Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

Notice of Operations at Beatrice Offshore Wind Farm

Work Planned for the Period 31.12.2018 to 06.01.2019

Construction of the Beatrice Offshore Wind Farm commenced on the 1st of April 2017. This notice will be updated weekly giving information on the progress and resources involved in the offshore project. The intention is to give an overview of activities and vessels involved. Should anyone have questions regarding the operations, we kindly ask you to put them forward well in advance.

Beatrice Offshore Windfarm Limited (BOWL) is developing the Beatrice Offshore Wind Farm in the 'Outer' Moray Firth on the north-western point of the Smith Bank, approximately 7 nm off the Caithness coastline. The development site will cover an approximate area of up to $130 \, \text{km}^2$ and will consist of 84 7MW offshore wind turbines (with a total capacity of $588 \, \text{MW}$) and two HVAC Offshore Transformer Modules (OTM). Water depths in the area range from approximately 38m below LAT in the south of the field to 60m below LAT in the north. The generated power will be transmitted to the grid via two subsea export / transmission cables with a landfall near Portgordon to the south of the field and grid connection at Blackhillock. The transmission cables cover a route of approximately 38 nm from the wind farm boundary back to the landfall. The Beatrice Offshore Wind Farm development area is highlighted in red below, the OFTW cable corridor in black.

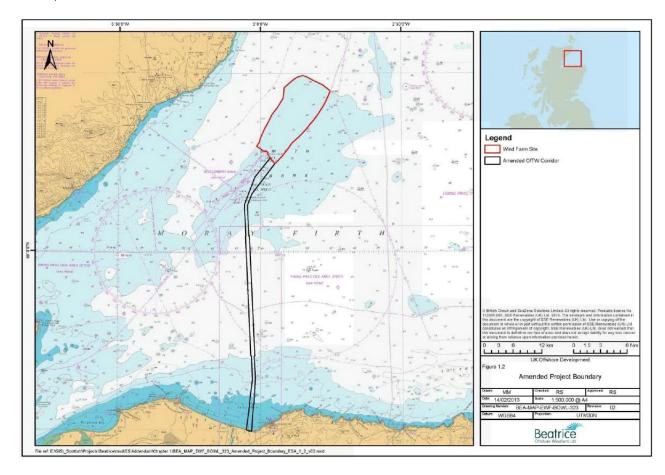


Fig. 1 Beatrice Offshore Wind Farm Location

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

1. Contact Details for Marine Coordination

The following contact can provide more information if required. Please note that specific queries can also be addressed to the relevant vessel or shore based representative.

Telephone Number	+44 (0) 3302 020329
Emergency Contact (24/7)	+44 (0) 7342 028207
Email for Marine Coordinator	mc.bowl@sse.com
Address	Unit 1 Harbour Office Wick Caithness KW1 5HA

2. Ongoing Operations

2.1 Offshore Transmission Modules (OTMs) Commissioning Works

Siemens Transmission and Distribution Ltd (STDL) are carrying out limited commissioning works on OTM1 and OTM2 throughout the winter 2018/19. BOWL electrical commission teams are continuing energisation and switching operations on both OTMs.

The following assets are now under the control of the SSE operational safety rules: EC1, EC2 & EC3. OTM1 &OTM2 and all Strings on site.



Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

Fig. 2 OTM 1

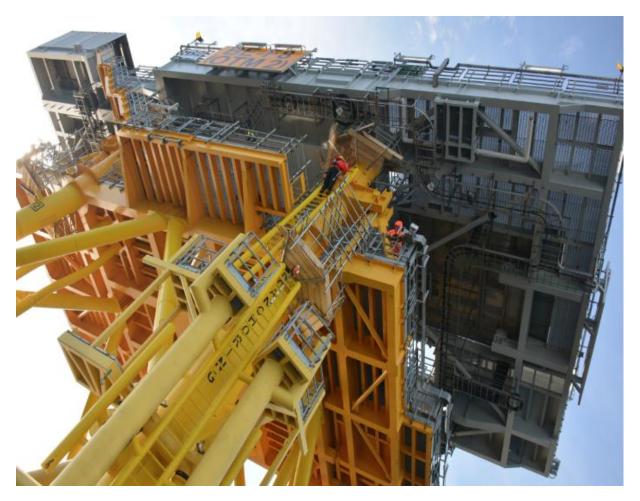


Fig. 3 OTM 2

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

2.2 Offshore Installation of Wind Turbines

Siemens Gamesa Renewable Energy (SGRE) will supply and install 84 x 7.0 MW wind turbines in the Beatrice Offshore Windfarm (BOWL). Wind turbine installation and commissioning works commenced offshore during July 2018, with completion of the installation expected in the Spring of 2019.

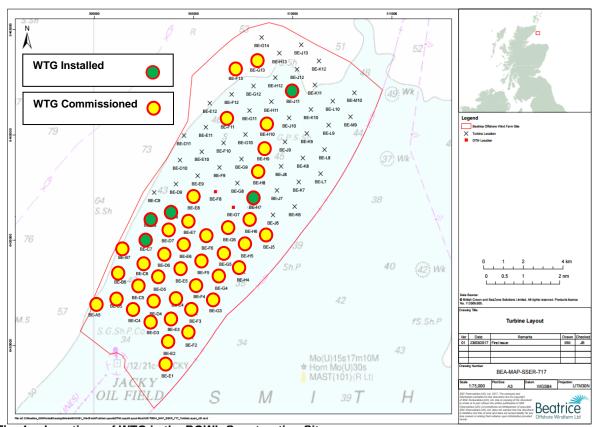


Fig. 4 Locations of WTG in the BOWL Construction Site

Table 1 WTG Installation and Commissioning Progress

Turbine installation completed at: 44 Locations

Turbine commissioning complete at: 39 Locations

Location ID	Latitude WGS84	Longitude WGS84	WTG Installed	WTG Commissioned
BE-A5	58° 12.471' N	002° 59.996' W	30.10.2018	12.11.2018
BE-B5	58° 12.687' N	002° 58.873' W	01.11.2018	16.11.2018
BE-B6	58° 13.308' N	002° 58.664' W	26.11.2018	07.12.2018
BE-B7	58° 13.929' N	002° 58.456' W	25.11.2018	06.12.2018
BE-C4	58° 12.307' N	002° 57.948' W	26.09.2018	09.10.2018

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

Location ID	Latitude WGS84	le WGS84 Longitude WGS84 WTG Installed		WTG Commissioned	
BE-C5	58° 12.902' N	002° 57.749' W	03.10.2018	28.10.2018	
BE-C6	58° 13.524' N	002° 57.541' W	19.10.2018	05.11.2018	
BE-C7	58° 14.144' N	002° 57.332' W	10.12.2018		
BE-C8	58° 14.766' N	002° 57.124' W	21.12.2018		
BE-C9	58° 15.386' N	002° 56.915' W			
BE-D3	58° 11.995' N	002° 57.002' W	20.08.2018	03.09.2018	
BE-D4	58° 12.497' N	002° 56.834' W	28.09.2018	11.10.2018	
BE-D5	58° 13.117' N	002° 56.626' W	06.10.2018	22.10.2018	
BE-D6	58° 13.739' N	002° 56.417' W	18.10.2018	16.11.2018	
BE-D7	58° 14.359' N	002° 56.209' W	15.10.2018	28.10.2018	
BE-D8	58° 14.981' N	002° 55.999' W	23.12.2018		
BE-D9	58° 15.602' N	002° 55.790' W			
BE-D10	58° 16.223' N	002° 55.582' W			
BE-D11	58° 16.844' N	002° 55.373' W			
BE-E1	58° 10.900' N	002° 56.256' W	08.10.2018	22.10.2018	
BE-E2	58° 11.470' N	002° 56.128' W	02.09.2018	15.09.2018	
BE-E3	58° 12.090' N	002° 55.920' W	17.11.2018	29.11.2018	
BE-E4	58° 12.712' N	002° 55.710' W	05.11.2018	21.11.2018	
BE-E5	58° 13.333' N	002° 55.502' W	08.09.2018	19.09.2018	
BE-E6	58° 13.954' N	002° 55.293' W	09.09.2018	06.10.2018	
BE-E7	58° 14.575' N	002° 55.084' W	06.09.2018	17.09.2018	
BE-E8	58° 15.196' N	002° 54.875' W	14.10.2018	29.10.2018	
BE-E9	58° 15.817' N	002° 54.665' W			
BE-E10	58° 16.438' N	002° 54.456' W			
BE-E11	58° 17.059' N	002° 54.247' W			
BE-E12	58° 17.680' N	002° 54.037' W			
BE-F2	58° 11.685' N	002° 55.005' W	23.07.2018	06.08.2018	
BE-F3	58° 12.306' N	002° 54.796' W	01.09.2018	12.09.2018	
BE-F4	58° 12.927' N	002° 54.588' W	15.09.2018	28.09.2018	
BE-F5	58° 13.548' N	002° 54.378' W	22.08.2018	13.09.2018	
BE-F6	58° 14.168' N	002° 54.169' W	23.08.2018	09.08.2018	
BE-F9	58° 16.031' N	002° 53.540' W			
BE-F10	58° 16.653' N	002° 53.330' W			
BE-F11	58° 17.274' N	002° 53.120' W	01.12.2018	21.12.2018	
BE-F12	58° 17.894' N	002° 52.911' W			
BE-F13	58° 18.516' N	002° 52.701' W	11.11.2018	13.12.2018	
BE-G3	58° 12.544' N	002° 53.726' W	14.08.2018	25.08.2018	
BE-G4	58° 13.142' N	002° 53.464' W	12.08.2018	24.08.2018	
BE-G5	58° 13.762' N	002° 53.254' W	02.08.2018	22.08.2018	
BE-G6	58° 14.384' N	002° 53.044' W	24.07.2018	23.08.2018	
BE-G8	58° 15.625' N	002° 52.625' W			
BE-G9	58° 16.247' N	002° 52.415' W			
BE-G10	58° 16.867' N	002° 52.204' W			
BE-G11	58° 17.488' N	002° 51.994' W			
BE-G12	58° 18.109' N	002° 51.784' W			
BE-G13	58° 18.730' N	002° 51.574' W	04.12.2018	15.12.2018	

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

Location ID					WTG Installed	WTG Commissioned		
BE-G14	58° 19.351' N	002° 51.362' W						
BE-H4	58° 13.356' N	002° 52.339' W	31.07.2018	20.08.2018				
BE-H5			20.07.2018	03.08.2018				
BE-H6	58° 14.598' N	002° 51.920' W	19.07.2018	01.08.2018				
BE-H7	58° 15.219' N	002° 51.709' W	24.12.2018					
BE-H8	58° 15.840' N	002° 51.499' W	16.08.2018	24.11.2018				
BE-H9	58° 16.461' N	002° 51.289' W	17.09.2018	24.11.2018				
BE-H10	58° 17.082' N	002° 51.079' W	02.12.2018	15.12.2018				
BE-H11	58° 17.703' N	002° 50.867' W						
BE-H12	58° 18.324' N	002° 50.657' W						
BE-H13	58° 18.944' N	002° 50.446' W						
BE-J5	58° 14.192' N	002° 51.005' W	14.07.2018	10.08.2018				
BE-J6	58° 14.812' N	002° 50.795' W						
BE-J7	58° 15.433' N	002° 50.585' W						
BE-J8	58° 16.055' N	002° 50.373' W						
BE-J9	58° 16.675' N	002° 50.163' W						
BE-J10	58° 17.296' N	002° 49.952' W						
BE-J11	58° 17.917' N	002° 49.741' W	26.12.2018					
BE-J12	58° 18.538' N	002° 49.530' W						
BE-J13	58° 19.159' N	002° 49.319' W						
BE-K6	58° 15.027' N	002° 49.669' W						
BE-K7	58° 15.648' N	002° 49.459' W						
BE-K8	58° 16.269' N	002° 49.247' W						
BE-K9	58° 16.890' N	002° 49.036' W						
BE-K10	58° 17.510' N	002° 48.825' W						
BE-K11	58° 18.131' N	002° 48.614' W						
BE-K12	58° 18.752' N	002° 48.403' W						
BE-L7	58° 15.862' N	002° 48.333' W						
BE-L8	58° 16.482' N	002° 48.122' W						
BE-L9	58° 17.104' N	002° 47.910' W						
BE-L10	58° 17.724' N	002° 47.698' W						
BE-M9	58° 17.317' N	002° 46.784' W						
BE-M10	58° 17.938' N	002° 46.571' W						

2.2.1 Activity Description

On behalf of BOWL, Siemens Gamesa Renewable Energy (SGRE) will supply 84 x SWT -7.0-154, 7MW Wind Turbine Generators to the laydown and assembly yard at Nigg Energy Park, in the Moray Firth.

Following pre-assembly, five sets of WTGs will be loaded onto the Offshore Installation / Jack up vessel Pacific Orca. The vessel will transport the WTGs to the BOWL construction site, installing each of the structures in a pre-programmed installation sequence.

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

The commissioning works will be carried out using a combination of the Walk to Work (W2W) vessel Island Crown and crew transfer vessels (CTVs), Fob Swath 3 and Seacat Resolute.

SGRE will also install and commission the Supervisory Control and Data Acquisition (SCADA) system for the operation of the WTGs.



Fig. 5 Siemens SWT-7.0-154 WTG installed at Beatrice OWF

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

2.2.2 Vessels Involved in Activity

The Offshore Supply Vessel / Jack-up Pacific Orca will carry out the installation of the 84 WTG. The commissioning works for the WTG will then be carried out using the W2W vessel Island Crown and CTVs Seacat Resolute and Fob Swath 3.

Pacific Orca			
General Description and Dims	Offshore Installation / Jack up Vessel 161m x 49m		
Call Sign: 5BRE3			
MMSI: 210548000			
Onshore Representative:	Gert Christensen, Marine Operation Manager Siemens Gamesa Renewable Energy A/S Fiskergade 1-9, 7100 Vejle, Denmark Mobile: +45 24295577 mailto:gert.christensen@siemensgamesa.com		



Island Crown			
General Description and Dimensions:	Accommodation and 'Walk to Work' vessel		
General Description and Dimensions.	L:96.8m / B:20m		
Call Sign: LACO8			
MMSI: 257245000			
	Gert Christensen, Marine Operation Manager		
	Siemens Gamesa Renewable Energy A/S		
Onshore Representative:	Fiskergade 1-9, 7100 Vejle, Denmark		
	Mobile: +45 24295577		
	mailto:gert.christensen@siemensgamesa.com		



Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-015. Weekly Notice of Operations - New 80			
Fob Swath 3			
General Description and Dimensions:	Crew Transfer Vessel (CTV)		
	L: 25m / B: 11m		
Call Sign: OUWY2			
MMSI: 219460000			
	Gert Christensen, Marine Operation Manager		
	Siemens Gamesa Renewable Energy A/S		
Onshore Representative:	Fiskergade 1-9, 7100 Vejle, Denmark		
	Mobile: +45 24295577		
	mailto:gert.christensen@siemensgamesa.com		



Seacat Resolute			
General Description and Dimensions:	Crew Transfer Vessel (CTV)		
General Description and Dimensions.	L: 25m / B: 11m		
Call Sign:	2FWR9		
MMSI:	235094873		
	Gert Christensen, Marine Operation Manager		
	Siemens Gamesa Renewable Energy A/S		
Onshore Representative:	Fiskergade 1-9, 7100 Vejle, Denmark		
	Mobile: +45 24295577		
	mailto:gert.christensen@siemensgamesa.com		



Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

2.3 Operational & Maintenance (O & M)

The transfer of custody, from project construction to Operations and Maintenance (O & M), of the first six WTG's on the Amber String took place on 7th September 2018.

Gold, Blue, Lime & Cyan Strings are now also under O & M custody.

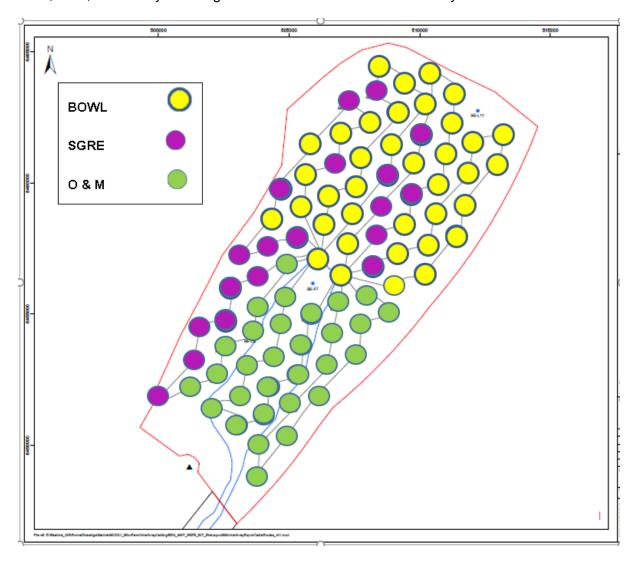


Fig. 8 Custody of Assets Chart

Siemens Gamesa Renewable Energy (SGRE) has taken over operational control of the scheduled maintenance and troubleshooting of the WTGs on the assets now under their custody.

To assist them in this regard they have engaged the CTV Seacat Mischief and an Airbus Helicopter H145 aircraft operated by the German company WIKING Helikopter Service GmbH.

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

The helicopter is based in a temporary hanger at Wick airport and will be used to transport suitably qualified SGRE technicians to work on the turbines when conditions to transfer by CTV are exceeded, but flying conditions are within limits. The technicians will be transferred to and from the nacelle by heli-hoist.

2.3.1 Vessel & Aircraft Engaged in Activity

Seacat Mischief			
General Description and Dimensions:	Crew Transfer Vessel (CTV)		
	L: 24m / B: 8m		
Call Sign: 2IXU5			
MMSI: 235113651			
	Martin Baker		
	Offshore Service Manager		
Onshore Representative:	Beatrice Offshore Windfarm Ltd		
	+44 7921 836268		
	Martin.baker@siemensgamesa.com		



Wiking Helicopter H145				
General Description and Dimensions: Airbus H145. Twin-engine, multi-purpose hel 13.63 x 3.29 x 4.00m Rotor diameter 11.0m				
Call Sign:	WHS2AF "Wiking Alpha Foxtrot"			
Onshore Representative:	Martin Baker Offshore Service Manager Beatrice Offshore Windfarm Ltd +44 7921 836268 Martin.baker@siemensgamesa.com			



Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

2.4 Scientific Equipment

The following table shows the locations of the University of Aberdeen's scientific moorings which are located within the construction site.

Name	As laid coordinates (WGS84 datum)		Characteristics
160	58° 17.648'N 002° 49.931'W		Subsurface with transponder
161	58° 13.000' N 002° 56.011' W		Subsurface with transponder.
162	58° 18.176' N 002° 54.124' W		Subsurface with transponder.
164	58° 12.817' N 002° 51.694' W		Subsurface with transponder

The moorings support sound recording equipment and acoustic loggers that record echolocation clicks of dolphins and porpoises (see images as the foot of this notice) Subsurface moorings fitted with acoustic releases extend no more than three metres vertically from the seabed. Subsurface moorings without acoustic releases extend no more than two metres vertically from the seabed.

A Notice to Mariners will be issued when the moorings are permanently discontinued.

For information and enquiries please contact:

Tim Candido- Barton, Lighthouse Field Station, University of Aberdeen, George Street, Cromarty, Ross-shire, IV11 8YL.

Tel: +44 (0)1381 600548. t.r.barton@abdn.ac.uk



Fig. 9 Examples of equipment which the above moorings support

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

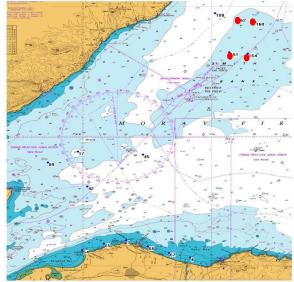


Fig. 10 Scientific equipment locations (remaining locations in red)

3. 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.

The Secretary of State has authorised the use of the following safety zones as per Notice to Mariners LF000005-NTM-004.

- 500 metres radius around each wind turbine, offshore transformer module and / or their substructures and foundations comprising the Beatrice Offshore Wind Farm whilst work is being performed as indicated by the presence of construction vessels.
- 2. 50 metres radius around each wind turbine, offshore transformer module and / or their substructure and foundations installed but waiting to be commissioned as part of the Beatrice Offshore Wind Farm.

ALL VESSELS ARE REQUESTED to give all construction and support vessels a wide berth.

MARINERS ARE REMINDED to navigate with caution and keep continued watch on VHF Ch. 70 / 16 when navigating the area.

The Chart shown on page 19 below, shows the indicative transit routes and site entry gates for vessels entering the construction site from either the port of Wick (North) and Cromarty / Nigg (South) to avoid the highest density areas of static fishing gear.

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

4. Safety Zone Monitoring

Dedicated guard vessels have been utilised during all key construction activities on site, however now that the most vulnerable operations are complete, the guard duties covering the monitoring of Safety Zones, have been re-assigned to the Marine Coordination Centre (MCC) and other on-site vessels. The following conditions apply to ensure continuous monitoring during the remaining construction phase:

- Marine coordination undertaken in Wick from the established MCC, including 24-hour site monitoring via AIS and radar (both OTMs are fitted with AIS, X-band RADAR and marine VHF radios, including Digital Selective Calling (DSC));
- 500m safety zones around any structure where active construction work is ongoing (as denoted by the presence of a construction vessel);
- 50m safety zones around any finished structure up until the point of commissioning;
- All jackets have appropriate temporary or permanent lighting in operation;
- All jackets (both pre-and post-turbine installation) are marked with yellow paint as required;
- The agreed cardinal marks and special marks remain in place and will continue to be in place until the NLB are satisfied that final operational lighting and marking has been commissioned:
- The cardinal marks are broadcasting via AIS;
- Continued compliance with the BOWL Navigational Safety Plan
- The wind farm is marked on the appropriately scaled Admiralty Chart;
- Weekly notices of operations and notices to mariners will continue to be issued, and notices will be submitted via Kingfisher bulletins where appropriate.

5. Fisheries Liaison

Fisheries liaison associated with the activity will be co-ordinated by Brown and May Marine. For any commercial fishery queries please contact:

Jen Miller Tel + 44 (0)1379 872144 Mobile +44 (0)7519 106002 jen.miller@brownmay.com

All vessels are to be aware that there has been increased fishing activity close to the BOWL site and vessels may encounter static fishing gear whilst transiting to and from the site. Vessels sheltering to the South and West of the site should pay particular attention and keep a sharp lookout for such static fishing gear. Vessels are reminded that there are recommended transit routes to site, which should help avoid the areas of known fishing activity. (See chart Page 19)

6. 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

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

LF000005-WNO-013: Weekly Notice of Operations - Rev 86

or do not wish to receive the notices in the future, please contact us at the address included in Section 1 of this notice.

7. Website

The official website of Beatrice Offshore Windfarm Limited can be found at:

https://www.beatricewind.com

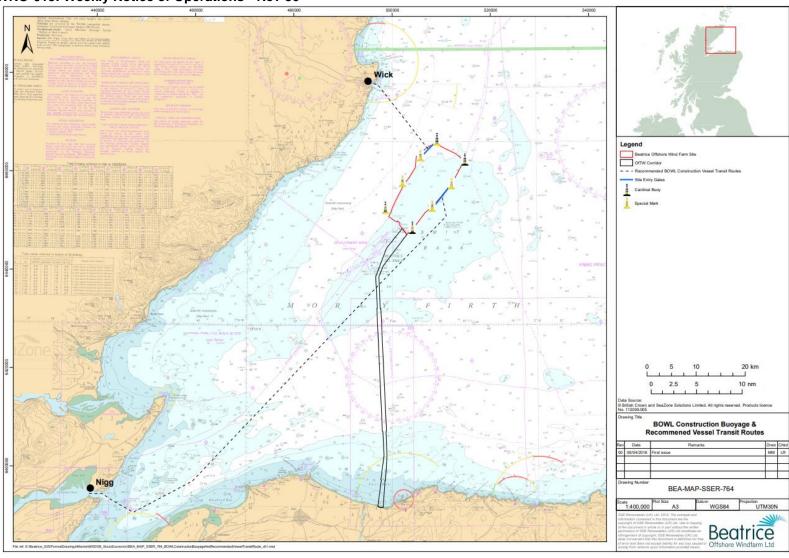
This contains all Notices to Mariners (NtM) published by BOWL and all Weekly Notices of Operations, together with a large amount of general information about the Project.

There is also a Twitter feed at https://twitter.com/beatricewind.

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018



Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

No Ref	Vessel Picture	Vessel Name / Flag	Type / Function	Operator	Contact / contact details	Call sign / MMSI / IMO	LOA (m) Beam (m) Draft (m)	Date on Site	Marine Licence applicable
1		Island Crown	Walk to work WTG commisioning	Stålhaugen 12, 6065 Ulsteinvik, Norway +47 70400000	Gert Christensen Marine Operations Manager Siemens Gamesa Renewable Energy Fiskergade 1-9 7100 Vejle DENMARK gert.christensen@siemensgamesa.com + 45 242 95577	LACO8 / 257245000	96 x 20 m	15.07.2018	OWF
2		Seacat Intrepid	Crew Transfer Vessel / CTV	Seacat Services Ltd	Andrew Link Operations Manager, Seacat Services Ltd 2 Mariners Way, Cowes, Isle of Wight +44 (0) 1983 475315 operations@seacatservices.co.uk	2HWU6 / 235107284	27 x 10 x 1.5m	25.09.2017	OWF & OFTW
3	- Contract of the Contract of	Dalby Ribble	Crew Transfer Vessel / CTV	Seacat Services Ltd	Andrew Link Operations Manager, Seacat Services Ltd 2 Mariners Way, Cowes, Isle of Wight +44 (0)1983 475315 operations@seacatservices.co.uk	2IVX5 / 235113236	25.75 x 10.06m	01.07.2018	OWF / OFTW
4	Way .	Seacat Resolute	Crew Transfer Vessel / CTV	Seacat Services Ltd	Gert Christensen Marine Operations Manager Siemens Gamesa Renewable Energy Fiskergade 1-9 7100 Vejle DENMARK gert.christensen@siemensgamesa.com + 45 242 95577	2FWR9 / 235094873	24 x 7m	30.06.2018	OWF
5		Pacific Orca	Offshore Supply Ship	Siemens Gamesa Renewable Energy (SGRE)	Gert Christensen Marine Operations Manager Siemens Gamesa Renewable Energy Fiskergade 1-9 7100 Vejle DENMARK gert.christensen@siemensgamesa.com + 45 242 95577	5BRE3 / 210548000	161.3 x 49.02m	10.07.2018	OWF

Beatrice Offshore Windfarm Limited Construction Operations



Issue Date: 31 December 2018

No Ref	Vessel Picture	Vessel Name / Flag	Type / Function	Operator	Contact / contact details	Call sign / MMSI / IMO	LOA (m) Beam (m) Draft (m)	Date on Site	Marine Licence applicable
6	- April	FOB Swath 3	Crew Transfer Vessel / CTV	Siemens Gamesa Renewable Energy (SGRE)	Gert Christensen Marine Operations Manager Siemens Gamesa Renewable Energy Fiskergade 1-9 7100 Vejle DENMARK gert.christensen@siemensgamesa.com + 45 242 95577	OUWY2 / 219460000	24.97 x 10.83m	10.07.2018	OWF
7		CTV Seacat Mischief	Crew Transfer Vessel / CTV	Siemens Gamesa Renewable Energy (SGRE)	Martin Baker Offshore Service Manager Beatrice Offshore Windfarm +44 7921 836268 martin.baker@siemensgamesa.com	2IXU5 / 235113651	24 x 8m	15.08.2018	OWF