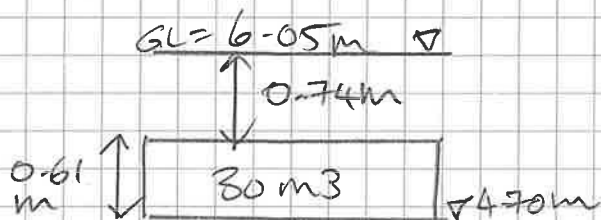


Appendix A

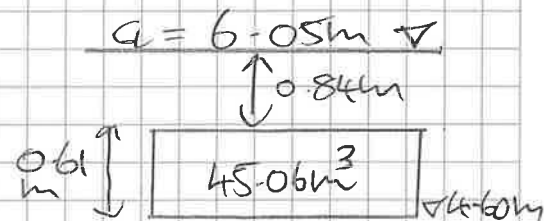
Flotation Calculations

① CHECK BUOYANCY FOR CELLULAR STORAGE
- ST1, ST2, & ST3.

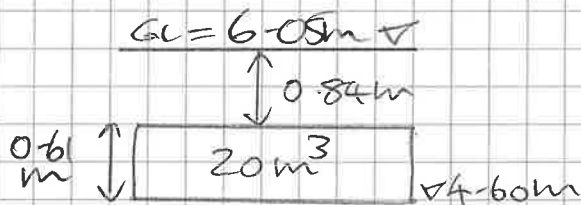
SECTION THRO ST1



SECTION THRO ST2



SECTION THRO ST3



CHECK FLOTATION

WEIGHT OF UNITS = 42 kg/m^3 HEIGHT OF UNITS = 0.61 m

DENSITY OF WATER = 10 kW/m^3

DENSITY OF SOIL = 20 kW/m^3 HEIGHT OF SOIL = 0.74 m

PARTIAL FOS ON UPLIFT = 1.5

$$\text{UPLIFT PRESSURE} = 0.61 \text{ m} \times 10 \times 1.5 = 9.15 \text{ kW/m}^2$$

WEIGHT OF SOIL RESISTING UPLIFT

PARTIAL FOS = 0.95

$$\text{WEIGHT} = 0.74 \times 20 \times 0.95 = 14.06 \text{ kW/m}^2$$

$$\text{SOIL} > \text{UPLIFT} = 14.06 \text{ kW/m}^2 > 9.15 \text{ kW/m}^2 \text{ - OK!}$$

$$\text{FOS} = \frac{14.06}{9.15} = 1.54$$

SUMMARY

WEIGHT OF SOIL IS SUFFICIENT TO PREVENT UPLIFT!

WEIGHT OF SOIL ABOVE + DEAD LOAD FROM CELLULAR UNITS IS SUFFICIENT TO AVOID FLOTATION OR UPLIFT!