Summary of Decisions of the Structural Engineering Committee
SEC 07/2012 held on 29.03.2012

(a) Case 07/2012

Issue:

(1) Rational design approach
(2) Maximum design parameters for barrette piles using shaft grouted friction only
(3) Spacing of barrette piles at less than one pile perimeter center
(4) Acceptance criteria for loading tests

Recommendation:

(1) That the proposed rational design method in conjunction with the in-situ testing method for the design of 2.8m x 0.8m barrette piles using shaft grouted friction in soil be accepted.

(2) That the following maximum values be accepted for the design parameters:

(a) The ultimate shaft grouted friction in alluvium shall not exceed 4.5 x SPT "N" value, with a limit of 180 kPa.
(b) The ultimate shaft grouted friction in completely to highly decomposed Granite/Rhyolite/Diamict Deposit shall not exceed 2.0 x SPT "N" value, with a limit of 140 kPa.
(c) The allowable load due to the shaft grouted friction of barrette piles shall be defined as not exceeding the summation of the maximum ultimate values as given in item 2(a) and 2(b) above divided by a factor not less than 2.0.

(3) That the modification to Building (Construction) Regulation 26(5)(a) to permit the spacing between centers of the barrette piles to be less than the minimum requirement of one pile perimeter (i.e. 7.2m) but subject to a clear spacing between barrettes of not less than 2 m be granted.

(4) That the following proposed acceptance criteria for loading tests of the barrette piles be accepted:

(a) Maximum settlement (at head of pile) < $2WL/AE + D/50$
(Where W = design pile capacity under working load, L = pile length, A = cross sectional area of pile, E = Elastic Modulus of pile, D = diameter of pile or diameter of equivalent circle with same area as the non-circular barrette pile)
(b) Residual settlement < D/50 (mm) or 25% of maximum measured pile head settlement during the test, whichever is greater
(c) Under working load condition, maximum settlement should not exceed 20mm for more stringent performance control.

Decision:

Noting RSE's justifications, members endorsed the recommendations.