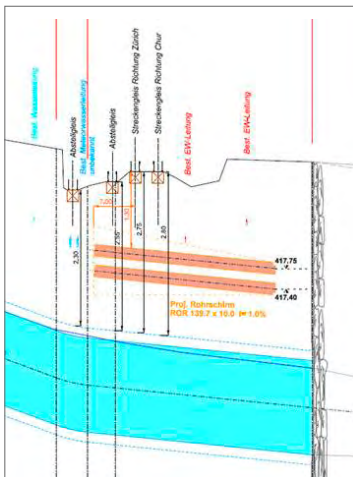


Railway Crossing requiring pipe roof for safe Microtunneling



The three Microtunneling drives executed were key elements of a stormwater discharge system to protect the residential area of the small town of Reichenburg. Both the highly frequented Railway mainline Zurich – Chur and the Highway Zurich – Chur (2 pipes) had to be crossed. The hydraulic design of the whole discharge system resulted in very low overburden for both crossings. This was further complicated by the difficult ground layers to be drilled through (turf and clayey silt) which had to be considered as non-self-supporting/ non-arching and settlement sensitive. For that reason the system-relevant Railway line and Highway were decided to be protected by a pipe roof installed in advance of the jacking operation. The pipe roof consisted of two layers of steel pipes that were grouted with cement mortar. To monitor the settlement sensitive railway tracks an automated surveying device was installed which systematically monitored the settlement of the tracks and the dam at several dozens of



survey marks, in combination with an automated alert system in case the tolerances were exceeded. The available ground north of the railway implemented a curved alignment with the radius of only 160 m. All three drives could be executed by not exceeding of the settlement tolerances and therefore with no interruption of the traffic flow.

AT A GLANCE

Project name	Hogglibach Stormwater Discharge
Project location	Reichenburg, Canton of Schwyz, Switzerland
Purpose	Flood Channel
Time of completion	2013
Specialties	<ul style="list-style-type: none"> – Crossing of Railway main-line and Highway in use – Curved alignment – Small overburden
Total length	2x30 m DN 1200 and 90 m DN 1600 (all in soft and saturated soil)
Pipe ID	1600 mm and 1200 mm
Alignment	Straight (DN 1200)/3-D curve
Min. curve radius	160 m
Pipe material	GRP (DN 1200) and RC (DN 1800)
Pipe length	3 m
Min. overburden below Highway	2,0 m
Min. overburden below railway	2,8 m
Geology & groundwater	Turf, clayey silt, below ground water table
Hydraulic Joint	JC250/ single loop. (DN 1600; DN 1200 no Hydr. Joint).
Guidance system	VMT SLS Microtunneling LT
TBM	Herrenknecht AVND1200
Owner	Gemeinde Reichenburg, Kanzleiweg, 8864 Reichenburg, Switzerland
Consultant/Designer	Jackcontrol AG, Glarus/ Switzerland
Contractor	Implenia AG, Switzerland

Jackcontrol AG

Buchholzstrasse 50 | 8750 Glarus | Switzerland
 Phone +41 (0)55 650 20 20 | Fax +41 (0)55 650 20 30
 info@jackcontrol.com | www.jackcontrol.com