



Vaðlaheiðargöng/ Vadlaheidi (IS) Water & Frost Protection

Country	Iceland
Type	Road tunnel
Client	Vaðlaheiðargöng hf (Icelandic Road Administration)
Main Contractor	Ósafn sf. (JV between ÍAV and Marti Contractor)
Execution of the work	Renesco a.s.
Designer	Mannvit, Verkís
Construction Period	2017-2018

Project Description

Vaðlaheiðargöng (Vaðlaheidi) is a two-way road tunnel in the north of Iceland along Route 1, east of Akureyri. It is 7.4km long and replaces a section of 21km of Route 1. The project includes also 6 technical/ safety niches, two portals (84 & 224m) and road works of 11.3km.

Underground excavation, rock support and grouting work:

- Excavation with drill & blast with excavator
- Pipe umbrella (locally)
- Systematic probe drilling and pre-grouting
- Rock support via shotcrete (15'000m³) and systematic rock bolts (28'500 pcs)
- Additional rock support via spilling bolts and reinforced shotcrete arches

Geology

- Basalt with intersections of sedimentary layers
- Extreme difficult environment
- High water inflow (up to 480 l/s and 10bar) with cold and geothermal hot water up to 68°C (100% air humidity, foggy environment)

Scope of Service

Installation of a Water & Frost Protection System according to Norwegian tunnel standards.

- Partial insulation with 45mm Polyethylene Foam sheet
- Full profile insulation with 1.5mm Linear Low Density Polyethylene Membrane (LLDPE)
- Installation/ Drilling of around 50,000 anchors/ anchor bolts
- Grouting Works with cementitious and chemically resins (223 tons)



1. Installation of LLDPE Sheet Membrane
2. Anchors/ Rock Bolt Setting
3. PE-foam application