



GEOTECHNICAL SEMINAR

JOINTLY ORGANIZED BETWEEN
GEOTECHNICAL SOCIETY OF SINGAPORE (GEOSS)
& CENTRE FOR SOFT GROUND ENGINEERING



ERSS FOR THE WORLD'S LARGEST UNDERGROUND TRAIN DEPOT – KIM CHUAN DEPOT

by

Dr Ng Tiong Guan

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Date:	Wednesday, 19 May 2010
Time:	6:30pm Reception 7:00pm Seminar
Venue:	Engineering Auditorium Faculty of Engineering National University of Singapore

SYNOPSIS

The design and construction of Kim Chuan Depot is part of LTA Circle Line Stage 2 Contract 821. It is bounded by Kim Chuan Road, Upper Paya Lebar Road and Bartley Road East. The site has a perimeter of approximately 2.5km in length and the earth retaining walls are approximately 130m apart at the widest point. The excavation depth ranges between 18.0m and 22.0m below existing ground level. The earth retaining and stabilising system (ERSS) comprises mainly of soldier piles supported by 4 to 6 levels of temporary removable ground anchors. Semi-top-down method was deployed at intersection with Hougang Ave 3 to facilitate the necessary road diversion. The ERSS at the semi-top-down area comprises of soldier piles supported laterally by roof slab, 2 levels of 120m long compound struts and a level of removable ground anchor. The main challenge of the design is the proximity of existing buildings to the ERSS. At the closest distance, the soldier pile is approximately 4m away from the nearest building. Many of the ground anchors were encroaching into the foundation of nearby buildings. To make the matter worse, the ground anchors have to crisscross each other due to a kink in the retaining wall alignment. The analysis, design and results of instrumentation for the various types of ERSS adopted will be presented in this seminar.

THE SPEAKER

Dr Ng Tiong Guan graduated with a degree in Bachelor of Civil Engineering in 1992 with first class honors from the University Technology Malaysia (UTM). He joined the Department of Civil Engineering National University of Singapore (NUS) as Research Assistant in 1992 and went on to be the Professional Officer in charge of Geotechnical Lab in 1996. He was conferred the degree of PhD by NUS in 1999. In July 2000 he joins a specialist ground engineering company as design engineer. In 2002, he co-founded GeoEng Consultants, a consultancy firm specializing in civil and geotechnical works, which grows to become one of the largest geotechnical consultancy firms in Singapore. His work experiences include analysis and design of ERSS and assessment of foundation and excavation failures. Major projects undertaken include Kim Chuan Depot LTA C821, Extension of Harbour Front Siding Tunnel LTA C8230a, Kallang Paya Lebar Expressway C421, Pinnacle@Duxton, MBS IR's Hotel and Bayfront Infrastructure Packages (which involves the deepest excavation within MBS IR for 4 MRT tunnels connecting C905 & C906), foundation failure at Church St, TERS failure at Lengkong Empat and evaluation on the impact of Nicoll Highway collapse to nearby buildings.

For catering purpose, please confirm your attendance by reply e-mail to: geoss@nus.edu.sg

**** Admission is free for members of GeOSS. Non-members who join as members (S\$60 per annum) on the spot will have their membership till Dec 2010 ****

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