



## Brunnen, section 2 Arth-Goldau

### Refurbishment of A4 motorway Küssnacht

#### Data and facts

Company	PORR SUISSE AG in consortium
Type	Bridge construction
Runtime	03.2017 - 08.2019
Principal	Swiss Federal Roads Office (ASTRA)

[Project report online](#)

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# Bridge refurbishment in record time.

Within three years, the project was realised in three construction phases, divided into several phases:

- The three bridges Boli, Mettlen and Linden (335m, 140m and 540m) were comprehensively refurbished. The renovation included:
  - Separation and new construction of approx. 4,000 m bracket heads in in-situ concrete
  - partial replacement of the expansion joints
  - Exchange of the bridge bearings
  - Repair of the longitudinal beams and hammer heads

In addition, CFRP lamellas and shear reinforcements were installed in the first bridge bay each. The bridge covers were replaced over the entire surface by ultra-high performance fibre-reinforced concrete (UHFB). As a result, weather-dependent work steps such as epoxy sealing and PBD sealing sheets were no longer necessary and the construction time was significantly reduced.

- The two smaller bridges Harmettlen and Rigiaa (115m and 60m) were renovated according to the static requirements:
  - Repair of reinforced concrete
  - Mount new bracket heads and
  - Paving a noise-reducing surface course on the carriageways
- The Engiberg and Schöneegg tunnels (200m and 290m) had to be refurbished over their entire surface due to damage in the portal areas. The two control centres were extended.
- The two overpasses Rigibahn and Gotthardstrasse were repaired. Where necessary, the column heads of bridge piers were reinforced.
- In the individual sections of the route, the cable blocks were supplemented and the drainage system refurbished. Finally, the binder and surface courses and the restraint systems were renewed in the entire roadway section.



# Impressions



## Image notes

1

**Twin bridge challenge.**

The 540m long twin bridges Linden have a distance of only 10cm. The 4,000m bracket heads were replaced in 17 weeks.

3

**New construction material for bridge refurbishment**

The local concrete plant supplied the UHPFRC (ultra-high performance fibre reinforced concrete) for the mechanised installation.

2

**New cantilever at a dizzy height.**

4,000m cantilevers were replaced. The control systems and plant management blocks were also replaced.

Do you have questions about the project or would you like to learn more? Feel free to contact us for further information.

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