BAKHTI Software Ltd

Civil engineering software development

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Project:

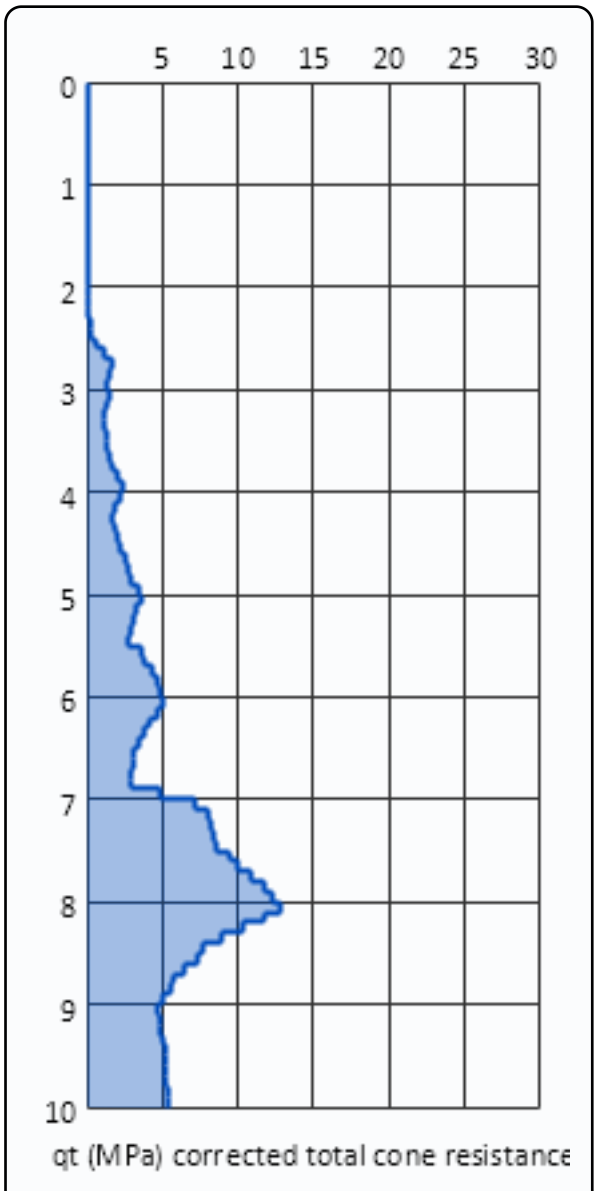
Client:
Location:
Date: 2026-09-28

Bearing capacity: Static penetrometer

Standard: NF P 94-261

Formulas:

$$\sigma_{V;d} \leq \frac{\text{qnet}}{\gamma_{R;v}\ \gamma_{R;d;v}} + q_0 \ \text{With}\ q_{net} = K_c\ q_{ce}\ i_\delta\ i_\beta$$



Detailed Calculations:

Equivalent cone resistance $(q_{ce})\ = 1648,13$ kPa
Bearing capacity factor $(k_c)\ = 0,303$
Load inclination correction factor $(i_\delta)\ = 1,000$
Reduction coefficient $-$ Slope embankment $-\ (i_\beta)\ = 1,000$
The soil density $(\gamma_1)\ = 18,00$ kN/m^3
Soil cohesion $(c)\ = 35,00$ kPa
Friction angle $(\phi)\ = 7,00°$
The embedding depth $(D)\ = 3,00$ m
Footing dimensions $(1,50x2,00$ m$)$
SLS : $\gamma_{R;d;v} = 1,2$ ULS : $\gamma_{R;d;v} = 1,2$
SLS : $\gamma_{R;v} = 2,3$ ULS : $\gamma_{R;v} = 1,4$

Results:

Ultimate Limit State (ULS): $\sigma_{V;d} \leq 350,79\text{kPa}$ ☑

Serviceability Limit State (SLS): $\sigma_{V;d} \leq 234,65\text{kPa}$ ☑

Net Bearing Capacity: $q_{net} = 498,60$ kPa