

Case 24/2019

Issue: Steel-H pile grouted in pre-bored holes with post-pressurized grout to take vertical load and lateral load

- 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 Tuff (CDT) 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 steel H-pile is 2397kN for compression.
 - (c) The ultimate shaft friction capacity is subject to the satisfactory results of proof loading test on one proposed trial pile (TP-P1). Proof load test would be carried out by using four numbers of reaction piles.
 2. To grant the modification to Building (Construction) Regulations 26(5)(a) to permit the spacing between centres of the proposed piles to be less than the minimum requirement of one pile perimeter.

Decision: Having noted the background information and arguments together with RSE’s supervision and the following clarification/condition, members endorsed the recommendation on a case-by-case basis subject to the following additional conditions:

- (1) Adequate site supervision by qualified and competent person shall be provided to ensure that the required standard is complied with;
- (2) The piles constructed would penetrate through subsoil layers of sufficient strength with SPT-‘N’ values not less than those adopted in the design should be provided. Contour plans showing the profiles of various subsoil strata shall be prepared from the predrilling records and based on which, RSE would review and reassess the required penetration lengths of the piles in order to ascertain that the

actual SPT values are not inferior to the design parameters adopted in the design. Additional pre-drilling boreholes would be instigated at area where drastic changes of subsoil strata are observed. The assessment report shall be submitted on or before the submission of the Form BA14 for certification of completion of the proposed piling work.