



Our Invited Speaker :
Ir. Soo Wai Yee

WEBINAR TALK ON “PROBLEM SOLVING IN TUNNELLING PROJECTS USING NUMERICAL MODELLING”

**16 November 2021 (Tuesday)
2.30 pm – 4.30 pm**

CPD Hours : 2.0

CPD Ref. No. : IEM21/HQ/421/T(w)

Synopsis

Ir. Soo Wai Yee (Waiyee) has 19 years of experience in tunnelling and deep excavation. Her experience includes metro, cable and utility tunnel projects in Singapore, KVMRT L2 UBW in Kuala Lumpur, East-Coast Rail Link in Malaysia, City Rail Link cavern tunnel in Auckland, NEOM Spine Line NATM tunnels in Saudi Arabia, Sydney Metro as well as Metro Manila Subway tender supports. Her key expertise includes advanced numerical modelling for ground-structure interactions, design of tunnel support systems, and constructability evaluation. Wai Yee graduated from University Malaya (Civil Engineering, 2002) and obtained Master of Science in Geotechnical Engineering from National University of Singapore (2013). She is registered Professional Engineer in Malaysia and Queensland, Australia, and Chartered Engineer with Engineers Australia. She is currently based in Brisbane, working as Technical Director (Tunnels & Underground Spaces) in GHD.

Numerical analysis plays an important role in the design of tunnels, particularly where difficult ground conditions or construction restraints are expected. A successful numerical prediction of the performance of a supported excavation can lead to cost saving and safe construction. This webinar presents case studies of tunnelling projects in which technical difficulties were resolved employing numerical modelling in design and construction stages. The first case study addresses the use of deep soil mixing and cutter-soil-mix as an earth retaining system to enable the construction of cut-and-cover road tunnels in an urban area. 2D and 3D Finite Element (FE) modelling demonstrated the effectiveness of the ground improvement design concept, which was based on a conventional stability assessment. The FE modelling facilitated optimisation of the earth retaining system in firm clay. The second case study considers staged excavation of a railway tunnel at a shallow depth, constructed using NATM tunnelling techniques. The numerical modelling investigated the behaviour of canopy tubes, adopted to reduce the impact of tunnelling-induced subsidence on adjacent power pylons. The 3D FE model for the railway tunnel included the sequence of top heading and benching and the installation of canopy tubes. The third case study describes a coupled transient flow-deformation back analysis, used to predict the ground settlement due to water ingress into the excavation during TBM cutter-head-intervention. The back analysis aided the management of water recharge to avoid intolerable ground subsidence.

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Our Fees :

IEM Members : RM 15.00

IEM Non - Members : 70.00