**Column on Drilled Pier**
**Controlling Column Factored Loads**

**For bridge width 27' and 30'**

| Average CS Unit Length on Cap | Max. Axial Load $F_Y$ = Kips | Long. Shear $F_Z$ = Kips | Long. Mom. $M_X$ = Kips-ft. | Max. Long. Shear $F_Z$ = Kips | Axial Load $F_Y$ = Kips | Long. Mom. $M_X$ = Kips-ft. | Max. Trans. Shear $F_X$ = Kips | Axial Load $F_Y$ = Kips | Trans. Moment $M_Z$ = Kips-ft. |
|---|---|---|---|---|---|---|---|---|---|
| ≤ 40' | -520 | 6 | 70 | -8 | -270 | -10 | 9 | -230 | 315 |
| >40' and ≤ 55' | -680 | 6 | 80 | -10 | -400 | -10 | 13 | -330 | 405 |
| >55' and ≤ 70' | -800 | 7 | 85 | -12 | -490 | -15 | 15 | -410 | 485 |

**For bridge width 33'**

| Average CS Unit Length on Cap | Max. Axial Load $F_Y$ = Kips | Long. Shear $F_Z$ = Kips | Long. Mom. $M_X$ = Kips-ft. | Max. Long. Shear $F_Z$ = Kips | Axial Load $F_Y$ = Kips | Long. Mom. $M_X$ = Kips-ft. | Max. Trans. Shear $F_X$ = Kips | Axial Load $F_Y$ = Kips | Trans. Moment $M_Z$ = Kips-ft. |
|---|---|---|---|---|---|---|---|---|---|
| ≤ 40' | -550 | -6 | -70 | -8 | -280 | -10 | -11 | -260 | -265 |
| >40' and ≤ 55' | -720 | -6 | -80 | -10 | -420 | -10 | -15 | -390 | -345 |
| >55' and ≤ 70' | -850 | -7 | -85 | -12 | -520 | -15 | -17 | -410 | -430 |

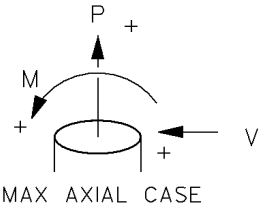
**For bridge width 36' and 39'**

| Average CS Unit Length on Cap | Max. Axial Load $F_Y$ = Kips | Long. Shear $F_Z$ = Kips | Long. Mom. $M_X$ = Kips-ft. | Max. Long. Shear $F_Z$ = Kips | Axial Load $F_Y$ = Kips | Long. Mom. $M_X$ = Kips-ft. | Max. Trans. Shear $F_X$ = Kips | Axial Load $F_Y$ = Kips | Trans. Moment $M_Z$ = Kips-ft. |
|---|---|---|---|---|---|---|---|---|---|
| ≤ 40' | -600 | 6 | 70 | -9 | -350 | -50 | 10 | -330 | 360 |
| >40' and ≤ 55' | -790 | 6 | 80 | -11 | -480 | -60 | 13 | -490 | 445 |
| >55' and ≤ 70' | -940 | 7 | 85 | -12 | -560 | -65 | 16 | -610 | 515 |

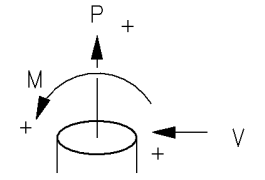
$$\text{Average CS Unit Length on Cap} = \frac{\text{CS Unit Length Before Cap} + \text{CS Unit Length After Cap}}{2}$$

**Table 1 - Use this table when total height from BOC to POF ≤ 50' and column length ≤ 25'**

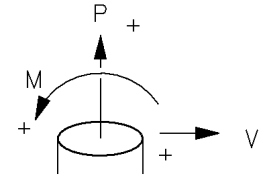
| Bridge Width | Skew | Cap Length | Column Dia. | Drilled Pier Dia. | No. of Cols `X' | Cols Spa. `Y' |
|---|---|---|---|---|---|---|
| 27' | 60/120 | 35'-10" | 2'-6" | 3'-0" | 3 | 13'-0" |
| | 75/105 | 31'-6" | 2'-6" | 3'-0" | 3 | 12'-0" |
| | 90 | 29'-6" | 2'-6" | 3'-0" | 3 | 11'-0" |
| 30' | 60/120 | 39'-4" | 2'-6" | 3'-0" | 3 | 14'-0" |
| | 75/105 | 34'-6" | 2'-6" | 3'-0" | 3 | 13'-0" |
| | 90 | 32'-6" | 2'-6" | 3'-0" | 3 | 12'-0" |
| 33' | 60/120 | 42'-10" | 2'-6" | 3'-0" | 3 | 15'-0" |
| | 75/105 | 37'-8" | 2'-6" | 3'-0" | 3 | 14'-0" |
| | 90 | 35'-6" | 2'-6" | 3'-0" | 3 | 13'-0" |
| 36' | 60/120 | 46'-2" | 2'-6" | 3'-0" | 3 | 16'-0" |
| | 75/105 | 40'-10" | 2'-6" | 3'-0" | 3 | 15'-0" |
| | 90 | 38'-6" | 2'-6" | 3'-0" | 3 | 14'-0" |
| 39' | 60/120 | 49'-8" | 2'-6" | 3'-0" | 3 | 17'-0" |
| | 75/105 | 43'-10" | 2'-6" | 3'-0" | 3 | 16'-0" |
| | 90 | 41'-6" | 2'-6" | 3'-0" | 3 | 15'-0" |



MAX AXIAL CASE



MAX LONG. SHEAR CASE



MAX TRANS. SHEAR CASE

**Table 2 - Use this table when Table 1 limit(s) is exceeded, total height from BOC to POF ≤ 60' and column length ≤ 30'**

| Bridge Width | Skew | Cap Length | Column Dia. | Drilled Pier Dia. | No. of Cols `X' | Cols Spa. `Y' |
|---|---|---|---|---|---|---|
| 27' | 60/120 | 35'-10" | 3'-0" | 3'-6" | 3 | 13'-0" |
| | 75/105 | 31'-6" | 3'-0" | 3'-6" | 3 | 12'-0" |
| | 90 | 29'-6" | 3'-0" | 3'-6" | 3 | 11'-0" |
| 30' | 60/120 | 39'-4" | 3'-0" | 3'-6" | 3 | 14'-0" |
| | 75/105 | 34'-6" | 3'-0" | 3'-6" | 3 | 13'-0" |
| | 90 | 32'-6" | 3'-0" | 3'-6" | 3 | 12'-0" |
| 33' | 60/120 | 42'-10" | 3'-0" | 3'-6" | 3 | 15'-0" |
| | 75/105 | 37'-8" | 3'-0" | 3'-6" | 3 | 14'-0" |
| | 90 | 35'-6" | 3'-0" | 3'-6" | 3 | 13'-0" |
| 36' | 60/120 | 46'-2" | 3'-0" | 3'-6" | 3 | 16'-0" |
| | 75/105 | 40'-10" | 3'-0" | 3'-6" | 3 | 15'-0" |
| | 90 | 38'-6" | 3'-0" | 3'-6" | 3 | 14'-0" |
| 39' | 60/120 | 49'-8" | 3'-0" | 3'-6" | 3 | 17'-0" |
| | 75/105 | 43'-10" | 3'-0" | 3'-6" | 3 | 16'-0" |
| | 90 | 41'-6" | 3'-0" | 3'-6" | 3 | 15'-0" |