



Design and construction of the Second Hinterrhein-Bridge

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Abstract

The Second Hinterrhein-Bridge is an award-winning new 200m long single-track railway bridge spanning over the river Rhine and the Highway A13 in a picturesque valley in the Swiss Alps. It has four spans and is located adjacent to a magnificent historic steel truss railway bridge. In the continuation of this heritage structure, a matching new 50m long bridge is spanning over the highway. The two bridges were carefully designed into a highly significant and sensitive location both from a transport infrastructure, landscape and heritage point of view. The girders have identical U-shaped cross sections formed by trapezoidal steel boxes on each side, with the tracks supported on ballast on top of a steel plate stiffened by shallow transverse crossbeams. The girders were fabricated in segments in the workshop and assembled on site into lifting segments up to 50m long that were installed by crawler crane. The last segment was lifted onto the new bridge and launched over the highway. On the completed bridge, load tests with two locomotives were carried out before taking the bridge into service. The design was the winner of an international competition held in 2015.

Keywords: railway; bridge; steel; heritage; lifting; launching; load test

1 Introduction

For over a century the Surselva and the Albula railway lines connecting alpine villages and towns with the regional capital Chur have crossed the Hinterrhein at Reichenau on a single-track steel truss bridge. Reichenau is a highly significant and sensitive location. Not only is this the meeting point of the two principle tributaries of the upper

Rhine – and therefore of preeminent natural and strategic importance, but the surroundings also include notable existing bridges by Christian Menn, Max Bill and Mirko Roš, and used to include innovative timber bridges by the Grubenmann brothers.

In the 1960s, a new highway (A13) was built alongside the Rhine encroaching on the existing