

PROJECT

## A9 TURTMANN CUT AND COVER TUNNEL ANCHORED JET GROUTING SLAB



### PROJECT NAME

A9 Rhone Highway Section Siders - Gampel  
Lot 5523 cut and cover section of Turtmann

### CLIENT

Department for Infrastructures and Environment of Canton Wallis

### ENGINEER

Gruner AG, Basel

### GENERAL CONTRACTOR

Consortium GEBAT Ledit + Frutiger

### SPECIALIST CONTRACTOR

Consortium **RODIO** Geotechnik AG  
BAUER AG Schweiz

### CONTRACT VALUE

EURO 17,3 Mio CHF 22,5 Mio

### BEGINNING OF WORKS

September 2007

### END OF WORKS

December 2011

### ■ JOB DESCRIPTION

Scope of work is the realisation of an anchored jet grouting slab. The goal of the slab is the reduction of the possible deformations and horizontal movement that could occur at the toe of the sheet pile walls during excavation. The scope of the GEWI bar anchors  $\varnothing$  63,5 mm is the reduction of the possible upheaval of the jet grouting slab during the excavation. The average thickness of the slab is 3,50 m. The slab has, for static reasons a slightly curved form. In order to avoid the problem of possible shadow zones against the sheet pile it has been decided to install one smaller ( $\varnothing$ 1,70 m) column into each sheet-pile niche. For all other slab columns a projected diameter of 2,40 m has been chosen. The bigger slab columns have been realised using the so called duplex system RODINJET 2®. This system consists in cutting and mixing the soil by means of a high pressure cement grout jet, surrounded by a crown of compressed air. The border column the triplex system RODINJET 3 was chosen. In the central part of the slab the jet grouting columns were so disposed to leave some windows of untreated soil while in the terminal parts a narrower grid was chosen in order to obtain a closed structure.

### ■ WORK QUANTITIES

Total volume of Jet Grouting Slab approx: 39.500 m<sup>3</sup>.

1.500 Border Columns  $\varnothing$  1,70 m and 7.080 Centre Columns  $\varnothing$  2,40 m

1.285 pcs of Micropiles Type GEWI BSt 500,  $\varnothing$  63,5 mm L = 14 m



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# Vertical Jet Grouting



PROJECT

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### ■ MAIN EQUIPMENT

1 Drill Rig Type SM21

1 Drill Rig Type Bauer IB 18

2 Full automatic mixing plant SCW MAT

2 HDI-Pumps Type Metax MP7 and Soilmec 7T 800

Full automatic recording of drilling and jet grouting parameters by means of LT3 LUTZ System



Drill rigs at work for the execution of the jet grouting slab



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Vertical  
Jet Grouting