RETAINING WALL PLANNING ALTERNATIVE OF MAYJEN SUNGKONO UNDERPASS

SURABAYA

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Abstract
Satelit Circle is one of area in Surabaya City, which has a level of high traffic density. Refer to the degree of saturation and the level of service intersections data, it is known that the level of service at the circle intersection of Satelit has been categorized as poor (Putra, Adiyarta Harvian Eka. 2013). To overcome these problems, various alternative improvements need to be done. One effort to fix it is to make the intersection is not a plot which is underway such as underpass. Construction of the underpass is planned to change the function of signalized circle be free of road intersections. The underpass will be built along the 437 meters, consists of four lanes in both directions, with the depth of the underpass until deep -7 meters below ground surface. In the middle span overpass construction underpasses are large enough, causing problems in the fields of retaining wall systems and floor of the vehicle as well as what type of foundation is suitable to hold the whole construction.

The final task will discuss how to plan a retaining wall, floor vehicles, and abutments. Planning retaining wall using alternative types of diaphragm wall and the existing planning of retaining wall using type of secant pile. This is done to determine the planning alternative retaining wall that is most appropriate for Mayjen Sungkono underpass.
Based on calculations, the depth of soil retaining walls for excavation depths of -7 m is obtained 15 m. While the depth of soil retaining walls for excavation depths of -3 m is obtained 6.5 m. Calculations using the vehicle floor plan has a flexible pavement layer thickness of 34 cm sub base (gravel class B), layer thickness of 20 cm base (split stone class B), and layer thickness of 9.5 cm surface (laston class A). In the calculation analysis of abutments, abutments dimensions obtained with 8.3 m high, 5.8 m wide and 27.6 m in length. The foundation abutments using pile foundation with a diameter of 60 cm deep as 16 m. For the cost of retaining wall design using diaphragm wall is needed cost wich has Rp. 27,197,346,497, - , and planning of existing retaining walls using secant pile is needed cost wich has Rp. 22,896,132,644, -. From the description above, alternative retaining wall which was selected for the underpass is the secant pile, because it has a lower cost, but the other factors are also influential factors besides lower cost, such as power factor and the ease of implementation factors can be taken into consideration in determination of the other alternatives

**Keyword:** Underpass, Diaphragm wall, Secant pile, Flexible pavement, Abutment, Pile foundation.