

Sebastian Hortberg

Geomechanical Engineer

Expertise

Rock mechanics, Civil Engineering

Education

M.Sc. Civil Engineering (Rock Mechanics), 2014
Luleå University of Technology, Luleå, Sweden.

Professional Experience

2016 – Present

Itasca Consultants AB, Luleå Sweden
Geomechanical Engineer, Consultant

2014 –2016

Tyréns AB, Gothenburg, Sweden
Rock Mechanics Engineer

2013

NCC, Kiruna, Sweden
Summer internship. Foreman at the construction of a new school

2012

NCC, Kiruna, Sweden.
Summer internship. Foreman

Project Experience

Infrastructure (Tunneling):

Three-dimensional analysis for an underground treatment plant (Kattås treatment plant, Norway). Analysis comprise verification of rock reinforcement, evaluation of response with regards to excavation sequence and influence from nearby infrastructure.

Three-dimensional discontinuum analysis of the Slussen Bus Terminal in Stockholm. The purpose of the analysis was to verify the performance of constructed rock pillars, with installed rock bolts and lining.

Three-dimensional continuum analysis of a new (future) complex tunnel intersection at Västlänken near existing underground facilities and low rock coverage. Models comprised a detailed, round-by-round excavation sequence with accompanied reinforcement in *FLAC3D*.

Three-dimensional discontinuum analysis of a new (future) complex tunnel intersection at Västlänken near existing underground facilities and low rock coverage. Models comprised a detailed, round-by-round excavation sequence with accompanied reinforcement in *3DEC*.

Three-dimensional continuum and assessment of existing underground facilities with the establishment of a nearby underground train station in Stockholm.

Three-dimensional continuum analysis of the planned building construction above the pre-existing tunnel. The purpose of this analysis was to evaluate the influence of the construction on the existing tunnel.

Rock mechanical modeling support (*FLAC3D*) in a project on the Stockholm subway extension involving unfavorable rock conditions.

Two-dimensional continuum analysis (using *FLAC*) for the new metro line Akalla-Barkaby, including technical document authoring (design reports) for the tunnel construction.

Three-dimensional analysis (using *FLAC3D*) for the new metro line Akalla-Barkaby, including technical document authoring (design reports) for the tunnel construction.

Geometry setup for three-dimensional continuum analysis of a planned residential housing project in Stockholm. The houses will be constructed above an existing tunnel. The analysis aimed to verify that no damage or deformations would occur in the tunnel during and after construction.

Updated geometry for Follobanen in Norway. The Follobanen-project is one of the largest infrastructure projects in the history of Norway. The project contained a complex geometry with several tunnel intersections. A blast-induced zone beneath the tunnels was added.

Design of the preliminary reinforcements for the Varbergstunneln project.

Rock Mechanics Engineer, in the case study for Tvärförbindelsen Södertörn project.

Mining:

Geotechnical characterization and design recommendations for large-scale stoping at the Björkdal mine.

Three-dimensional analysis (using *FLAC3D*) of the LKAB Kiirunavaara mine (sublevel caving) to evaluate ground deformations in Kiruna.

Three-dimensional discontinuum analysis of the Malmberget (sublevel caving) mine, to study the influence of shear zones in Malmberget on the resulting mining-induced ground deformations.

Alternative ramp access open pit and concrete plug in Kittilä Mine. Due to insufficient stability in the ramp walls and fallouts, a study regarding an alternative ramp solution was conducted.

Numerical analysis of stresses and deformations in ore passes in LKAB, Kiruna.

Preliminary slope stability in Gåsgruvan, Persberg. Setting up the framework for the slope stability analysis and an early stability assessment.

Feasibility study for Open Pit Mager. Master Thesis. The scope of the work was to determine if the mine would be profitable with the mining method In Pit Crushing and Conveying. The work included open pit design, planning, and economical evaluation.

Fieldwork:

On-site ground control engineer at Kaunis Iron. The work comprise assessment of bench performance and stability as well as on-site risk assessments.

Joint mapping at the site and control of the surveillance system, as a subcontractor to Norconsult. NCC was the main contractor and they excavated rock masses near an existing hydropower turbine. Field mapping and surveillance were performed by a team from Itasca Consultants AB and results were regularly reported to the client.

On-site ground control engineer at Björkdalsgruvan. The work comprise underground inspection, stability assessment, convergence monitoring, and reinforcement suggestions.

Slope stability analysis for Björkdalsgruvan.

Drift and mining room (open stope) stability analysis for Björkdalsgruvan

Rock mechanics core logging for Kaunis Iron open pit mine as part of updated design criteria for the open pit. Logging included *RQD*-, *RMR*-, and *Q*-characterization.

Rock mechanics core logging (*RQD*-, *RMR*-, and *Q*-characterization) and education for onsite staff for Mandalay resources in Skellefteå. Core logging was conducted for a new mining area and determination of the mining method.

Rock mechanics core logging (*RQD*- and *Q*-characterization) for LKAB. Core logging was a part of a study of hangingwall stability.

Rock mechanics core logging for Sigma Civil as part of site investigation for a new hotel. Logging included *RQD*- *RMR*, and *Q*-characterization.

Tunnel inspection, as a part of their maintenance work, for Telia Sonera. The work included an assessment of the overall tunnel stability and the shotcrete condition.

Inspection and tunnel stability assessment for Preem. The work consisted of stability assessment and scaling of an unreinforced tunnel to ensure safe working conditions for maintenance personnel.