



BREVIAR DE CALCUL PILOTI FORATI

1. DATE DE CALCUL:

- Greutate pasarela = 32 tone;
- Greutate totala auto = 60 tone;
- Greutate proprie fundatie = 27.30 tone;

2. SARCINI DE CALCUL PE TALPA ANCASTRAMENTULUI:

- Pasarela: $1.3 \times 32t/2 = 20.80$ tone;
- Fundatie: $1.3 \times 27.30t = 35.50$ tone;
- Auto: $1.5 \times 60t \times 0.6 = 54.0$ tone;

TOTAL = $20.80t + 35.50t + 54.0t = 110.3$ tone;

3. CALCUL CAPACITATE PORTANTA PILOT $\phi 600$ mm:

$$R = k \times (m_1 p v_1 + U \sum m_2 f_{i,j})$$

Piloti forati sub nivelul apei cu tubulatura recuperabila.

$K = 0.7$;

$m_1 = 0.9$ teren coeziv;

$m_2 = 0.7$ teren necoeziv tubaj recuperabil;

- Aria sectiunii pilotului: $A = 0.2826$ mp

-Perimetrul sectiunii pilotului: $U = 1.8840$ m

- $P_v = N_c \times C_u + \gamma_1 D$ (kPa);

- N_c - factor capacitate portanta = 9;

- $p_v = \alpha (\gamma \times d_b \times N_y + \gamma_1 D c N_q)$;

- $l_c = 0.28 \Rightarrow \alpha = 0.5, \beta = 10$;

- $\gamma = 14$ kN/m³

- $\gamma_1 = 15$ kN/m³

- $d_b = 0.6$ m

*Se considera $P_v = P_c = (300+500)/2 = 400$ kPa (conf. studiu geo)



$$\Sigma f_i l_i = 143.5 + 14.4 + 14.7 + 642.6 = 815.20$$

$l_1 = 3.50\text{m}$ - Umplutura piatra sparta amestec optimal

$f_i = 41$

$$1. f_i \times l_1 = 41 \times 3.5 = 143.5$$

$l_2 = 1.60\text{m}$ - Argila cenusie plastic moale $l_c = 0.4$

$f_i = 9$

$$2. f_i \times l_2 = 1.60 \times 9 = 14.40$$

$l_3 = 1.40\text{m}$ - Praf argilos $l_c = 0.39$

$f_i = 10.5$

$$3. f_i \times l_3 = 1.40 \times 10.5 = 14.70$$

$l_4 = 20\text{m} - (3.5\text{m} + 1.6\text{m} + 1.4\text{m}) = 13.5\text{m}$ - Nisip argilos plastic moale

$H = 6.5 + 6.75 = 13.25\text{m}$

$f_i = (46 + 51) / 2 = 48.50$

$$1. f_i \times l_4 = 48.5 \times 13.25 = 642.60$$

$$R = 0.7 (0.9 \times 0.2826 \times 400 \times 1.884 \times 0.7 \times 815.2) = 823.70 \text{ kN}$$

4. INCERCAREA DE PROBA

Se va face la pilotii de la ancastramentul pentru ape mari.

Verificarea la smulgere

Capacitatea necesara este de:

$$(1.5 \times 550\text{kN}) / 2 = 420 \text{ kN};$$

Capacitatea la smulgere a unui pilot $\varnothing 600\text{mm}$ si fisa de 20m este:

$$R = 0.6 \times k \times U \Sigma f_i l_i$$

$k = 0.7$

$\Sigma f_i l_i = 815.2$

$$R = 0.6 \times 0.7 \times 1.884 \times 0.7 \times 0.7 \times 815.2 = 451.5 \text{ kN}$$

Intocmit,
Ing. Bogdan Racu