CERAMAH TEKNIK TECHNICAL TALK

The use of geophysical principles in the detection & characterization of solution channels, voids in limestone formation & rock slope discontinuity survey

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Venue: Department of Geology, University of Malaya

The above talk was presented by Ir. Liew Shaw Shong (G&P) on 21st Dec. 2016 at the Dept. of Geology, Univ. Malaya. An abstract of the talk is attached below. As usual, there was a lively discussion following the talk.

We thank Ir. Liew for his support and contribution to the Society's activities.

Tan Boon Kong
Chairman,
W/G on Engineering Geology, Hydrogeology & Environmental Geology

Abstract: This lecture will cover a forensic investigation involving hydraulic failure at a quarry site with occurrence of sinkholes in river banks and washout of cavity infill to a lower rock face in a limestone formation. The content will cover the planning, execution and interpretation of survey data from 2D resistivity survey with objective to detect high moisture zone implying fractured or jointed rock mass and cavity features with either infill or empty in a limestone quarry face. The interpreted results with respect to their geophysical properties will be compared and validated with the observation of wet spots on the rock mass, cavities and boreholes implying the existence of such features. The resistivity survey also helps to reveal the connectivity of the sinkhole occurrence in the nearby river banks with well developed solution channels to the emerging river water from the quarry bench surface.
In addition to the hydraulic investigation, the stability assessment of a jointed rock mass slope using the ground borne terrestrial Light Detection and Ranging (LiDAR) technique will be presented to demonstrate the efficiency of discontinuity survey on jointed rock slope. The intention of this lecture is also aimed to illustrate how the engineering professional shall make effort in applying and adopting new technology available with good fundamental understanding of the operational principles for the challenging engineering applications. This involves convincing the project client to move forward from traditional surveying and investigation techniques with these new high quality and efficient geophysical methods.

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