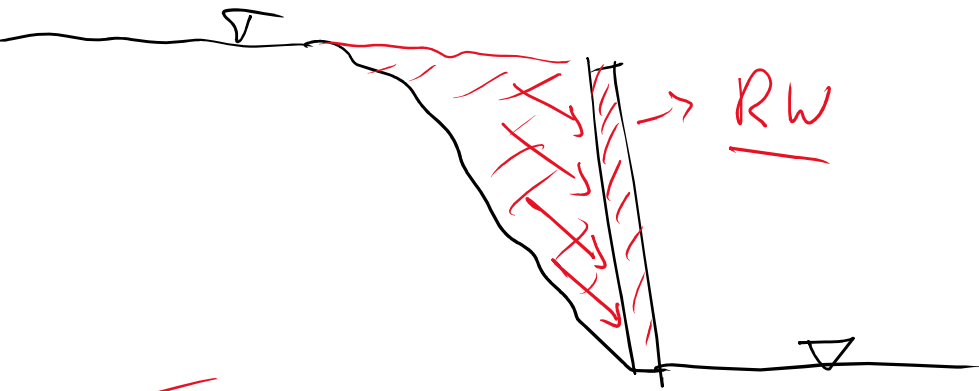


Retaining Walls

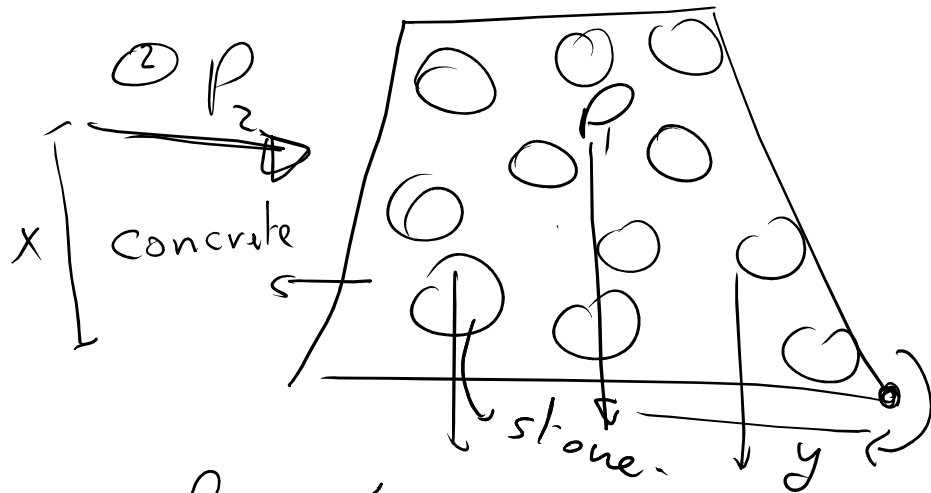
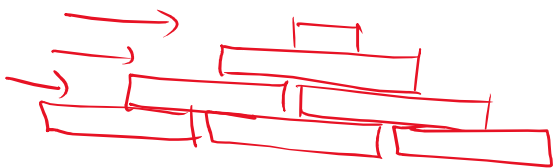


Types

① Gravity RW

used for up to 3m height

① Boulders



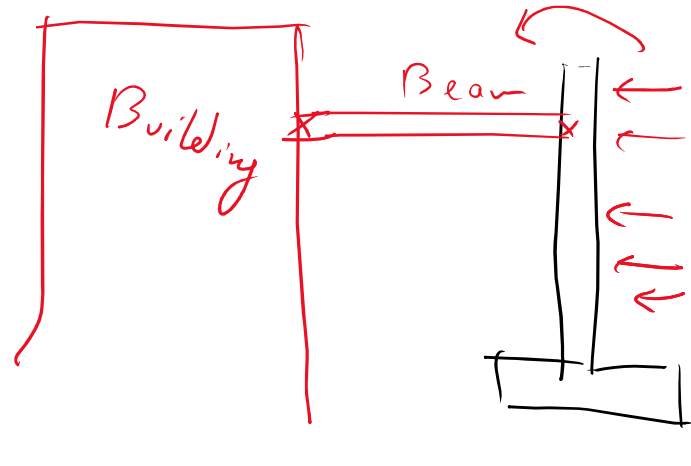
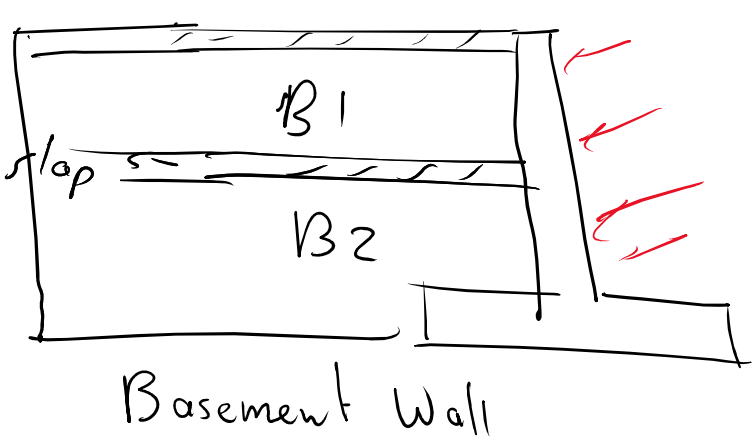
$$\underline{P_2 \times x} \leq \underline{P_1 \times y}$$

② Cantilever RW

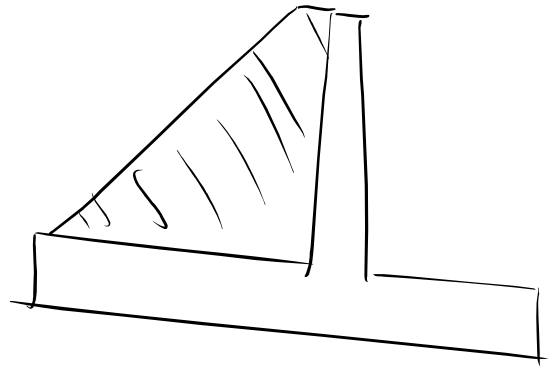
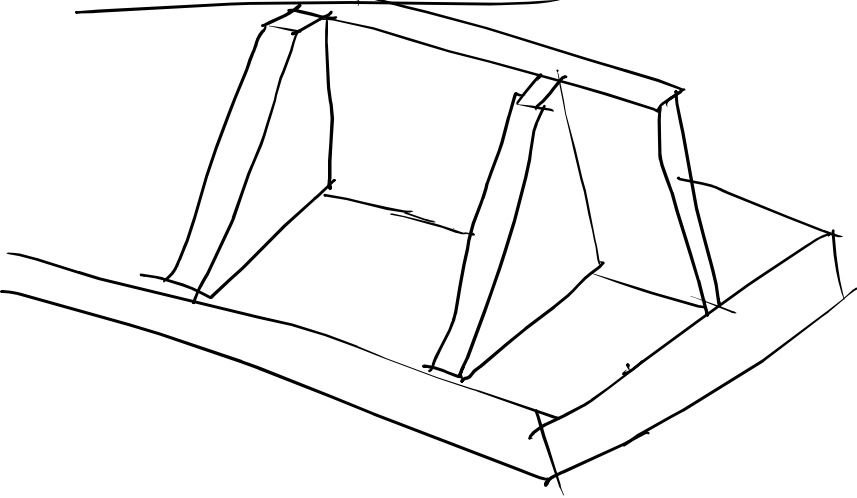
up to 6-7m



© Basement or propped RW

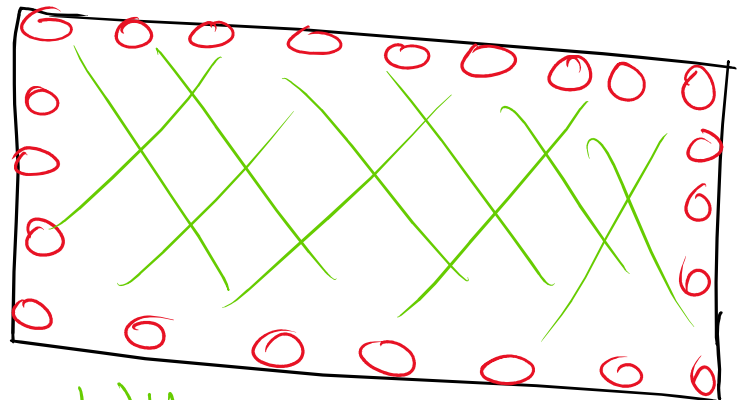
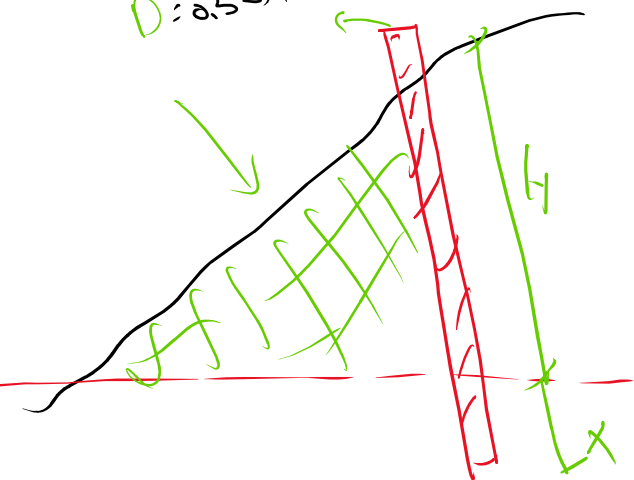


© Counterfort RW



© Sheet Pile Wall SPW

$D = 0.5 \sim 1m$

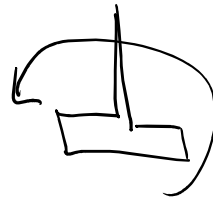


$x = (\frac{1}{3} \rightarrow \frac{1}{2}) H$

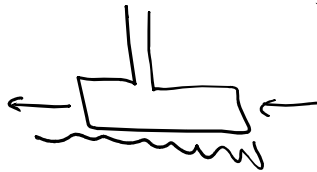
Modes of failure

① Stability and Soil Failure

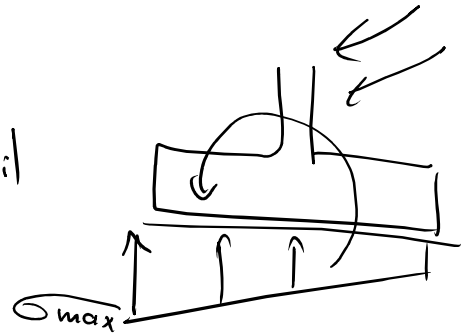
① (a) over turning



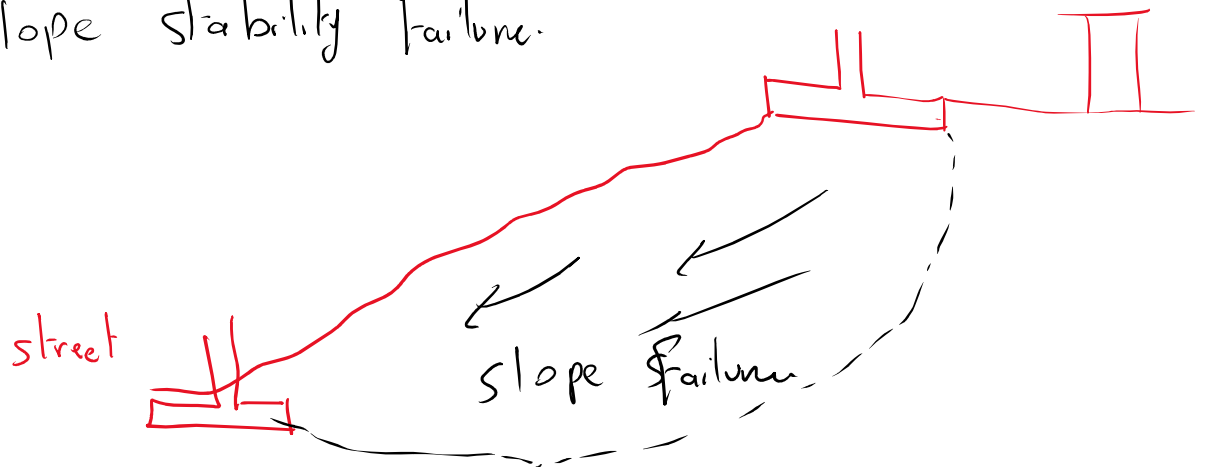
② (b) Sliding



③ (c) Bearing Capacity failure of Soil

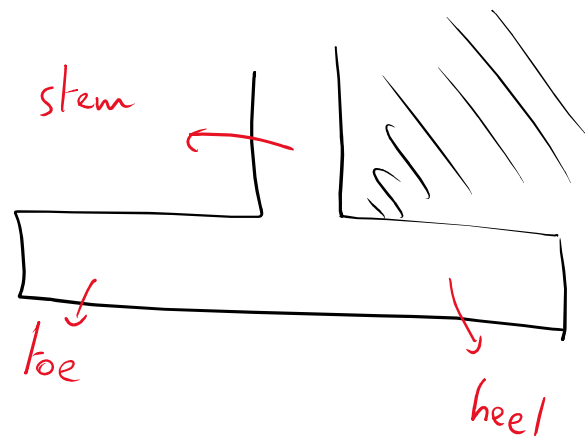


④ (d) slope stability failure.



② Strength Failure

- Shear Failure
- moment
- Part failure.



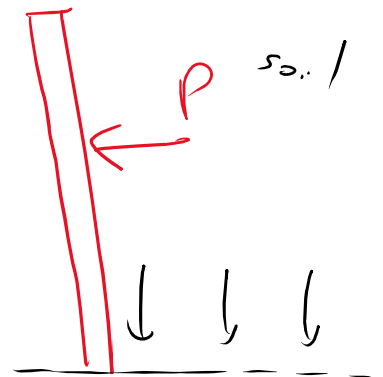
* Lateral earth pressure.

$$P = \underline{K} \sigma' + \sigma_w \rightarrow \text{in water } K=1$$

σ' : effective vertical stress

σ_w : water pressure.

K : lateral earth pressure coefficient.



- K :
For Solid material $K=0$ (no lateral load)
For liquid $\rightarrow K=1$ (lateral pressure = Vertical)
For Soil $0 < K < 1$