

Riazzino (TI): Renewal of the SBB subway

Client

SBB Region South and Civil Engineering
Office of the Canton of Ticino

Consultant

IM Maggia Engineering Ltd

Period

2007–2009

Construction costs

CHF 7 Mio.

Scope of services

- Preliminary project
- Construction project
- Tender
- Implementation project
- Construction supervision

Description

The existing SBB subway had a height that did not comply with current guidelines and could not be used by large lorries, its use was dangerous for cyclists and pedestrians due to its narrow width, and when the groundwater level rose as a result of heavy rainfall, the subway became submerged and impassable. The new subway features a road culvert with a standard-compliant clearance gauge and a separated culvert for cyclists, pedestrians and service vehicles. The ceiling is designed for the planned extension of the railway line to double track and a ramp provides access to the new Riazzino stop of the SBB. The watertight troughs adjoining the structure on both sides guarantee the safety of the structure in case of high groundwater levels.

The construction work was carried out in stages while maintaining road and rail traffic, for which an auxiliary bridge was used. The excavation pit lying in the groundwater was closed off with sheet pile walls and jet grouting columns. Filter wells were used for dewatering, sealing and stabilisation work was carried out with cement injections, and the securing work was carried out with prestressing anchors.

Main Data

Waterproof tub:

- L = 135.40 m
- B = 8–18 m
- T = 3.20 m

Road culvert:

- W = 8.00 m
- H = 4.60 m

Bicycle/pedestrian culvert:

- W = 7.00 m
- H = 2.40 m

