

## Excavation pit, Follo Line

Oslo, Norway

The Follo Line project is currently the largest infrastructure project in Norway. Here, Keller installed around 8000m of temporary anchors for retaining walls with up to 10 strands to support an excavation of 12m.



### The project

The Follobanen project includes 22 km of new railway from Oslo to Ski. The main part of the anchoring works was to support the excavation pit from the Portal to the Cut and Cover tunneling into Oslo S.

## The challenge

There were multiple stages of excavation with parallel activities - Jet grouting, micropiles and anchors - going on. Also there was a lack of space due to the rural surrounding area with active roads and railway traffic. Another issue was drilling under existing active double track railway bridge in sensitive clay and quick clay.

## The solution

With its large foundation portfolio, Keller has been able to assist the client with several different technologies when adjustments have become necessary. This eliminated eventual time loss for the client. Due to the difficult soil conditions, many different types of machinery and drilling techniques were used to ensure the stabilisation of the sheet piled wall. A combination of strand anchors and hydraulic props were used to minimize the movements and settlements of the tracks and nearby structures. Online monitoring of the anchors with inclinometers and load cells helped to track their performance.

## Project facts

### Owner(s)

Bane NOR

### Keller business unit(s)

Keller Grundbau

### Main contractor(s)

Bane NOR

Project manager Anne Marie Syvertsen  
Anne.Marie.Syvertsen@banenor.no

### Solutions

Excavation support

### Markets

Infrastructure

### Techniques

Ground anchors

### Email address

[info.no@keller.com](mailto:info.no@keller.com)

### Phone number

+47 239 67120