



# The Institution of Engineers, Malaysia

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## Talk on “Pipe-roofed Jacking of Twin RC Box Culvert Thru Existing Highway Reinforced Earth Wall Ramp”

Organised by : Tunnelling & Underground Space Technical Division, IEM  
BEM Approved CPD/PDP Hours: 2 Ref No: IEM16/HQ/515/T

Date: **19 January 2017 (Thursday)**

Time: **5.30 pm – 7.30 pm** (*Refreshment will be served at 5.00 pm*)

Venue: **Auditorium Tan Sri Prof. Chin Fung Kee, Third Floor, Wisma IEM.**

Speaker: **Dr. Esam Ahmad S. Al-Samaraee**

### SYNOPSIS

As part of Rancangan Tebatan Banjir Sg. Bonus, Wilayah Persekutuan Kuala Lumpur, the Department of Irrigation and Drainage Wilayah Persekutuan, thus the government set a plan to mitigate flood problems in the Sg. Bonus catchment and the main objective of the project is to protect the life, health and safety of the residents of the community, reduce damages from flooding to structures in the community and to ensure a sustainable future to the community. The soft-engineered features and structural measures that have been considered in the study include storage ponds, instream storage, the planting of vegetation, tunnelling and underground storage tank.

The talk outlines tunnelling system design comprising a hydraulic jacking of large open ended rectangular reinforced concrete twin box culvert structures (serving later as drainage culvert) with the aid of pipe roofing system at shallow depth beneath and thru existing highway reinforced earth wall system ramp. The technique provides measures to control ground movements around the advancing box so that movements of overlying and RE wall are minimized and maintained within acceptable limits. The pipe roofing method has been widely recognized as an alternative for tunnel construction in urban areas to reduce adverse effects on underground utilities and ground surface activities. In those tunnelling projects through various geological formations using pipe roofing method, the assessment of ground movement is the most endeavouring engineering exercise. The soil behaviour, pipe roof characteristics, and construction sequence have significant influence on the ground movement in the tunnel construction.

The twin box culvert shall act as vital connection between Sg. Bonus and Sg. Klang acting as the control gate structure that hoist force main drainage pump system lifting low water level from Sg. Bonus to high water level of Sg. Klang.

### BIODATA OF SPEAKER



Dr. Esam Ahmad S. Al-Samaraee has over 25 years' experience in geotechnical engineering on a wide range of infrastructure projects through Middle East & South East Asia. Dr. Esam has worked for contractors, consultants, owners and government agencies, both in offices and on site, and most of his work in the last 25 years has been on major projects in areas where tropical residual soils are prevalent. These have included elevated highways, building structures and deep basements with variety of earth retaining structures (Secant Piles, CBP, Diaphragm walls, top down constructions, etc.), culvert jacking & pipe

roofing system, embankments on soft soil and tunnels in Malaysia, Earth Dam Design Iraq, deep excavation for basement construction and land reclamation work in UAE. His main interests are deep foundations, especially the interaction with the structure, deep excavations, tunnelling and soft ground engineering. He obtained Ph.D. Geotechnical Engineering from University Malaya, 2013, M.Sc. Geotechnical Engineering from University of Technology, Baghdad, Iraq 1996 and B.Sc. Civil Engineering from University of Mosul, Iraq, 1991.

**Ir. Syed Rajah Hussain Shaib Bin A.H. Mohd Haniff**  
**Chairman**  
**Tunnelling & Underground Space Technical Division, IEM**

### **ANNOUNCEMENTS TO NOTE:**

- **Non members** may also attend the talk but will need to pay a registration fee of **RM50** and an administrative fee of **RM15**. GST is inclusive.
- 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](http://www.myiem.org.my).**

### **ADMINISTRATIVE FEE**

- Kindly be informed that an administrative fee of **RM15** is payable for talks organized by IEM. GST is inclusive.
- Student Members are however exempted.

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