Summary of Decisions of te Structural Engineering Committee
SEC 10/2012 held on 19 June 2012

(a) Case 10/2012

Issue: Use of glass fiber reinforced polymer (GFRP) bars with crimping connector and connection stud as soil nails for the temporary soil cut slopes

Recommendation: To accept the use of glass fiber reinforced polymer (GFRP) bars (25 mm and 40 mm) with crimping connector and connection stud as soil nails for the temporary cut slopes with design life of not more than 2 years subject to the following conditions:

(1) The GFRP bars shall be tested to ensure that the guaranteed ultimate tensile strength and shear strength should exceed 550N/mm^2 and 137N/mm^2 respectively for 25mm diameter bar and 460N/mm^2 and 115N/mm^2 respectively for 40mm diameter bar. The mechanical properties of all bars shall be in compliance with the relevant ACI and ASTM standards.

(2) The GFRP bars together with their crimping connector and connection stud shall be tested by local HOKLAS accredited laboratories (or overseas laboratories accredited by other accreditation agreements with HOKLAS) to establish that the connections shall achieve "bar-break" failure, which requires failure occurring in the GFRP bars away from the connectors.

Decision: Members endorsed the recommendations subject to the following conditions:

(1) GEO had no adverse comments;
(2) Detailed quality assurance plan covering the handling, transportation and fabrication on site of the GFRP bars should be submitted;
(3) The tests and the acceptance criteria for the GFRP bars assembly system and the monitoring works would be carried out in accordance with the recommendations; and
(4) Considering the temporary cut slope only lasts for 2 years, the elongation at the connection not meeting the requirement of the Concrete Code may still be acceptable from technical point of view. However, anti-corrosion protective measures at the connection should be submitted to the BA for consideration.