

Foot and Cycle Bridges Biberbrugg – Chaltenboden

Location:	Biberbrugg, Switzerland
Client:	Kanton Schwyz
Team/architect:	In collaboration with ASECon, Aschwanden & Partner, and STOPROCENT Architekci
Year:	2021-2022
Engineering services:	Competition (bridge concept)
Bridge use:	Foot and cycle bridge
Bridge type:	Typical spans: precast prestressed box girder bridge Main span: steel box girder with composite deck and underslung cables
Technical data:	Bridge lengths of 186 m, 96 m, 216 m, and 132 m; typical spans of 20 m; main span of 70 m

Project Description

The aim of this design competition was to develop a technical solution for an over 1.1 km long path for bicycles and pedestrians running along the existing four-lane cantonal road between Biberbrugg and Chaltenboden. Due to a very difficult terrain containing steep slopes, existing retaining walls, gallery bridges, and the river, four bicycle/foot bridges had to be designed with lengths of 186 m, 96 m, 216 m, and 132 m. Taking into account very limited access to the site and, in general, very difficult site conditions, the design was developed aiming at employing modular systems and off-site prefabrication as much as possible. Consequently, all the bridges were designed with typical interior spans of 20 m and end spans of 18 m. The deck was designed with a single precast prestressed concrete box girder, in-situ concrete deck slab, and an in-situ monolithic connection between the girders and the piers. To avoid piers in the river, the main span had to be 70 m long. Therefore, this bridge was designed with two adjacent 20 m spans as a steel box girder with a composite concrete deck. The river span was designed with underslung cables strengthening the box girder and providing the required stiffness. The proposed solution is simple, elegant, and cost-effective.

