

ABSTRACT

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Basement is a room structure located below ground level, more precisely under the building. Basement can be used as a vehicle parking lot, shopping center and so on depending on the function of the building such as offices, hotels, campuses or malls. In planning underground structures such as basements, excavation protection structures are needed in the form of retaining walls. Retaining walls function to stabilize the soil in certain soil conditions, especially for slope areas. When soil conditions are disturbed due to certain things, such as earthquake loads, engine vibrations, groundwater and others that can reduce the physical and mechanical properties of soil parameters, it can cause damage to building structures. To minimize these conditions, it is necessary to design the stability of the retaining wall structure to be able to withstand the load from the soil and external loads. The retaining wall structure can roll over and shift due to the active forces exerted by the restrained soil. Soil data in the field was taken to determine and determine soil characteristics and as original soil samples for laboratory examination to determine the value of the technical properties of the soil. The field data was taken using the boring log test method. The safety factor of slope stability without reinforcement with the fellenius method using software and Ms. Excel is worth 1,105 and using software Geo Studio 2012 The safety factor of slope stability with reinforcement using software is 0,864. The safety factor for slope stability with reinforcement using Geo Studio 2012 software is 2,254. The depth soldier pile is 4,15 meters, the soldier pile 13,5 meters and the diameter of the soldier pile 0,8 meter. The soldier pile planned 7D19 longitudinal reinforcement and D13-70 spiral reinforcement. The capping beam planned 16D19 main reinforcement and D13-150 confinement reinforcement. The total cost needed in planning the soldier pile on the UBM Tower Alam Sutera project is Rp. 2.008.545.021,38.

Keywords: Basement, retaining wall, soldier pile, capping beam, budget plan