

±0.000m 37.60m 36.00m

500mm 37.60m 22.70m

22.20m 22510m² 1434m² 1700m² 1830m²

$$f_{ak}=1000\text{KPa}$$
$$f_{rk}=4.24\text{MPa}$$

1.8m×1.8m 220mm 3Φ32

6m 8m 450kN

1

1

(GB

50086-2015)11.2.4

W+G /

$$F_{f \geq K}$$

$$F_f = \gamma_w \Delta H A$$

 F_f

A—

$$W_{-}$$
 G_{-}

$K=1.05$

2

1 A=22510-1434-1700-1830=19146m²

2 ΔH 36.00-22.20=13.8m

3 $\gamma = 15 \text{ KN} / \text{m}^3$

$$4 \qquad G_1 = 10 \text{ KN} / \text{m}^2$$

$$5 \quad G_2 = 18 \text{ kN} / \text{m}^3$$

$$G = \quad + \quad +$$

$$W = 15 \times L_0$$

$$W + G / F_f = 15 \times A \times L_0 + 10 \times A + 18 \times 1.5 / 10 \times A \times h_w \geq K$$

$$L_0 \geq \frac{1.05 \times 10 \times 13.8 - 3 \times 10 + 0.5 \times 25 + 18 \times 1.5}{15} = 5.02 \text{ m}$$

$$L_0 = 5.5 \text{ m}$$

2

$$36 \text{ mm} \quad 1080$$

$$1.8 \text{ m} \times 1.8 \text{ m}$$

$$R_a = 450 \text{ kN}$$

$$2 \text{ m} \quad 5.5 \text{ m} (\quad 3.5 \quad);$$

$$110 \text{ mm}$$

$$110 \text{ mm}$$

$$180 \text{ mm}$$

III

1

$$3.5 \text{ m} \quad N_{t1k} \quad 5 W_{mck} =_a = 0.001 \times 3.14 \times 110 \times 0.3 \times 10^3 \times 1.0 \times 3.5 = 362.7 \text{ kN}$$

$$2.0 \text{ m} \quad N_{t1k} \quad 5 W_{mck} =_a = 0.001 \times 3.14 \times 110 \times 0.4 \times 10^3 \times 1.0 \times 2.0 = 276.3 \text{ kN}$$

2

$$N_{t2k} \quad l_r \quad l f_{rk} A_{ln} = 2.6 \times 3 \times 4.24 \times 10^3 \times 15935 \times 10^{-6} = 527 \text{ kN}$$

$$A_{ln} - \quad A_m = \pi \left(\frac{180}{2} \right)^2 - \pi \left(\frac{110}{2} \right)^2 = 15935 \text{ mm}^2$$

3

$$K_r N_{tk} \quad tk1 + N_{tk2} = 362.7 + 276.3 + 527 = 1166 \text{ kN}$$

$$N_{tk} = 1166 / 2 = 583 \text{ kN}$$

4

$$N_{s,d} \quad d \quad N_d \leq A_s f_{py}$$

$$\geq \frac{\quad}{\times} = \frac{\times}{\times} = \quad \leq \quad =$$

$$N_d \text{ — } \quad \text{kN}$$

$$N_{tk} \times 1.35 = 450 \times 1.35 = 607.5 \text{ kN}$$

$$f_{py}$$

$$A_s-$$

$$A_{s(36)}=1017\text{mm}^2$$