

ABSTRACT

Peat soil is soil that has low bearing capacity consisting of plant remnants. Low bearing capacity will cause instability in the construction built on it. The landfill used can be in the form of soil mixed with or without admixture.

In this study, mixing Portland cement and gypsum was carried out as stabilizing material for embankment on peat soil. The aim was to determine the effect of Portland cement and gypsum on slope stability and settlement in embankment by using Plaxis 8.2 modeling.

From the results of the study, it is obtained that peat soil in Tembilahan, Riau has water content of 453.44% and organic content of 86.302%. The result of the direct soil shear test obtained cohesion value (c) of 0,4429 kg /cm² and value of ϕ of 30,3069°. Mixing peat soil with portland cement and gypsum together gives a greater influence in increasing the value of c and ϕ . The mixture of peat soil+ 7% portland cement + 12% gypsum increases the value of c up to 97% from the original of peat soil which is 0,8730 kg / cm², while the mixture of peat soil + 7% portland cement + 15% gypsum increases the value of the shear angle by 74% from the original of peat soil that is equal to 52,8067. The mixture of peat soil + 7% portland cement + 12% gypsum increases SF value by 17%, which is 3,7492 when given a vehicle load and 3,6669 when an earthquake load is added. The mixture of peat soil + 15% gypsum lowers the value of 13% reduction that is 0,1212m when given a vehicle load and 0,1244m when an earthquake load is added

Keywords: portland cement, gypsum, peat soil, embankment, slope stability, plaxis.