IEM
The Institution of Engineers, Malaysia

WEBINAR

Technical Talk on "Advances in Geotechnical and Pavement Engineering for Transport infrastructure"

HIGHWAY & TRANSPORTATION ENGINEERING DIVISION, IEM

Session 1: Innovative Site investigation techniques to reduce project geotechnical risks
Session 2: Land and infrastructure development in marginal soils and Performance based Pavement Engineering for roads

SYNOPSIS:

Transport Infrastructure construction requires effective comprehensive assessment of ground conditions and formulation of appropriate solutions to ensure sustainable, cost effective and risk-free infrastructure. This workshop will present fundamentals and innovative concepts that have enabled cost effective and risk-free infrastructure solutions. Pavement Engineering for roads and airfield need to consider the advances in construction materials stabilisation, geosynthetics, stress analysis, performance measurements etc and utilise these knowhows to design, construct and maintain risk-free cost-effective pavements.

There are several ground improvements approaches which can be utilised to deliver results which are sought after in when constructing over poor ground conditions. Where soft grounds, such as soft saturated clays, are encountered, ground improvement utilising consolidation approaches such as, surcharge with PVD, are commonly adopted. It is known that surcharge fill is required to pressurise the porewater within the soft clay, hence creating an excess pore pressure within the pores of the clay matrix. This excess pore pressure drives the pore water towards the PVD and upwards towards the drainage blanket.

An alternative method to pressurise the pore water is by applying impact energy such as HIEDYC dynamic compaction. This approach has proven to be capable of developing excess porewater pressures in soft saturated clays. The excess porewater pressure is 'locked-in' due to the low permeability of the clay. The magnitude of this excess pore pressure has been measured as up to 30kPa which is equivalent to the placement of 1.5m surcharge fill height. Hence, this method is coined 'DYCON' or 'Dynamic Consolidation. This method will require installation of PVD but with reduced surcharge requirements. A case study of application of this approach in ground improvement in soft ground is described in the presentation.

Speaker : Qusanssori Noor Bin Rusli,

Qus obtained both his Bachelor of Science in Civil Engineering majoring in Geotechnical Engineering and Master of Science in Geotechnical Engineering from Universiti Teknologi Mara (UiTM) in 2010 and 2015 respectively. He was involved with geotechnical engineering and construction of substructure from the beginning of his career such as construction of cofferdam for pump house construction in Kuantan, piling and substructure works for Lynas facility and KLJ LRT extension, 2200mm diameter with depth up to 102m of bored piling works, diaphragm wall works and top down basement construction for high rise tower construction in the middle of Kuala Lumpur city. Currently he is involved in non-invasive geotechnical investigation, site investigation, ground improvement design, slope design, foundation design for soft and problematic soil and also geotechnical analysis using finite element software.

MONDAY I 27TH JULY 2020 I 430PM – 630PM

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