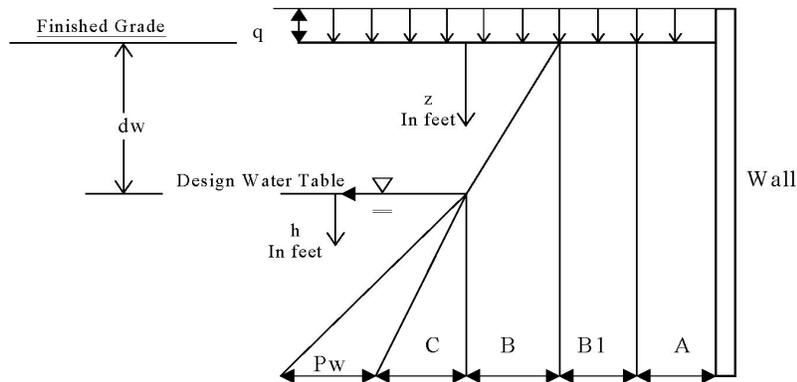


Passive Earth Pressure on 1 foot wide vertical strip



$A = 1.47 (q) =$  Effect of uniform full coverage surface surcharge = 367.5 for example  
 surcharge of 250 psf

$B1 = 3346$  psf = Passive earth pressure at ground surface due to soil cohesion

$B = 194 (z)$  = Passive earth pressure above water table

$C = 102.3 (h)$  = Passive earth pressure increment below water table

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

$P_p = A + B1 + B =$  Passive lateral earth pressure above water table ( $z \leq dw$ )

$P_p = A + B1 + 194 (dw) + 102.3 (h) + 62.4 (h) =$  Passive lateral earth pressure below water table, ( $z > dw$ );  $h = z - dw$

Conditions on information:

- Units of pressure = lbs/ft<sup>2</sup>
- A surcharge value,  $q$ , of 250 lbs/ft<sup>2</sup> is used as an example only; actual value must be provided by designer.
- Backfill of borrow soil meeting Class I properties as defined in FSAR, 1986 compacted to 95% MDD by ASTM D698
- No factors included
- $\gamma_s = 132$  lbs/ft<sup>3</sup> = saturated unit weight of backfill above water table based on 95% Maximum dry density at 2% above optimum moisture
- $\gamma = 69.6$  lbs/ft<sup>3</sup> = submerged soil density
- $\phi_{cu} = 11$  deg = angle of internal friction of soil (95% Maximum dry density at 2% above optimum moisture; total stress)
- $K_p = 1.47 =$  Coefficient of passive earth pressure due to  $\phi$  (Rankine equation)
- $C_{cu} = 1380$  psf = shear strength intercept of soil (total stress, saturated CU test)
- Plane strain conditions (corner adjustment factors not included)
- Dynamic soil pressure not included