U5 Berlin









SHORT DESCRIPTION

Construction of 1.6-kilometre-long double-tube tunnel and shell construction of two stations in central Berlin

THE PROJECT

The U5 subway line connects the large residential area in the east of Berlin with Alexanderplatz in the city centre. The line is now being extended to Brandenburger Tor, where it will be connected to the existing U55 which leads to the main railway station. This is one of the largest transport infrastructure projects ever to take place in Berlin.

Implenia won the contract to construct the approximately two-kilometre-long section at the heart of the new transport link.

This includes the construction of a 1.7-kilometre double-tube tunnel and a track-switching system, as well as construction of the building shells for the two new subway stations at ‘Unter den Linden’ and ‘Museumsinsel’ in the city centre.

SERVICES IN DETAIL

- Both of the single-track tunnel tubes, each with a diameter of 6.7 metres, are being constructed using a shield tunnel boring machine. Here, the excavation pit for the future track-switching system at the eastern end of the route is being used as the starting shaft for shield tunnelling.
- The ‘Museumsinsel’ station is based on two shaft structures with tunnels in between, constructed using the mining technique under the protection of ground freezing.
- The interchange station ‘Unter den Linden’ is being built in several construction phases using the cut-and-cover method and diaphragm walls. In this region, the U5 passes beneath the existing U6 subway line, which will be provided with a new stop here and integrated into the new station.

CHALLENGES

The inner-city location at the heart of Berlin means that disruptions due to the construction work must be kept to a minimum. The high groundwater level in Berlin meant that all excavation pits with diaphragm walls had to be constructed with either an underwater concrete base or high-pressure injected base.

SUSTAINABILITY

The waterway was used to transport the excavated material away and bring the tunnelling machine to the site.

FURTHER INFORMATION

Creation of a ground freezing ring around the tunnelling area for the future Museumsinsel station, with a length of 105 metres, a width of approximately 25 metres, and a thickness of 2.5 metres.

FACTS

Location	Berlin , Germany
Status	completed
Construction volume (value of our services)	159 M EUR
Start of construction	January 2012
Completion	January 2019
Contracting entity	BVG Berliner Verkehrsbetriebe, Projektrealisierungs-gesellschaft U5
Project management	Implenia Construction GmbH
Concrete volume	105000 m^3
Reinforcement	12000 to
Length	1600 m
TBM Tunnelling	✓
Other tunnelling	✓
Overall length	1620 m
Tunnel length	1700 m
Cross-sectional area	35.26 m^2

SERVICES

- Tunnelling
- Transport tunnels
- Special Foundations
- Civil engineering
- Concrete construction
- Urban transport infrastructure
- Structural engineering
- Infrastructure
- Construction logistics