



RENEWAL TUNNEL CROCETTO & GIUSTIZIA, 4 METER CORRIDOR BIASCA (CH)

EMPLOYER

Swiss Federal Railway Company, SBB, CH-6002
Lucerne

DESIGNER

F. Preisig AG, CH-8050 Zurich

TIME OF COMPLETION

05.2014 – 12.2016

CONTRACT SUM

CHF 15.3 Mio.

EXECUTION OF THE WORK

ARGE C.G.T. Osogna

CONSORTIUM PARTNERS

Marti Tunnel AG, CH-3302 Moosseedorf
Mancini & Marti SA, CH-6500 Bellinzona
Marti Bauunternehmung AG, CH-6005 Lucerne

LEAD COMPANY – TECHNICAL AND COMMERCIAL LEAD

Mancini & Marti SA, CH-6500 Bellinzona

RENEWAL TUNNEL CROCETTO & GIUSTIZIA, 4 METER CORRIDOR BIASCA (CH)

SCOPE OF THE WORKS

The Crocetto (275 m) and Giustizia (64 m) tunnels are located between Biasca and Osogna-Cresciano in the Canton of Ticino (CH). The two-track tunnels were commissioned in 1874, together with the opening of the Gotthard pass tunnel, and have been renovated and refurbished several times.

In regards of the 4-Meter-Corridor project, the tunnels will be expanded to a larger clearance profile and the old structure will be upgraded according to the concept of "Tunnel maintenance II" for a useful life of 50 years.

The establishment of the profile clearance is implemented by means of a track sinking and profile sawing in the vault and masonry demolitions. As a result of the lowering of the track, the abutments must be undertaken continuously. The renovation measures are carried out by rehabilitating the masonry joints, specific drainage measures and sprayed concrete sealing lining.

ACTIVITIES

The two-track railway tunnels Crocetto and Giustizia were upgraded under running railway operation. The railway tunnels are crossed daily by up to 180 passengers and freight trains, which requires a 100% availability of the railway track.

Vault renovation from rehabilitation train:

- Vault cleaning with HDWE	2'000 m ²
- Vault sawing	500 m ²
- Joint repair	500 m ²
- Sprayed concrete waterproofing	2'000 m ²
- Arch drainage	500 m

Invert sinking down to 1.3 m depth in rock and loose material from the site trail:

- Nail wall	700 m ²
- Diamond bladesawing	200 m ²
- Invert sinking by blasting (under running train operation)	3'500 m ³
- Sole lowering in loose material	3500 m ³
- Tunnel drainage	1'600 m
- Substructure PSS	2'000 to
- Subbase coating	1'100 to
- Cable channels	1'600 m

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Abutment undertaking of the tunnel vault in 340 stages as well as performance of the edge walls in the pre-cuts.

- Arch support by means of rock bolts and longarines	700 m
- Injections 250 to	
- Abutment undertaking in the "pilgrim" step method	3'000 m ³
- Rehabilitation of the edge walls	350 m ²

Niche:

- Escape niches	13 units
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GEOLOGY

- Gneiss
- Granite
- Soft ground



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Marti Tunnel AG

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