

# Renovation Steinbach Bridge, Trubschachen

2015



The covered wooden bridge at the exit of Trubschachen leads over the Ilfis and provides access to the Steinbach and Buhus area. Although it does not have to carry a great deal of traffic, it does sometimes have to carry quite heavy vehicles.

## The project

The bridge, which is now a listed building, was once built for a load of 5 tons. An upgrade later allowed vehicles weighing 16 tons to cross the Ilfis. After the second refurbishment and the installation of a reinforcement yoke, the bridge could be used by vehicles of up to 34 tons. A structural inspection of the Steinbach Bridge Trubschachen showed that it was in poor condition and in urgent need of rehabilitation. The bridge deck and the underlying reinforcement yoke were rehabilitated and upgraded to the existing load limit of 34 tons. In order to interrupt the trafficability of the bridge for as short a time as possible, all work was carried out at night. Thanks to the innovative design, the new deck was self-supporting after rehabilitation. The lateral trusses now only serve as supports for the roof and characterize the visual image of the bridge.

## The construction

The reinforcement yoke now consists of two steel girders, four oak logs, each with a diameter of 420 mm, and four compression beams made of glulam. The roadway made of glulam beams rests on steel cross girders and bridges the span between the yoke. Air-flushed oak boards were bolted to the longitudinal beams as decking.

## The challenge

Due to the trapezoidal and insufficiently stabilized reinforcement, the bridge superstructure had moved considerably over the years as a result of being driven on by heavy vehicles and had partially lifted off the sandstone bases of the portal. During the rehabilitation, the yoke construction had to be retained due to the course of the Ilfis River. Additional transoms were used to stabilize the trapezoidal structure and to equalize the effects on the bridge superstructure. Due to the protection of historical monuments and the prospect of a new traffic solution, all rehabilitation measures were designed to be deconstructible.



New roadway with oak boards surrounded by air



View of the bridge after renovation



Connection of the oak logs and compression bars



Assembly new side member at night

### Construction Data

- Span wooden bridge 23 meters
- Width roadway 3.6 meters
- Year of construction 1860
- Glulam for compression beams and longitudinal roadway girders
- HEB 400 S355 and HEB 280 S235 for yoke and cross girder
- Oak logs and roadway decking

### Construction costs

- Repair costs 160,000 francs

### Services of Timbatec

- SIA Phase 11 Condition analysis
- SIA Phase 32 Construction project
- SIA Phase 41 Tendering and comparison of offers
- SIA Phase 51 Implementation project

### Timber construction engineer

Timbatec Holzbauingenieure Schweiz AG

### Owner

Municipality of Trubschachen  
3555 Trubschachen

### Timber construction contractor

Zimmerei Hirschi AG  
3556 Trub

### Building contractor support base

Schwitter Bau AG  
3555 Trubschachen