DESIGN STRUCTURE OF COAL DOCKS

5000 DWT CAPACITY

BERAU DISTRICT-EAST KALIMANTAN

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Abstract

Berau coal docks located in the district of Tanjung Redeb, Berau, East Kalimantan. Berau pier structure designed as a dock to facilitate the activities of unloading of coal, it is planned that a new dock anchored by ships with deadweight 5000 dwt.

In the end of the pier project is planned to include planning the dimensions and the reinforcement of plate and beam structural elements, structural design of berthing and mooring (fenders and boulder) and the foundation. The structure of the pier (floor plate, beams and pile caps) used a cast in site reinforced concrete with a characteristic quality of concrete $f_{c'} = 30$ MPa. While the lower structure of the pier using steel piles. Piling position is planned in such a way as to
be able to withstand the vertical and horizontal forces. In the structural design of this pier, the structure of the system were analyzed using the computer program SAP 2000 with a three-dimensional models. Reinforcement structure and stability of the structure (with respect to the effects of cracking and deflection) using SNI 03-2847-2002 Concrete Structures Planning Procedures for Building Construction.

From the results obtained planning dock dimensions 38 x 22.5 m2 and trestel dimensions 10 x 50 m2, mooring dolphin dimensions 3.6 x 2.8 m2, and berthing dolphin 5.4 x 4.2 m2. Beam transverse and longitudinal dimensions are 50cm x 70cm piles of 609.6 mm diameter piles with 12.7 mm thick and 406.4 mm with a thickness of 12.7 mm. Pile cap dimensions 1500 x 1500 x 1000. In the docked structure used is the fender type Bridgestone SA 600 H on the berthing dolphin and SA300H on the pier and mooring structures used must be able to withstand loads of up to 150KN mooring.

Keywords : Pier, Dock, Dolphin, Respons Spectrum