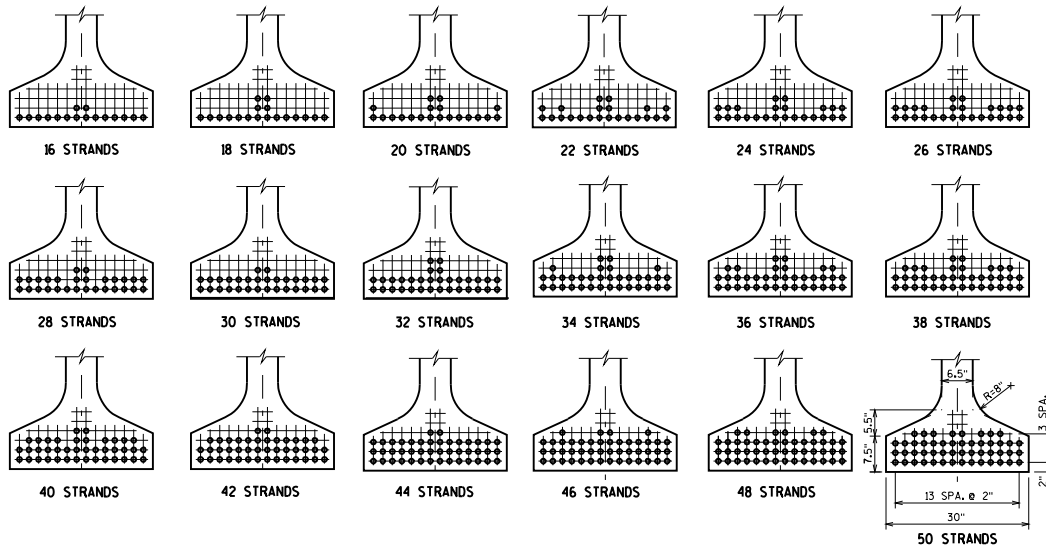


STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF 0.6"Ø STRANDS



ARRANGEMENT AT 1/4 SPAN - FOR GIRDERS WITH DRAPED 0.6"Ø STRANDS

82W GIRDER

A = 980 SQ. IN.
 $r^2 = 924.1 \text{ IN.}^2$
 $y_T = 42.32 \text{ IN.}$
 $y_B = -39.68 \text{ IN.}$
 $I = 905,453 \text{ IN.}^4$
 $S_T = 21,396 \text{ IN.}^3$
 $S_B = -22,819 \text{ IN.}^3$
 WT. = 1021 #/FT.

PRE-TENSION

$f'_s = 270,000 \text{ P.S.I.}$
 $f_s = 0.75 \times 270,000 = 202,500 \text{ P.S.I.}$
 for low relaxation strands

PI PER 0.6" Ø STRAND = $0.217 \times 202,500 = 43,94 \text{ KIPS}$

$$\frac{y_B}{r^2} = \frac{-39.68}{924.10} = -0.04294 \text{ in/in}^2$$

$$f_b (\text{init.}) = \frac{A_s f_s}{A} (1 + \frac{e_s y_B}{r^2})$$

(COMPRESSION IS POSITIVE)

| NO. STRANDS | e_s (inches) | $P(\text{init.}) = A_s f_s$ (KIPS) | $f_b (\text{init.})$ (K/sq.in.) |
|--|----------------|------------------------------------|---------------------------------|
| STANDARD STRAND PATTERNS FOR UNDRAPED STRANDS | | | |
| 16 | -35.18 | 703 | 1.801 |
| 18 | -34.79 | 791 | 2.013 |
| 20 | -34.08 | 879 | 2.209 |
| STANDARD STRAND PATTERNS FOR DRAPED STRANDS | | | |
| 16 | -37.43 | 703 | 1.870 |
| 18 | -37.01 | 791 | 2.090 |
| 20 | -36.88 | 879 | 2.318 |
| 22 | -36.77 | 967 | 2.545 |
| 24 | -36.68 | 1055 | 2.772 |
| 26 | -36.60 | 1143 | 3.000 |
| 28 | -36.54 | 1230 | 3.224 |
| 30 | -36.48 | 1318 | 3.451 |
| 32 | -36.18 | 1406 | 3.664 |
| 34 | -36.03 | 1494 | 3.883 |
| 36 | -35.90 | 1582 | 4.104 |
| 38 | -35.79 | 1670 | 4.323 |
| 40 | -35.68 | 1758 | 4.542 |
| 42 | -35.58 | 1846 | 4.762 |
| 44 | -35.50 | 1933 | 4.978 |
| 46 | -35.33 | 2021 | 5.191 |
| 48 | -35.18 | 2109 | 5.404 |
| 50 | -35.04 | 2197 | 5.616 |

THERE IS CURRENTLY A MORATORIUM ON THE USE OF 82W" PRESTRESSED GIRDERS.

82W" PRESTRESSED GIRDER DESIGN DATA

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 STRUCTURES DEVELOPMENT SECTION

APPROVED: Scot Becker DATE: 7-09