Narec Offshore Anemometry Hub

Two-stage rock socket and pile grouting for the NOAH metmast tripod foundation

The metmast is installed three nautical miles off the coast of Blyth, Northumberland as part of the 99MW Blyth Offshore Wind Demonstration Site.

The 60-metre tall tripod foundation was designed to be secured to the sea floor using a typical pile sleeve connection, along with a grouted rock socket connection at each of its three legs, due to the rocky sea bed.

The grouting operations took place in two stages: The tripod was placed and the 16.5-meter deep rock socket was drilled through the tripod's pile sleeve. FoundOcean mixed a grout that contained a special retarder to slow the curing rate. The retarder was added via a metered dosing system built into FoundOcean's mixer. The grout mix was pumped into the socket via a flexible umbilical connected to a Stinger with assistance from an ROV. Immediately following this, the 24-meter long pile was lowered through the sleeve into the grout-filled rock socket. The remaining two rock socket connections followed the same procedure.

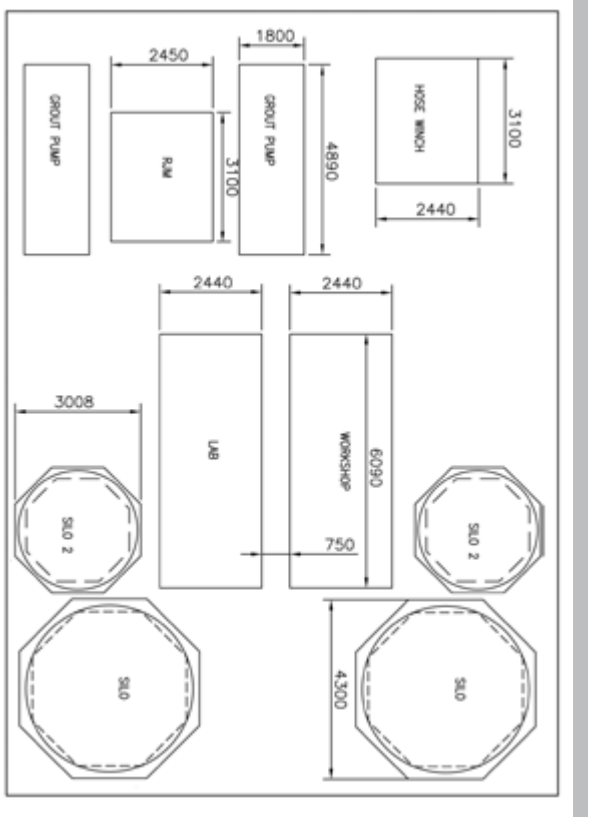
Once the rock socket connections were established, FoundOcean injected ordinary Portland cement (OPC) grout into the annuli between the piles and the tripod sleeves via connectors located 21.5m above sea level.

Grouting operations were completed within 12 hours over a weather window lasting six days.

PROJECT FACTS

Industry	Renewables
Region	North Sea
Services	Foundation grouting
Project year	2013
Operator	Narec
Contractor	SeaRoc
Water depth	37m
Cement type	CEM1 Type 52.5 BASF Pozzolith 100XR
Total cement	188 tonnes
Mixer type	Recirculating Jet Mixer
Material specification	60 MPa
Mixing rate	Up to 25 m^3/hr

TYPICAL RJM DECK PLAN



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