13 SHIPPING AND NAVIGATION

13.1 INTRODUCTION

1. This section of the ES Addendum presents an evaluation of the likely significant effects of the Amended Project on shipping and navigation associated with the amendments presented in Section 4: Amended Project Description. In addition, this section presents a discussion of the effects which may occur as a result of the most likely scenario. The assessment has been undertaken by Anatec.

2. Specifically, this section of the ES Addendum assesses the effects associated with:

   - The Amended OfTW Corridor; and
   - Changes to the OfTW cable installation timescales.

3. This assessment is supported by the following documents located within the Original ES:

   - Annex 28A: OfTW Navigation Risk Assessment.

4. This section presents an addendum to Section 28: OfTW Shipping and Navigation of the Original ES. Where applicable, reference is made in this assessment to the Original ES.

5. It should be noted that the changes to the jack-up vessel footprints included in the Amended Project do not affect the worst case scenario in relation to the assessment of effects on shipping and navigation and have been scoped out of this assessment. There are therefore no amendments to Section 18: Shipping and Navigation (see Section 13.3 for rationale).

6. This section includes the following elements:

   - Consultation;
   - Scope of Assessment;
   - Baseline;
   - Assessment Methodology;
   - Assessment of Potential Effects;
   - Mitigation Measures and Residual Effects;
   - Assessment of Cumulative Effects;
   - Statement of Significance; and
   - References.

13.2 CONSULTATION

7. Following the submission of the Original ES in April 2012 Beatrice Offshore Wind Farm Ltd (BOWL) has received consultation responses via Marine Scotland Licensing Operations team (MS-LOT) from various statutory and non-statutory consultees. A summary of these responses in relation to shipping and navigation is presented in Table 13.1. Reference is also provided as to where these issues are addressed within this ES Addendum, if applicable.

Table 13.1: Summary of Original ES Consultation Responses and Project Response

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
Chamber of Shipping (CoS)	CoS confirmed that they had been consulted at various stages of the planning process and that they had provided advice on shipping and navigation issues. CoS acknowledged that the proposed Wind Farm Site is in an area with relatively low levels of commercial shipping activity and that the main concentrations of traffic on the Pentland Firth route are some 4-5 nautical miles (NM) from the site boundary. CoS stated that previous concerns regarding reduction in available sea room between the Project and the coastline had been addressed in earlier consultation. As a result, CoS agree with the assessment that impacts on commercial shipping are likely to be relatively low.	Noted. No further action required.	No further environmental information required in the ES Addendum.
	CoS confirmed that their primary concerns have been the cumulative impacts of the Beatrice and Moray Firth wind farms on navigation. CoS requested clarification as to whether any future collaborative work will be produced and whether developments in the Moray Firth Zone will have any impact on the plans for Beatrice or vice-versa.	Given the proximity of the Moray Firth Round 3 Zone to the Beatrice Offshore Wind Farm development, Moray Firth Offshore Wind Developers Group (MFOWDG) was formed by BOWL and Moray Offshore Renewables (MORL) in partnership with The Crown Estate to work collaboratively on potential regional cumulative effects arising from their proposed offshore wind development. As part of this collaborative approach, a joint navigational Hazard Review workshop and a number of consultation meetings were carried out with Maritime and Coastguard Agency (MCA), CoS, Royal Yachting Association (RYA) /	Addressed by letter sent to CoS on 11th January 2013. No further environmental information required in this ES Addendum.

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
		Cruising Association (CA), Northern Lighthouse Board (NLB) and Oil & Gas operators. This approach allowed marine stakeholders to be consulted on both developments. The outcomes of this were used within the Navigation Risk Assessment (NRA) which concluded cumulative and in-combination effects from nearby developments including the Moray Firth Round 3 Zone, were low given the low density of shipping passing through the area with the majority of shipping passing clear to the NE. There will be continued dialogue within the MFOWDG throughout the development process to support the effective management of cumulative and in combinations effects to navigation safety.	
	CoS noted that wind turbines will be aligned in straight lines to aid navigation (see Chapter 18, Paragraph 99) and consider this to be an important mitigation measure in reducing navigational safety risks.	Noted. No further action required at this stage.	No further environmental information required in this ES Addendum.
	CoS stated that the possibility of anchor interaction with both cable route options, particularly, in the Spey Bay area, remained a concern. CoS identified that navigational stakeholders should be consulted on the planned Burial Protection Index (BPI) assessment and advised that issues have arisen with the use of rock dumping as a cable protection mitigation	An Anchoring Impact Assessment and a Burial Protection Study will be carried out to address these comments once detailed design of the OfTW has been completed.	Addressed by letter sent to CoS on 11th January 2013. No further environmental information required in this ES Addendum.

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
	measure at wind farms off the east coast of England. CoS recommended that, where possible, cables should be buried at depths sufficient to ensure continued safe anchoring and navigation.		
	CoS stated that a full rationale for the possible application of 50m operational safety zones should have been provided in the ES. CoS advised that as operational safety zones are not regarded as standard practice developers should factor the impacts of such zones into the NRA. CoS felt that the expected benefits of operational safety zones as a potential mitigation measure should have been assessed in the ES and advised that any future application to DECC should include a revised NRA, clearly explaining why the mitigation measures outlined in the original application have proved inadequate in ensuring navigational safety.	Further assessment of the use of operational safety zones will be carried out once detailed design of the OfTW has been completed. It is acknowledged that these will require full justification on grounds of navigational safety. If safety zones are not justified, the NRA would be updated to assess any changes in risk as a result of their removal.	Addressed by letter sent to CoS on 11th January 2013. No further environmental information required in this ES Addendum.
	CoS confirmed that they accept the application on the basis that overall risks to navigation are low, however they requested that the issues raised in this response are addressed and that navigational stakeholders are kept informed of any developments.	N/A	No further environmental information required in this ES Addendum.
Maritime and Coastguard Agency (MCA)	MCA confirmed that they have reviewed the Shipping and Navigation Safety aspects of the Environmental Statement provided by BOWL paying particular attention to the NRA contained at Annex 18A of the Original ES. MCA noted	N/A	No further environmental information required in this ES Addendum.

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
	that a MGN 371 checklist was included by the developer which provided confirmation from BOWL on their considered compliance with the requirements laid out in MGN 371.		
	MCA noted that the NRA addresses the requirements associated with traffic and navigation safety and identified that a significant data set is missing under Annex 2, Section 6 iii Hydrography, which requires that an IHO Order 1 standard multibeam bathymetry survey is undertaken and a full digital data set submitted with the NRA. MCA noted that the survey is evidenced within the main document identifying the tracks of the survey vessels, but that as the data had not been included the full NRA review could not be completed until its submission.	It is confirmed that an IHO Order 1 standard multibeam bathymetry survey was undertaken and in response a full digital data set was submitted to the MCA.	Addressed by letter sent to MCA on 29th June 2012. No further environmental information required in this ES Addendum.
	MCA observed that Section 17.2.5 uses out of date references to ETVs, misquotes the provision and intended use of the CAST services, and makes no reference to the numerous potential commercial emergency towing options that may be available from the Oil & Gas Industry serving the North Sea. MCA identified that the developer needs to address within this section how it will respond to an emergency situation with a drifting/disabled vessel within its development area.	The references used within the NRA and ES were correct at the time of writing. The detailed Emergency Response Plans, which will be produced during the final design stage and submitted for approval prior to construction commencing, will reflect the requirements at the time of writing.	Addressed by letter sent to MCA on 29th June 2012. No further environmental information required in this ES Addendum.
	MCA advised that detailed Emergency Response plans	As detailed in comment above.	Addressed by letter sent to

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
	will need to be presented and endorsed prior to any construction being consented.		MCA on 29th June 2012. No further environmental information required in this ES Addendum.
Northern Lighthouse Board (NLB)	NLB confirmed they are content with the contents of the NRA, and have no objections in principle to the development.	N/A	No further environmental information required in this ES Addendum.
	NLB advised that they are unable to specify final marking and lighting requirements owing to the lack of clarity in the licence application with regard to the number and layout of turbines, the number and location of offshore sub-stations and meteorological masts, and cumulative impacts with regard to the Moray Offshore Wind Farm.	N/A	No further environmental information required in this ES Addendum.
	NLB stated that they anticipate that the granting of any of the above consents would be conditional, in that final approval, including marking and lighting requirements, would only be given once a final 'Construction Statement' detailing the site components and layout has been submitted by the developer. NLB advised that the licence should be worded to ensure any failure to provide or exhibit markings as required by NLB would be a breach of licence conditions.	This feedback is in line with the understanding of the Project.	Addressed by letter sent to NLB on 11th January 2013. No further environmental information required in this ES Addendum.
Royal Yachting Association (RYA)	RYA Scotland made no objection to the consent application submitted by BOWL.	N/A	No further environmental information required in this ES Addendum.

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
	RYA acknowledged and approved of the minimum device spacing of 600 metres, the minimum rotor clearance of 25.4 metres above LAT and the commitment to work with stakeholders with regard to the precise location of buoys and beacons.	N/A	No further environmental information required in this ES Addendum.
	RYA commented their presumption that in Table 18.3 of the Original ES on potential impacts and mitigation measures, 'other media' include recreational sailing directions and pilots as these are key sources of information for recreational sailors.	The presumption that 'other media' will include recreational sailing directions and pilots is correct.	Addressed by letter sent to RYA on 11th January 2013. No further environmental information required in this ES Addendum.
	RYA highlighted the statement in section 28.5.6, paragraph 117 'burying the export cable in waters less than 10 metres is not an issue' as being ambiguous. RYA suggested that this was presumably intended to mean that it is not an issue for the developers as the cable will always be buried or protected in such shallow waters.	This will be reviewed as part of the anchor interaction and burial protection study that is to be carried out in support of the development once detailed design has been completed for the OfTW. Consultation will be carried out as part of this process. BOWL are aware of the adopted standards of the Cruising Association (CA) for cable landings which will be considered through forthcoming assessments: • In depths greater than 10m, cables can be buried, trenched, left on seabed, blanketed, etc. Yachts rarely anchor in these depths and the CA has few concerns. • In depths less than 10m, cables should be buried with minimum cover of 1.5m. CA believe that yacht anchors rarely bury more than 0.5m but in exceptional circumstances this may go to 1m	Addressed by letter sent to RYA on 11th January 2013. No further environmental information required in this ES Addendum.

Consultee	Summary of Consultation Response	Project Response	Consultation Response Addressed
		• The covering of cables in depths <10m should be flat to the surrounding seabed, i.e. they should not present 'humps' across the area higher than the depths charted nearby. • Cable locations should be charted to normal UKHO standards.	

13.3 SCOPE OF ASSESSMENT

8. As shown in Section 13.2, there are no consultation responses which have required further material information or renewed assessment to be presented in this section. All consultation responses relating to shipping and navigation have been dealt with outwith this ES Addendum.

9. There are no amendments to methodologies or receptors which need to be presented in this section.

10. The further cumulative information relating to the Moray Firth Round 3 Zone does not require any amendment to the assessment of shipping and navigation.

11. The scope of this section has therefore been determined by considering the changes to the Project presented in Section 4: Amended Project Description. Specifically, as stated in Section 13.1, the effects associated with:

- The Amended OfTW Corridor; and
- Changes to the OfTW cable installation timescales.

12. The amended jack-up vessel footprints bear no relevance to the assessment of effects on shipping and navigation as the larger area of the footprints still falls within the 500 m safety exclusion zone to be implemented during construction. Hence, the amended jack-up vessel footprints do not fall within the scope of this ES Addendum.

13. Section 13.6 considers the effects on shipping and navigation associated with the Amended Project. The conclusions of this assessment are supplemental to those of the Original ES and this section must be read alongside Section 28: OfTW Shipping and Navigation of the Original ES. Section 13.6.2 discusses the 'most likely' scenario.

13.4 BASELINE

13.4.1 STUDY AREA

14. The Study Area for the assessment of effects on shipping and navigation was presented in Section 28.2.2.2 of the Original ES. This was defined as a 10 NM radius of the Original OfTW Corridor.

15. The additional area created by the amendment to the Original OfTW Corridor in relation to the Study Area is presented in Figure 13.1.

16. Due to the limited extent of the amendment to the Original OfTW Corridor, the Original Study Area still provides comprehensive coverage of a minimum of 9.8 NM around the Amended OfTW Corridor. No further baseline information is presented in addition to that contained in Section 28.3 of the Original ES.

13.4.2 BASELINE CONDITIONS

17. As the Original Study Area covered the whole of the additional area included within the Amended OfTW Corridor and still provides coverage to a minimum of 9.8 NM, the baseline conditions remain unchanged from those presented in Section 28.3 of the Original ES.

13.5 ASSESSMENT METHODOLOGY

18. The assessment methodology remains unchanged from that presented in Section 28.2.4 of the Original ES.

13.5.1 WORST CASE SCENARIO

19. A description of the Amended OfTW Corridor and associated changes to the Project parameters from the Original ES is presented in Section 4: Amended Project Description.

20. Section 28.2.4.1 of the Original ES stated the worst case parameters for shipping and navigation to be:

- The maximum number of cables and largest length of unburied cable(s); whereby 45% of the cable will be protected by either rock placement or concrete mattresses, representing the greatest potential anchor interaction risk; and
- The maximum duration of the OfTW installation (cable laying and burial/protection activities) constituting the greatest loss of navigable sea room.

21. The Amended Project Description changes the maximum duration of the OfTW installation. The Original ES presented a worst case cable laying and protection scenario of 240 days. Since the submission of the Original ES, further information has become available relating to the construction processes for the Project. Consequently, this ES Addendum has considered a revised worst case cable laying scenario of 140 days per year for three years, plus an additional 90 days per year, for three years for cable protection operations.

22. No further changes from the worst case scenario presented in the Original ES have been made.

13.5.2 MOST LIKELY SCENARIO

13.5.2.1 Wind Farm

23. As stated in Section 18.2.4.1 of the Original ES, for the shipping collision risk assessment, the worst case scenario within the Rochdale Envelope parameters is the maximum number of turbines, therefore 277, and the smallest spacing between structures which is represented by the largest substructure and foundation, a jacket

with gravity base. This presents the worst case maximum loss in navigable sea room and largest turbine platform dimension for ship collision risk. This also applies to the offshore substation platforms (OSPs) and the meteorological masts.

24. The most likely scenario would have 140 turbines with a jacket substructure pin piled into the sea bed. The OSPs and meteorological masts would have the same substructure and foundations.

13.5.2.2 OfTW

25. The two parameters, potential for anchor interaction risk from cable protection (maximum number of cables and length of unburied cables) and duration of OfTW cable installation, determine the worst case scenario for the OfTW with regard to shipping and navigation.

26. The maximum extent of cable protection which has potential risk of anchor interaction is 0.26 km^2 and is the same between the worst case scenario and the most likely scenario.

27. The duration of the OfTW cable installation is 140 days per year for three years, plus an additional 90 days per year, for three years for cable protection operations in the worst case scenario. The most likely scenario is a two year OfTW cable installation programme including 187 days of OfTW cable installation plus 128 days of cable protection in Year 1, and 100 days of OfTW cable installation plus 64 days of cable protection in Year 2.

13.6 ASSESSMENT OF POTENTIAL EFFECTS

13.6.1 WORST CASE SCENARIO

13.6.1.1 OfTW

28. Consideration has been given to the Amended OfTW Corridor and OfTW cable installation timescales in terms of the potential effects on shipping and navigation. However, the amendments have not resulted in any changes to the assessment of the effects of the OfTW on shipping and navigation. The temporary nature of the works, combined with the available sea room in the area for passing commercial, recreational and fishing vessels, will result in limited further effects from the extended timeframe of cable laying operations.

29. Therefore, the potential effects remain unchanged from those presented in Section 28.5 of the Original ES.

13.6.2 CONSIDERATION OF THE MOST LIKELY SCENARIO

13.6.2.1 Wind Farm

30. With regard to the Wind Farm, the most likely scenario would have 137 fewer turbines than the worst case as assessed in Section 18.5 of the Original ES. This would result in a smaller loss of navigable sea room and therefore reduce the effect on shipping and navigation. The effects would remain not likely significant effects in terms of the EIA Regulations.

13.6.2.2 OfTW

31. With regard to the OfTW, it is recognised that, compared to the worst case, the most likely scenario includes a greater duration of OfTW cable installation and cable protection during Year 1 of OfTW cable installation works. However, given the nature of the effects on shipping and navigation, such as effects on vessel routeing and increased collision risk due to cable laying vessels, the total duration of works (as opposed to the number of days per year) is considered to be the relevant parameter.

32. In the most likely scenario, this has been reduced from 690 days to 479 days. Therefore the effect on shipping and navigation would be reduced from those presented in Section 28.5 of the Original ES. The effects would remain not likely significant effects in terms of the EIA Regulations.

13.7 MITIGATION MEASURES AND RESIDUAL EFFECTS

33. Mitigation measures remain unchanged from those presented in Section 28.6 of the Original ES.

34. Residual effects remain unchanged from those presented in Section 28.6 of the Original ES.

13.8 ASSESSMENT OF CUMULATIVE EFFECTS

35. Cumulative effects remain unchanged from those presented in Section 28.9 of the Original ES.

13.9 STATEMENT OF SIGNIFICANCE

36. As the findings of the assessment in the Original ES remain unchanged, the statement of significance remains unchanged from that presented in Section 28.10 of the Original ES.

13.10 REFERENCES

37. References remain unchanged to those presented in Section 28.11 of the Original ES.

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