

Geotechnical problems associated with construction of major structures over subsurface marble bedrock

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Surface underlain by marble or limestone bedrock is characterised by morphological, hydrogeological and geotectonical features. Infra-structure development over such areas have frequently encountered problems caused by the Karst morphology of the bedrock. The irregular Karst topography of the limestone surface is noted for the difficulties presented in the foundation stage of the development. Karst areas are also subjected to ground subsidence caused by the collapse of the roof of underground cavities in the bedrock. Cavities develop easily in marble due to the solubility of CaCO_3 . The size and occurrence of such cavities are governed partly by the structures in the limestone, such as joints and faults and partly by the amount of water available for dissolving the limestone and its acidity. Very little work has been done on marble overlain by alluvial sediments in Malaysia although the occurrence of sinkholes and surface cave-in indicate the probability of cavities in the marble bedrock. The presence of such cavities may be detected by various geophysical methods such as microgravitimeter down-hole and electromagnetic devices.
