

CERAMAH TEKNIK TECHNICAL TALK

Ground evaluation and earthworks design for train depot in hilly area

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Platform: Zoom / Facebook

The above talk was delivered by Mr. Vigneshwaran Karunanidee and Pn. Nur Amanina Mazlan (MRTC) on 21st December, 2022, via Zoom/Facebook Live. Due to some technical problems, the GSM FB Live platform was not available, so only 12 persons participated via Zoom, comprising mostly staff of MRTC. Our sincere apology to GSM members who wanted but couldn't follow the talk via GSM FB Live. Video of the talk is available in the GSM FB/website for members who missed the talk.

An abstract of the talk is given below:

Abstract: A site located at Serdang adjacent to MARDI has been identified to be developed as a secondary MRT depot consisting of a central train maintenance building, depot control centre, stabling yard, administration building and associated infrastructures. One of the major challenges for this train depot is the site formation for a 155-acres levelled platform over hilly topography that includes hill slopes, valleys and low-lying areas. Geologically the site is underlain by Kenny Hill Formation which comprises of monotonous clastic sequence of interbedded shale, mudstone and thick bedded fine to medium grained sandstone. Comprehensive ground investigation programme, such as borehole exploration, geophysical survey, groundwater monitoring, etc. were carried out across the site to verify the subsurface conditions for geotechnical design as well as for control of ground-related risks in construction. Massive earthworks such as engineered fill platforms and high cut slopes were required to create the levelled platform due to the hilly terrain. The maximum fill height is about 36 m and the maximum cut slope height is about 55 m. Based on the available SI results and geological formation, the valley within the site is deposited by colluvium from adjacent hills and required ground treatment to eliminate excessive ground settlement upon placing the filling platform. This presentation will focus on ground investigation and evaluation carried out for earthworks design and construction. Earthworks good practices including the excavatability assessment to determine the rippability of hard soil and rock at cut areas will be discussed. The performance of the completed earthworks platform will be demonstrated with the readings collected from geotechnical instrumentation installed across the site.

We thank the speakers for their support and contribution to the Society's activities.

Tan Boon Kong

Chairman, Working Group on Engineering Geology

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