B 10-Rosensteintunnel, Stuttgart (DE)
Sealing Grouting Works

Country	Germany
Type	Road tunnel
Client	Landeshauptstadt Stuttgart, Tiefbauamt
Main Contractor	ARGE Marti Tunnel Rosenstein
Designer/Site Supervision	WBI Prof. Dr.-Ing. W. Wittke
Execution of the work	Renesco GmbH, Dept. Marti Geotechnik
Construction Period	June 2015 – August 2018
Contract Sum	3.700.000 €

Renesco Group, Seedorffeldstrasse 21, CH-3302 Moosseedorf, Phone: +41 (0)31 388 74 20
info@renesco.com, www.renesco.com

Project Description

The B10 Rosenstein Tunnel is a two-tube road tunnel in Stuttgart with a total length of about 1’300 meters passing the “Rosensteinpark” and parts of the “Zoological-Botanical Garden Wilhelma”. The Tunnel is executed of about 750 meters using conventional methods (shotcrete with cast in place concrete lining) and in both portal areas in open constructions pits. Due to the location within the mineral water conservation area a temporary dewatering of the groundwater was not permitted. In consequence, advanced sealing works by grouting/injection of the tunnel face and open pits were designed in areas of existing groundwater.

Injection/Grouting Works

Two aquifers were sealed by curtain injections inside the tunnel. The specialized drilling operation and grouting works were executed from the calotte to allow a dry bench and invert excavation. Eight grouting/injection fans were used to avoid longitudinal flow. Spot-wise inflow of water were also injected with 2K polyurethane. The open pits in front of the portal located inside “Neckar Gravel” were grouted by sleeve pipes.

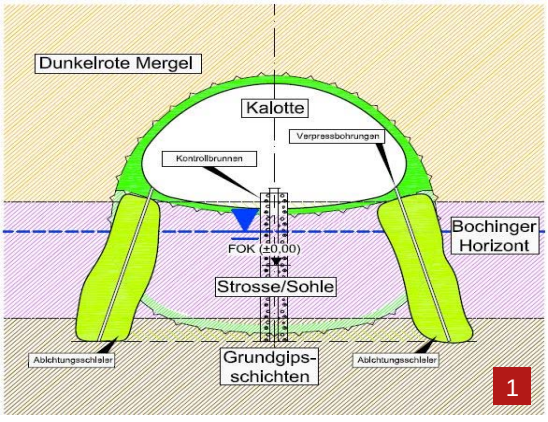
Scope of Services

Mining Tunnel

- 75 exploration holes
- Cementitious Grouting
  - 1350 holes (total 8’750 m)
  - 390m³ grouted in 3’175 operations
- PU Injection of 20to over 1’900 packers

Open Pits

- 25 exploratory drillings
- 510 holes (total 6’000m)
- 640m³ grouted in 11’750 operations



1. Injection/Grouting Concept in the tunnel
2. Grouting unit in the tunnel
3. Drilling in the portal area
4. Grouting System for the Excavation