BAKHTI Software Ltd
Civil engineering software development
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Project:

Client:
Location:
Date: 2026-07-24

Settlement: Menard PMTs

Standard: Eurocode 7 (NF P 94-261)

Formulas:

$$S_f = S_c + S_d$$

$$S_c = \frac{\alpha}{9E_c}\left(q' - \sigma'_{v0}\right)\lambda_c B$$

$$S_d = \frac{2}{9E_d}\left(q' - \sigma'_{v0}\right)B_0\left(\lambda_d \frac{B}{B_0}\right)^{\alpha}$$

$$E_c = E_1$$

$$\frac{1}{E_d} = \frac{0.25}{E_1} + \frac{0.3}{E_2} + \frac{0.25}{E_{3;5}} + \frac{0.2}{E_{6;8}}$$

Detailed Calculations:

$E_{3;5} = 6709,71\ \text{kPa}$
$E_{6;8} = 8531,94\ \text{kPa}$
$E_c = 11015,96\ \text{kPa}$
$E_d = 9284,66\ \text{kPa}$
$q' = 350\ \text{kPa}\ \sigma'_{v0} = 36\ \text{kPa}$
$B_0 = 0.6\ \text{m}$
$\lambda_c = 1,1\ \lambda_d = 1,12$
$\alpha = 1,000$

Heterogeneous soil

B = 2 m

0 m	
	$E_1 = 11015,96\ \text{kPa}$
2 m	$E_2 = 12340,89\ \text{kPa}$
	$E_3 = 18023,98\ \text{kPa}$
4 m	$E_4 = 24394,39\ \text{kPa}$
	$E_5 = 19024,78\ \text{kPa}$
6 m	$E_6 = 18132,53\ \text{kPa}$
	$E_7 = 29987,56\ \text{kPa}$
8 m	$E_8 = 34831,17\ \text{kPa}$
	$E_9 = 31694,49\ \text{kPa}$
10 m	$E_{10} = \text{N.D}$
	$E_{11} = \text{N.D}$
12 m	$E_{12} = \text{N.D}$
	$E_{13} = \text{N.D}$
14 m	$E_{14} = \text{N.D}$
	$E_{15} = \text{N.D}$
16 m	$E_{16} = \text{N.D}$

Results:

Total settlement: Sf= 2,38 cm ✅

Spherical settlement: Sc= 0,70 cm Deviatoric settlement: Sd= 1,68 cm