

# Case Study - Bearings / Offshore

## WEST SOLE PLATFORM, WA-WAP LINK BRIDGE - BRIDGE JACKING & BEARING REPLACEMENT



### Job Brief

**Scope:** Bearing supply, bridge jacking and bearing replacement works.

### Project Team

**Client:** Perenco (UK) Ltd.  
**Main Contractor:** Ekspan

### Background Information

Ekspan carried out an extensive inspection of the structural supports/ bearings on the trussed steel WA-WAP link bridge (approximately 38 metres in length) on the West Sole platform. All visual findings (carefully measured, photographed and cross-referenced against existing data) were assessed, recorded and recommendations for future maintenance requirements were provided in a report.

The existing bearings all appeared to be original PSC inverted mechanical pot bearings that had been supplied circa 1983. The findings revealed these bearings had reached the end of their design life and needed to be replaced. Excessive corrosion and debris to bearing fixings, uplift brackets and adjacent steelwork had caused stress on the bearings, which subsequently resulted in skew, between bridge and jacket structures inhibiting movement.



*Existing bearing prior to removal shows excessive corrosion*

### Ekspan's Workscope

Ekspan were appointed by Perenco to replace these mechanical bearings.

Prior to jacking and bearing replacement operations, temporary works had to be implemented and included removal of the uplift restraint brackets.

Ekspan installed the approved jacking system (fabricated by CLS Offshore). Each corner was individually jacked to a maximum height of 5mm enabling the bridge's position to be retained at the three remaining locations.

The inspection had confirmed a number of dimensional inaccuracies associated with the original bearings. The main dimensional differences related to the fixing hole centres and the overall base plate lengths for the WAP end bearings. Ekspan manufactured 4 no bespoke mechanical pot bearings (1 fixed and 3 guide) to suit the existing dimensions and load criteria. The sequential methodology for bearing replacement and careful monitoring throughout enabled successful completion of works while also maintaining restraint between the bridge and the platform.

To prolong the bearing life stainless steel slide plates were fully welded to the base plates, to prevent de-lamination. Protective rubber skirts were installed to protect the sliding surfaces and reduce the effects of debris ingress.



*Bearing replaced complete with protective cover*