39th IABSE Symposium – *Engineering the Future*
September 21-23 2017, Vancouver, Canada

A tensioning-belt-cable-bridge above the Kaponiggraben in Austria – design and realization

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Abstract

Future-oriented infrastructure buildings not only fulfill their function, but also enter into a special symbiosis with the environment. From the user's point of view, these particular structures are harmoniously integrated into the respective location. This special attention in the design of infrastructure structures is characterized by the interaction of nature, ethics and aesthetics and is to be applied in the future as the NEA-principle for further engineering tasks. The projected ensemble with the brand name *THE BOND®* was submitted for the first time as an official approval project in Austria and is about to be realized. The high technological and aesthetic quality and identity of the ensemble with the location promises a high marketing value, which means that the bridge, which was originally designed as a purely engineering task, offers much more possibilities than just the connection of two places and is a trend-setting design for further tasks for engineers.

Keywords: *THE BOND®*; cable bridge; concrete; steel; aluminium; bubbles; bungee jumping.

1 General

The location of the planned rope construction is in the southernmost province of Austria, in Carinthia, on the border with the province of Salzburg. The proximity to the Grossglockner, Austria's highest mountain, and the city of Salzburg, which can be easily reached via the railway connection Mallnitz, should offer the visitor an experience of nature, sport and technology. In addition, the cable bridge with its 500 m span across the Kaponiggraben near the village Obervellach [Fig. 1] is situated within the existing European Alpe Adria Bicycle Route Salzburg-Grado (Italy) and European Alpe Adria Trail Heiligenblut (Grossglockner)-Triest (Italy). The bridge connects the old railroad track of the Tauernbahn, here developed as a bicycle and hiking trail, and the further cycle path network at the Pfaffenberg across the Kaponiggraben, which cuts more than 200 m below the level of the planned roadway.

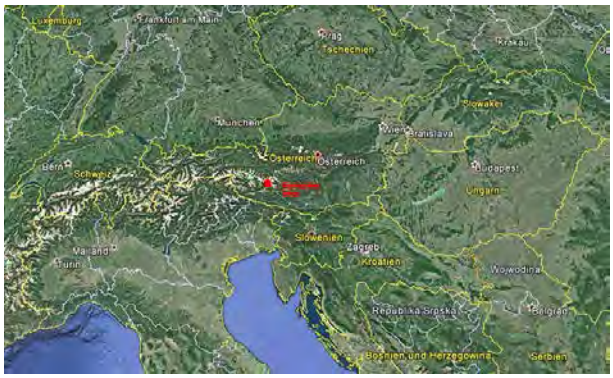

Fig. 1: Overview plan and location

Due to its special shape, the cable construction offers the possibility to make the bridge habitable and thus make it possible to experience it in several levels. The form and function of these parasites in combination with the rope

https://doi.org/10.2749/vancouver.2017.0261
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