	medium	14.8	0.56	66.5	37.2	157.6	569.3	9.0	0.0	603.3	-	-	-	603.3	383.8	131.8	821.3	328
16.5	11	18.1	8.3	silty clay	0.55	57.5	stiff	16.3	-	78.9	31.6	134.1	703.4	9.0	73.8	663.8	0.015	1.500	0.139	92.0	58.5	145.2	616.8	246
18.0	12	18.1	8.3	silty clay	0.55	65.0	stiff	17.8	-	91.4	35.8	151.6	855.0	9.0	84.4	759.4	0.015	1.500	0.139	105.3	67.0	158.5	763.5	305
19.5	12	18.1	8.3	silty clay	0.55	65.0	stiff	19.3	-	103.8	35.8	151.6	1006.7	9.0	84.4	759.4	0.015	1.500	0.139	105.3	67.0	171.9	901.7	360
21.0	18	18.1	8.3	silty clay	0.55	107.5	very stiff	20.8	-	116.3	59.1	250.8	1257.4	9.0	78.1	703.1	0.015	1.500	0.139	97.5	62.0	185.3	1134.2	453
22.5	17	18.1	8.3	silty clay	0.55	100.0	very stiff	22.3	-	128.7	55.0	233.3	1490.7	9.0	63.1	568.1	0.015	1.500	0.139	78.8	50.1	198.6	1342.2	536
24.0	12	18.1	8.3	silty clay	0.55	65.0	stiff	23.8	-	141.2	35.8	151.6	1642.3	9.0	48.1	433.1	0.015	1.500	0.139	60.1	38.2	212.0	1468.5	587
25.5	8	18.1	8.3	silty clay	0.55	40.0	medium	25.3	-	153.6	22.0	93.3	1735.6	9.0	44.4	399.4	0.015	1.500	0.139	55.4	35.2	225.3	1545.5	618
27.0	9	18.1	8.3	silty clay	0.55	47.5	medium	26.8	-	166.1	26.1	110.8	1846.4	9.0	44.4	399.4	0.015	1.500	0.139	55.4	35.2	238.7	1642.9	657
28.5	8	18.1	8.3	silty clay	0.55	40.0	medium	28.3	-	178.5	22.0	93.3	1939.7	9.0	44.4	399.4	0.015	1.500	0.139	55.4	35.2	252.1	1722.9	689
30.0	10	18.1	8.3	silty clay	0.55	50.0	stiff	29.8	-	191.0	27.5	116.6	2056.3	9.0	46.9	421.9	0.015	1.500	0.139	58.5	37.2	265.4	1828.1	731
31.5	8	18.1	8.3	silty clay	0.55	40.0	medium	31.3	-	203.4	22.0	93.3	2149.7	9.0	48.8	438.8	0.015	1.500	0.139	60.8	38.7	278.8	1909.6	763
33.0	9	18.1	8.3	silty clay	0.55	47.5	medium	32.8	-	215.9	26.1	110.8	2260.5	9.0	53.1	478.1	0.015	1.500	0.139	66.3	42.2	292.1	2010.5	804
34.5	10	18.1	8.3	silty clay	0.55	50.0	stiff	34.3	-	228.3	27.5	116.6	2377.1	9.0	59.4	534.4	0.015	1.500	0.139	74.1	47.1	305.5	2118.7	847
36.0	11	18.1	8.3	silty clay	0.55	57.5	stiff	35.8	-	240.8	31.6	134.1	2511.2	9.0	66.9	601.9	0.015	1.500	0.139	83.5	53.1	318.8	2245.4	898
37.5	11	18.1	8.3	silty clay	0.55	57.5	stiff	37.3	-	253.2	31.6	134.1	2645.3	9.0	76.3	686.3	0.015	1.500	0.139	95.2	60.5	332.2	2373.7	949
39.0	13	18.1	8.3	silty clay	0.55	72.5	stiff	38.8	-	265.7	39.9	169.1	2814.5	9.0	78.1	703.1	0.015	1.500	0.139	97.5	62.0	345.6	2530.9	1012
40.5	14	18.1	8.3	silty clay	0.55	80.0	stiff	40.3	-	278.1	44.0	186.6	3001.1	9.0	80.0	720.0	0.015	1.500	0.139	99.8	63.5	358.9	2705.6	1082
42.0	16	18.1	8.3	silty clay	0.55	95.0	stiff	41.8	-	290.6	52.3	221.6	3222.7	9.0	80.0	720.0	0.015	1.500	0.139	99.8	63.5	372.3	2913.9	1165
43.5	12	18.1	8.3	silty clay	0.55	65.0	stiff	43.3	-	303.0	35.8	151.6	3374.3	9.0	65.0	585.0	0.015	1.500	0.139	81.1	51.6	385.6	3040.2	1216
45.0	32	18.1	8.3	sand	0.00	0.0	very dense	44.8	0.25	315.5	78.9	334.5	3708.7	9.0	0.0	1896.0	-	-	-	1896.0	1206.2	399.0	4516.0	1806
46.5	31	18.1	8.3	sand	0.00	0.0	very dense	46.3	0.25	327.9	82.0	347.7	4056.4	9.0	0.0	1594.4	-	-	-	1594.4	1014.3	412.4	4658.4	1863
48.0	34	18.1	8.3	sand	0.00	0.0	very dense	47.8	0.25	340.4	85.1	360.9	4417.3	9.0	0.0	1321.5	-	-	-	1321.5	840.7	425.7	4832.3	1932
49.5	35	18.1	8.3	sand	0.00	0.0	very dense	49.3	0.25	352.8	88.2	374.1	4791.4	9.0	0.0	948.0	-	-	-	948.0	603.1	439.1	4955.4	1982
51.0	11	18.1	8.3	sand	0.00	0.0	medium	50.8	0.25	365.3	91.3	387.3	5178.6	9.0	0.0	1536.9	-	-	-	1536.9	977.8	452.4	5703.9	2281
52.5	12	18.1	8.3	sand	0.00	0.0	medium	52.3	0.25	377.7	94.4	400.5	5579.1	9.0	0.0	2341.3	-	-	-	2341.3	1489.5	465.8	6602.8	2641
54.0	8	18.1	8.3	sand	0.00	0.0	medium	53.8	0.25	390.2	97.5	413.7	5992.8	9.0	0.0	3275.0	-	-	-	3275.0	2083.5	479.2	7597.1	3038
55.5	76	18.1	8.3	sand	0.00	0.0	very dense	55.3	0.25	402.6	100.7	426.9	6419.6	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	492.5	8668.5	3467
57.0	67	19.6	9.8	sand	0.00	0.0	very dense	56.8	0.25	417.3	104.3	442.5	6862.1	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	505.9	9097.6	3639
58.5	77	19.6	9.8	sand	0.00	0.0	very dense	58.3	0.25	432.0	108.0	458.0	7320.1	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	519.2	9542.3	3816
60.0	114	19.6	9.8	sand	0.00	0.0	very dense	59.8	0.25	446.7	111.7	473.6	7793.8	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	532.6	10002.6	4001
61.5	65	19.6	9.8	sand	0.00	0.0	very dense	61.3	0.25	461.4	115.4	489.2	8283.0	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	546.0	10478.4	4191
63.0	176	19.6	9.8	sand	0.00	0.0	very dense	62.8	0.25	476.1	119.0	504.8	8787.8	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	559.3	10969.9	4387
64.5	146	19.6	9.8	sand	0.00	0.0	very dense	64.3	0.25	490.8	122.7	520.4	9308.2	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	572.7	11476.9	4590
66.0	112	19.6	9.8	sand	0.00	0.0	very dense	65.8	0.25	505.5	126.4	536.0	9844.2	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	586.0	11999.5	4799
67.5	84	19.6	9.8	sand	0.00	0.0	very dense	67.3	0.25	520.2	130.1	551.6	10395.7	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	599.4	12537.7	5015
69.0	85	19.6	9.8	sand	0.00	0.0	very dense	68.8	0.25	534.9	133.7	567.1	10962.9	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	612.8	13091.5	5236
70.5	90	19.6	9.8	sand	0.00	0.0	very dense	70.3	0.25	549.6	137.4	582.7	11545.6	9.0	0.0	4309.2	-	-	-	4309.2	2741.4	626.1	13660.9	5464

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