PLANNING OF RAIL BRIDGES ON KATRA-QUAZIGUND RAILWAY LINE

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Summary

Katra to Quazigund portion of 287 km long Udhampur-Srinagar-Baramulla rail New Rail Link Project (USBRL) in State of Jammu & Kashmir, India, covering 142 km stretch is located in rugged Himalayan Mountains. The alignment traverses geologically young Himalayas through active land slide zones and tectonically complicated geological conditions due to presence of Main Boundary Thrust. Main Boundary Thrust has been responsible for an earthquake of magnitude 7.6 on Richter scale in Oct 2005, with epicenter about 150 km away from site resulting in loss of more than 75000 lives. Owing to poor geological formations and difficult terrain, more than 73% of alignment passes through tunnels and further 10% portion of alignment on bridges or viaducts.

Planning & Design of bridges for rail alignment crossing deep valleys with steep unstable slopes is a daunting task. The curved rail alignment alongwith unstable, young geological formations, coupled with severe seismicity of area pose unique challenges while deciding upon the bridge configurations. The paper highlights various considerations in choosing bridge structural alternatives/configurations and materials for crossing such a difficult terrain.

Keywords: Rail, Super-structure, Sub-Structure, composite deck type superstructure, through girder, bllastless track.

1.0 Introduction

Indian Railways has taken up an ambitious project of linking Kashmere Valley with rest of India by constructing a new broad gauge (1676mm) rail link between Jammu to Baramulla via Udhampur, Katra and Srinagar. Connecting Katra at an altitude of 820 mts. with Quazigund at an altitude of 1721mts above mean sea level is a gigantic task as it involves construction of a broad gauge link in sub-Himalayan, lesser Himalayan region & through Pir Panjal Ranges of Himalayas. The challenges in the project are from difficulties arising from the nature of terrain being hostile, full of high steep mountains dotted with numerous torrential khads and permanent nallas, deep gorges and dense forests along with insurgency in this region. In spite of such a difficult terrain, the alignment has been designed with a ruling gradient of 1:100 (compensated) and maximum curvature of 3.3

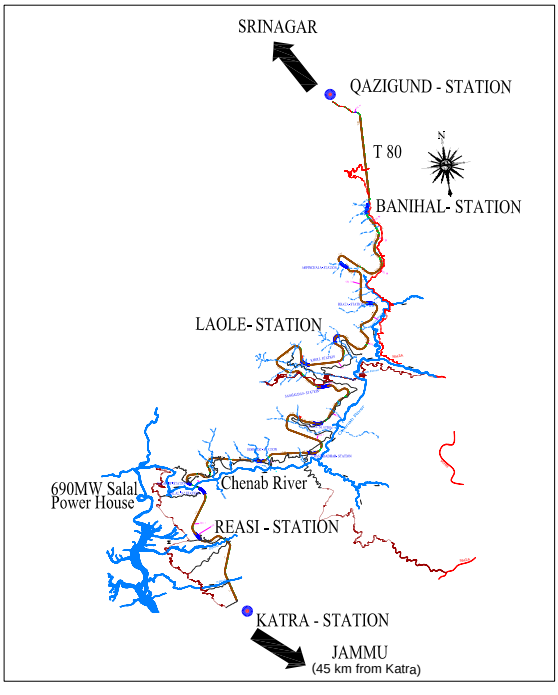

Fig.1: Index Plan

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