

**High resolution seismic reflection and geoelectrical resistivity
imaging at School Teachers' Quarters Pengkalan, Pegoh, Ipoh,
Malaysia**

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The geotechnical engineering applications are normally interested in small scale features of shallow depth which may range from a few meters to hundreds of meters. Seismic reflection and geoelectrical resistivity imaging techniques were employed to investigate the shallow features of buried karstic limestone of Kinta Valley limestone formation because the sinkholes and cavities are quite common in this formation. The techniques were conducted along three traverse lines to evaluate the subsurface ground conditions for

construction work of the school teachers' quarters blocks. The site is located at Pengkalan, Pegoh in Ipoh district of Perak. The limestone bedrock topography have complex phenomena and highly relief subsurface topography due to the presence of karstic features. These features arise considerable difficulties in both the design and construction of the foundations, such as: foundation stability, settlement, and subsidence during the construction in this site. These geotechnical problems arise whenever foundations are established on the surface of the limestone bedrock or within the overburden soils.

The common depth point (CDP) shallow seismic reflection sections of the traverses lines show clearly the displacement system within the bedrock and poor reflection data. This displacement system is usually associated with sinkholes or slow subsidence in the site caused by chemical dissolution. The poor reflection data quality in the CDP sections were interpreted as voids of cavity zone.

The two dimensional resistivity inverse models of the traverses lines shows the low resistivity anomalies. These anomalies are interpreted to represent swallow holes and cavity zone. The cavities are usually filled up with water.

Interpretation based on the combination of seismic reflection and electrical resistivity imaging survey have been a successful and satisfactory way to identify the location of the surface depression and subsurface conditions.
