

## Barrandov Bridge is back in full operation

Prague, 17 October 2022 - On Monday morning, drivers were able to drive on the newly reconstructed section of the Barrandov Bridge, the busiest traffic artery in Prague, for the first time. PORR workers started the first stage of the reconstruction on 16 May this year and during the course of the project they completely replaced the Strakonice ramp, including repairing and reinforcing the southern part of the Barrandov Bridge. Fears of serious traffic complications or even traffic collapse did not materialize. This is mainly due to the maximum commitment and good cooperation of all involved, and not least thanks to the understanding, patience and consideration of all drivers.

The beginning of the first stage was marked by the complete demolition of the Strakonice ramp. The demolition was followed by the removal of railings, guard rails and milling of the bitumen layer. Subsequently, a new ramp made of prestressed concrete was built from Strakonická Street towards Barrandovský Bridge.

The heavy equipment carrying out the demolition of the ramp also removed the outer ledge on the southern half of the Barrandov Bridge. The fall of material into the river during the demolition of the outer ledge was prevented by a cantilevered footbridge, which subsequently enabled further work, including the concreting of a new ledge. The bridge deck of the main bridge was made of high-strength concrete with dispersed reinforcement. This was followed by the laying of the isolation and pavement layers. In the final phase, bridge equipment such as drainage, guardrails, gantries and traffic signs were renewed.

"After removing the bituminous layers on the main bridge, we cut holes in the bridge deck to serve as entrances to the bridge chambers. The activities taking place in these chambers consisted of additional prestressing of the structure using a set of steel cables. Inside the chambers, holes were therefore drilled in the crossbars for the new cables and deviators were concreted to geometrically define the course of the cables and their connection to the supporting structure. The ropes were subsequently prestressed to effectively reinforce the entire structure," explained Martin Ředina, Director of the Bridge Construction Area.

### Deviations from the tender documentation

Every large project carries great risks in addition to great responsibilities. During implementation, we also had to react flexibly to the actual technical condition of the bridge and changes caused by deviations from the submitted project documentation that could not be predicted or detected during the preparation and design work. Therefore, intensive negotiations between the contracting authority, the construction manager and the contractor took place throughout the reconstruction to find an optimal solution to the situations that arose. Some of these deviations were major and had a direct impact on the duration of Phase 1.

One of the main changes was related to a greater thickness of the asphalt layers on the Barrandov Bridge than assumed in the tender project documentation. The asphalt layer was up to 30 cm thick in places - compared to the originally planned 13 cm. As the most suitable technical solution, the contracting authority, in cooperation with experts from the Faculty of Civil Engineering, Department of Concrete and Masonry Structures at the Czech Technical University in Prague, proposed the use of the technology of high-strength concrete with dispersed reinforcement (UHPFRC). This is an innovative, modern technology, which was used in the Czech Republic for the first time on this scale. The added value of the use of this innovation is the increase in the load-bearing capacity and load-bearing capacity of the bridge.

Another significant deviation from the tender documentation was the very dense use of reinforcement in the cross beams of the Barrandov Bridge, which was also placed in a different position in places than indicated in the archival project documentation. When drilling holes for the new steel prestressing cables in the bridge crossbeams, there was a risk of

damaging this reinforcement and it was necessary to choose a very gradual and careful procedure with regular checking of the drilling every 30 cm. Some boreholes could not be drilled at all in their original positions.

At the end of the bridge deck levelling, a cavity in the upper surface of the existing concrete with estimated dimensions of approximately 1 x 0.5 m was observed near the bridge closure on the Barrandov Bridge. During the removal and cleaning of the non-cohesive parts of the cavern, the cavity was enlarged to a size of 8 x 3.5 m. Due to the significant density of the concrete reinforcement in this area, which was probably the cause of the cavity, the cavern was subsequently filled with self-compacting concrete with a maximum aggregate grain size of 8 mm.

### **A repaired bridge - safer and longer lasting**

Despite all the deviations from the submitted tender documentation and the subsequent changes in the implementation, PORR's primary objective throughout the reconstruction was not only to minimise the delays resulting from the need for changes in technological procedures and additional works, but above all to deliver a work whose parameters will meet both the most demanding requirements of contemporary construction and the requirements for long-term safety of traffic on such a traffic-exposed road. *"We believe that we have achieved this goal"*, added Martin Ředina.

"It is not a big surprise that we had to deal with difficult tasks during the first stage, caused mainly by the unforeseen circumstances that such a major reconstruction brings with it. Very often, it was necessary to react to the situations that arose in an expeditious manner, regardless of the time of day or night. For this very constructive approach, we thank all participants in the implementation - the client, the client's designer and the construction management team", Ředina continued.

### **The next phase will start in spring 2023**

Once the bridge is operational, work is continuing on the completion of Stage 1, which does not restrict traffic, and other preparatory work so that the next stage of the reconstruction will start as planned in spring 2023. During that time, the northern half of the southern Barrandov Bridge will be repaired and strengthened. Furthermore, the Barrandovská ramp will be reconstructed, where it is planned to renew the insulation and pavement layers and bridge equipment.

### **Facts and figures at a glance:**

<b>Type of project:</b>	Reconstruction of Barrandov Bridge
<b>Client:</b>	Technická správa komunikací hl. m. Prahy (Technical road administration, City of Prague)
<b>Contractor:</b>	PORR a.s.
<b>Service period:</b>	03/2022 - 02/2026 (contractual period of execution)
<b>Construction work:</b>	05/2022 - 11/2025





*During the 1st stage of reconstruction we repaired the southern part of Barrandov Bridge and completely replaced the Strakonicka ramp. © PORR*

**Further information:**

This press release incl. Fotos can be download [here](#).

Interim photos of the bridge reconstruction [here](#).

See a video of the reconstruction process [here](#).

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