

## Ski Follo Line Railway and Train Station

Oslo, Norway

The Follo Line project is the largest infrastructure project in Norway. It includes 22 km of new high speed railway from Oslo to Ski.



### The project

The main part of the project consists of a 20 km long tunnel representing the longest railway tunnel in Norway. On the project in SKI, Keller has performed Steel core piles in various dimensions, grouting works, the installation of permanent and temporary strand anchors as well as rock bolts in steel and fibre glass.

## The challenge

The tight time schedule for the drilling works in combination with the difficult soil and the big differences in the bed rock level were the main challenges at site. The soil in the area mainly consisted of clay. In some parts the clay was soft, but in other parts the clay was medium stiff and low to medium sensitivity. Above the clay there was a layer of dry crust and fill that mostly varied between 1 and 5m in thickness. Beneath the clay there was a moraine layer with a thickness that varied between 1 and 3m. Due to changing soil conditions at site Keller used its Double head drilling system to install the anchors. This technique allows the retrieval of the casing after the anchor is installed in a safe way, which has a positive impact on the environmental footprint of the works.

## The solution

With its large foundation portfolio, Keller assisted the client with several different technologies. Keller installed around 20,000m of permanent anchors for retaining walls with up to 15 strands for permanent use of up to 100 years. Keller executed this project with up to two rigs simultaneously using several in-house drilling techniques. Keller also provided a large machine park, consisting of more than 130 drilling machines which created flexibility and security for the client.

## Project facts

### Owner(s)

Bane NOR

### Keller business unit(s)

Keller Grundläggning AB  
Keller Grundbau

### Main contractor(s)

OHL -Obrascon Huarte Lain SA - Spain  
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### Solutions

Excavation support

### Markets

Infrastructure

### Techniques

Ground anchors

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