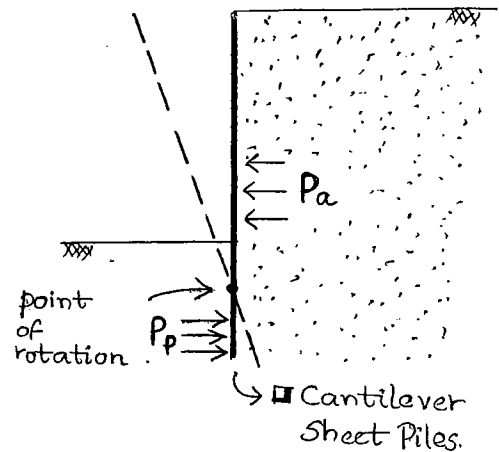
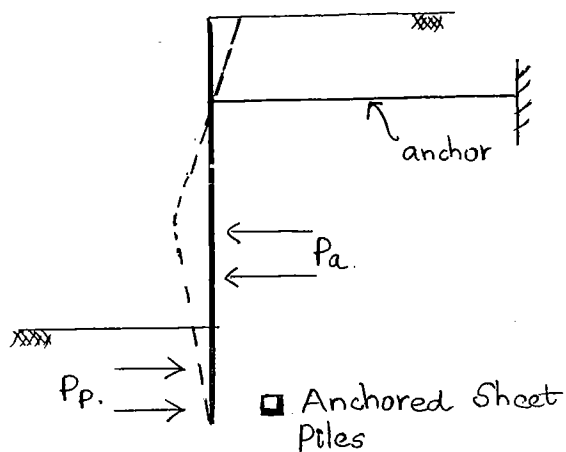


SOIL EXPLORATION

19 SHEET PILES

— used to retain soil.

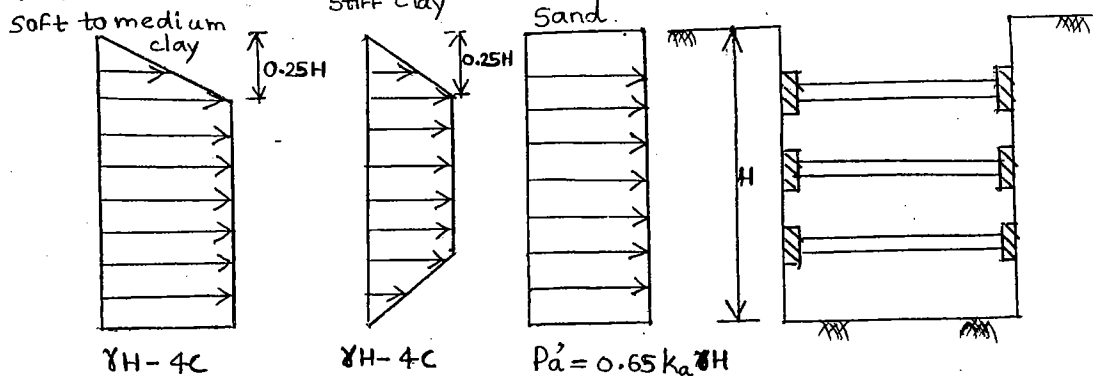
— Point of rotation for a cantilever sheet pile is just above the bottom point. (used for heights up to (5m))



→ Types of Anchored Sheet Piles

- (i) Free Earth Support Type: if depth of penetration shall be
- (ii) Fixed Earth Support Type: depth of penetration deep

→ Braced Excavations



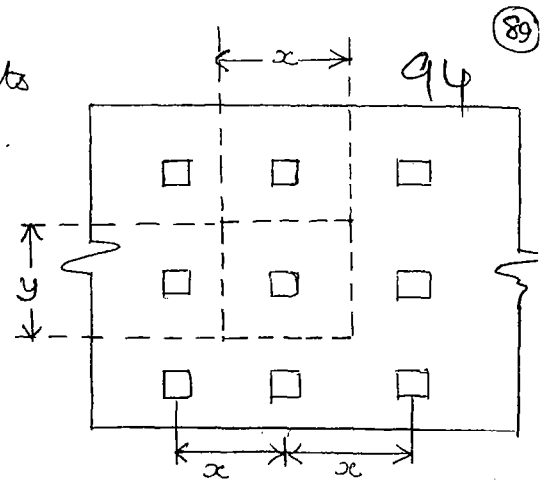
$x \rightarrow$ c/c horizontal spacing of struts

$y \rightarrow$ c/c vertical spacing of struts.

Max. compressive force induced in the strut,

$P = \text{Influencing area} \times \text{pressure.}$

$$= x \cdot y \cdot p_a'$$



- Q. A vertical trench 3m wide & 6.5m deep is proposed in a cohesionless deposit ($\phi = 36^\circ$ & $c = 0$). Assuming first row of struts to be placed at 0.5m below ground surface and spacing b/w the struts as 1.5m in the vertical direction and 3m spacing in the horizontal direction, calculate max strut compressive load. Take $\gamma = 20 \text{ kN/m}^3$

$$p_a' = 0.65 k_a \gamma H$$

$$= 0.65 \left(\frac{1 - \sin 36}{1 + \sin 36} \right) 20 \times 6.5 = 21.94 \text{ kN/m}^2$$

$$\text{Max strut compressive load} = x y p_a'$$

$$= 3 \times 1.5 \times 21.94$$

$$= \underline{\underline{98.72 \text{ kN}}}$$