ABSTRACTION

REDESIGN OF ROAD BETTERMENT WITH FLEXIBLE PAVEMENT OF HIGHWAY STA. 3 + 000 – STA. 6 + 000 IN DISTRICT OF GRESIK - EAST JAVA PROVINCE

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This final project is the re-design road betterment of Gresik STA 3 + 000 - 6 + 000. The data used were AADT (Anually Average Data Traffic) 2005 and 2009, road deflection from Benklement Beam test of 2009 and the rainfall data of 2000 to 2009. Road capacity analysis was perfomed using MKJI (Indonesia Road Capacity Manual). Geometric control was conducted based Road Geometric Planning Basics of 1999, The overlay pavement design was perfomed using the Flexible Pavement Design of Indonesian Highways Directorate General of Indonesian Public Services 1987, while the drainage design was basedon Road Surface Drainage Manual Procedure (SNI-03-3424-1994). Age of road betterment planning is 10 (ten) years from 2010 to 2020.

The results of the traffic projection analysis needed until the year 2020 is 2925.7 pcu / h (passenger car unit / hour) for the direction of Gresik – Surabaya and 3494.8 pcu / h (passenger
car unit / hour ) for the direction of Surabaya - Gresik. The analysis using regression methods and based on the projected traffic volume, road capacity was calculated to have the degree of saturation (DS) in 2020 amounting to 0.56 for traffic direction of Gresik – Surabaya and 0.67 for traffic direction of Surabaya – Gresik, that are less than allowable one of 0.75. Hence, there is no need for road widening to accommodate the projected traffic volume until year-end plan. The result of the deflection analysis was found that the representative deflection (D) is equal to 1.79 mm and the allowable deflection (D) is equal to 0.90 mm and then plotted on the Overlay graph, it produced overlay pavement of 4(four) cm in thick. Reviewing the drainage conditions within the location study, the area needed a side ditch at location within STA 3+000 – STA 6+000.

The final road betterment design required an overlay of 4(four) cm Asphalt Concrete with specification as the MS 744 for 33.000 m$^2$ of Asphalt Concrete. The additional side ditch of stone mansonry with rectangular shape requires 3713.5 m$^3$ of stone mansonry. Estimated total project prices is Rp 5.047.000.000,00 (five billion forty seven million rupiah ) which is calculated based on price list stated in HSPK (East Java Province Price List) of 2011.