CASE STUDY

TOPSIDE LOAD-IN AT DALES VOE

Receipt of Topside at Dales Voe, Shetland from the Iron Lady Barge

TRUST WELL PLACED

PETERSON

PROJECT DETAILS

Start	August 2020
End	September 2020
Location	Shetland

CHALLENGE

A client required assistance with the load-in of a 14,200-tonne structure at Dales Voe.

SOLUTION

Peterson developed a procedure to manage the shoreside logistics of the project.

RESULTS

The project was delivered successfully, meeting the client's bespoke requirements.

OVERVIEW

A client required a 14,200-tonne structure to be transferred across the quayside. The structure was delivered as a single item, making it the first single lift structure to be delivered to Dales Voe. The quayside was designed to withstand loads of this magnitude, however a substantial amount of load spreading was required to reduce the pressure on the quayside to acceptable levels.

Additionally, the load-in method from the client had no vertical compensation below the legs of the structures, meaning the quay deflections had to be maintained within tight tolerances. If these tolerances were exceeded, the structure was at risk of damage.

A procedure was to be developed by Peterson to ensure the successful load-in of the structure.

PETERSON APPROACH

Peterson worked together with the client to manage the procedure. Peterson was responsible for managing shoreside logistics, and the load-in scope was managed by the client.

Design of Reinforced Concrete Pads

To accommodate the structure, large reinforced concrete pads were designed and constructed with an advanced draining system to treat all water onsite and ensure zero pollution from any works at Dales Voe.

Design of Above Ground Supports

Above ground supports were designed in-house by Peterson engineers to withstand the weight of the structure and spread the load across the quayside. These supports were designed to be reused for future load-ins, helping to future-proof the capabilities of the site.

Outfitting and Analysis of Quayside

To accommodate the client's specific load-in methodology, several bespoke items were designed by Peterson and the quayside was outfitted to allow the barge to dock.

This involved working with third party engineers to analyse the quayside and ensure any additions would perform as intended during the load-in.

The quayside analysis involved complex modelling of how the structure interacted with the quay deck and the rock and soil below. The detail of engineering and analysis carried out gave the client confidence that the load-in could be carried out safely and within their tight tolerance limits.

DELIVERABLES

The load-in was successful and the project was delivered on time with no delays. The quayside was monitored during the load-in and the vertical movement was within all tolerance requirements.

The above ground supports designed by Peterson worked extremely well and were removed and stored at Dales Voe to accommodate future load-ins. Additionally, environmental monitoring confirmed that the site is not producing any pollution, and that outflows from the site meet the strict regulatory requirements.