# Zürich, ETH Gloriastrasse









## SHORT DESCRIPTION

For construction of the new research and laboratory building GLC in the university district in central Zurich, the existing Hydraulics, Hydrology and Glaciology (VAW) building and the Gloriabar on Gloriastrasse were dismantled. The planned excavation pit is located on a slope that drops away to the south. At its lowest point, the trench in the slope measures around 27 m. Owing to the very limited space between the planned excavation put and the VBZ railway line, a logistics platform is being built over Gloriastrasse before the excavation pit is dug from street level.

## THE PROJECT

At every point in the excavation pit, its base is in the bedrock. The thickness of the moraine layers and the artificial backfill above the bedrock layer vary considerably. There are also potentially slippery surfaces that run parallel to the rock layers. These must be stabilised during the excavation work.
The excavation pit is  braced with an anchored, contiguous pile wall with nine anchoring points. The bored piles are braced in the rock over a distance of 7 metres, with in-situ concrete infill in the region of the moraine layers and shotcrete infill in the underlying molasse. Diaphragm walls are positioned at a depth of 19 metres and a spacing of 7.15 metres. A panel created using the top-down method protects the bored piles from the surrounding subsoil and is mounted on the diaphragm walls. Further lowering of the excavation pit is then carried out using in-situ concrete wall panels, anchored

with three anchoring points.
In some areas, the excavation pit directly adjoins the existing Scherrer auditorium, a listed building belonging to ETH Zurich. The existing foundation is being reinforced using micropiles and underpinning concrete in small stages, and secured with anchors and nails. Some areas are also being provided with additional structures built using the top-down method.

## SERVICES IN DETAIL

- Excavation of the foundation pit: 80,000 $m^3$, including 30,000 $m^3$ in the bedrock
- Pile wall: 3,000 m bored piles DN800
- Anchors: 33,000 m pre-tensioned anchors, approx. 900 pcs
- Infill: 4,000 $m^2$ in-situ concrete, 700 $m^2$ shotcrete

## CHALLENGES

Very challenging situation in regard to the excavation pit surroundings. The work schedule is determined by the logistics.

## FACTS

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| **Location** | Gloriastrasse 35, Zürich , Switzerland |
| **Status** | completed |
| **Construction volume (value of our services)** | 16.45 M CHF |
| **Start of construction** | June 2015 |
| **Completion** | October 2017 |
| **Building owner** | ETH Zürich, IB Immobilien |
| **Contracting entity** | ETH Zürich, IB Immobilien |
| **General management** | Befair Partners AG |
| **Architect** | Boltshauser Architekten |
| **Project designer** | wlw Bauingenieure AG, Dr. Lüchinger + Meyer Bauing. AG |
| **Construction management** | ETH Zürich c/o Befair Partners AG |
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## SERVICES

Special Foundations

https://implenia.com/en/references/detail/ref/zurich-eth-gloriastrasse/

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