

Case 31/2021

Issue: Shaft Grouted Frictional Mini-Pile

- Recommendation:
- (1) To accept the rational design method for the design of mini-pile using shaft grouted friction in soil:
    - (a) The ultimate shaft friction resistance in Completely Decomposed Granite (CDG) to be  $4.8 \times \text{SPT-‘N’}$  but limited to 192kPa with a factor of safety of 3. (i.e. allowable shaft friction resistance in CDG to be  $1.6 \times \text{SPT-‘N’}$  but limited to 64kPa.)
    - (b) The allowable pile capacity of shaft grouted friction for shaft grouted frictional mini-pile is 1700kN for compression and 850kN for tension.
    - (c) The ultimate shaft friction capacity is subject to the satisfactory results of proof loading test on the proposed trial pile.

Decision: Having noted the background information, the methodology of construction, the quality control procedures and the testing proposals, members endorsed the recommendations on a case-by-case basis subject to the condition that enhanced quality supervision and adequate quality control of the post-pressurized grouting works should be provided as follows:

- (1) The site supervision level shall be enhanced by increasing RSE's T5 and RSC's T4 supervision to full-time supervision during the post-pressurized grouting works;
- (2) The post shaft-grouting to the mini-pile grouted by the manchettes of each TAM pipe would be cracked open by the "water cracking" method at least after 4 hours of normal grouting and within 32 hours of the normal grouting works.