

Report

Completion of construction site N02, EP Amsteg - Göschenen, Main works

PORR SUISSE AG has formed a joint venture with Implenia Schweiz AG and Cellere AG. On behalf of the Federal Roads Office FEDRO, the three companies carried out the main work on the N02 EP Amsteg - Göschenen project from 7 February 2022 to 24 November 2023.

As part of this project, the motorway section from Amsteg to Göschenen (stretch of approx. 15 km) was renovated. New cross-passages were created in the seven tunnels (safety connections between the existing tunnel tubes) by means of drilling and blasting work. Concrete repairs were carried out in the tunnels and the surface protection was replaced. The entire crash barrier system, including gates and crossing, was also replaced along the entire route. The surface of the girders and the top layer was replaced over the entire 15 km and the carriageway transitions (mini fly-over ramps) and bridge bearings were partially replaced on the 19 bridges. Where necessary, the mastic asphalt surface course was also replaced. In some cases, the abutments were strengthened with additional anchors.

In the five galleries, concrete refurbishment work, the refurbishment and strengthening of the anchor heads and, in some cases, support reinforcements were carried out. On the nine retaining walls, the existing anchor heads were renovated, some new anchors and concrete anchor heads were installed and the necessary concrete repairs were carried out.

The project work took place from Monday to Thursday. Due to increased traffic, all carriageways had to be cleared and opened to traffic at 22:00 on Thursday.

Platti Tunnel cross-connection Parament formwork in the main FBSU tunnel

One of five new cross-connections:

- Securing vault slabs FBNO (passing lane) and FBSU
- Demolition of parament slab FBSU
- Installation of anchors to secure in-situ concrete vault
- Demolition of in-situ concrete parament and local demolition of in-situ concrete vault
- Cut-offs in the SPV, cut-off length max. $L = 1.5$ m
- Installation of friction tube anchor, $L = 3$ m
- Installation of shotcrete immediate stabilisation, $d = 5$ cm
- Installation of shotcrete, $d = 10$ cm incl. K188 reinforcement mesh
- Excavation of base depressions for QV drainage and embankment in the area of the QV
- Sealing system: 20 mm drainage mat, 2 mm PVC sealing film, protective film
- Floor slab with kicker is constructed in advance, vault concrete and parament concrete are concreted together in one stage NPK G, reinforced.
- Each cross-passage was executed in two stages, first half FBSU 2022, second half FBNO 2023

Anchor head repair Ripplistal Gallery (141 units)

- Repair of the anchor head
- Cleaning of anchor plates, protective cap, anchor head and tension member projection
- Installation and filling of protective cap with cement mixture or corrosion protection compound
- Concreting in anchor heads incl. anchor plates and protective caps across all galleries

Höll retaining wall anchor heads and strand anchors

- Creation of 41 new anchor heads for permanently tensioned grouted anchors with free anchor lengths
- Drilling was carried out with three drilling rigs on heavy-duty scaffolding

Main quantities of track

- Demolition of pavement approx. 275,000 m²
- Binder course approx. 46,700 tonnes
- MR surface course approx. 4,850 tonnes
- SDA surface course approx. 20,250 t
- SAMI approx. 57,000 m²
- Demolition of vehicle restraint systems approx. 31,500 m
- New vehicle restraint systems incl. transitions approx. 32,000 m
- Impact absorbers 3 pcs
- Strip foundations approx. 3,400 m
- Drainage pipes approx. 350 m
- Set of BSA manholes approx. 30 pieces
- Set of drainage manholes approx. 80 pieces
- Definitive markings approx. 120,000 m

Facts and Figures

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| Company: | PORR SUISSE AG in consortium with Implenia Schweiz AG and Cellere AG |
| Principal: | Federal Roads Office FEDRO |
| Location:: | Amsteg - Göschenen UR - Switzerland |
| Type: | Structural engineering |
| Runtime: | 02.2022 - 11.2023 |

Photos:



Figure 1: Cross connection Platti Tunnel parament formwork in the main tunnel FBSU



Figure 2: Anchor head renovation Ripplistahl gallery (141 units)



Figure 3: Höll retaining wall
Anchor heads and strand anchors