

## **ABSTRACT**

*At present the development of technology and science are increasing along with the progress of the times, especially technology in the field of geotechnics. But in Indonesia itself there are still many problems related to the geotechnical field. One of them was failed or landslided on the the riverbank. These damage is usually caused by the swift flow of the river which slowly erodes the riverbank and is exacerbated by the behavior of people in Indonesia who still often build houses or residential infrastructure on the banks of the river, so that if the floods occur they will generally always be in the threat of landslides due to the river slope began to lose their strength and stability.*

*As a solution was used soil reinforcement. The soil reinforcement used in this study is the cantilever retaining wall and geotextile. Cantilever retaining walls and geotextiles can be used to maintain the stability on the riverbank so as not to occur landslide, and as a means of disaster management.*

*Based on the results of the external analysis of cantilever walls by calculating the earthquake load that occurs, safety factor of overturning was 2.7, safety factor of the sliding was 1.55 and safety factor of the bearing capacity was 16.9. For the results of internal analysis cantilever walls are divided into 2 parts, namely the calculation of vertical wall reinforcement requirements and cantilever wall foundation foot plates requirements. In the vertical wall the basic reinforcement needs D20-125 mm, for shear reinforcement D10-550 mm and 20-D10 for shrinkage reinforcement. On the foot plate foundation the basic reinforcement needs D20-125 mm, for shear reinforcement D10-600 mm and 17-D10 for shrinkage reinforcement. The results of the analysis using geoslope applications by adding earthquake loads obtained a safety factor of 2.1. At the same time the results of the external geotextile analysis earthquake load that occurred were obtained by the value of the geotextile safety factor for overturning was 2.12, safety factor for sliding was 2.1 and the safety factor of the bearing capacity was 4.5. For the results of the internal geotextile analysis, the length of geotextile (L) was 3 m, the length of the fold (Lo) was 1 m and the distance between the geotextile (Sv) was 0.4 m. The results of the analysis using geoslope applications by adding earthquake loads obtained a safety factor 1.77.*

*Keyword : landslide, soil reinforcement, geoslope*