The bridge is a structure that allows the construction of transport routes through the rivers, lakes, roads, railways and others. Construction of the bridge is a structure that serves to connect the two parts of the road being cut off by the presence of obstacles such as deep valleys, river basins, irrigation channels and exhaust. This path is transverse, which is a plot and others.

In this final project will be carried out modifications to the Gugus bridge that connects the Tanjungpinang city and Senggarang located in Province Riau using structure of the cantilever box girder system. Earlier in the design of this bridge with steel frame for the spans the middle of the arc and Australian Class A steel frame for the spans edge. Type of construction used in this modification is a single box girder. And the system used is the post-tensioning prestressed. Long span bridge is 200 m, the landscape is divided into three, that is 50 m + 100 m + 50 m.

This bridge planning begins with an explanation of the selection of background bridge type selection, formulation of planning objectives, discussion, and the basics of planning refers to planning regulations bridge RSNI T-02-2005 and SNI T-12-2004. Only then do preliminary design to determine the main dimensions of the bridge. In the early stages of planning, the calculation of secondary structures such as bridge guardrail and pavement. Then analyze the expenses
incurred such as: analysis of its own weight, an additional dead load, traffic load and analyze the effect of time such as creep and loss of prestressed force. From the results of the analysis done in the control voltage that occurs at the box reinforcement box calculation, the calculation of the strength and stability of the structure.

The end of this plan is obtained form and dimensions of box girder cross-section as outlined in the planning image (Detail Engineering Design/DED).

Keyword : Gugus bridge, Box Girder, Prestressed