Haus zum Falken, Zürich-Stadelhofen

Automatic and manual excavation and track monitoring

Zürich, Switzerland
Axa-Anlagestiftung, Zürich
2022 - 2025

The "Haus zum Falken" is being built right next to Zurich Stadelhofen railway station, which handles 80,000 passengers a day (construction cost of 40 million swiss francs). The five-storey office and commercial building designed by architect Santiago Calatrava houses, among other things, a bicycle station with 800 parking spaces. The cramped conditions and the immediate proximity to the railway and tram require complex construction processes, meticulous planning and extensive safety precautions.

For this reason, the immediate surroundings of this challenging construction pit were permanently monitored for deformations from the outset. In addition to automated, geodetic track monitoring, this also included monitoring the groundwater levels inside and outside the excavation pit as well as automated anchor force measurements. The buildings in the immediate vicinity and tram tracks are periodically monitored manually for deformations. Periodic inclinometer measurements in 8 boreholes to a depth of 21 metres around the excavation pit are used to monitor the deformations caused by the excavation.

Services

- Automatic monitoring of the SBB track and platform system, platform roof supports and the VBZ protection tunnel with total stations
- Automated monitoring of the excavation pit with total stations, load cells & piezometers
- Manual monitoring of the tram tracks, excavation pit and surrounding area with inclinometers and geod. Deformation measurements
- Visualisation on web portal including automatic alarms

Technologies

- 5 precision total stations with several hundred measuring points
- 3 piezometers with LoRa wireless modules
- Various anchor force measurements with LoRa wireless modules

TEDAMOS