



## Project engineering overcomes the transportation and installation challenges of subsea structures

When the contract from Tampnet, an expert in offshore high capacity communication networks, was awarded to Global Marine, the initial concept design for the Cable End Module (CEM) was very different to what was finally engineered and deployed due to the environmental conditions noted within the engineering study.

This project was the second of a pair of contracts awarded to Global Marine at the end of 2014 for the installation of a 36 km of fibre optic cable in the Southern North Sea.

At one end of the system, the cable end spur had been previously installed at an existing platform ready for connection. Global Marine used installation vessel C.S. Sovereign and recovered the spur from the first platform, installed a cable joint and laid cable to the branching unit 1 km from the CEM location near the second platform location. The CEM was also installed by C.S. Sovereign and was used to tie into another subsea control system.

### SERVICES PROVIDED

- Survey
- Logistics
- Project engineering
- CEM design review
- Rigging design
- Project management
- Installation
- Matressing



#### VESSEL: C.S. SOVEREIGN

Location: North Sea

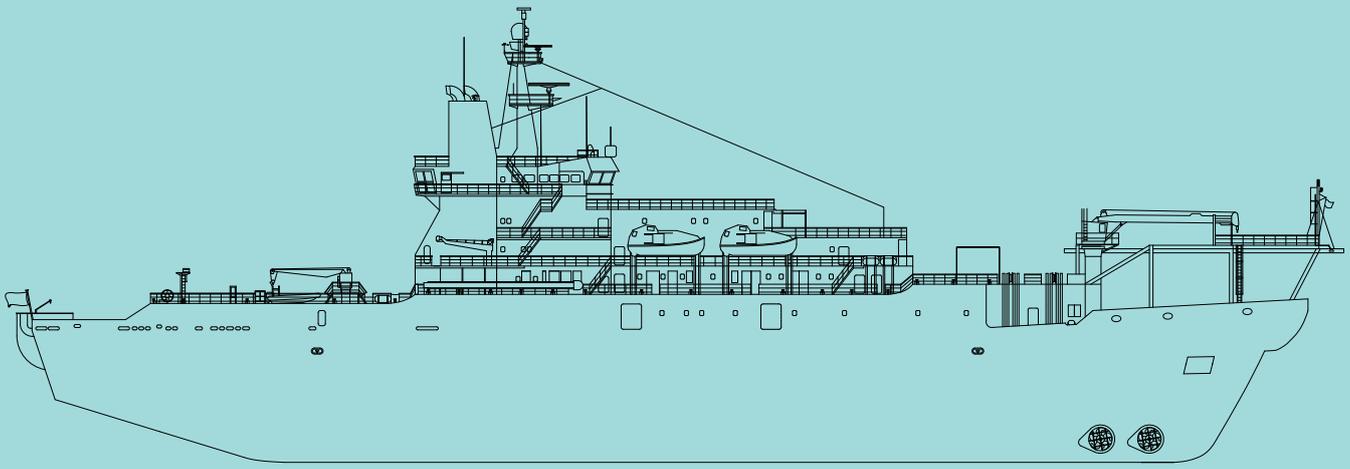
Cable Length: 36 km

Activity: Installation, Subsea structure deployment and Matressing

Subsea equipment: Atlas

Date: 2015





## KEY CHALLENGES

Positioning the subsea structure accurately was a crucial part in the overall delivery of this project and relied heavily on sound project engineering both in the planning phase and during marine operations.

Early involvement of the company's project engineering team in the design phase was a key part of this successful platform-to-platform fibre optic communications project. Interfacing with a multitude of stakeholders was particularly important as different companies were responsible for design, fabrication, installation and hook-up.

The design changes requested by the project engineers were important to allow successful installation given the tight parameters set by the client; tolerances of  $\pm 5$  m for position, actually achieving  $\pm 0.25$  m, and  $\pm 2.5^\circ$  for heading. Additionally, the operation was performed in close proximity to surrounding structures, which added further complications to the execution.

Global Marine used a Sonardyne Ranger 2 USBL (ultra-short baseline) acoustic positioning and tracking system (with transponders fixed to the structure), while EIVA Navipac template software was used to ensure precise placement.

The team was also able to offer its expertise to design the installation rigging, which allowed the methodology for subsea release to be developed by Global Marine. For this project, Global Marine engineered a primary, secondary and tertiary method for releasing the CEM rigging, with the primary method, using ROV hooks, successfully working as planned.

Contingency plans are also a pre-requisite when it comes to positioning subsea structures, and on this project the secondary method in place was a second USBL system, while a third strategy was the deployment of pre-installed sandbags to box-in the target area for landing the CEM.

The CEM was installed successfully in April 2015, achieving all of the necessary installation tolerances.

“Our partnership with Global Marine has strengthened and this is as a result of their continued project delivery, meeting the oil & gas sectors’ notoriously precise and high standards. It is clear they have exceptional capability in subsea cable operations. Their innovative engineering solutions and the ability to install subsea structures accurately and safely is an example of that.”

Anders Tysdal  
Technical Director of Tampnet



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