



Study on Anchorage Type Selection of Sichuan Bank of Sichuan Kahalo Jinsha River Bridge

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Abstract

Sichuan kahalo Jinsha River Bridge is a suspension bridge with a main span of 1030m, and the anchorages on both sides are gravity anchorages. In order to adapt to special terrain and geological conditions, anchorage of Sichuan bank pioneered the use of frame structure as the anchorage foundation. The soil and the frame structure jointly bear the vertical load and resist the horizontal component of the main cable to form a "frame soil" community and fully mobilize the role of the undisturbed soil. At the same time, the distributed grouting technology is used to strengthen the soil around the frame structure, so as to further improve the safety factor. This paper introduces the topography and geology of the anchorage position, compares and selects different anchorage foundation schemes, and explains in detail the design concept, structure size and construction technology of the frame foundation.

Keywords: Sichuan Kahalo Jinsha River Bridge; gravity anchorage with frame structure foundation; frame-soil community; grouting reinforcement.

1 Introduction

Sichuan Kahaluo Jinsha River Bridge is located in the Yongshan Branch of The Expressway along the Jinsha River. It is designed to cross the Jinsha River and connect Sichuan and Yunnan. The main span is 1030 metres. The main girder of the bridge adopts composite structural steel truss girder, the main tower adopts concrete-filled steel tubular composite bridge tower, anchors on both banks are gravity anchors, and the main cable adopts high-strength galvanized steel wire.

The traditional gravity anchorage mostly adopts the enlarged foundation, which has better

adaptability under the condition of good terrain and geological conditions, and the construction is relatively simple. However, the anchorage of Sichuan bank is located in the middle and lower part of the left slope of the Jinsha River convex bank, on the front edge of the strip ridge, where the slopes on both sides of the ridge and the front edge gently slope down and then steeply up (Figure 2), mostly between 15° and 25°. The localised shape is steep. The terrain condition is poor, and it is a typical "Elephant nose terrain", and the geological conditions at the anchorage position are poor (Figure 3).