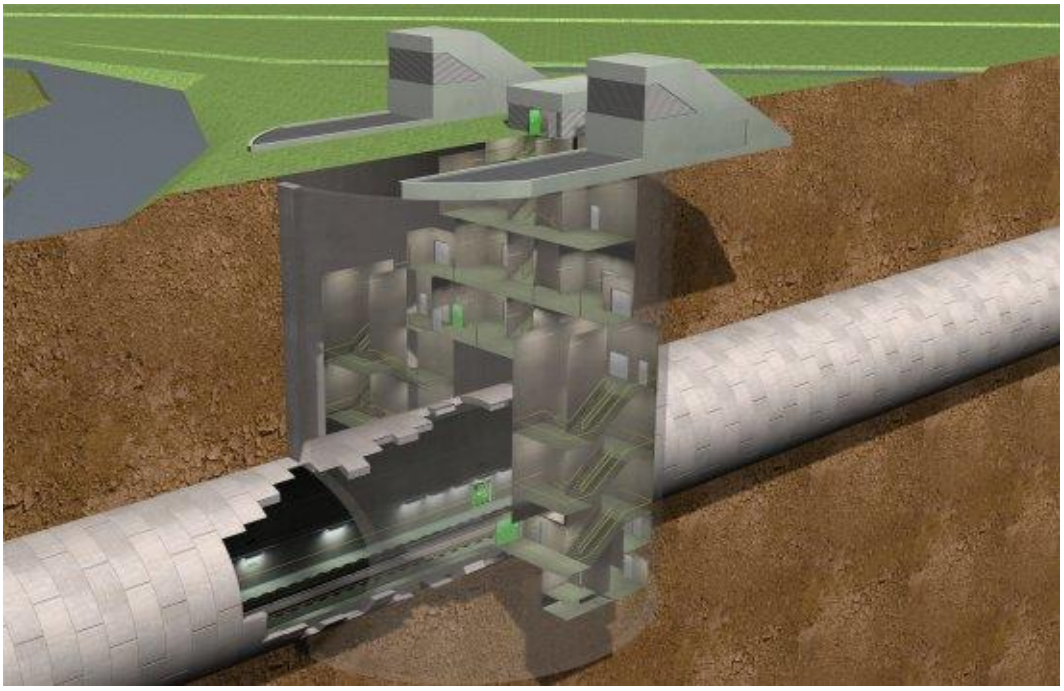
Tunnel Engineering Consultants

Project identification

Boortunnel Groene Hart

Type of project

Bored tunnel



Client

Bouygues Koop Consortium

In co-operation with

Project assignment

Detailed design ramps and (emergency) shafts; concrete structures and temporary works

Country

The Netherlands

Location

Leiderdorp

Project duration

2000 - 2004

Project phase

Design completed end 2002

Construction cost

Appr. € 160.000.000,=
for ramps and shafts
(excl. VAT)

Consultancy fee

Appr. € 2.900.000,=
(excl. VAT)

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Project description

The Boortunnel Groene Hart is part of the HSL-Zuid high speed railway line, and consists of a bored tunnel and access ramps. The total length of the tunnel including access ramps is approximately 8.6 km.
The bored tunnel consists of one tube with an inner diameter of 13.3 m and is 7.2 km long. For safety reasons three emergency shafts are implemented in the alignment and a central wall separates the two tracks.
The emergency shafts are constructed as circular construction pits with an inner diameter of 30.2 m and a depth of 40 m. These pits are made with diaphragm walls and an underwater concrete slab. The final concrete structure is constructed inside this pit.
The access ramps consist of an open and closed part as well as a technical building and entry or exit shaft for the TBM. The deepest part of the ramps, with a depth between 15 and 23 m, are made inside construction pits consisting of diaphragm walls and an underwater concrete slab. This slab is anchored by Barrettes, elements of diaphragm wall panels. The concrete structure is made inside this pit and consists of concrete slab/roof and counter walls. The open ramps are made as common structures inside sheetpile-wall upon an underwater concrete slab.

Scope of work

Detailed design of access ramps and emergency shafts: construction pits and concrete structures. In the detailed design a special topic was the dynamic effects and specific requirements related to the high speed railway.