



Tunnel Ligerz, Lot 2 (CH) Waterproofing

Country	Switzerland
Type	Motorway, Highway
Client	SBB
Main Contractor	JV Implenia, Bernasconi, De Luca
Execution of the work	Renesco AG
Designer	Gruner AG, Gähler und Partner
Construction Period	2026-2027

Project Description

The project comprises the construction of the 2.1 km long twin-track tunnel in Ligerz. The project will be carried out using the mining method (drill & blast) for around 1,850 m and by the cut-and-cover method for around 250 m - including cast-in-place concrete lining and installation of technical equipment. In addition, four emergency exits will be constructed, a 114m long viaduct for the N5 highway exit and various additional structures (e.g. technical rooms, ventilation gallery, operation center, civil protection bunker). The motorway tunnel runs partly parallel to the escape tunnel and the railway tunnels connected via cross-passages.

The construction of the new tunnel is characterized by limited space, poor geotechnical conditions and numerous environmental constraints (e.g. measures against vibrations/noise, existence of a water spring) and protected zones, like important archaeological areas (UNESCO heritage).

The standard cross-section is designed to include a double-lining structure with a waterproof membrane and drainage with a separation system. Depending on the excavation class, bolts, wire mesh and sprayed concrete or a (closed) steel structure will be installed to prevent collapse. The thickness of the inner lining is 40 cm.

Scope of Service

Supply & Install of the waterproofing system according to SIA 272 (Swiss standard) for the mined section. Umbrella seal with separated drainage. In detail:

- 2 mm thick sheet membrane based on PVC-P
- Protection & drainage geocomposite (drainage capacity, plane at 200kN/m² and gradient $i = 1.0:m/2/s \ 10 \times 10^{-4}$) and a geotextile based on polypropylene (PP) with a weight of 1'000 g/m².
- 2 mm thick protection sheet membrane
- Water barriers 400/30/6
- BA anchors
- Plastic Drainage Profile
- Terminations
- Penetrations



1. Tunnel portal section with waterproofing membrane
2. Fully-automatically application gantry for the membrane
3. Tunnel (mined) section with waterproofing membrane