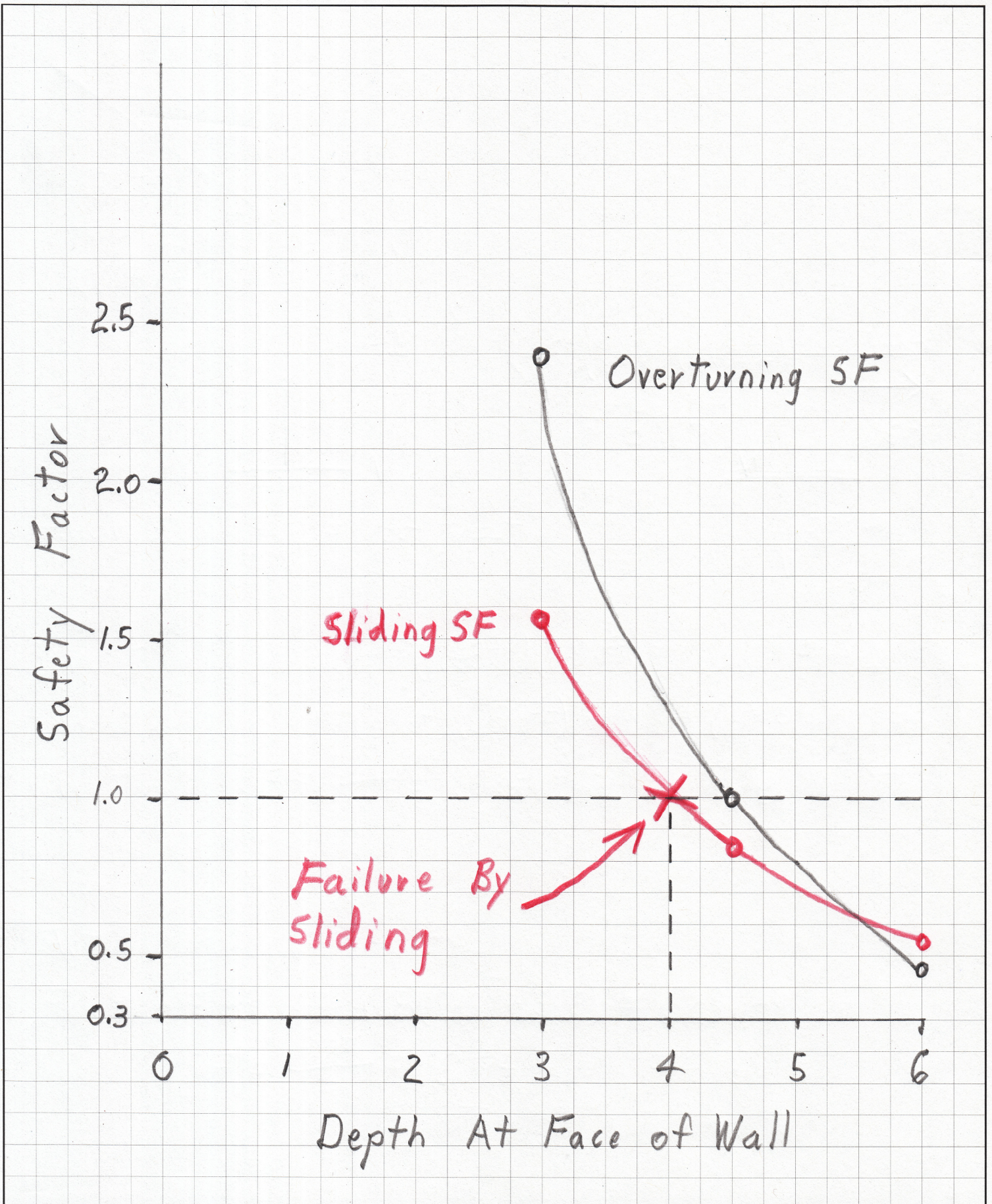
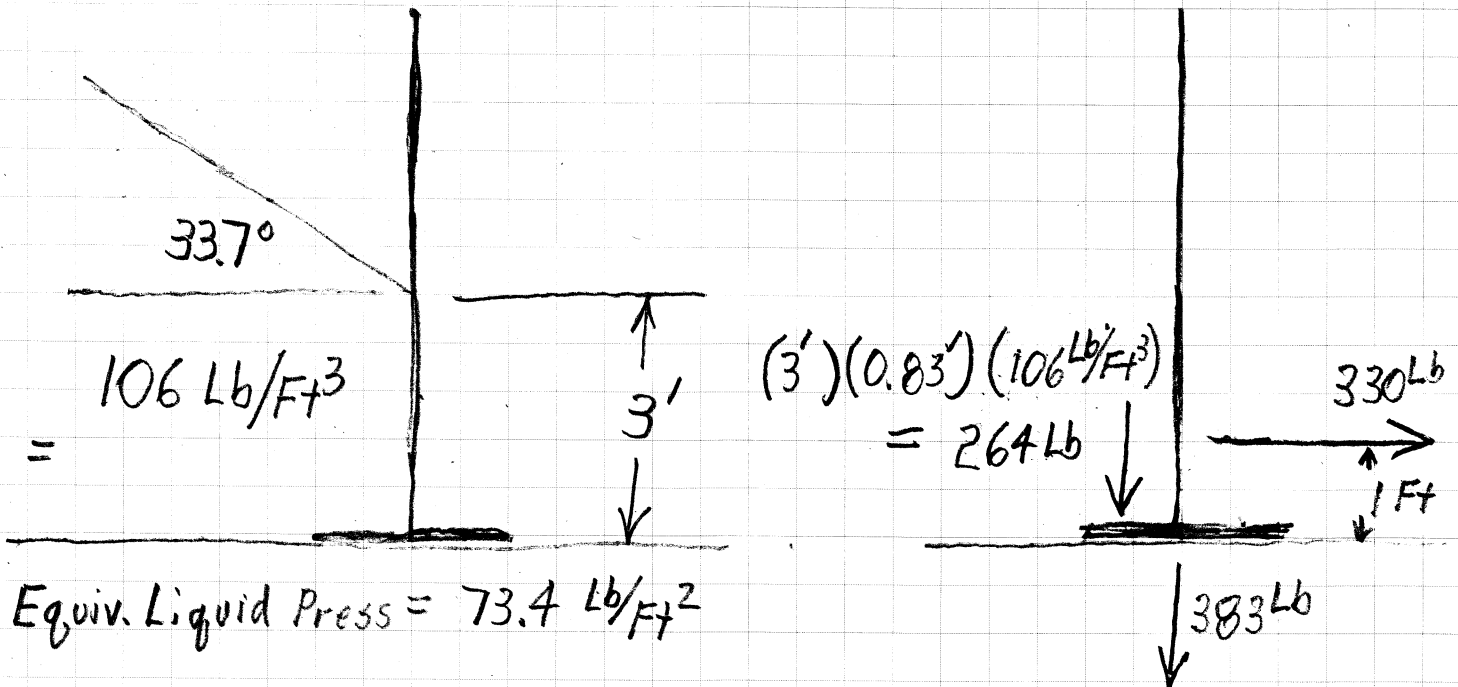


Assuptions:

1. Reinforced Concrete @ 150 Lb/Ft³
2. Reinforcing Is Adequate For All Loads
3. Fill: Dry River Sand @ 106 Lb/Ft³
 Angle of Repose = 33.7° (2v:3H)
4. $Coff_{\text{Concrete on concrete}} = 0.8$



Per Ft. of Length



Equiv. Liquid Press = 73.4 Lb/Ft^2

Overturning Moment = $(330 \text{ Lb})(1 \text{ Ft}) = 330 \text{ Ft-Lb}$

Resisting Moment = $(264 \text{ Lb})(1.58 \text{ Ft}) + (383 \text{ Lb})(1 \text{ Ft}) = 800 \text{ Ft-Lb}$

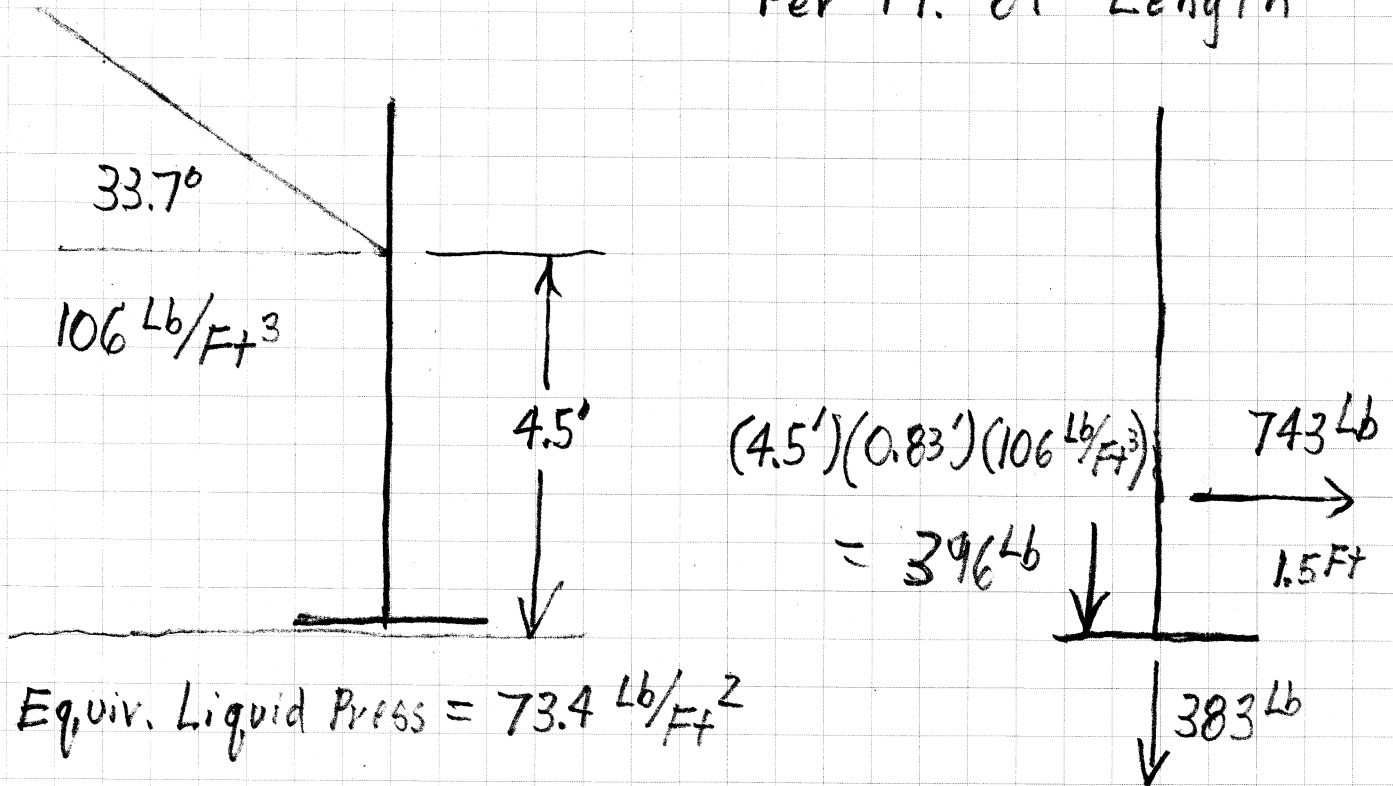
Overturning SF = $\frac{800}{330} = 2.4 > 1 \therefore \text{OK}$

Sliding Force = 330 Lb

Friction Force = $0.8(264 \text{ Lb} + 383 \text{ Lb}) = 518 \text{ Lb}$

Sliding SF = $\frac{518}{330} = 1.57 > 1 \therefore \text{OK}$

Per Ft. of Length



$$\text{Equiv. Liquid Press} = 73.4 \text{ Lb/Ft}^2$$

$$\text{Overturning Moment} = (743 \text{ Lb})(1.5 \text{ Ft}) = 1110 \text{ Ft-Lb}$$

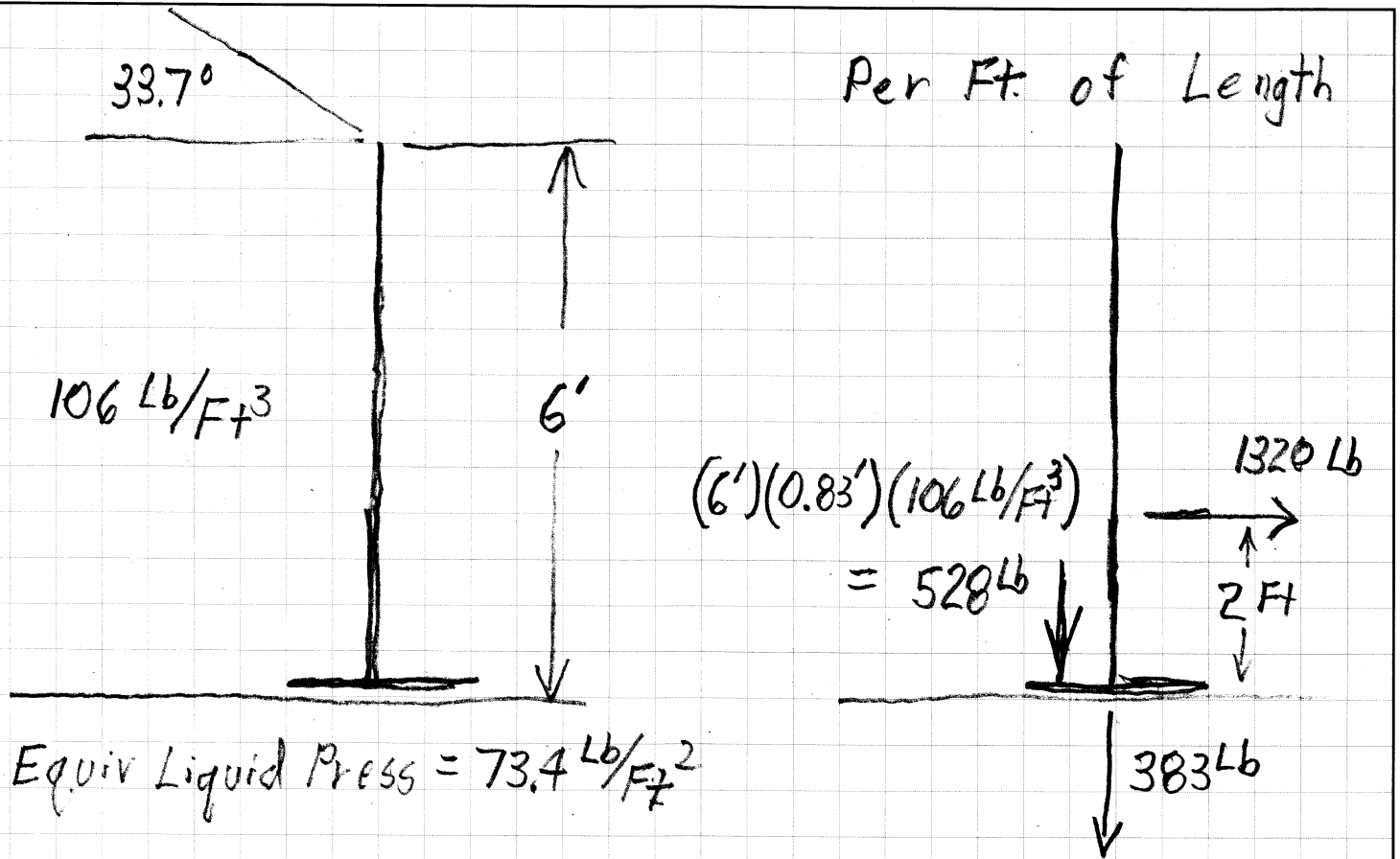
$$\text{Resisting Moment} = (396 \text{ Lb})(1.58 \text{ Ft}) + (383 \text{ Lb})(1 \text{ Ft}) = 1110 \text{ Ft-Lb}$$

$$\text{Overturning SF} = \frac{1110}{1110} = 1.00 = 1 \therefore \text{Failure Load}$$

$$\text{Sliding Force} = 743 \text{ Lb}$$

$$\text{Friction Force} = 0.8(396 + 383) = 623 \text{ Lb}$$

$$\text{Sliding SF} = \frac{623}{743} = 0.84 < 1 \text{ Fails}$$



$$(6')(0.83')(106 \text{ lb/ft}^3) = 528 \text{ lb}$$

$$\text{Overturning Moment} = (1320 \text{ lb})(2 \text{ ft}) = 2640 \text{ ft}\cdot\text{lb}$$

$$\text{Resisting Moment} = (528 \text{ lb})(1.58 \text{ ft}) + (383 \text{ lb})(1 \text{ ft}) = 1220 \text{ ft}\cdot\text{lb}$$

$$\text{Overturning SF} = \frac{1220}{2640} = 0.46 < 1 \quad \therefore \text{Fails}$$

$$\text{Sliding Force} = 1320 \text{ lb}$$

$$\text{Friction Force} = 0.8(528 \text{ lb} + 383 \text{ lb}) = 729 \text{ lb}$$

$$\text{Sliding SF} = \frac{729}{1320} = 0.55 < 1 \quad \therefore \text{Fails}$$