

ABSTRACT

The Semarang-Solo toll road is divided into 2 stages consisting of the Semarang-Bawen section and the Bawen-Solo section. The toll road, which has a length of 72.64km, is geologically located in an unstable land area and topographically is a hilly area, therefore road construction is located in hilly areas so that the excavation and landfill work becomes dominant. Heterogeneous soil stratigraphy on the slope, directly indicates that the stability of the slope in the area is vulnerable to a decrease in the strength of support. Shear strength factor, load weight, subgrade material dominated by clayshale, and surface flow are considered in the design of a slope reinforcement. so that geotechnical engineering needs to be done that is able to withstand the slope on the slope.

Slope stability analysis uses secondary data parameters taken from PT. Global Profex Synergi and simulated using the Plaxis program version 8.2. Slope analysis in Plaxis version 8.2 is made by 2D modeling and the groundwater level is assumed to be located at the base of the slope.

From the analysis of the Plaxis version 8.2, the safe number of slopes without reinforcement was 1,345 due to own load, 1,353 due to load (own load) and vehicle load, 1,231 due to embankment load (own load), vehicle load and earthquake load and slope conditions were not safe so required reinforcement at the slope. After the geotextile reinforcement is 1.793 due to the load of the embankment (own burden) and 1.79 due to the burden of the pile (own burden) and vehicle load, and 1.789 due to the load (own burden), vehicle load and earthquake load. This shows that the condition of the new geometry slope with the strengthening of the geotextile is safe for kelongsorang because the value of safe numbers obtained is more than 1.5.

Keywords : Slope stability, 8.2 maxima Plaxis Program, and Geotextile