

Design Study of an offshore VTS Radar Station on the Schouwenbank (The Netherlands)



Financed by: Ministry of Transport, Public Works and Water Management

Client: Ministry of Transport, Public Works and Water Management – Directorate-General of Public Works and Water Management – Department of Zeeland

Date: 2001 – 2002

Budget: € 262 000

Location: The Netherlands, Zeeland, Schouwenbank

Partners: Geert Minne

Assignment:

Soresma-haecon was awarded the contract to carry out the design and to elaborate the tender documents for the construction of an offshore radar station at the Schouwenbank (The Netherlands) in the general framework of the Vessel Traffic System (VTS) for the Westerscheldt estuary and the Dutch coastal area.

Scope of Services:

Preliminary design and design of an offshore radar station, including soil investigation, risk management, authority engineering and elaboration of tender documents for civil works, machinery and electrical systems, instrumentation and telecommunication.

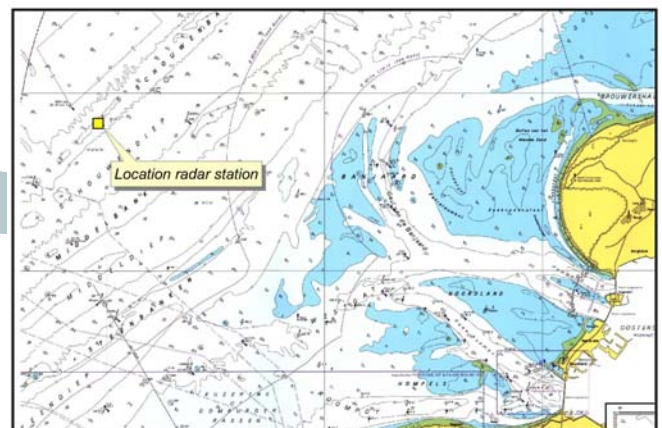
- Structural Design
- Offshore VTS radar station
- Hydrodynamic loading and morphodynamic stability
- Site selection
- Radar systems
- Electromechanical engineering (alternative power supply)
- Geotechnical engineering
- Risk management

Technical Description:

A feasibility study, carried out previously, demonstrated the need for a new offshore VTS radar station to extend the coverage of the actual network of the Westerscheldt estuary. The radar network has been developed jointly by the Flemish and Dutch government and is operational since 1991. The new radar station extends the offshore coverage of the radar network and increases the efficiency and the safety of shipping.



VTS radar station Oostdijckbank



Study area Schouwenbank



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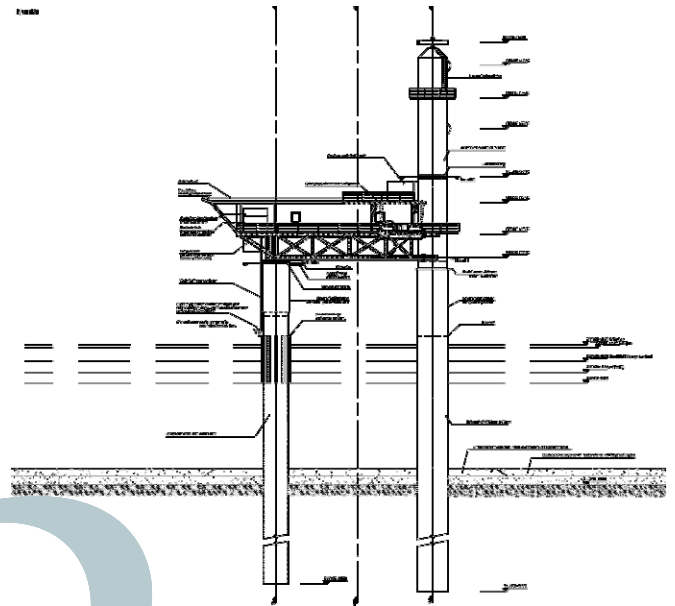
The new radar station will be located in Dutch national waters, at the Schouwenbank, a shallow sandbank north-eastwards of the flood barrier on the Eastern Scheldt. The major challenge from the technical point of view is to assure that the radar station is 99,9% technically operational. The optimal location is determined based on the geotechnical and morphological studies and the specific requirements of the radar and telecommunication system.

After a comparative study of several construction types, a radar station placed on top of a lattice frame platform supported by three tubular piles has been selected and engineered in detail.

A geotechnical survey at the location of the planned radar station was carried out to determine the characteristics of the subsoil. The final design includes, apart from civil engineering, a radar tracking system, telecommunication and electromechanical infrastructure.



Tubular foundation piles



Cross view of the proposed radar station

Based on all engineering aspects, all tender documents, drawings and cost estimates are elaborated. Finally, the necessary administrative documents for authority engineering are provided to the client.

The RISMAN or risk management procedure was applied to the entire project. Additionally, a study on alternative power supply was carried out.