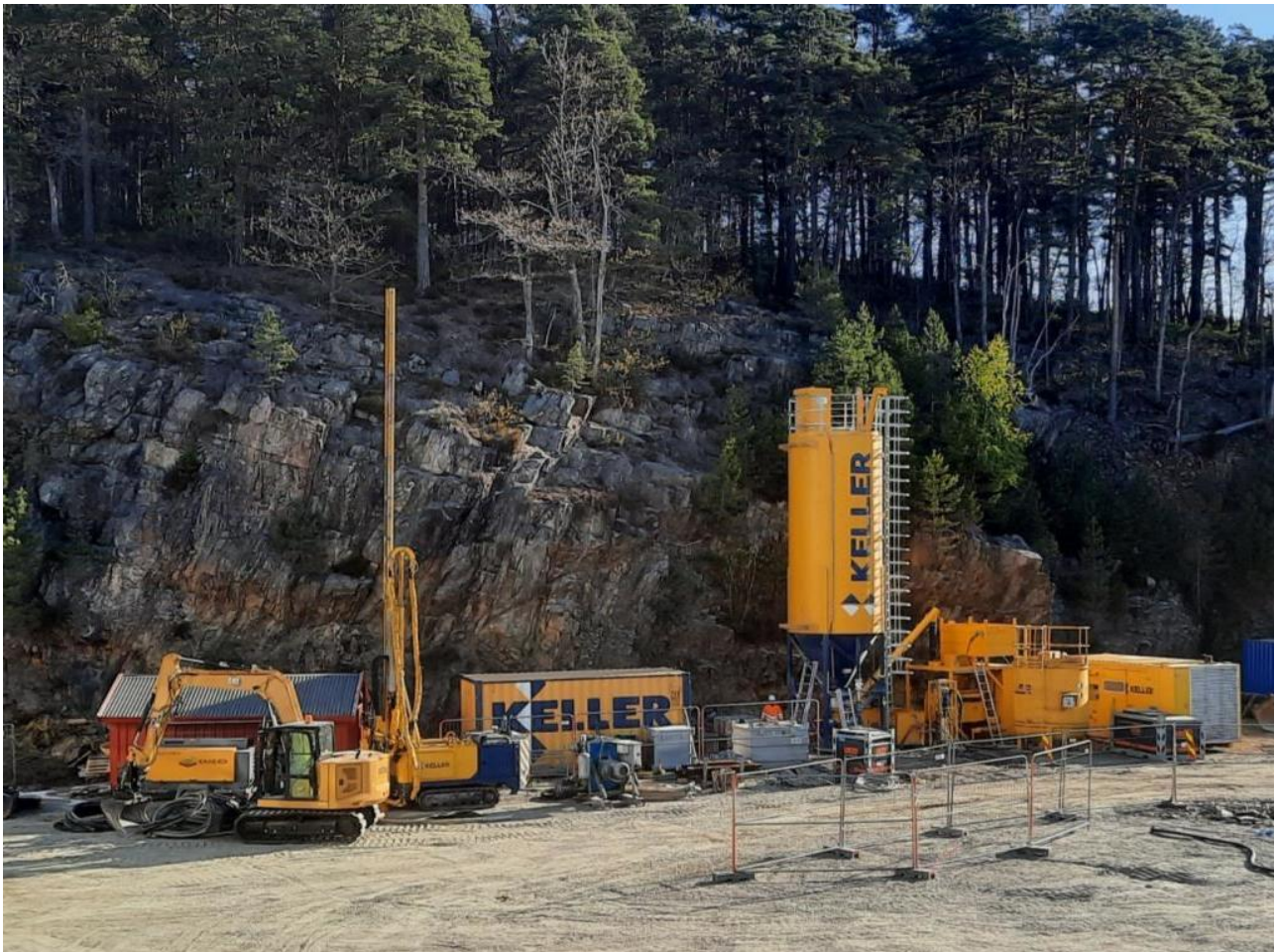


## Sørlandstunet BT1-BT2 Piren

Kristiansand, Norway

651 Compaction Grouting columns, 50 Ground Anchors and 107 Jet Grouting columns installed in blasted rock. Foundation and retaining structure for the construction pit of the extension of the Sørlandstunet shopping centre.



### The project

Keller was awarded to execute Jet Grouting and Soil Nails for the extension of the Sørlandstunet shopping centre in Kristiansand. During the execution it turned out that Jet Grouting is not suitable for the predominant sprengstein (backfilling with blasted rock). In cooperation with client and designer Keller suggested Compaction Grouting columns as a flexible alternative solution.

## The challenge

- Very abrasive blasted rock with no fine grain sizes and high ground water flow.
- Large cavities resulting in significant over consumption of grout and concrete.
- Tight schedule due to change of products and redesign of the project.
- Fully operational shopping centre nearby, accessible for deliveries only via the construction site.

## The solution

- Quick change of product possible due to wide range of Keller inhouse product portfolio.
- Usage of AUV-concrete for underwater concreting.
- Flexible drill rig with double rotary head system do find the best drilling method for the ground conditions.

## Project facts

### Owner(s)

God Driv AS

### Keller business unit(s)

Keller Geoteknikk  
Keller Grundbau  
Keller Grundläggning

### Main contractor(s)

BRG Entreprenør AS

### Engineer(s)

Main contractor's Project Manager:  
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### Solutions

Heavy foundations

### Markets

Commercial

### Techniques

Jet grouting  
Compaction grouting  
Ground anchors

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