

Guldborgsund Tunnel

The Guldborgsund Tunnel links the southern Danish islands Falster and Lolland as part of the E4 motorway between Scandinavia and the European Continent.

After the study of several projects for bridge and tunnel solutions, tenders were called simultaneously in 1984 for a 460 m long tunnel and for a 1,400 m long bridge with a main span of 125 m. **The tender showed that the tunnel project was the cheaper of the two projects, albeit with a small margin.** Construction work started in 1985 and was completed in 1988.

The project comprises a 460 m long immersed tunnel with open ramps extending from both shores. The existing navigation channel was re-routed so that the longitudinal profile could be symmetrical on either side of the centre line of the sound.

The tunnel has two tubes each 9.0 m wide separated by a division wall. The outer dimensions of the tunnel are 20.6 m wide by 7.6 m high.

The open ramps are constructed within dikes and de-drained by relief wells. Rain and ground water is collected in sumps below the portal buildings and pumped into the sound.

The two pre-fabricated tunnel elements, each 230 m long, were constructed one at a time in the ramp on the Lolland side of the sound. After fabrication of an element, the ramp

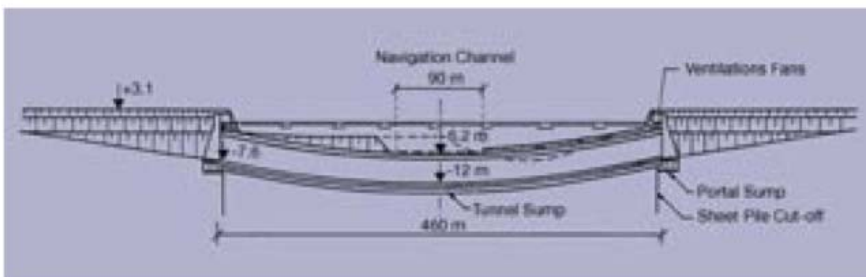


was flooded and the element brought afloat and towed to its final position, where it was sunk onto temporary supports at the bottom of a trench dredged beforehand. Sand was jetted into the space between the underside of the tunnel and the bottom of the trench, after which the temporary supports were released, and the trench was backfilled.

The two elements were connected by concreting the joint between them. Flexible joints were provided between tunnel ends and portal buildings.

Services:

- Tender Design
- Detailed Design
- Supervision



Project period: 1984 - 1988

Client:
The Danish Road Directorate

Construction Cost:
USD 50 million