The Institution of Engineers, Malaysia

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PRE-28TH GETD ANNUAL GENERAL MEETING (AGM)
TECHNICAL TALK ON
THE PRECONSOLIDATION PRESSURE – EXPERIENCE BASED ON TESTING THE HOLOCENE MARINE CLAY OF PENINSULA MALAYSIA

(Organised by the Geotechnical Engineering Technical Division, IEM)

BEM Approved CPD/PDP Hours: 2.0 Ref No: IEM17/HQ/094/T

Day/Date : SATURDAY, 17TH JUNE 2017
Time : 9:00 am – 11:00 am
Venue : Tan Sri Ir. Prof. Chin Fung Kee Auditorium, 3rd Floor, Wisma IEM, PJ
Presenter : Mr. MICHAEL J. D. DOBIE

Abstract:

The Central Soils Laboratory (known as CSL) was established near Kuala Lumpur in 1989 with the aim of providing high quality site investigation data for the North South Expressway project, in particular for the Holocene marine clays which underlie a substantial part of the route. Accurate data for these deposits was seen as key to optimising earthworks design along the route, and the head of the supervising geotechnical group was specific that close attention should be given to the determination of the preconsolidation pressure of these deposits. More recently, keynote lectures on soft soil investigation by Professor Gholamreza Mesri have also stressed that the preconsolidation pressure is the most important parameter contributing to accurate prediction of the behaviour of such deposits. The preconsolidation pressure may be determined directly or assessed indirectly from both laboratory and in-situ testing, with the definitive determination being derived from a well instrumented trial embankment. Site investigation work carried out for the North South Expressway provides an excellent opportunity to examine this in detail, specifically at Juru (south of Butterworth) where a trial embankment was built and monitored after carrying out a detailed site investigation. A simple calculation can show that an error in the preconsolidation pressure of ±10 kPa can give a two-fold difference in predicted settlement. It becomes clear that attention to the detail of carrying out relevant tests is vital to obtaining a representative value or profile of the preconsolidation pressure, including attention to the detail of sampling, sample handling and sample transport. The definitive result for Juru comes from the trial embankment itself, and this may be compared with assessments based on undrained shear strength, oedometer results and piezocone tests. Issues and potential mis-use of all these test methods are examined, and procedures given to minimise test procedure related inaccuracy. The aim is to assure as much as possible that the preconsolidation pressure is actually a soil property and not a result of poor testing procedure. There is no single test method which is best or correct, the wise approach is to use as many methods as possible, taking into account test procedure, and to come to a balanced decision on a representative profile.

Profile of Speaker:

Mr. Michael J. D. Dobie is a Geotechnical Engineer with more than 40 years of experience, including 30 years working in SE Asia (Singapore, Malaysia and Indonesia). He graduated from Bristol University with a BSc in Civil Engineering, then a few years later from Imperial College, London with an MSc in Soil Mechanics. His experience includes working for consulting engineers (WS Atkins & Partners and Acer Freeman Fox) and for geotechnical specialists (Delft Soil Mechanics Laboratory and Dames & Moore). One assignment consisted of setting up and running the Central Soils Laboratory (CSL) in Bangi, Malaysia for the North-South Expressway project. Since early 1991 Mike has been employed by Tensar International Limited as Regional Manager for Asia Pacific. He has had extensive input into the development of design methods and software, including the design of reinforced soil structures under seismic loading conditions. Mike's office is in Jakarta, Indonesia. Locally he is a Member of HATTI (Indonesian Geotechnical Society), and Vice President of the Indonesian Chapter of the International Geosynthetics Society (INA-IGS). He is a Chartered engineer, a Fellow of ICE and also a Fellow of CIHT. He is currently the Indonesia Country Representative of ICE.

Ir. Yee Thien Seng
Chairman, Geotechnical Engineering Technical Division, IEM

ANNOUNCEMENTS TO NOTE

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- Limited seats are available on a "first come first served" basis (maximum 100 participants). **To secure your seat, kindly register online at www.myiem.org.my.**

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