

ABSTRACT

Title: Analisis Pemancangan Tiang Menembus Lapisan Lensa dengan Metode Wave Equation Menggunakan Program Komputer, Name: Muhammad Firas Andanawarih, NIM: 41116320047, Lecturer: Resi Aseanto S.T, M.T.

Type of foundation should be fit with soil condition in the field and type of construction that will build. For heavy weight construction, generally use deep foundation. Pile foundation could be use if the depth of hard soil is very deep. Similarly, if the foundation of construction embedded on embankment it will fail by large settlement. Problem on the field for driven pile is thin hard layer. Thin hard layer placed between soft layer (Fadhilah dkk. 2013). It will be risky if pile foundation rest on thin hard layer. There will be a large settlement if the pile foundation embedded on thin hard layer.

One of the method that could use for predict the integrity of pile foundation when penetrated through thin hard layer is wave equation analysis. This analysis could be use to determine the equipment for driven pile installation.

Settlement that will happen if driven pile embedded on thin hard layer for two nos of boring log more than 2.54 cm. To maintain the settlement, driven pile should be penetrate through the thin hard layer. To predict the driven pile equipment, researcher use GRLWEAP to help the research.

The result for DB 01, driven pile with 40 cm, 50 cm, and 60 cm diameter could penetrated through thin hard layer until 30 m depth, while driven pile with 80 cm diameter couldn't penetrate through thin hard layer eventough using the largest capacity of Kobe hammer which is 7.849 ton. The result for DB 02, driven pile with 40 cm, 50 cm, 60 cm, and 80 cm diameter could penetrate through thin hard layer until 24 m, driven pile with 80 cm diameter could penetrate through thin hard layer with Kobe with 5.887 ton capacity. Settlement that happen when driven pile penetrated through thin hard layer less than 2.54 cm.

The resistance result of manual calculation is bigger than the result using GRLWEAP. If calculated using Smith criteria the resistance result close to GRLWEAP results.

Keyword : Foundation, driven pile, thin hard layer, wave equation, GRLWEAP