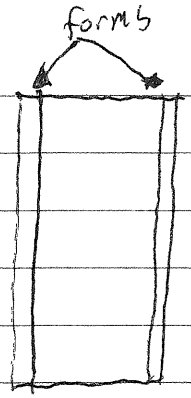


ρ = density of concrete

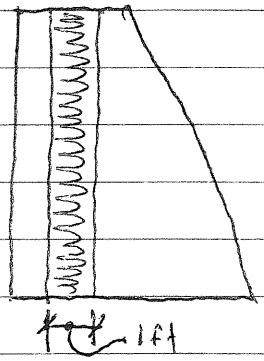
$\rho = 2400\ kg/m^3 = 150\ lbs/ft^3$

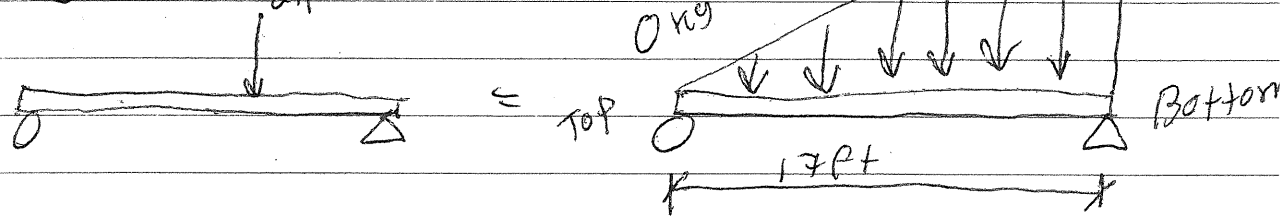
$F_{total} = \frac{1}{2} \rho L H^2$ $\quad L$ = width

$F_{total} = \frac{1}{2} (150\ lbs/ft^3)(1ft)(17ft)^2$

$F_{total} = 21,675\ lbs$

-acts $\frac{1}{3}$ of the way up the structure





$\frac{1}{2} (17ft)(q_{max}) = 21,675$

$q_{max} = 2550$

1275 lbs pushing on each form

#6 Rebar (3/4)

yield strength - 40,000 lbs/in²

ϕ - 0.9

$A = 0.44 \text{ in}^2$

Max Load $= \phi \cdot Y \cdot A$

Max Load $= (0.9)(40{,}000)(0.44) =$ **15840 lbs**

#4 Rebar (1/2)

yield strength - 40,000 lbs/in²

ϕ - 0.9

$A = 0.20 \text{ in}^2$

Max Load $= \phi \cdot Y \cdot A$

Max Load $= (0.9)(40{,}000)(0.20) =$ **7,200 lbs**

#2 Rebar (1/4)

Yield Strength - 40,000 lbs/in²

$\phi = 0.9$

$A = \pi(1/8)^2 = 0.049 \text{ in}^2$

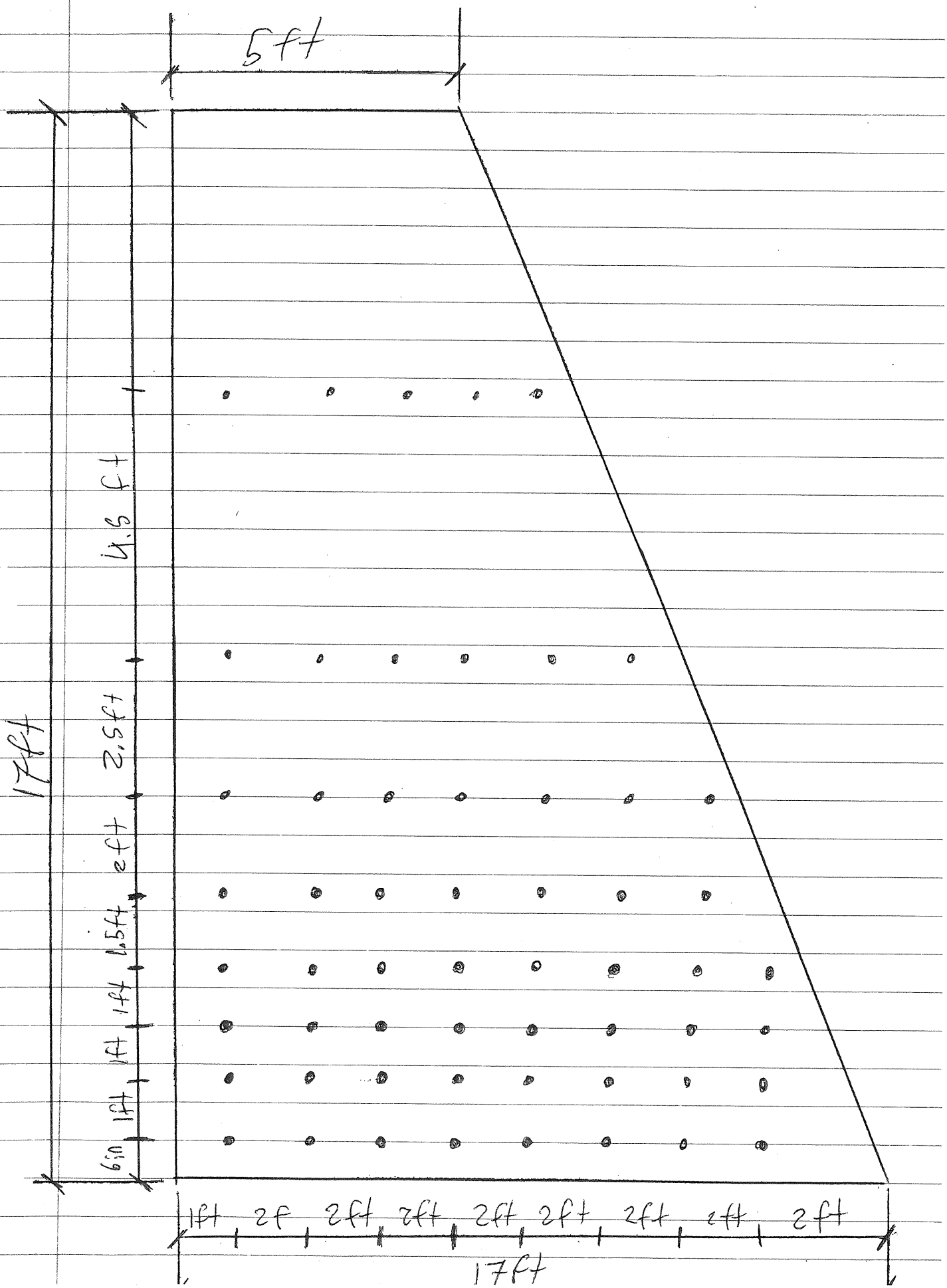
Max Load $= \phi \cdot Y \cdot A$

Max Load $= (0.9)(40{,}000)(0.049) =$ **1,764 lbs**

- Load at 10 ft

#4 Rebar

57 #4


5ft
17ft
4.5 ft
2.5ft
2ft
1.5ft
1ft
1ft
1ft
0.5
1ft
2ft
2ft
2ft
2ft
2ft
2ft
2ft
2ft
17ft

#6 Rebar

24 #6 bars