

Ground improvement of thick deposit of soft clay for Sepang Power Plant

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The proposed Sepang Power Plant site is located in the district of Sepang, 50 km south of Kuala Lumpur, and is approximately 15 km from the coastal sea front. Site preparation work including site clearance, installation of vertical drains and filling commenced in October 2000. Platform construction and preliminary trial piling was completed in July 2001.

Soil investigation and site selection were carried out in September/November 2000. The existing ground level (previously an oil palm plantation) is at approximately +3 mRL with ground water level fluctuate at approximately 0.6 m to 1.2 m below existing ground level. The nearby Langat River platform and is subjected to tidal variations.

The predominant soil conditions encountered is a thick layer of very soft marine clay with intermediate loose to medium sand layers overlying by stiff to hard clayey silt.

Examination of the undrained shear strength (C_u) tests indicates that the soil materials is essentially that of normally consolidated (N_c) recent alluvium marine clay. Values of C_u is also estimated from correlation made by Bjerrum and Simons (1970) between PI and C_u/P_p' where P_p' is the vertical effective stresses.

The existing ground level is approximately at +3.0 mRL, the design specification is to provide adequate protection against a 1:100 year flood level of +7.8 mRL (the tidal River Langat is situated at approximately 500 m from the site). The final design solution seeks to optimise the required earthwork fill quantities, construction duration and proposed widening/improvement of River Langat (which aim to reduce the 1:100 year flood level).

The final design platform is at +6 mRL to be protected by a perimeter bund with a design, crest height of 8.8 mRL.
