DESIGN OF SOIL IMPROVEMENT ON PACKING PLANT PT. SEMEN GRESIK PROJECT IN BALIKPAPAN – EAST KALIMANTAN

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ABSTRACT

Along with the rapid demand for portland cement requirements for development activities in the surrounding area of East Kalimantan and PT. Semen Gresik is planning a cement packing unit (Packing Plant) in the area Kariangau, Balikpapan. Subgrade conditions at the project site packing plant showed soft clay soils which may experience large compression and consolidation in a long time.

Preloading combined with PVD (Prefabricated Vertical Drain) is one method to reduce the amount of compression and speed up the consolidation process. Project site which are directly related to the sea, requiring a protective structures such as dikes which serves to protect the embankment from the brunt of the current land and sea waves. To further strengthen the embankment structure required soil improvement under embankment using micropile which serves to increase the shear stress of the soil so it is safe sliding (sliding).

Soil improvement planning at the project Packing Plant PT. Semen Gresik is using preloading combined with PVD method. Installation of the selected pattern is a triangular pattern with a distance of 1 meter. By using PVD, consolidation period is 21 week to reach degree of consolidation 90%. With combination of preloading and PVD, 2,374 m of consolidation be able to reduce in 13 week. For the soil improvement under an embankment use micropile with size 28x28 cm by 10 piles per meter length.
Keywords: soft clay, Preloading, PVD (Prefabricated Vertical Drain), Micropile.