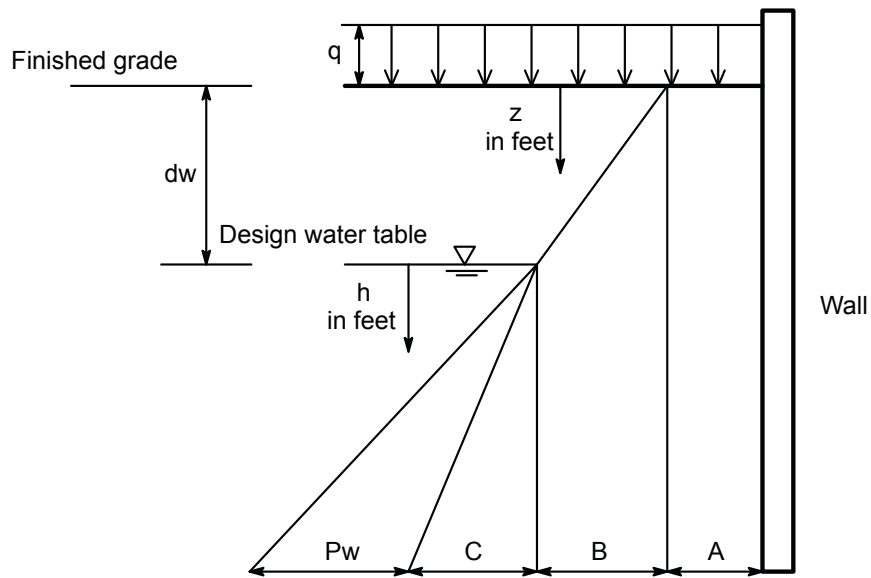


### Active Earth Pressure on 1-ft Wide Vertical Strip



$A = K_a (q) =$  Effect of uniform full coverage surface surcharge

$B = K_a \gamma_s (z) =$  Active earth pressure above water table

$C = K_a \gamma' (h) =$  Active earth pressure increment below water table

$P_w = 62.4 (h) =$  Hydrostatic pressure increment

$H = A + B =$  Static lateral earth pressure above water table ( $z < dw$ )

$H = A + K_a \gamma_s (dw) + K_a \gamma' (z - dw) =$  Static lateral earth pressure below water table  
( $z > dw$ ) ( $P_w$  not included)

Conditions on information:

- Units of pressure, psf
- Backfill of granular material compacted to 96% maximum dry density by ASTM D1557
- No heavy compaction equipment used within 5 ft of wall
- $\gamma_s =$  saturated unit weight of granular backfill above water table, pcf
- $\gamma' =$  submerged unit weight of granular backfill, pcf
- $\phi = 35$  degrees = angle of internal friction of soil
- $K_a = \tan^2 (45 - \phi/2) =$  Active earth pressure coefficient of soil
- Plane strain conditions (corner adjustment factors not included)
- Dynamic soil pressure not included

USCS Type	$\gamma_s$	$\gamma'$	$K_a$
GW	150	87.6	0.271
GP	142	79.6	0.271
SW	136	73.6	0.271