E4 Förbifart, Johannelund Tunnel









SHORT DESCRIPTION

The bypass “Förbifart” Stockholm is a link between the north and south of the capital of Sweden and intends to relieve the traffic through the city. The 21 km long bypass motorway, of which approximately 17 km are underground in a depth of up to 70 m, is divided into six lots. With the 3.6 km long Johannelund tunnel (Lot FSE 403), Implenia won the contract for one of the first lots.

THE PROJECT

This section includes the two three-lane main tubes of the Johannelund tunnel with a total length of 7.2 kilometers as well as the entry and exit ramps, four access tunnels, several cross passages and the corresponding power and ventilation systems. Due to the mainly prevailing gneiss and granite the main tubes and access tunnels are built with the drill & blast method and secured by rock bolts and shotcrete. The four single-lane entry and exit ramps have lengths of 597 to 1,087 m. The final inner lining consists of a 10 cm thick shotcrete ceiling and pre-casted wall elements of 20 cm thickness.

CHALLENGES

The challenges in the construction of the Johannelund tunnel are to carry out the drilling and blasting work in the

underground of the densely populated area of Stockholm in such a way that noise emissions and vibrations are reduced to a minimum.

SUSTAINABILITY

In order to maintain the quality of Swedens biggest drinking water reservoir, Lake Mälaren, which is in the vicinity of the construction site, the works are subjected to strictly environmental requirements.

FURTHER INFORMATION

Implenia on site

- Implenia Sweden AB, Liljeholmsstranden 5, SE-11743 Stockholm
- Implenia Construction GmbH, Civil Engineering, Landsberger Straße 290 a, D-80687 Munich

Scope of works
Technical and commercial management

Performed services
Tunneling works

Construction methods

- Two three-lane tunnel tubes in drill & blast method
- L = 2 x 3.6 km, A = 220 m^2
- Four single-lane entry and exit ramps in drill & blast method
- L = 597 – 1087 m, A = 70 m^2
- Four access tunnels
- Four vertical shafts
- 56 cross passages
- Power and ventilation system

Geology
Gneiss, granite, pegmatite, amphibolite

FACTS

Location	Bergslagsvägen 471, Vällingby , Sweden
Status	completed
Construction volume (value of our services)	254 M EUR
Start of construction	January 2015
Completion	January 2024
Project management	Bauherr: Trafikverket; Ingenieur: URS, ÅF; Bauausführung: Implenia Sweden & Construction Infra;
Overall length	12000 m
Cross-sectional area	220 m^2

SERVICES

- Tunnelling
- Transport tunnels
- Infrastructure

https://implenia.com/en/references/detail/ref/e4-foerbifart-johannelund-tunnel-1/

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