

# **STRUCTURE DESIGN OF RIVER BRIDGES TO BE DISPOSED BY USING PRE-STRESSED CONCRETE BASED ON SNI LOADING**

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(Case Study : Mengkopot Village, Tasik Putripuyu District)

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## **ABSTRACT**

The Mengkopot River Bridge is located on the border between Pisang Village and Mengkopot Village. The river bridge is dismantled using wood material as the bridge floor plate, which is the main access link between villages and even sub-districts. This plan uses SNI 1725:2016 loading with prestressed concrete. This planning aims to obtain the effective dimensions and loading that occurs on the bridge.

This bridge planning refers to SNI 1725:2016 concerning bridge loading, and SNI T-12-2004 concerning concrete structure planning for bridges.

Based on the results of the calculation of the superstructure of the bridge, it is planned with a span length of 55.96 m, 3 spans are planned, with a span length of 18.65 m each and a bridge width of 7.5 m. Concrete quality on Slab K-250 m with a thickness of 0.2 m using negative bending and positive bending reinforcement, namely the main reinforcement D16-250 mm and reinforcement for D13-300 mm. Whereas for prestressed concrete use a PCI Girder profile with a height of 1.7 m, the distance between the girders is 2 m, and the quality of the concrete is Prestress K-602.41. Number of tendons 5 pieces with 95 cable strands. From the calculation results, the nominal moment ( $M_n$ ) of the prestressed beam is 13427.170 kNm, and the ultimate moment capacity ( $M_u$ ) is 12084.453 kNm.

Keywords: PCI Girder, prestressed concrete, SNI 1725:2016