

Beatrice Offshore Windfarm Limited (BOWL) – Notice to Mariners May 2017.

Backhoe trenching & seabed preparation

Date of Issue	26 th May 2017	Notice Number	LF000005-NTM-008
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Please promulgate the following as a Notice to Mariners

Export Cable Installation Stage 2 – Backhoe trenching & seabed preparation, nearshore area, Portgordon

In preparation for the installation of two export cables in the Beatrice Offshore Windfarm construction site, it is a requirement that the cable runs are excavated in the nearshore area close to Portgordon. In this respect the work listed here is due to be carried out as described below during the period 1st June to 10th August 2017.

On behalf of BOWL, Nexans Norway AS have contracted Boskalis to prepare two export cable trenches running from KP 0.42 to KP 4.5. The objective of the trenching works is to establish a cable route that is free of boulders and excavated and documented to burial depth of 2m, bottom of trench (minimum bucket width shall be 1.7m). The backhoe operation will utilize the tidal cycles for the section shallower than 3m. Large boulders encountered along the route may also be side casted. During this period, the dredging barge Manu Pekka will be working along the route 24/7, with the BKM103 used as support vessel. The Norsemaid will also perform survey and crew transfer operations.

1. Area of Planned Activity

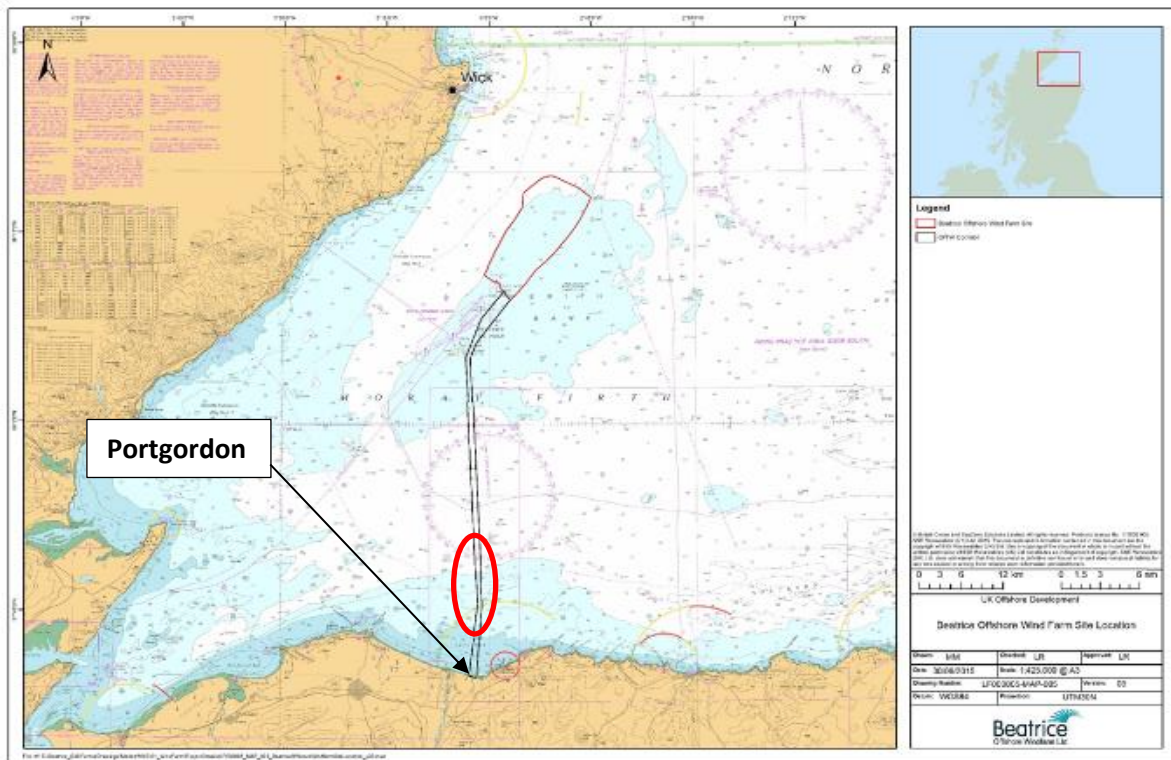


Fig 1 trenching locations, approximately 420m – 4.5km from the Portgordon Beach
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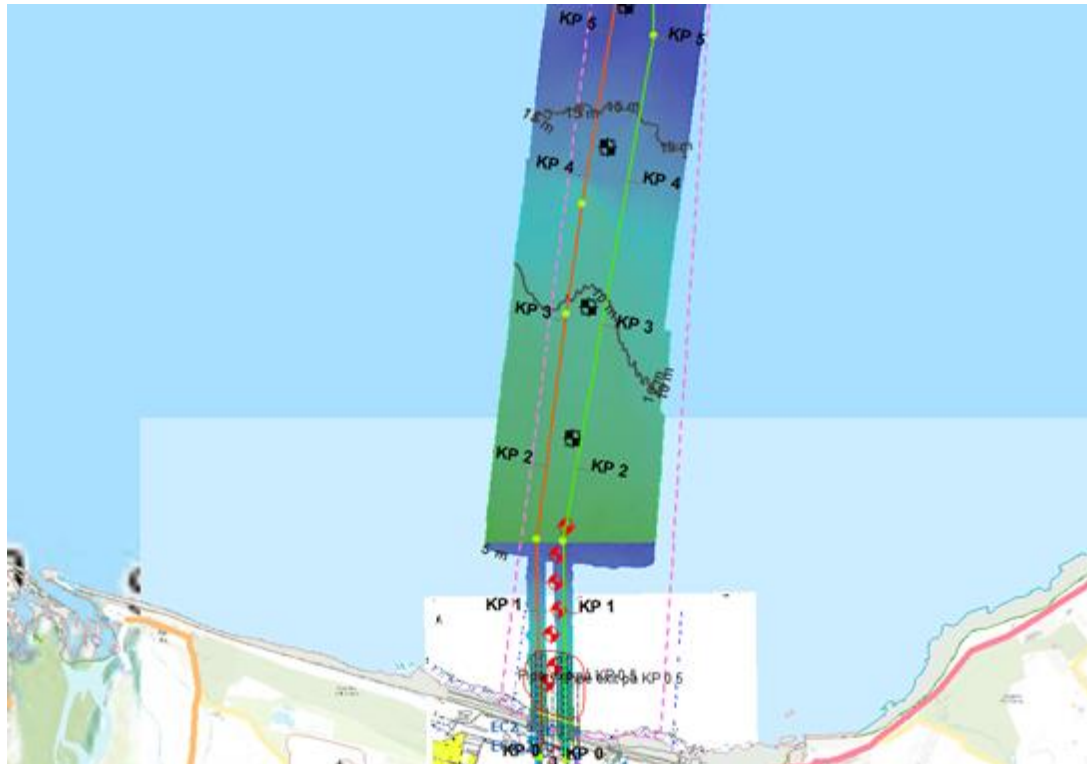


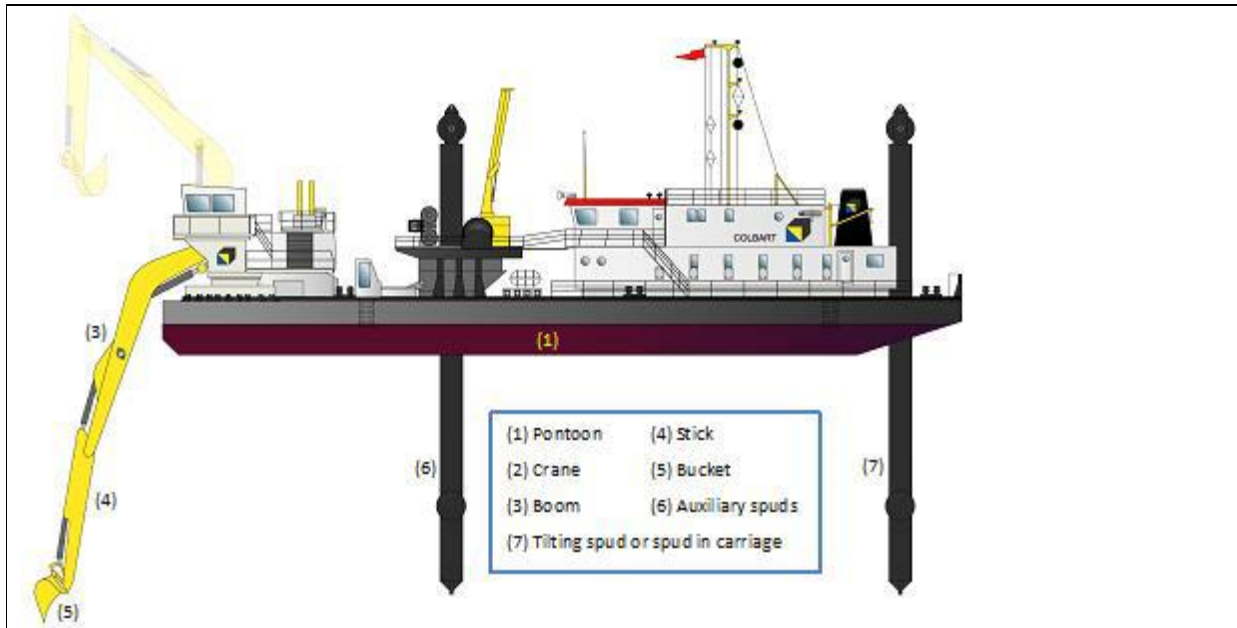
Fig 2 Backhoe trenching routes.

2. Vessels Associated with the Activity

The vessels that are involved with the described operation are the Barge '**Manu Pekka**', the multicat tug '**BKM103**' and the survey vessel '**Norsemaid**'.

Manu Pekka	
General Description and Dimensions:	Backhoe trenching Barge, L:47.9 / B:15 / D:3
Call Sign:	5BJH2
MMSI:	212701000
Onshore Representative:	Øyvind Haug – Nexans Norway AS BEATRICE Installation Engineering Manager Mob: +47 916 27 674 Office: +47 22 88 65 09

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The spuds are able to elevate the pontoon to some extent which provides stability to the pontoon during dredging, but it noted that pontoon cannot be raised above the water entirely. The spud carrier or tilting spud enables the pontoon to move forwards and backwards when the auxiliary spuds are lifted.

BKM103	
General Description and Dimensions:	Multicat Tug, L:26.5m B:11.8m D:3.85m
Call Sign:	5BFL2
MMSI:	212492000
Onshore Representative:	Øyvind Haug Nexans Norway AS BEATRICE Installation Engineering Manager Mob: +47 916 27 674 Office: +47 22 88 65 09



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Norsemaid	
General Description and Dimensions:	Survey / Crew change.L:23.3m B:5.1m D:2.9m
Call Sign:	VQEB2
MMSI:	235007967
Onshore Representative:	Øyvind Haug Nexans Norway AS BEATRICE Installation Engineering Manager Mob: +47 916 27 674 Office: +47 22 88 65 09



3. Work Method

The Back Hoe Dredger (BHD) will be towed to the project location by the support tug. The Master of the tug and the Master of the BHD will verbally agree the destination, and then maintain radio contact over VHF throughout any towing operation.

Once in position the BHD lowers its spud legs onto the seabed and the tug will move to a standby position or alongside the BHD.

The BHD will then orient itself using the excavator, always maintaining at least one point of contact with the seabed. Once in position, trenching works will commence. The BHD works backward along a defined Centre Line (CL), stepping after each trenching cut has been made.

BHD dredging is a cyclic process whereby the bucket is lowered to the seabed, excavates the soil and brings it to the surface. The dredged material is side casted alongside the trench.

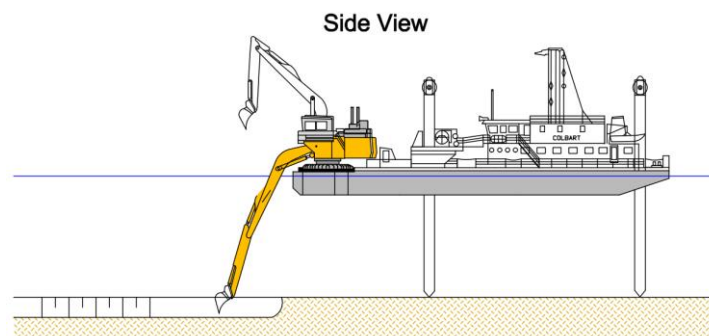


Fig 3 Side view BHD trenching

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Top View

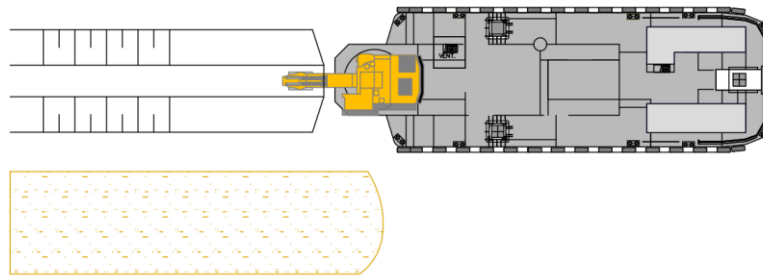


Fig 4 Top view BHD trenching

Front View

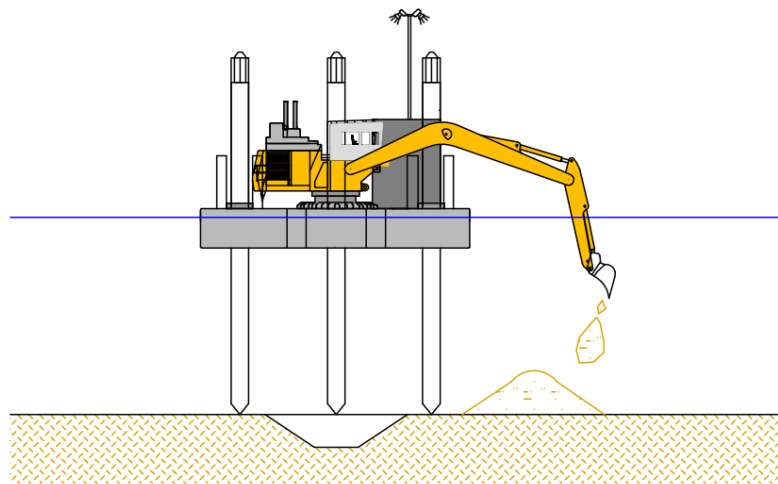


Fig 5 Front view BHD side casting trenching material

The trenching process is controlled using the on board computerized Crane Monitoring System this provides the operator with a real time visual diagram of the seabed profile. Once the required depth and profile has been achieved the BHD can manoeuvre itself backwards and continue trenching. There might be some exceedance of the target depth during the trenching works, in order to ensure the required trench depth is achieved.

Excavating the trench for the cable can be completed in a single cut as the BHD has sufficient reach to dredge and side-cast the material from a single position.

Material excavated by the BHD will be side-cast parallel to the trench. During emptying of the bucket the dredge material will be distributed over the available footprint along the trench. Large boulders – up to 2m – should be placed on the outside of the sidecast berm, as far away from the trench as possible.

3.1 stepping procedure

To move the pontoon the following steps will be followed:

- Cease trenching operation.
- Place the bucket on the sea bed.

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- Lift auxiliary spuds.
- Move pontoon backwards to the next working position (step) by tilting the aft spud or by moving the spud carriage. The excavator can assist in this operation by guiding the movement of the pontoon with the bucket. Once the pontoon arrived at the new position the auxiliary spuds will be lowered again.
- Lift aft spud.
- Move the aft spud to its starting position.
- Lower aft spud.
- Move pontoon upward by tensioning spud wires until stable dredging position can be maintained.
- Resume trenching.

3.2 Tidal Works

Due the limited water depths in the nearshore part of the trench, dredging can only be done during high tide. As a result the BHD will be shifted frequently between the deeper and shallower sections. At any time will there be a keel clearance of 0.5-1.0m taken into account.

Trenching conditions are subject to the following limiting factors:

- Water depths at near shore dredging locations
- Tidal and current conditions

To allow efficient deployment of plant, the trenching works at the shallower parts will be done at high tides, and the spread will move to the deeper locations at low tides. The operational hours at the shallower parts are determined by tidal conditions and draft of the proposed spread.

The BHD can start trenching at any point along the trench though preference is given to starting on the deeper section to get acquainted with the local conditions (both soil as well as weather conditions).

3.3 Crew transfers

Crew transfers will be done by the Tug or Survey vessel. The vessel will position itself against the BHD at a dedicated point. Note that the pontoon (BHD) is stable on spuds and has a relative low freeboard. In case necessary the freeboard can be adjusted by turning the excavator to one side of the pontoon. Depending on the vessel performing the crew changes it will be assessed if additional arrangements are required.

3.4 Adverse Weather Conditions

During adverse weather the BHD be towed to a safe location (when required). Actual decision to cease operations or to tow the backhoe dredger to a safe location during adverse weather conditions or forecast will be made by the barge master in consultation with the Superintendent and Client representative.

The operational limits for the Manu Pekka are listed in below table:

Operation		Towing		Standby
Wave Hs (m) Perp. pontoon	Wave Hs (m) Head on	Wave Hs (m)	Wind (Bf)	Wave Hs (m)
0.9	1.25	2.0	6*	1.5

* Wind only limiting factor during Tow to/from the work area.

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Workability depends on swell height, swell direction, swell period, working depth and wave height. As it varies per situation the above operational limits should be considered as a guideline only.

3.5 UXO

Nexans Norway AS has undertaken an UXO survey along a parallel corridor to both sides of the centreline of the cable routes, during summer 2016. Based on the results of the survey, Nexans Norway AS has undertaken rerouting of the RPLs to avoid any potential UXO. Nexans Norway AS will issue the ORDTEK Report, which is compliant with ALARP principles, as well as the results and findings of the UXO Survey. Any further rerouting of the cable routes will be undertaken when required.

To mitigate this risk and minimise the placement of material outside of the UXO clear zone, the corridor will be marked clearly in the BHD Crane Monitoring System (CMS)

Further to this, any re-dredging of material outside this corridor will be limited to the seabed level as measured prior to start of work. Emergency response to the discovery of UXO is covered within the Boskalis ENF and is in line with the Nexans Norway AS Emergency Response Co-Ordination Plan.

3.6 Archaeological material

In the event that the BHD discovers any obstacle that could potentially originate from a shipwreck, the BHD master will notify the marine coordinator as per applicable procedures.

4. General Safety Advice

All vessels engaged in the activity will exhibit appropriate lights and shapes prescribed by the International Regulations for Preventing Collisions at Sea; relative to their operations. All vessels engaged in the activity will also transmit an Automatic Identification System (AIS) message as necessary.

ALL VESSELS ARE REQUESTED to give the Backhoe barge '**Mannu Pekka**' and support vessels a wide berth / safe passing distance of at least **500 metres** at all times.

MARINERS ARE REMINDED to navigate with caution and keep continued watch on VHF Ch. 16 when navigating the area.

5. Dedicated Guard Vessel

N/A but the Crew Transfer Vessel '**Norsemaid**' and Multicat Vessel '**BKM103**' will be in attendance alongside the Backhoe barge '**Mannu Pekka**'. All vessels can be contacted on VHF CH16.

6. Fisheries Liaison

Fisheries liaison associated with the activity will be co-ordinated by Brown and May Marine. For any commercial fishery queries please contact: Alex Winrow-Giffin, telephone: +44 (0)1379 872144 and mobile: +44 (0)7760 160039 or email: alex@brownmay.com

7. Distribution List

The distribution of this notice is as per email recipient's header. A central list of recipients is maintained by the Marine Coordinator; if you are not the appropriate recipient of these notices, or do not wish to receive the notices in the future, please contact us at the address below.

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Notice issued by:
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