

$$q_{d;nieuw} = 1.2 \times 32.9 + 1.5 \times 7.6 = 50.9 \text{ kN/m}$$

$q_{d;bestaand} \leq q_{d;nieuw}$
bestaande fundering voldoet

Berekening draagvermogen:

zand $\gamma = 18.0 \text{ kN/m}^3$

$\phi' = 32.5^\circ$

materiaalfactoren $\gamma_m; q = 1.15$

$B = 650 \text{ mm}$

gronddekking 100 mm

$$\gamma_{e;d} = \gamma_{rep} / \gamma_m; g = 18.0 / 1.1 = 16.4 \text{ kN/m}^3$$

$$\phi'_{rep} = 32.5^\circ \Rightarrow \tan \phi'_{e;d} = \tan \phi'_{rep} / \gamma_m; \phi = \tan 32.5^\circ / 1.15 = 29^\circ$$

$$\sigma'_{max;d} = c'_{e;d} \times N_c \times i_c + \sigma'_{v;z;o;d} \times N_q \times i_q + 0.5 \times \gamma'_{e;d} \times B_{ef} \times N_\gamma \times i_\gamma \times S_\gamma$$

$$\text{zand} \Rightarrow c'_{e;d} = 0$$

$$\sigma'_{c;z;o;d} = \gamma_{e;d} \times d_i = 16.4 \times 0.1 = 1.6 \text{ kN/m}^2$$

$$N_q = 18 \quad S_q = 1 \quad S_\gamma = 1$$

$$N_\gamma = 17 \quad i_q = 1 \quad i_\gamma = 1$$

$$N_c = 28 \quad B_{ef} = 0.65 \text{ m}$$

$$\sigma_{max;d} = 1.6 \times 18 \times 1 \times 1 + 0.5 \times 16.4 \times 0.65 \times 17 \times 1 \times 1 = 119.4 \text{ kN/m}^2$$

$$F_{r,v;d} = 119.4 \text{ kN/m}^2 \times 0.65 \text{ m} = 77.6 \text{ kN/m}$$

$77.6 \text{ kN/m} \geq 53.5 \text{ kN/m}$ zowel bestaande als nieuwe fundering voldoet

Berekening wapening nieuwe fundering:

$$q_{d;max} = 50.9 \text{ kN/m}$$

strook:

$$q_{d;strook} = 50.9 \text{ kN/m} / 0.65 \text{ m} = 78.3 \text{ kN/m}$$

$$M_d = \frac{1}{2} \times 78.3 \times (0.65/2)^2 = 4.1 \text{ kNm}$$

$$d = 100 - 25 - 5 = 70 \text{ mm}$$

$$M = 4.1 \text{ kNm}; M / b d^2 = 837; \omega_o = 0.20; A_s = 140 \text{ mm}^2 \Rightarrow \varnothing 8-200$$

$$6.3 \text{ kN/m}$$

Geen grote puntlasten op de fundering, toch balk ter voorkoming van scheuren t.g.v. plaatselijke grondzettingen c.q. verslechtingen.

Balk 300×400 $3\varnothing 10$ o+b bgls $\varnothing 8-300$