

"Neuer Markt" underground car park

14.05.2020 / Österreich / Anna Sophia Kopitar, Thomas Trinkl

Civil engineering/ Infrastructure



Factbox

Client: Neuer Markt Garagenerrichtungs- und Betriebs GmbH

Contractor: Wiener Betriebs- und Bau GmbH

Project Type: City centre civil engineering

Scope: Rerouting utilities for underground car park construction

Contract Volume: 3.7 million euros

Construction Start: 01/2019

Construction End: 12/2021

PORR's subsidiary WIBEBA was contracted to reroute seven utility providers as part of the project to build a new car park beneath Vienna's Neuer Markt.

The contract for the historically important construction site in central Vienna included rerouting pipelines for sewerage, district heating, gas, water, electricity, telecommunications and internet. Not all the utilities can be laid in their permanent locations until the underground car park is complete, so temporary constructions have been installed in some places.

The new underground car park being constructed at the Neuer Markt in central Vienna has been the subject of heated debate right from the start. The project presented significant challenges not just to the contractors, but also to local residents and business owners.

Various organisational hurdles had to be surmounted, arising partly from the considerable public interest in the project and associated construction work. As one example, a traffic plan had to be developed that would accommodate both motor traffic and pedestrians.

Local archaeologists were also present at the site from the beginning of the project. Another issue arose from the fact that central Vienna was bombed heavily during the Second World War: an explosive ordnance survey using magnetometers and soil radar had to be completed before construction work could begin.

In December 2018, PORR's subsidiary Wiener Betriebs- und Bau GmbH, or WIBEBA, was awarded the contract for all the utilities associated with the underground car park construction. WIBEBA set to work within just a few weeks, starting on 7 January 2019.

Challenging prestige project

While all the installations – benches, bike stands, lampposts, billboards, etc. – on the Neuer Markt were being removed, WIBEBA built a tower of containers where the famous Donnerbrunnen fountain used to stand.

Their first task was to relocate the water and gas pipelines into a double trench; in parallel with this, work began on the new route for the telecommunications lines.

The lack of space made rerouting the gas, water and telecommunications lines particularly tricky. Additional difficulties were presented by the fact that the new route ran along the pavement right next to where the bored piles were to be installed – and beneath these, there were both obsolete and active lines.

Once the gas, water and telecommunications had been rerouted, work began on the sewers and district heating lines. WIBEBA constructed eight new shafts as “white tank” constructions for the new district heating lines. In order to ensure a continuous supply of district heating to nearby buildings, two steel scaffolds were erected and temporary lines laid on these. Extreme care was necessary both when calculating the structural characteristics and during the actual construction – hot water flows through the pipelines at over 100 degrees Celsius and pressures exceeding 20 bar.

WIBEBA workers hit rock during the excavation work for the sewers, and this had to be chipped away laboriously. A bypass was built to keep the service in operation while the sewer was being relocated. The new sewer duct was built, the sewer laid and the newly constructed inspection shafts installed; only then, once everything was ready, could the new sewer be connected to the old.



Over 1,000m of temporary fencing was erected. Source: PORR

”

A bypass was built to keep the service in operation while the sewer was being relocated.

Thomas Trinkl
Project Manager, WIBEBA GmbH

Challenging surroundings

The area around the construction site added to the complexity of the project for all participants. For example, access to shops had to remain available throughout construction. Project participants worked closely with the police to develop a traffic management plan for vehicles and pedestrians.

Since the traffic diversions around the construction site would be in place for considerable time, traffic islands were removed, permanent signage installed and road markings added.

”

As part of the transport plan we drew up, traffic islands were removed, permanent signage installed and road markings added.

Thomas Trinkl
Project Manager, WIBEBA GmbH

Summary



During the project, over 4,400m³ of wooden trench shoring was installed. Eight new shafts were constructed as “white tank” constructions for the district heating.
Source: PORR

The project's location made implementation particularly tricky. In addition to the complexities resulting from the surroundings, coordination with the individual utility suppliers was a considerable challenge: all work stages had to be carefully harmonised in order to avoid conflicts. Another issue was that work frequently had to be put on hold when archaeologists uncovered historical artefacts such as parts of walls, shards and even skeletons. WIBEBA compensated for these downtimes with short-term schedule adjustments, exhibiting maximum flexibility.

In total, more than 300 cubic metres of asphalt and almost 400 cubic metres of concrete were demolished and recycled during the project. The trench and shaft excavation yielded around 4,400m³ of spoil.

WIBEBA cannot conclude the rerouting into final locations until PORR has completed the underground car park.

Technical data

Spoil	4,369 m ³
Temporary fencing	1,067m
Asphalt demolished	315m ³
Concrete demolished	385m ³
Masonry demolished	527m ³
Trench shoring	5,337m ²
District heating shafts	8
Sewerage shafts	14