

## ***Abstrak***

*Dinding penahan tanah yang paling umum digunakan adalah dinding gravitasi. Walaupun dinding gravitasi paling umum digunakan, tetapi masih banyak jenis dinding penahan tanah yang dapat digunakan, seperti dinding kantilever, bronjong, dan geogrid. Dilakukan perhitungan stabilitas global, guling dan geser, lalu akan dilakukan perhitungan biaya untuk dibandingkan dinding penahan tanah jenis apa yang paling efisien. Penelitian ini dilakukan dengan perhitungan menggunakan program berbasis metode elemen hingga, pada penelitian ini membahas mengenai stabilitas dinding penahan tanah pada kondisi setelah pemasangan dinding penahan tanah. Pada salah satu proyek di Bogor dengan Angka faktor keamanan stabilitas global untuk keempat dinding penahan tanah berkisar antara 1,5 – 1,6. Angka faktor keamanan geser, guling, dan daya dukung tanah gravity wall 6,84; 11,4; dan 8,15. Angka faktor keamanan geser, guling, dan daya dukung tanah cantilever wall 7,6; 17,7; dan 9,07. Angka faktor keamanan geser, guling, dan daya dukung tanah bronjong 7,6; 5,2; dan 14,1. Angka faktor keamanan geser, guling, dan daya dukung tanah geogrid 8,1; 14,5; dan 23,5. Dari hasil analisis keempat jenis dinding penahan tanah yang didesain, keempatnya telah memenuhi ketahanan stabilitas global, guling dan geser. Sementara dari sudut pandang biaya, dari hasil analisis keempat jenis dinding penahan tanah yang didapat bahwa dinding penahan tanah jenis geogrid memiliki harga yang paling ekonomis. Hasil desain dan analisis tergantung pada jenis dan kondisi tanah di lokasi proyek.*

***Kata kunci:*** *dinding penahan tanah, dinding gravitasi, dinding kantilever, bronjong, geogrid*

## ***Abstract***

*Most common used retaining wall are gravity wall. Although gravity wall are commonly used, there are still many type of retaining wall can be used, such as cantilever wall, gabion, and geogrid. Therefore calculation of global stability, moment stability, shear stability, and calculation of cost is needed to compare which one of that retaining wall are the most efficient. To analyze global stability program based on finite element method are used, in this study discusses the stability of the retaining wall in conditions after the installation of a retaining wall. In one of the projects in Bogor with a number of global stability safety factors for the four soil retaining walls ranging from 1.5 to 1.6. Shear and moment safety factor for gravity wall is 6,84; 11,4; and 8,15. Shear and moment safety factor for cantilever wall is 7,6; 17,7; and 9,07. Shear and moment safety factor for gabion is 7,6; 5,2; and 14,1. Shear and moment safety factor for geogrid is 8,1; 14,5; dan 23,5. From the results of the analysis of the four types of soil retaining walls that are designed, the four have met global stability, moment and shear requirement. While from a cost point of view, the results of the analysis of the four types of retaining walls are found that the geogrid type of retaining wall has the most economic price. The results of the design and analysis depend on the type and condition of the soil at the project site.*

**Keywords:** *retaining wall, gravity wall, cantilever wall, gabion, geogrid*