

## Bridge reinforcement with carbon concrete at Kleinsaubernitz



### SHORT DESCRIPTION

As part of a pilot project, Implenia reinforced a road bridge with carbon concrete.

### THE PROJECT

In the course of a research project by TU Dresden and LiSt GmbH, Implenia strengthened the bridge over the "Alte Fließ" in Kleinsaubernitz. The aim was to further test the composite material carbon concrete and thus increase the load-bearing capacity of the reinforced concrete bridge in order to use it as a possible alternative route for the A4.

### SERVICES IN DETAIL

Implenia removed the old concrete down to the load-bearing substrate. Damage to the cross-section then had to be repaired and strengthened. Then four layers of carbon scrim were applied overlapping and crosswise in conjunction with the associated fine concrete. The top layer received a decorative fine coat with a surface protection system. After the curing phase of 28 days, an extensive load test was carried out with two truck-mounted cranes, each weighing 45 tonnes.

## CHALLENGES

The water body below the bridge had to be protected from contamination. For this purpose, a platform was built in the riverbed. Furthermore, the working height was only 1.40 m, which made the work enormously difficult.

## SUSTAINABILITY

The load-bearing capacity of the bridge is enormously strengthened by the building material carbon concrete. Only four centimetres of sprayed mortar were applied. In combination with the carbon fibre, an increase in load-bearing capacity of more than 100 % was achieved. This saved costs and the bridge can remain in use for many years.

## FACTS

<b>Location</b>	Kleinsaubernitz , Germany
<b>Status</b>	Under construction
<b>Construction volume (value of our services)</b>	128,000 EUR
<b>Start of construction</b>	August 2020
<b>Completion</b>	September 2020
<b>Building owner</b>	LiST Gesellschaft für Verkehrswesen und ingenieurtechnische Dienstleistungen mbH, 09661 Hainichen
<b>General management</b>	Michael Beetz, Implenia Instandsetzung GmbH
<b>Planning</b>	Curbach Bösche Ingenieurpartner Beratende Ingenieure PartG mbB, 01069 Dresden

## SERVICES

Restoration

Civil engineering

Road transport infrastructure

Structural engineering

Infrastructure



<https://implenia.com/en/references/detail/ref/brueckenverstaerkung-mit-carbonbeton-in-kleinsaubernitz/>

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