



GEOTECHNICAL SEMINAR

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



The Response of Piles to Adjacent Tunnelling

by

Cham Wee Meng

Land Transport Authority (LTA)

Date:	Wednesday, 18 February 2009
Time:	6:30pm Reception 7:00pm Seminar
Venue:	EA-02-11-EXECUTIVE ROOM Faculty of Engineering National University of Singapore

SYNOPSIS

Tunnel construction in urban areas is becoming popular for underground Metro Lines, thus resulting in many tunnels being constructed close to piled foundations. The construction of Singapore MRT has offered a great opportunity to study the response of piles to tunnelling.

The study described herein considered the tunnelling between Serangoon and Bartley station where most of the field measurements were taken. One of the challenges faced in Contract 852 was the construction of the twin tunnels directly beneath a plot with five piled terrace houses. As the five houses were planned and built before the tunnel construction, five piles were instrumented with strain gauges along their length. It has therefore been possible to assess the pile response to the tunnelling works.

This seminar will present and discuss the results of the instrumented piles and some of the ground instrumentation. It will compare the field measurements of the 'greenfield' ground responses and pile responses with the effects of complex tunnelling operation processes such as tail void grouting, application of face pressure, tunnel advancement and thrust force. Building settlements due to tunnelling are also presented and compared with the resulting nearby 'greenfield' ground settlements.

THE SPEAKER

Cham Wee Meng graduated in 2000 with a Bachelor in Civil and Structural Engineering from Nanyang Technological University of Singapore where he obtained first class honours and NTU Alumni Prize. In 2005, he was awarded Postgraduate Scholarship by Land Transport Authority to study MSc in Soil Mechanics at Imperial College, London, where he obtained Distinction and DIC. In 2008, he was awarded first prize for Hulme's Competition on his submission for "Response of piles to adjacent tunnelling works"

Wee Meng is a registered Professional Engineer with PEB in Singapore. In his 9 years of experience, he was involved in several major infrastructure projects such as rail viaducts, road bridges, deep foundations, ground investigation, deep excavation, mined tunnels and bored tunnels. Currently, Wee Meng is a team leader for Downtown Line Stage 3 which consists of a total of 16 stations and a total route length of about 23 km. He is responsible for advanced engineering studies, detailed design and developing project deliverables such as site investigation, notional temporary works, construction methodology, damaged assessment, project safety review and technical specification.

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 2009 ****

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