



1 cm @ 20W

$$R = 8,00 \text{ m}$$

$$r = 8 \cdot \sin 20^\circ = 2,74 \text{ m}$$

$$\omega = 68^\circ$$

$$u_1 = 1,35 \text{ m}$$

$$u_2 = 6,65 \text{ m}$$

$$\overline{DE} = 1,30 \text{ m} \rightarrow \overline{DS}_2 = 0,4 \cdot 1,30 = 0,52 \text{ m}$$

$$\overline{BD} = 2,80 \text{ m} \rightarrow \overline{BS}_1 = \frac{2}{3} \cdot 2,80 = 1,86 \text{ m}$$

$$L = \frac{5}{\sin 34^\circ} = 8,94 \text{ m}$$

$$L = 2 \cdot 8,0 \cdot \pi \cdot \frac{68^\circ}{360^\circ} = 9,49 \text{ m}$$

$$k_1 = 4,15 \text{ m}$$

$$k_2 = 4,00 \text{ m}$$

$$G_1 = \frac{8,94 \cdot 1,35}{2} \cdot 18,5 = 111,64 \text{ kN}$$

$$G_2 = \left(\frac{8,0 \cdot 9,49}{2} + \frac{8,94 \cdot 6,65}{2} \right) \cdot 18,5 = 152,34 \text{ kN}$$

$$G = 111,64 + 152,34 = \underline{263,98 \text{ kN}}$$

$$k = \frac{111,64 \cdot 4,15 + 152,34 \cdot 4,00}{263,98} = 4,06 \text{ m}$$

$$z = R \cdot \frac{L}{L} = 8,0 \cdot \frac{9,49}{8,94} = 8,49 \text{ m}$$

$$Q = 240 \text{ kN}$$

$$K_{\text{eff}} = c \cdot L = 15 \cdot 8,94 = 134,1 \text{ kN}$$

$$\underline{n} = \frac{240 \cdot 2,74 + 134,1 \cdot 8,49}{263,98 \cdot 4,06} = \underline{1,67}$$