

## Working title

A case study: back-calculation of shallow tunnel highly sensitive to surface settlements in urban environment

## Project objectives

Numerical study. The tunnel has been excavated with side drifts (Ulmenstollen). The focus of the work is on the prediction of the tunnel stability and surface settlements. Numerical analysis shall be performed of which settlements can be expected if a different excavation concept is chosen. The surrounding ground consists of sand. The influence of improving the ground prior to excavation shall be considered as well.

## Student has enthusiasm for

Enthusiasm for numerical geotechnics and interest in shallow tunnelling (NATM)

## Requirements on student

Successful completion of „Rock Mechnics and Tunnelling“ and "Numerical Methods in Rock Mechanics" courses

## Start (earliest / latest)

2024

## Project term (min. / max.)

6 – 12 months

## Coop. with external institution

Implenia

## Contact person

Thomas Marcher  
thomas.marcher@tugraz.at, +43 316 873 - 8614