



GEOTECHNICAL SEMINAR

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



Challenges in Design & Construction of New Nicoll Highway Station and Tunnels after the Collapse

by

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Date:	Tuesday, 31 March 2009
Time:	6:30pm Reception 7:00pm EGM meeting 7:15pm Seminar
Venue:	Engineering Auditorium Faculty of Engineering National University of Singapore

SYNOPSIS

The construction works on the Circle Line Project (CCLP) hit the headlines in April 2004 when a section of the cut and cover tunnels along Nicoll Highway collapsed. After the collapse, various options have been studied to reconstruct the collapsed section. It was finally decided that realignment of the Nicoll Highway Station and tunnels was the best option where the risks could be better mitigated.

The realigned tunnel and the new station had to be fitted between two fixed points of structurally completed Boulevard Station at the eastern end and the almost completed works at the contract boundary at the western end. The realignment also had to stay away from the possible zone of influence of the original construction and to maintain the minimum radius requirement. Eventually, the station was moved 100m south of its original location.

The realigned Nicoll Highway Station and tunnels presented a number of unique challenges to be overcome during the planning and construction stages. These included tunnelling through the previously constructed bored tunnels, tunnelling in the soft marine clay, which in some locations was still undergoing consolidation settlement, and the control of ground movement due to deep excavation in the soft Marine Clay. These potential problems were identified well in advance and the risks were mitigated or managed by putting appropriate solutions in place. These solutions utilized a combination of previous Singapore experience and new techniques, allowing the tunnelling & excavation works to progress as planned. This seminar will present these challenges that have been overcome to complete the project successfully.

THE SPEAKER

David Ng is currently working for LTA. He graduated in 2000 with a Master Degree in Geotechnical Engineering from National University of Singapore where he received the Innovation Award and NSTB Gold Award for his outstanding academic results and research work. He was also awarded the first prize of Hulme's Competition by Tunneling & Underground Construction Society of Singapore in 2000, for his technical paper in tunneling. He has published more than 10 technical papers in the field of geotechnical engineering.

He has been involved in the design and project management of several major infrastructure projects such as deep excavation, mined tunnels and bored tunnels in KPE, CCL & DTSS during his 9 years of experience. In 2004 right after the Nicoll Highway collapse incident, he has been assigned to the site where the incident occurred to manage the geotechnical and instrumentation issues. He has been involved heavily in the design and construction of the new stations and tunnels. He is currently working on Down Town Line Phase 1 & 3 Projects.

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

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