E-18 Grava

Porsgrunn, Norway

Execution of two Jet Grouting blocks with low deviation tolerance and 5.0 MPa UCS strength consisting of more than 300pcs Ø200 cm columns until the bedrock. Optimized design with collaboration with Eiffage Génie Civil, delivery of the scope ahead of time despite bad weather conditions and rapid bedrock level changes.

The project

On behalf of Nye Veier, Eiffage Génie Civil has been the main contractor of all the works on E-18 Rugtvedt-Langangen highway in Telemark and hired Keller as a subcontractor for the ground stabilization works in order to treat the affected areas for the double tunnel planned in the Grava area due to low or none bedrock coverage above the tunnels.

The challenge

- Tight time schedule, during wintertime. Residents very close to the site.
- High UCS strength, up to 24.5m drilling length, bedrock connection
- Minimizing the quantities of backflow going to landfill and at condensed form, recycling of water due to lack of infrastructure in the area.

The solution

Before the main works, Keller performed ACI ® test columns combined with triple-core investigation drillings to verify the results. These tests allowed to optimize the execution parameters assuring high productivity and minimal costs for the client while achieving required design strength and diameter of columns. Furthermore, each point's deviation was measured and with implementation of Keller Database Manager (KSDM) produced a detailed 3D Model at any time of execution. This proved to be critical for the success of the project, since it allowed the site team of Keller and Eiffage to mitigate potential risks and optimize the design.

Project facts

Owner(s)
Nye Veier AS

Keller business unit(s)
Keller Geoteknikk AS
Keller Grundbau

Main contractor(s)
Eiffage Génie Civil

Engineer(s)
Tunnel Manager, Main contractor:
Arnaud Michon
Arnaud.MICHON@eiffage.com

Solutions
Tunnelling

Markets
Infrastructure

Techniques
Jet grouting

Email address
info.no@keller.com

Phone number
+47 239 67120