BREAKWATER DESIGN AT NANGAKEO FERRY HARBOUR NUSA TENGGARATIMUR

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ABSTRACT

Ende district in Nusa Tenggara Timur province is a region located at the middle of Flores Island where its north border is Flores Sea and south border is Lawu Sea. Because of its strategic location, which is connecting two sea at north and south, Ende district is very suitable for development of sea trading. To accommodate that, it is necessary to build a sufficient facility for marine activity.

For river, lake, and ferry traffic subsector, Ende district has Nangakeo ferry harbor which is a special harbor build in year 2004 and opened since 15 March 2008. However, until 2011, this harbor was not fully optimized because its position is parallel with coast line. In addition, sea wave in Nangakeo harbor has fairly wild character all time. Because of those problems, ship cannot dock at Nangakeo harbour. To tackle the sea wave problem, it is necessary to build a strong breakwater structure with the suitable type for marine condition in Ende district. Hopefully, it can maximize operational of Nangakeo harbor.
The plan for breakwater with monolith construction type use array of steel pile Ø1016 mm combined with concrete pior. Length total for breakwater is 125 m. This breakwater is build with -25 elevation mLWS and located at roughly 80 m from the harbor. Beside that, dredging is necessary in order to widening the entrance and exit of breakwater. Total cost of this breakwater construction is Rp. 91.805.496.000,00.

Keyword: Ende, Breakwater, Monolith, Pile, Dredging