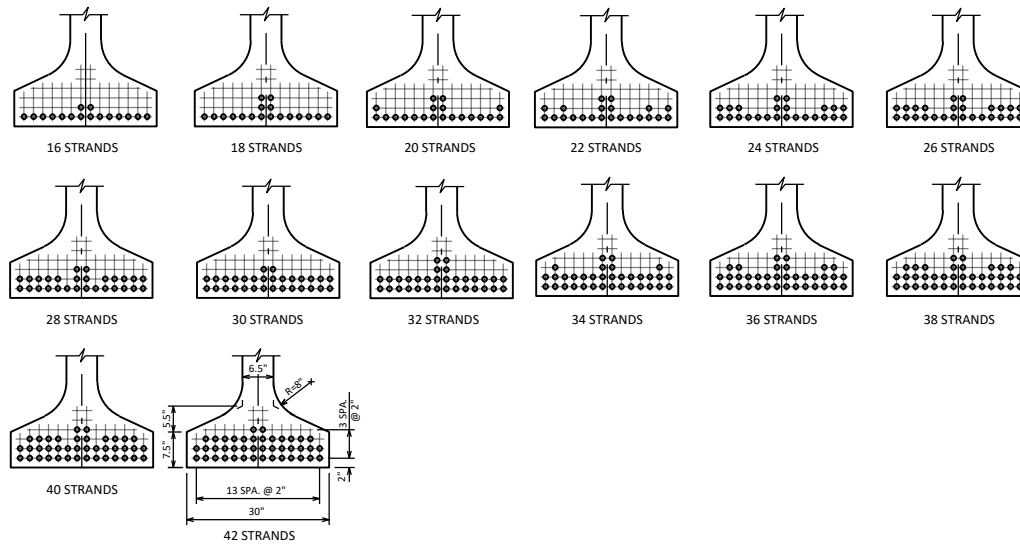


**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY  
TO AVOID DRAPING OF 0.6" DIA. STRANDS**



**ARRANGEMENT AT C/L SPAN - FOR GIRDERS WITH DRAPED 0.6" DIA. STRANDS**

**54W" GIRDER**

A = 798 SQ. IN.

r<sup>2</sup> = 402.41 IN.<sup>2</sup>

y<sub>T</sub> = 27.70 IN.

y<sub>B</sub> = -26.30 IN.

I = 321,049 IN.<sup>4</sup>

S<sub>T</sub> = 11,592 IN.<sup>3</sup>

S<sub>B</sub> = -12,205 IN.<sup>3</sup>

WT. = 831 #/FT.

**PRE-TENSION**

f<sub>s</sub> = 270,000 P.S.I.

f<sub>s</sub> = 0.75 X 270,000 = 202,500 P.S.I.  
for low relaxation strands

Pi PER 0.6" DIA. STRAND = 0.217 X 202,500 = 43.94 KIPS

$$\frac{y_b}{r^2} = \frac{-26.30}{402.41} = -0.06536 \text{ in/in}^2$$

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

NO. STRANDS	e <sub>s</sub> (inches)	P(init.)=A <sub>s</sub> f <sub>s</sub> (KIPS)	f <sub>b</sub> (init.) (K/sq.in.)
(COMPRESSION IS POSITIVE)			
<b>STANDARD STRAND PATTERNS FOR UNDRAPED STRANDS</b>			
16	-21.80	703	2.136
18	-21.41	791	2.378
20	-20.70	879	2.592
<b>STANDARD STRAND PATTERNS FOR DRAPED STRANDS</b>			
16	-24.05	703	2.266
18	-23.63	791	2.522
20	-23.50	879	2.793
22	-23.39	967	3.065
24	-23.30	1055	3.336
26	-23.22	1143	3.607
28	-23.16	1230	3.875
30	-23.10	1318	4.146
32	-22.80	1406	4.387
34	-22.65	1494	4.643
36	-22.52	1582	4.901
38	-22.41	1670	5.159
40	-22.30	1758	5.413
42	-22.20	1846	5.670

**DESIGNER NOTES**

ON THE STRAND PATTERN SHEET, PLACE A BOX AROUND EACH STRAND PATTERN THAT APPLIES TO THE DESIGNED STRUCTURE AND LABEL THE SPAN IT IS USED IN.

**54W" PRESTRESSED GIRDER DESIGN DATA**

**BUREAU OF STRUCTURES**

APPROVED: *Laura Shadewald*

DATE: 7-17