

**DESIGN OF CILAKI RIVER BRIDGE
MEKARSARI VILLAGE SAJIRA SUBDISTRICT
LEBAK DISTRICT
BANTEN PROVINCE**

By:

M. Fachrurrokhman Dika¹⁾, Heni Diatikawati¹⁾, Djoko Susilo Adhy²⁾, Rifqi Brilyant Arief²⁾

Abstract

Design of Cilaki River Bridge functioned as the access linking Kundur Orchard, Mekarwangi Village, Muncang Subdistrict and the Sangiang Orchard, Sindangsari Village, Sajira Subdistrict. Because of the increase in traffic flow, Cilaki bridge must have the capacity and is able to withstand heavier loads. On the previous planning, it was designed using suspension bridge structure with the type of stiffening truss. On the latest planning, it is designed to use steel truss bridge structure, thus has been estimated to be able to withstand the loads more than 5 tons from the previous planning. Upper structure design, which is a steel truss part, has been designed with the help of the SAP 2000 software, while the connections, floor slabs, shear connector, bridge support/bearing, and lower structure design are planned to use manual calculation. On the current planning, the bridge is arranged to have 35 metres length, a total of 6 metres bridge width, and 5 metres of vehicle deck. Upper structure of a bridge is designed by using *warren* steel frame type B_j 37 by using I profile steel and elbow profile steel, with a stringer length of 5 metres, cross girder 6 metres long, stringer spacing of 1.25 metres, cross girder spacing of 5 metres and the bridge frame is 6.35 metres height. Joint connections uses high-quality bolt of A325 type and weld. Shear connector has quality of B_j 37. The vehicle deck of a bridge is 0.20 metre thick and its sidewalk plate is 0.45 metre thick with yield stress (fy) 240 Mpa and fc 24.9 Mpa. Bridge support/bearing is designed with joint – joint bearings. Lower structure of a bridge is designed to use 24.9 MPa of concrete quality (fc) and 240 MPa of steel yield stress (fy). The dimension of an abutment is designed to have 7 metres long, 2 metres wide, and 3.9 metres high. The foundation is designed to use 2 pieces of caisson foundations with a diameter of 1.7 metres and a height of 3.3 metres. Soil protection is put in front of abutment, so that the soil can't be eroded by the flow of river water that can lead to land subsidence of approach embankment. Therefore, the abutment should be given a protection by using gabion shape I.

Key words: Steel truss bridge, Connector, Plate, Abutment, Foundation

¹⁾Student of Civil Engineering Major of Engineering Faculty of UNISSULA

²⁾Supervisor at Civil Engineering Major of Engineering Faculty of UNISSULA