

Appendix I: Consultation Representations & Advice

From: [Ruari Kelly](#)
To: [MS Marine Renewables](#)
Subject: RE: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021
Date: 16 November 2021 08:19:16
Attachments: [image004.png](#)

Dear Sir/Madam,

I refer to the above consultation and would confirm that my Council has no comments to make and therefore offers a "nil return" response.

Kind regards,

Ruari

Ruari Kelly | Planning Officer (Development Standards) | Angus Council |
01307 492125 | kellyr@angus.gov.uk | www.angus.gov.uk

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COVID-19

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From: radionetworkprotection@bt.com
To: [MS Marine Renewables](#)
Cc: [Bamlett R \(Rebecca\)](#); radionetworkprotection@bt.com
Subject: RE: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021 - WID11675
Date: 12 November 2021 12:56:45
Attachments: [image003.png](#)
[image005.png](#)



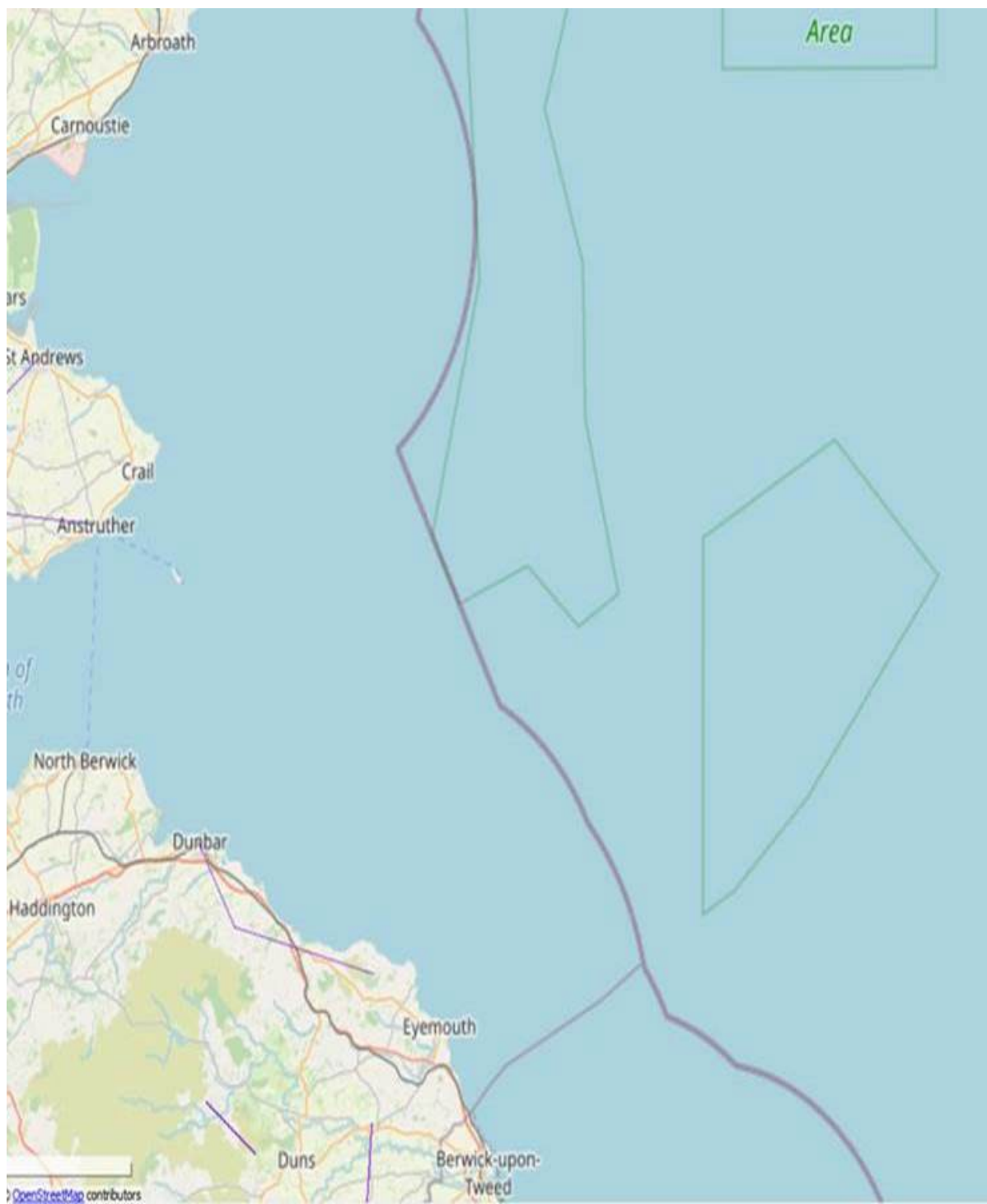
-
OUR REF: WID11674

Thank you for your email dated 21/10/2021.

We have studied this proposal, using Figure 5.1: Physical Processes Study Area below from the scoping report online, with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that, the Project indicated should not cause interference to BT's current and presently planned radio network. Please see below where our radio links are demonstrated as purple lines on the main land.

Please direct any queries to radionetworkprotection@bt.com



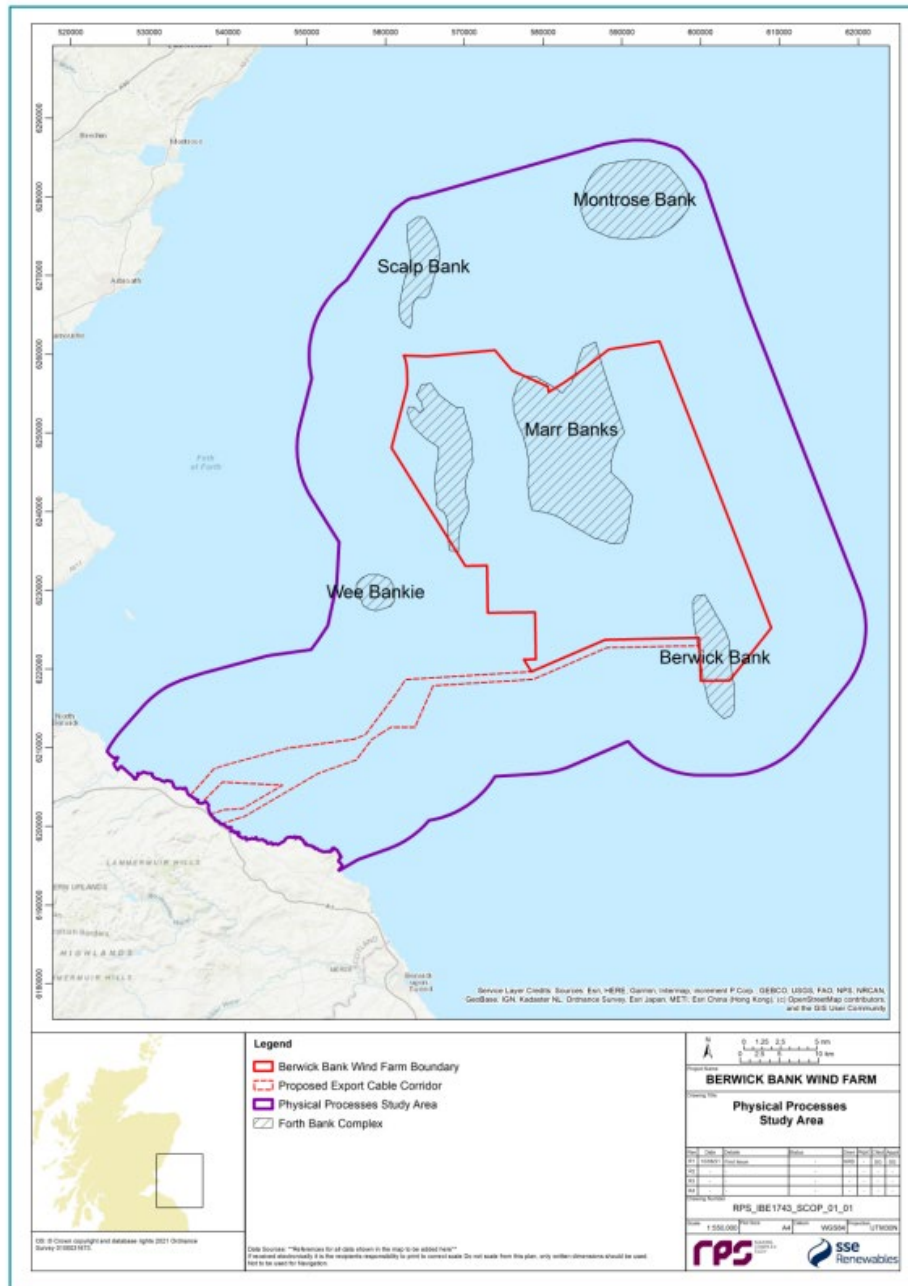


Figure 5.1: Physical Processes Study Area

Regards

Lisa Smith

Engineering Services – Radio Planner Networks



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From: [Robert Merrylees](#)
To: berwickbank@sse.com; [MS Marine Renewables](#)
Subject: Berwick Bank Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021
Date: 19 November 2021 14:31:31
Attachments: [FW Berwick Bank Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 7 October 2020.msg](#)

Dear Marine Scotland and Berwick Bank,

Thank you for the consultation request to the UK Chamber of Shipping for comments on the Scoping Report of the proposed development of Berwick Bank.

The Chamber welcomes opportunity to respond. The Chamber is the trade association for the UK shipping industry, representing some 200 members, operating 900 vessels equalling 18 million GT in capacity, trading around the UK and globally. The Chamber represents the full breadth of the industry, including dry and wet trades, passenger transport (cruise & ferry), offshore supply and construction, towage and specialist, as well as professional service providers with shipping interests.

The Chamber fully supports the Government's obligations to achieve Net Zero Carbon by 2050, 2045 in Scotland, and welcomes the development of offshore renewable energy to succeed. The ports and shipping industries play an essential in enabling those targets to be achieved by providing bases and vessels for construction, operation & maintenance, and decommissioning. The Chamber also asserts that the planning and consultation system must support both the UK's offshore renewable goals and the wider shipping industry to ensure that navigational safety is not compromised nor economic contribution from the shipping industry jeopardised, as stated within Paragraph 2.6.162 of NPS EN-3.

The Chamber provided initial comments via email to the August version of the Scoping Report (attached) and further attended on 28 September 2021 a Berwick Bank Hazard Workshop organised by Anatec Ltd.

Having reviewed the Scoping Report published October 2021, the Chamber has some concerns regarding the impact to navigational safety, in particular posed by the cumulative impact of wind farms in the area, Seagreen (under construction), Inch Cape (Consented) and Neart na Gaoithe (under construction). The Chamber recognises that within the cumulative assessment the wider area will be considered, however given the scale of the proposed Berwick Bank development and its proximity to three consented wind farms, it has concerns that a 10nm Shipping and Navigation Study Area is sufficient and suggests this need extending, especially to the West and North to take in the other wind farm areas.

The proposed development's Red Line Boundary has the potential to amount to considerable navigational squeeze, between it and other developments as the "gaps" between the proposed development and Inch Cape and Seagreen are minimal. This, in the Chamber's view, likely to result in two effects to majority of transiting vessel traffic. Either, traffic will choose to route entirely to the West of the sites, the close inshore route which leads to interaction with shallower waters, large amounts of fishing activity, in particular static gear, and potential interaction with Forth Ports Harbour Authority VTS to request intention of vessels. Or traffic will transit entirely to the East of the developments further offshore, from SAR resource and with

greater deviation.

Hence, the Chamber would recommend detailed traffic mapping of both scenarios and implications of both, but also recommend redefining of the RLB to increase in size the “gap” between the proposed Berwick Bank and Inch Cape, and Berwick Bank and Seagreen.

Given the status of the other wind farms in the area, at the vessel traffic data is not representative of those sites at build out and will need detailed examination and scenario modelling for traffic behaviour. As such, from the limited data provided to date, pre full NRA, it is not of the Chamber’s opinion that Paragraph 2.6.162 of NPS EN-3 is being met and considerable further mitigation beyond that included as “Designed in Measures”.

The Chamber also raises awareness of the common movement of rigs, semi-submersibles and other non-regular traffic in the area which need full consideration and are unlikely to show within two 14-day periods of AIS & radar survey data, and was not picked up in the initial Hazard Workshop. Such movements, often engaged via a long tow often have reduced manoeuvrability and need careful consideration.

The Chamber trusts that these comments are of value and welcomes any follow up or additional queries on them.

Yours faithfully,
Robert

Robert Merrylees
Policy Manager (Safety & Nautical) & Analyst

UK Chamber of Shipping
30 Park Street, London, SE1 9EQ

DD +44 (0) 20 7417 2843

[Redacted]

rmerrylees@ukchamberofshipping.com

www.ukchamberofshipping.com

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Your ref: none given

Our ref: CONS GOV\Marine Scotland - projects\2021 Berwick Bank windfarm
offshore scoping

John Muir House
Haddington
East Lothian
EH41 3HA
Tel 01620 827827

Via email only to: ms.marinerenewables@gov.scot

Dear Marine Scotland,

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE
LICENCES FOR THE BERWICK BANK OFFSHORE WIND FARM LOCATED 39.2 KILOMETRES EAST
OF EAST LOTHIAN**

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT)
(SCOTLAND) REGULATIONS 2017
REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT)
(SCOTLAND) REGULATIONS 2017
REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) REGULATIONS 2007**

I refer to your consultation of East Lothian Council on the above.

Intertidal area/relationship with onshore Environmental Impact Assessment

I have attached with this letter the Scoping Opinion issued by East Lothian Council in regard of the onshore works, which includes the intertidal zone. The information noted in this Scoping Opinion is expected to be provided by the applicant within the Environmental Impact Assessment Report (EIAR) related to the onshore works.

Please note out views on the connection between the onshore and offshore EIA Reports. There should be a clear reference within the offshore EIAR as to where the information on the onshore works can be found. This will be provided at www.eastlothian.gov.uk/planning once it is received by the Council. Interested parties will be able to search for the information using the planning application reference number and/or address and name of the project. If the planning reference number is known at the time of writing the offshore EIAR it should be included within the offshore EIAR to help people find this information.

Landscape

Answering the questions as posed in section 7.5.9 of the October 2021 Scoping Report

Q: Do you agree that the data sources identified in Appendix 14 are sufficient to inform the baseline for the Proposed Development EIA Report?

Table 14.1 Key Sources of Information for Seascape, Landscape and Visual should include:

East Lothian Core Paths: maps available from our website, here: [Core paths maps](#) | [Core paths](#) | [East Lothian Council](#) , if they are not included in the OPEN Rights of Way internal dataset. East Lothian Council may be able to supply this as a GIS dataset (subject to OS copyright issues).

East Lothian Green Network Strategy SPG, available from here:

https://www.eastlothian.gov.uk/downloads/file/30113/green_network_strategy_spg . This Strategy includes information on Local Geodiversity Sites, including one at Thorntonloch, which may be useful. The information on the Local Geodiversity Sites is available here:
<http://nora.nerc.ac.uk/id/eprint/509518/>

East Lothian Special Landscape Area Supplementary Planning Guidance, here:

[Special Landscape Areas SPG - Part 1 | East Lothian Council](#)

[Special Landscape Areas SPG - Part 2 | East Lothian Council](#)

[Special Landscape Areas SPG - Part 3 | East Lothian Council](#)

East Lothian Supplementary Planning Guidance: Countryside and Coast, here:

[Countryside and Coast SPG | East Lothian Council](#)

The guidelines for development within the Special Landscape Area SPG and the Countryside and Coast SPG will help provide a balanced assessment of the impacts on the coastal SLAs and on coastal landscape.

East Lothian Council may be able to supply the Special Landscape Areas, Local Geodiversity Sites, Core Paths and Coastal Areas as GIS datasets, should the applicant wish, subject to OS copyright requirements being satisfied.

Paragraph 349. Note that East Lothian Council does not entirely accept the findings of the Forth and Tay Offshore Windfarm Developer Group study “Regional Seascape Character Assessment Aberdeen to Holy Island”.

In particular, we do not accept that the landscape quality/condition of East Lothian Council coast line should be categorised as low/medium. Our landscape team advise that this study is also considered out of date (2011). The section of the report on SA17, Eyebroughy to Torness Point refers to AGLV designation. The AGLV designation was superseded by Special Landscape area in the adopted 2018 Local Development plan.

Our landscape team consider that East Lothian coast condition should be classed as medium to high and as having high sensitivity in particular from Aberlady to Dunbar. They might accept a slight down-grading of the condition (low/Medium) and sensitivity (medium) for the section of coast from Dunbar to Torness , due to the presence of the cement works and Torness Power Station. However viewed from the coastal area between the industrial elements and the sea, this section of coast line has high scenic value (From Barns Ness Light house to Skateraw). It is also a popular destination for holiday makers and recreation. This section of beach (intertidal zone) is one of the most spectacular beaches to visit at low tide (though be warned that it can be dangerous depending on the tide as the sea comes up to the cliffs at high tide).

Although the proposed 5 viewpoints in the scoping report are satisfactory, we would request consideration of an additional viewpoint from Pencraig Brae, which is on the A199. Unlike other viewpoints in East Lothian, this view is on a main traffic route. The other viewpoints, with the exception of North Berwick Law which is very elevated, are views from very close to the sea itself. It would be expected that these viewpoints will not show the effect of the windfarm behind land, which we consider could usefully be included. This could include an effect of the wind turbines

appearing behind land rather than with an area of sea clearly in front of them. This could make a difference as to how they are interpreted in the view.

Q: Do you agree that all the designated areas within the ZTV have been identified?

A: No. John Muir Country Park, located west of Dunbar, has a landscape element. This area has not been shown on Figure 7.14. Local Designed Landscapes are recognized in the East Lothian Local Development Plan. These are not shown. A list is available in the East Lothian Local Development Plan. Local Geodiversity Sites are not specifically a landscape designation however they do have an element of visual appreciation of the interest of the site. These are not shown on Figure 7.14. There is a Local Geodiversity site at Thorntonloch.

Do you agree with the proposed viewpoint list in Appendix 14 Table 7.11 or do you have any proposed additions or alternatives?

A: We could not find the viewpoints in Appendix 14 Table 7.11, as listed in the above scoping questions so we refer to Appendix 14, Table 14.4 on page 110.

Although the proposed 5 viewpoints are satisfactory, we would request consideration of an additional viewpoint from Pencraig Brae, which is on the A199, looking towards the Belhaven Bay Special Landscape Area. Unlike the other viewpoints in East Lothian, this view is on a main traffic route with areas where we expect that the turbines could be viewed as behind land rather than in an area of sea. The other viewpoints, with the exception of North Berwick Law which is very elevated, are views from very close to the sea itself. The main viewpoint in the Scoping Report which shows turbines behind land is at Cockburnspath, which lacks the attractive seascape foreground of Pencraig Hill.

Q: Have all potential impacts resulting from the Proposed Development been identified for seascape, landscape and visual receptors? –

A: Generally yes however it is considered possible that there could be impacts beyond the 60km study area. There may not be, however, this should be ruled out through the EIA process. Where the sea is visible from inland areas beyond 60km, the view can be to an unbroken sea horizon. This will be altered by this development and even at a distance this could potentially be considered a significant change. While it is agreed that the greatest potential for a significant effect is within the 60km study area, it does not appear certain that there will be no significant effects beyond that distance, including cumulatively, and at night.

Q: Do you agree that the impacts described in Table 7.11 can be scoped out?

A: Yes; other than that of the 60km limit to the study area which we consider uncertain at present. In addition, this table states that the effect of lighting on seascape character will be scoped out. Some elements of seascape character may be discernible and appreciated, for example the Bass Rock can be attractive in strong moonlight. There may be some limited areas where night time seascape character should be considered.

Q: For those impacts scoped in (Table 7.10), do you agree that the methods described are sufficient to inform a robust impact assessment?

A: Yes

Do you have any specific requirements for the SLVIA methodology and/or visual representations (photomontages/ZTVs) to be included in the SLVIA?

A: No

Do you agree that the designed in measures described provide a suitable means for managing and mitigating the potential effects of the Proposed Development on seascape, landscape and visual receptors?

A: This is properly considered once the EIA information has been completed.

Biodiversity

East Lothian Council values its biodiversity, including that of the marine environment which visits or is visible from its shores. The council has limited knowledge and expertise in benthic subtidal, fish and shellfish ecology and therefore defers to the expertise of others. The Council would support the views of NatureScot on impacts on European Sites.

Roads

There appears to be no reference in the document to the possibility of material being imported or exported by road (unlike the Seagreen site where it was a possibility for the cable burying exercise) in which case no assessment of traffic and transport impacts would be required.

Waste

Any requirement for landfill or disposal in East Lothian above normal waste disposal processes should be included.

Climatic Effects

The use of the IEMA Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their significance is welcomed.

Cultural Heritage

I believe it has been agreed that East Lothian Council's Heritage Officer will comment separately regarding Cultural Heritage, due to the timescale of receiving reports.

The planning authority's opinion on the likelihood of significant environmental effects is reached only for the purpose of responding to consultation to inform your Scoping Opinion. Our comments are given without prejudice to any subsequent consideration by the Council of the impacts of the proposed development, and any future response by the authority's on the acceptability or otherwise of the proposed development.

Regards
[Redacted]

Keith Dingwall
Planning Service Manager

Lees E (Emma)

From: Robertson, Andrew <arobertson1@eastlothian.gov.uk>
Sent: 24 January 2022 16:19
To: MS Marine Renewables
Cc: Squires, Jean
Subject: Berwick Bank Offshore Windfarm (revised design) - East Lothian Council Cultural Heritage response to Scoping.

Dear Sir/ Madam

Thank you for consulting East Lothian Council Archaeology Service with regards to the Scoping for Berwick Bank Offshore Windfarm (revised design).

Overall we agree with proposed cultural heritage study area.

In terms of the receptors for the turbines we would expect to see Dunbar castle and North Berwick Law included in an assessment as part of their original function was to have an overview of the seascape horizon. We would also note that as well having fortuitous aesthetic relationship with the sea Tantallon Castle, Dunbar Castle and remains North Berwick Law were all located to make use of the view across the sea as part of their original function.

We would note that in terms of scoping out B and C listed buildings are considered of national importance (listing is a National Designation) and that some of these within the study area may be cited to take advantage of the views across the sea. It may be possible to scope out the majority of B and C listings but some may need to be assessed – the study should identify these.

The proposed methodology to gather the baseline information is considered appropriate.

Should you require any further comment please do not hesitate to get back to me

Regards

Andrew Robertson

Archaeology/ Heritage Officer
East Lothian Council Archaeology Service
John Muir House, Haddington
EH41 3HA
Tel: 01620 827039
[Redacted]

[Archaeology - East Lothian Council](#)
[Our HER is now online at John Gray Centre](#)

Please be advised that we will only be undertaking site monitoring and meetings where social distancing requirements can be observed. Please contact us via e-mail if you have any questions or queries about this.

From: [Martin MCGroarty](#)
To: [MS Marine Renewables](#)
Cc: [Bamlett R \(Rebecca\)](#)
Subject: Re: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021 - Appendix 14 now available
Date: 08 November 2021 11:30:37
Attachments: [image001.png](#)

Rebecca,

Thank you for your further email on this matter.

Having reviewed Appendix 14 I can confirm that Fife Council has no additional comment to make on our previous response.

Kind regards,
Martin

Martin McGroarty

Lead Professional (Minerals)
Development Management
Planning Services
Fife Council
Fife House
North Street
GLENROTHES
Fife
KY7 5LT

development.central@fife.gov.uk

www.fife.gov.uk/planning

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From: [Martin McGroarty](#)
To: [MS Marine Renewables](#)
Cc: [Bamlett R \(Rebecca\)](#)
Subject: 21/03369/CON- KW- Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion
Date: 29 October 2021 10:27:51

FAO Rebecca Bamlett

REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017
REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017
REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007

Good morning Rebecca.

From the Fife perspective with regard to the above consultation, there is unlikely to be any significant visual impact on the built environment and landscape.

With respect to the historic environment and cultural heritage, there is potential for visual impact on the category A listed Bell Rock Lighthouse.

Fife Council's Archaeology team indicate that the applicant's scoping report demonstrates a comprehensive understanding of the range of potential archaeological issues and includes a detailed archaeological mitigation strategy but would suggest that the applicant adopts multibeam scanning of potential seabed cultural heritage anomalies as part of their archaeological mitigation strategy. It is also suggested that any survey results of sites identified as containing cultural material should be made available to the archaeological record.

With respect to the natural environment, the main concern would be the impact (particularly cumulative impact) of the development on European designated sites. However, NatureScot specialists would be best placed to advise on this, the proposed scope and EIA methodology.

We note that East Lothian Council has prepared a Scoping Opinion for the onshore infrastructure elements of the revised windfarm proposal.

Kind regards,
Martin

Martin McGroarty
Lead Professional (Minerals)
Development Management
Planning Services
Fife Council
Fife House
North Street
GLENROTHES
Fife
KY7 5LT

development.central@fife.gov.uk
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ALBA

By email: MS.MarineRenewables@gov.scot
Copied to: suzanne.gailey@rpsgroup.com

Marine Scotland (Marine Renewables)
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Enquiry Line: 0131-668-8716
HMConsultations@hes.scot

Our case ID: 300044396

18 November 2021

Dear Marine Scotland

[The Marine Works \(Environmental Impact Assessment\) \(Scotland\) Regulations 2017](#)
[Request for Scoping Opinion for Proposed Section 36 Application and Marine Licences](#)
[for the Berwick Bank Offshore Wind Farm Located 39.2 Kilometres East of East Lothian](#)

Thank you for your consultation which we received on 21 October 2021 about the above scoping report. We have reviewed the details in terms of our historic environment interests. This covers World Heritage Sites, scheduled monuments and their settings, category A-listed buildings and their settings, inventory gardens and designed landscapes, inventory battlefields, historic marine protected areas, and marine archaeology.

Proposed Development

We understand that the proposed development is likely to include:

- Up to 307 wind turbine generators and associated support structures and foundations
- Up to 10 offshore substation platforms with associated support structures and foundations
- A network of inter-array cabling
- Up to 12 offshore export cables
- Scour protection of up to 2km²

The onshore transmission elements of the project will be applied for separately to East Lothian Council under the town and country planning regulations.

Scope of assessment

The report proposes to scope marine archaeology out of the EIA process. We are content to agree that this is proportionate. The proposed mitigation detailed is adequate to ensure that there will not be significant effects on our interests.

We have reviewed the Marine Archaeological Technical Report (MART), the Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) submitted for this scheme. We are content with these documents.



There are two minor points that we would like to highlight.

Paragraph 157 of the MART contains the typo “Error! Reference source not found”. It appears likely that the reference source is Figure 4.6 on the same page. However, this should be checked and corrected as necessary.

The Responsibilities and Communications section of the PAD (Chapter 5) contains some details which may need to be reviewed. Figure 5.2 and section 5.3.5 outline the relationships and responsibilities around actions and reporting.

HES appears to be the first point of contact/consultation for archaeological matters relating to the fulfilment of the marine licence. This includes approving method statements, action/advice under the procedures outlined in the PAD. For us to agree to this we need Marine Scotland need to confirm that this is acceptable. The other option would be for all contact to pass through MS as the regulatory authority. This would allow more oversight of these processes.

This section may therefore need to be redrafted. If it remains as it stands a minor edit is needed. Section 5.2, paragraph 35 identifies a single named contact at HES. This does not allow for adequate resilience. We recommend that this is changed to ‘HES Planning, Consents and Advice Service’, with the email address hmconsultations@hes.scot.

Further information

Guidance about national policy can be found in our ‘Managing Change in the Historic Environment’ series available online at www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-historic-environment-guidance-notes. Technical advice is available on our Technical Conservation website at <https://conservation.historic-scotland.gov.uk/>.

We hope this is helpful. Please contact us if you have any questions about this response. The officer managing this case is Ruth Cameron, who can be contacted by phone on 0131 668 8657 or by email at Ruth.Cameron@hes.scot.

Yours faithfully

Historic Environment Scotland

Berwick Bank WF Offshore Scoping Report

Marine Analytical Unit Response

The Berwick Bank Scoping report includes descriptions of a range of potential impacts. This response focuses only on the assessment of social and economic impacts.

Marine Scotland is producing guidance on how to carry out Socio-Economic Impact Assessments for offshore renewable developments. The guidance is still in draft form and so cannot be shared, but the recommendations included in this response align with the broad contents of the guidance document.

We note the advice that MAU offered in relation to the previous Berwick Bank scoping report still applies. This includes considering the socio-economic impacts of offshore and onshore activities in tandem rather than separately, incorporating a broader range of social and economic impacts, and undertaking primary data collection, including stakeholder engagement, to inform the analysis. More details are provided below.

We recommend that a full Socio-Economic Impact Assessment be scoped into the Environmental Impact Assessment.

Separation of offshore and onshore components

As highlighted in MAU's previous response, the separation of offshore and onshore components of the proposed development creates confusion over how socio-economic impacts will be assessed. Onshore business and communities are likely to be affected by offshore activities. The report states that the term "offshore" relates to the source of the impacts, rather than where the impacts are felt. As both offshore and onshore impacts are likely to be experienced by the same communities, separating them creates confusion and extra work for those evaluating assessments. Impacts evaluated in isolation may seem more acceptable than when considered together. Assessors may then need to read both reports and combine the impacts themselves.

We maintain our position from our original advice that socio-economic impacts from offshore and onshore activities and structures be considered together so that links and interactions can be identified.

Offshore Human and Socio-Economic Environment Section

The section on 'Offshore Human and Socio-Economic Environment' considers the potential impacts on other activities, including commercial fisheries, shipping and navigation, etc.

Potential impacts as a result of the construction, operation and maintenance, and decommissions phases of the project are detailed for each activity in subsections. The scoping report does not detail how the knock-on effects that these impacts will have on socio-economic factors will be assessed. At present the report gives a description of how certain activities may change, but not does not describe how these changes will create socio-economic *impacts*.

For example, in Commercial Fisheries (section 7.1), impacts such as temporary loss or restricted access to fishing grounds may have socio-economic implications such as changes to income for fishers and fishing related businesses.

It is recommended that the potential socio-economic implications for all impacts described in section 7 are considered and assessed in the SEIA. We would expect to see descriptions of methods, data collection, and the overall approach to assess these impacts. Annexes 1 and 2 may offer some indication of what we would expect.

Offshore Socio-Economics and Tourism Section

The section on 'Offshore Socio-Economics and Tourism' considers the potential impacts of construction, operation and maintenance, and decommissioning of the offshore and intertidal components on both onshore and offshore receptors.

As previously mentioned, we recommend that the socio-economic impacts from both offshore and onshore activities are considered together, as this will help to identify links and interactions between impacts. It will also allow for the cumulative impacts of the project to be considered properly.

We maintain our position from the previous scoping response that in the SIA section of the EIA, we recommend an approach which assesses local, regional and national impacts as described in the report, and that efforts should be made to acknowledge different 'epicentres of impact'.

Table 7.18 (p. 148) in the scoping report states that a desk based review will be conducted to develop a socio-economic and tourism baseline. As mentioned in our previous response, we would expect primary data collection, including stakeholder engagement with communities and industries, to inform the baseline analysis.

The report currently states that *"At this stage, there are no designed in measures considered for socio-economics receptors, as it is anticipated that the overriding socio-economic impacts of the Proposed Development will be positive in nature"*. Without having carried out an assessment, it seems premature to assume that impacts will be mostly positive. There are a number of impacts described in this report which could be positive or negative. For example, an increase in house prices could price out the local population; additional jobs could draw local workers away from existing industries creating difficulties for those

industries; workers moving into the area may alter local dynamics. A lot depends on how the project is managed, and how the local population copes with it.

Interactions between receptors and socio-economic impacts

The interactions between impacts to some receptors, and the effect this may have on others, is currently not acknowledged. There are a number of instances where impacts on one receptor may interact with impacts on another. For example, impacts to seascape and cultural heritage could have knock-on effects for tourism, as well as potentially affecting the way people feel about their local environment. These interactions should be mentioned and explored.

Remarks from Marine Analytical Unit and response to the questions posed by developers in the scoping report.

Q: Do you agree that all potential impacts have been identified for socio-economics receptors?

To ensure potential impacts are correctly identified, it is recommended that stakeholder engagement informs this process. Annex 1 provides a list of potential social and impacts that may be useful to consult. Both positive and negative impacts should be considered throughout the assessment.

Further economic considerations that should be included in the socio-economic impact assessment report are:

- **Displacement**
Displacement effects arise when some of the project's benefits produce dis-benefits elsewhere in the local economy, i.e. jobs being moved from one location to another within the UK. Developers are expected to assess the impacts on affected livelihoods in the local project area, such as impacts on fisheries and tourism business as a result of the development.
- **Substitution**
Substitution impact can be viewed as within firm displacement and refers to the impact of businesses substituting one form of activity for a similar one. For instance, recruiting a jobless person to replace a current employee in order to take advantage of public sector assistance. These affects need to be considered before presenting the total economic impacts.
- **Additionality**
Defined as additional benefits of a development that would not have occurred had the development not taken place. The benefits are often expressed in terms of the increase in GVA and employment generated by the development. Primary factors to be considered in the calculation of Additionality include:
Gross impacts, Leakages, Displacement, Deadweight loss, and Substitution. Please refer to HCA *Additionality guide* for detailed information.
- **Optimism bias, Risk Bias and Sensitivity Analysis**
Refer to Green Book for detailed definitions. (Green Book https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf)
- Where applicable any impacts related to the use of natural resources (depletion risks, resource use considerations, etc.) should be considered.

The EIA should be clear on the assumptions and methodologies applied at each stage of the assessment. The developers should be explicit in stating the following:

- Development's impact area
- Low, medium and high scenario definitions
- Assumed appraisal period and price base
- Applied SIC codes, GVA to turnover and employment to GVA multipliers

- Assumed Additionality factors
- Applied economic multipliers (Type I and Type II)

Q: Are there any additional baseline datasets to those included in Appendix 16 that should be reviewed to characterise the socio-economics baseline?

Further to the data sources mentioned in the scoping report, following datasets/reports can be considered to inform the socio-economic impact assessment:

1. Annual Business Survey, ONS; <http://www.ons.gov.uk/ons/rel/abs/annual-business-survey/index.html>
2. Low carbon and renewable energy economy estimates, ONS; [Low carbon and renewable energy economy estimates - Office for National Statistics \(ons.gov.uk\)](#)

Annex 1

Table 1. Types of socio-economic impact (taken from Glasson 2017¹)

1. Direct economic:
<ul style="list-style-type: none">• employment, including employment cohort and safeguarding of existing employment;• unemployment and underemployment• characteristics of employment (e.g. skill group);• labour supply and training; and• other labour market effects, including wage levels and commuting patterns
2. Indirect/induced/wider economic/expenditure:
<ul style="list-style-type: none">• employees' retail expenditure (induced);• linked supply chain to main development (indirect);• labour market pressures;• wider multiplier effects;• effects on existing commercial activities (eg tourism; fisheries);• effects on development potential of area; and• GVA and GNP.
3. Demographic:
<ul style="list-style-type: none">• changes in population size; temporary and permanent;• changes in other population characteristics (e.g. family size, income levels, socio-economic groups); and• settlement patterns
4. Housing:
<ul style="list-style-type: none">• various housing tenure types;• public and private;• house prices and rent / accommodation costs;• homelessness and other housing problems; and• personal and property rights, displacement and resettlement
5. Other local services:
<ul style="list-style-type: none">• public and private sector;• educational services;• health services; social support;• others (e.g. police, fire, recreation, transport); and• local authority finances
6. Socio-cultural:
<ul style="list-style-type: none">• lifestyles/quality of life;• gender issues; family structure;• social problems (e.g. crime, ill-health, deprivation);• human rights;• community stress and conflict; integration, cohesion and alienation; and• community character or image
7. Distributional effects:
<ul style="list-style-type: none">• effects on specific groups in society (eg: by virtue of gender, age, religion, language, ethnicity and location); environmental justice

¹ Glasson J (2017a) "Socio-economic impacts 2: Overview and economic impacts" in Therivel R and Wood G (eds.), *Methods of Environmental and Social Impact Assessment*, Abingdon: Routledge

Annex 2

Key components of a social impact assessment

Participatory approach

Creating participatory processes and a deliberative space to facilitate community discussions about desired futures, the acceptability of likely negative impacts and proposed benefits, and community input into the SIA process.

- Assess community capacity to engage – capacity building may be necessary
- Appoint Community Liaison Officer(s) for each affected community
- Set up governance structures so that communities feel they can voice opinions and be listened to
- Begin community engagement as soon as possible, brief communities on project with as much detail as possible so that they can prepare

Baseline

Gain a good understanding of the communities and stakeholders likely to be affected by the project (i.e. profiling) including their needs and aspirations and any key social issues that may arise as a result of the project.

- Develop social and economic profile of the area including history, culture and context
- Engage with community to learn of any other important features/indicators to include in baseline. There may be useful local datasets
- Analysis may draw on a combination of existing datasets and primary data

Prediction

Forecasting the social changes that may result from the project and the impacts these are likely to have on different groups of people. A list of potential socio-economic impacts can be seen in Table 1. Many of these impacts can be considered from a social and economic perspective. In the following sections we describe in more detail how this could be done.

- Identify potential/anticipated social impacts
- Identify suitable method for predicting impacts
- Collect necessary evidence to conduct analysis
- Engage with community to check predictions and assign significance to predicted impacts
- Impact prediction should include
 - Assessment of different phases of the project (development, construction, operation & maintenance, decommissioning) and phases within phases (early construction, peak construction)
 - Consideration of transition between phases

Mitigation and enhancement

Identifying ways of mitigating potential negative impacts and maximising positive opportunities.

- Engage with community to develop strategy for enhancing benefits and mitigating against impacts
- This may involve Community Benefit Agreement (CBA)
- Care should be taken to ensure that CBA and any associated funds should have accessible application procedures so that allocated funds can be used

Monitoring

Developing a monitoring plan to track implementation, variations from mitigation actions, and unanticipated social changes, especially negative impacts.

- Develop management plan and monitoring strategy
- Engage with community – especially with regard to both
 - Community may have concerns that they particularly want to be monitored
 - There may be local considerations regarding timing of monitoring and methods used e.g. access to internet for particular groups
- Link management plan to governance structures so that community can continue to engage with the project

Annex 3

Key components of an economic impact assessment

1. Establishing the life and stages of the Project. In this case these would be construction, operation and maintenance, and decommissioning.

2. Establishing and developing the baseline:

- This is the starting point for the economic assessment and the benchmark against which to measure impacts.
- Start with a study of the local and regional area:
 - Industrial structure i.e. existing businesses in the area
 - Socio-economic conditions i.e. levels of employment, income etc.
 - Related industries i.e. fishing, tourism
 - Local planning policies, where relevant
- Select a range of indicators, e.g.:
 - Employment and unemployment levels
 - Structure of working age population/skills/qualifications
 - GVA

3. Identifying and scoping the economic factors:

- Economic impacts ideally clearly stated in:
 - Life and stages of project i.e. construction, operation and maintenance, decommissioning
 - Direct, indirect, induced
- Economic Factors
 - Impacts related to GVA
 - Impacts related to employment, skills and training
 - Impacts on related industries – tourism, fishing, etc.

4. Other economic considerations

- Displacement - an assessment of the effect of the intervention on the structure of local factor and final goods markets
- Substitution - where the intervention causes an employed factor to be replaced by a currently unemployed factor
- Deadweight - This is the net impact, after taking into account what would have happened in the absence of the intervention
- Cumulative effects - effects from multiple pressures and/or activities

5. Distributional Impacts:

- Distribution of impacts across different individuals, groups or businesses.
- Screening – identification of likely impacts
- Assessment – confirmation of area impacted and analysing the characteristics of the groups in the area which will be impacted
- Appraisal – Core analysis of the impacts



Maritime &
Coastguard
Agency

Nick Salter
Maritime and Coastguard Agency
UK Technical Services Navigation

www.gov.uk/mca
16 November 2021

Marine Scotland - Marine Planning & Policy
Scottish Government,
Marine Laboratory
375 Victoria Road
Aberdeen, AB11 9DB

Dear Sir/Madam

REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE BERWICK BANK OFFSHORE WIND FARM

Thank you for the opportunity to provide comments on the Scoping Report for the Berwick Bank wind farm. The MCA has reviewed the report provided by SSE Renewables Developments (UK) Limited, as provided in your email dated 21 October 2021. The MCA's remit for offshore renewable energy development is to ensure that safety of navigation is preserved whilst progress is made towards government targets for renewable energy.

The Environmental Impact Assessment report should supply detail on the possible impact on navigational issues for both commercial and recreational craft, specifically:

- Collision Risk
- Navigational Safety
- Visual intrusion and noise
- Risk Management and Emergency response
- Marking and lighting of site and information to mariners
- Effect on small craft navigational and communication equipment
- The risk to drifting recreational craft in adverse weather or tidal conditions
- The likely squeeze of small craft into the routes of larger commercial vessels.

The development area carries a significant amount of through traffic to major ports, with a number of important shipping routes in close proximity. Attention needs to be paid to routing, particularly in heavy weather ensuring shipping can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects of nearby wind farms on shipping routes should also be considered, and it should include an appropriate assessment of the distances between wind farm boundaries and shipping routes as per MGN 654.

A Navigational Risk Assessment (NRA) will need to be submitted in accordance with MGN 654 (and MGN 372) and the MCA's Methodology for Assessing the Marine Navigation Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI). It is noted that the proposed traffic survey data collection will consist of two 14-day surveys (AIS, radar and visual observation) to cover seasonal variation supplemented by 12-months AIS data. This NRA should be accompanied by a detailed MGN 654 Checklist which can be downloaded from the MCA website at <https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping>

MCA attended the HAZID workshop with SSE Renewables and their navigation consultants. At this meeting it was confirmed that two traffic surveys were completed in July 2020 and January 2021 and will be supplemented and validated by 12 months of AIS data from 2019 to identify any effects from COVID 19. Additional recreational data and consultation feedback will be used. This is acceptable to MCA.

Attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and subject to the traffic volumes, an anchor penetration study may be necessary. If cable protection measures are required e.g. rock bags or concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase, such as at the HDD location.

Consideration of electromagnetic deviation on ships' compasses should be included within the assessment. The MCA would be willing to accept a three-degree deviation for 95% of the cable route. For the remaining 5% of the cable route no more than five degrees will be attained. The MCA may request a deviation survey post the cable being laid.

Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response Co-operation Plans (ERCoP). Attention should be paid to the level of radar surveillance, AIS and shore-based VHF radio coverage and give due consideration for appropriate mitigation such as radar, AIS receivers and in-field, Marine Band VHF radio communications aerial(s) (VHF voice with Digital Selective Calling (DSC)) that can cover the entire wind farm sites and their surrounding areas. A SAR checklist will also need to be completed in consultation with MCA.

The turbine layout design will require MCA approval prior to construction to minimise the risks to surface vessels, including rescue boats, and Search and Rescue aircraft operating within the site. Any additional navigation safety and/or Search and Rescue requirements, as per MGN 654 Annex 5, will be agreed at the approval stage.

MGN 654 Annex 4 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager. Failure to report the survey or conduct it to Order 1a might invalidate the Navigational Risk Assessment if it was deemed not fit for purpose.

On the understanding that the Shipping and Navigation aspects are undertaken in accordance with MGN 654 and its annexes, along with a completed MGN checklist, MCA is likely to be content with the approach. As this project progress, we would welcome engagement with the developers, and early discussion on the points raised above.

Yours faithfully,

[Redacted]

Nick Salter

Offshore Renewables Lead



Defence Infrastructure Organisation

Teena Oulaghan
Ministry of Defence
Safeguarding Department
St George's House
DIO Headquarters
DMS Whittington
Lichfield
Staffordshire
WS14 9PY

Your Ref: Scoping

Telephone [MOD]: [Redacted]

Our Ref: DIO10049075

E-mail: teena.oulaghan100@mod.gov.uk

Marine Scotland
Marine Planning & Policy
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

19 November
2021

By email only

Dear Sir / Madam,

REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES FOR THE BERWICK BANK OFFSHORE WIND FARM LOCATED 39.2 KILOMETRES EAST OF EAST LOTHIAN

REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017

REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017

REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007

Thank you for consulting the Ministry of Defence (MOD) on the above Scoping Opinion request in respect of the Berwick Bank Offshore Wind Farm development. The consultation was received by this office on 21 October 2021.

I write to confirm the safeguarding position of the MOD regarding information that should form part of any Environmental Statement submitted in support of an application.

The MOD has completed this assessment using the provided Rochdale Envelope co-ordinates and, on the basis that the development will consist of up to 307 wind turbines at the maximum height of 355 metres to blade tip.

The applicant has prepared an Environmental Impact Assessment Scoping Report for the proposed development. The Scoping Report recognises some of the principal defence issues relevant to MOD consideration of the proposed development.

The use of airspace in the vicinity of the proposed development for defence purposes has been appropriately identified. The Scoping Report highlights some of the aviation and radar systems that may be affected by the

proposed wind farm and the MOD is identified as a relevant receptor in Section 7.3 Aviation, Military and Communications of the Scoping Report.

The report identifies that the proposed turbines have the potential to affect and be detectable to the MOD air traffic control Primary Surveillance Radar (PSR) at Leuchars Station. However, it is not recognised that this development may affect the operation of the MOD PSR at RAF Spadeadam Deadwater Fell. This should be considered in the preparation of any subsequent applications. The report also notes that the development has the potential to have an impact on the operation and capability of the Air Defence Radars (ADR) at RAF Brizlee Wood and RAF Buchan. The impact on these radars should be considered in the preparation of any application for this scheme. The impact on radar systems may require technical mitigation(s) which would be provided by the applicant.

The potential impacts of the development upon military activity has been recognised in Paragraph 374 of the Scoping Report. The designated site area, as shown on Figure 7.5, overlaps two military Danger Areas. However, the extent of MOD Naval Practice and Exercise Areas (PEXA) in this locality have not been identified. The proposed development coincides with the extent of Exercise Areas X5641 and X5642. In addition, Defence Maritime navigational interests should also be considered in Section 7.2 Shipping and Navigation.

The potential presence of unexploded ordnance (UXO) has been identified as a relevant consideration in section Paragraph 336 of the scoping report. The potential presence of UXO and disposal sites is also a relevant consideration to the installation of cables and other intrusive works that may be undertaken in the maritime environment.

The potential impacts of the development on low flying activities that may be conducted in this area have been recognised, however, the extent of the UK Military Low Flying system has not been specifically considered.

In relation to the Onshore element of the proposed development, the Scoping report identifies the landfall zone to be on the shoreline of the East Lothian coast, at Thorntonloch and/or at Skateraw Harbour. The onshore cable route will connect to a proposed substation and then onto Scottish Power Transmission's 400kV Grid Substation located at Branxton, south of Torness Power Station. The landfall sites and associated infrastructure considered in the EIA submissions do occupy any MOD statutory safeguarding zones and are not in proximity to MOD sites.

The MOD wishes to be consulted further upon further submissions relating to this development proposal to determine whether it will have any impacts upon MOD operations and assets.

I trust this is clear however should you have any questions please do not hesitate to contact me.

Yours faithfully
[Redacted]

Teena Oulaghan
Safeguarding Manager

T: +44 (0)131 244 2500
E: MSS_Advice@gov.scot

Emma Lees
Marine Scotland Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

16 December 2021

BERWICK BANK OFFSHORE WIND FARM (REVISED DESIGN) - CONSULTATION ON REQUEST FOR SCOPING OPINION

Marine Scotland Science (MSS) have reviewed the EIA Scoping Report and HRA Screening Report and have provided the following comments.

General comments

MSS provided advice on the scoping for the pre-cursor Berwick Bank project (for EIA scoping – 29 October 2020; HRA screening – 20 January 2021). Much of this advice still holds for this new scoping request for the revised Berwick Bank project (hereafter ‘the Development’), but for clarity we provide a full scoping response here.

In general terms, we consider these reports show an improvement and refinement over the 2020 EIA Scoping/HRA Screening reports for the *old* Berwick Bank project. However, we note that the Project Design Envelope is still extremely large. Whilst we have provided advice to capture the worst case scenario with respect to each receptor, refinement of the project design parameters could facilitate more targeted and specific advice with respect to potential/likely environmental impacts.

MSS have engaged with the Developer in the Roadmap processes for ornithology, marine mammals, and benthic ecology, fish and fisheries. MSS understood that this was originally intended as a post-scoping dialogue with the purpose to refine aspects of the assessment. However, with the decision to proceed instead with the revised Berwick Bank project the Roadmap process continued, as such running ahead of this current scoping. MSS therefore note that to some extent the Roadmap process has in effect acted as a parallel or shadow scoping process running in advance/alongside the formal scoping. While MSS believe that these meetings and associated email correspondence around these have been useful, we note that the Roadmap process was and continues to be (as the Roadmap meetings continue) led by the Developer. The meetings held are chaired by the Developer and agendas set by the Developer, thus in general only those points that the Developer wishes to discuss are included in meeting. As such this process is not systematic in contrast the formal scoping process. MSS thus note that there are likely to be some aspects in this Scoping advice and in the points raised by other consultees and stakeholders, that have not to date been considered via the Roadmap process.

Marine Ornithology

General background

Consultation responses and documents considered

In preparing this advice on marine ornithology, MSS considered consultation responses from NatureScot (NS, dated 7 December 2021), Royal Society for the Protection of Birds (RSPB, dated 6 December 2021), and Natural England (NE, dated 7 December 2021). We also considered the Offshore Scoping Report (OSR) and the HRA Screening Report (HRASR).

General approach

In their scoping response, NS note that the proposed development is located in an area likely to be sensitive to ornithological interests. Furthermore, they note that due to uncertainty around the predicted and actual impacts of the consented Forth and Tay wind farms, there may be predicted adverse effects on site integrity for SPA seabird features. RSPB raise similar points noting that this is an 'environmentally sensitive region'. MSS support this general view, noting that the development footprint overlaps with a large part of Berwick Bank, a sand and gravel sea bank (after which the development is named), which are assumed to be key foraging areas for seabirds in the Forth and Tay region, being important habitat for key prey species for seabirds, in particular lesser sandeel (see Jensen et al. 2011). Given this, MSS support NS's recommendation that the best available tools and evidence be used to inform the Environmental Impact Assessment (EIA) process and RSPB's to use 'the latest and best available science'.

EIA Scoping Report

In-built mitigation

MSS support using an increased airgap between the sea surface and the rotor swept zone, as this will generally reduce collision risk for most bird species given typically low flight heights. MSS thus welcome the minimum air gap of 37 m above lowest astronomical tide (LAT). However, we encourage refining the design envelope to better be able to consider what is a realistic worst case scenario, with a broad range of wind turbine generator (WTG) capacities currently being considered; 14 – 24 MW (OSR – table 2.1).

The Developer notes that refinement of development footprint is one type of mitigation. However, it is unclear what data or analysis this was based on. Thus, MSS suggest this should be explained in the application and consideration be given to the suitability of the data and analysis used (given issues with analyses performed in MRSea that have emerged via the RoadMap process – though it is unclear whether it is these analyses used here). Given the potential distances at which macro-avoidance can occur (e.g. several kilometres for gannet), MSS note that the 2 km gap between Seagreen 1 and the proposed footprint for Berwick Bank may not be sufficient to meaningfully reduce barrier effects.

Ornithology study areas

Three *ornithology study areas* are defined (section 6.4.2. OSR), these are broadly appropriate, as NS have noted in their consultation response. MSS support the Developer's proposal to use a 16 km buffer around the project footprint for the *Offshore Ornithology Study Area* (i.e. that area covered by the baseline digital aerial surveys). Including this wide buffer will provide useful context in interpretation of the distribution of birds across the proposed development area and its surroundings.

Baseline characterisation

Information on the ornithology baseline is summarised in the OSR (section 6.4.3) and in a dedicated Appendix (OSR – Appendix 10). The Interim Baseline Report is referred to, which MSS has had sight of through the Roadmap process; however, this is not included within the documentation for this scoping and screening. MSS understand that this Interim Baseline Report will be built on in preparing a Final Baseline Report.

MSS note that there have been issues identified via the Roadmap process with running of the MRSea model used to derive density surfaces from the baseline digital aerial survey data. Discussions around this were ongoing at the time of preparing this advice. In common with NS, MSS's preference is for MRSea to be used, however if this proves not be possible design-based abundance estimates would need to be used (as stated by Developer, OSR – Appendix 10 – paragraph 259).

The primary benefits of using MRSea are that this uses more information than design-based methods, as it allows for incorporation of covariate data (e.g. bathymetry). Using MRSea should produce more reliable estimates of abundance than design-based approaches, however given the extensive survey area it's likely that the mean abundances calculated will be similar between MRSea and design-based methods. However, crucially, MRSea should generate abundance estimates with narrower confidence intervals than design-based methods. This due to the reduction in uncertainty by taking into account covariate information. As such, use of design-based estimates may necessitate a higher level of precaution in the assessment to account for the higher levels of uncertainty.

A secondary benefit of using MRSea is the potential to produce meaningful mapped density surfaces (a 'heat map'). These can inform on potential for mitigation through refining the project footprint to avoid areas of higher density use by key bird species.

It is noted that GPS tracking data is available for a number of the key seabird species and breeding colonies in the Forth and Tay Region (OSR – Appendix 10 – paragraph 278 – 279 and Apx. Table 10.2). As described in the text and as has been raised via the Roadmap process MSS understand that the most recent tracking data (2020 and 2021) are unlikely to be analysed in time to inform the application. However, MSS support inclusion of a summary of the GPS tracking data that are available.

Key impacts

The key impacts that are proposed to be scoped in for offshore and intertidal ornithology are outlined in OSR (Table 6.10). MSS agree with the impacts listed and generally agree with the summary of the proposed approach to assessment for each. However, as NS have stated in their consultation response, impacts to key prey species of birds and of the supporting habitat for these prey must also be fully considered, so MSS request that this impact pathway is scoped in for all phases of the project (this is connected with considering ecosystem effects). MSS also support NS's recommendation that potential impacts from cable installation and ongoing operations and maintenance activities are also scoped in. These will need consideration both in terms of EIA and in HRA terms, especially for the Outer Firth of Forth and St Andrews Bay Complex SPA.

For *barrier to movement*, the Developer proposes to use no specific modelling. MSS note that the SNCB matrix approach does not fully capture barrier effects, particularly with respect to in combination effects which will be important to consider in the Forth and Tay region given the existing consented offshore wind projects in the region. MSS recommend that the SeabORD tool is used to model displacement together with barrier effects if feasible (see below). SeabORD does not include gannet; as such, for gannet we propose an alternative approach (see below).

RSPB comment that displacement and disturbance impacts during operation on guillemot should be considered in light of the autumn 2021 mass mortality event. How RSPB consider that this event should be taken into account is unclear so MSS suggest that this is clarified in writing or via the Roadmap process.

Seasonal definitions

MSS support NS's recommendations on definition of seasons (NS consultation response, Appendix A - Impact assessment – Seasonality).

Assessment for displacement and barrier effects

MSS are aware that the Developer has encountered issues with running the SeabORD tool which has been discussed through the Roadmap process. At the time of preparing this advice discussion was ongoing around this issue. NS have acknowledged this issue in their advice and stated that they anticipate that a decision will be reached via the Roadmap process. However, NS state that their preference is also for the SeabORD tool to be used if feasible (NS consultation response under *Assessment Approach*).

MSS are in agreement with NS on the recommended displacement and mortality rates to be used in the displacement assessment (NS consultation response – Appendix A – Table 1). MSS also agree with NS that displacement assessment is not required for the non-breeding season for puffin. We note that NS provide a lower and upper bound for mortality rates. As such, outputs should be presented for both the lower and the upper bounds.

If the issues around SeabORD cannot be resolved in time to allow this to be included in the EIAR, MSS suggest that it may be appropriate to give consideration to have this analysis performed at a later stage. This could potentially be undertaken by the Developer (e.g. as an addendum to the application) or commissioned via the Regulator. In theory the SeabORD tool can be run by any person or organisation with an intermediate level of technical and ornithological understanding, however in practice MSS understand that there are challenges in setting up the tool. MSS note that the SeabORD tool is currently being further developed within the CEF project (see: <https://www.ceh.ac.uk/our-science/projects/cumulative-effects-framework-key-ecological-receptors>). MSS understand that the updated tool will make it easier for third parties (i.e. anyone not involved in the development of the tool) to run the tool, as this will automate the more complicated initialisation stages. This work should be completed by end of March 2022, thus if the tool were to be run later in the assessment process this would likely be most feasible from April 2022 onward.

Gannet displacement and barrier effects

MSS expect the SNCB Matrix Approach to be used to assess for displacement for gannet (see above). In addition we advise that given the availability of considerable GPS tracking data for gannet that an analysis is performed making use of this data. The Developer state that GPS tracking data are available for gannet for 2015 – 2019, with data also collected in 2020 and 2021, though it is stated that these later data will not be analysed in time for inclusion in the EIAR assessment (OSR – Appendix 10 – paragraph 278 and Apx. Table 10.2).

In our previous scoping advice on the original Berwick Bank project, we advised that displacement and barrier effects for gannet should be assessed following an individual based modelling approach. Two previous works have taken this approach (Searle et al. 2014; Warwick-Evans et al. 2018), and as such these models could be adapted and applied by the Developer. MSS still believe this to be the best approach and thus encourage the Developer to pursue such an analysis. However, if it is not

possible to conduct such an analysis in time to inform the EIAR, we propose an alternative analysis, utilising the extensive GPS tracking data available to be performed. In this analysis the proportion of gannet foraging trips from the Bass Rock colony (Forth Islands SPA) that enter the development footprint plus buffer (using 2 km as also advised when using the SNCB Matrix Approach) is analysed.

This analysis should present:

- a) the proportion of foraging trips that enter the development footprint plus buffer but do not go beyond the development; and
- b) the proportion of foraging trips that enter the development footprint plus buffer and go beyond the development.

As gannet have been shown to show sex-specific and breeding stage dependent differences in behaviour (Lane et al. 2020), we request that the analysis includes a breakdown by breeding stage and by sex. To allow for comparison of the Development in isolation and in combination with other consented Forth and Tay developments the analysis should be done for both scenarios. While this analysis will not provide a mortality estimate, it will provide valuable contextual data to help understand the level of potential barrier and displacement effects that gannet from the Forth Islands SPA may experience.

Collision risk modelling

Site specific flight height data have been collected for the site using three methods: using boat based surveys with surveyors estimating flight heights to 5 m bands, using boat based surveys with optical laser rangefinders, and using digital aerial surveys (OSR – Appendix 10 – paragraphs 268 – 273). MSS advise that generic flight heights from Johnston et al. (2014 with the corrigendum) be used for the primary collision risk modelling. However the site specific data should be presented with comparisons made between all methods with implications for assessed collision rates discussed. MSS also advise that GPS derived flight heights are considered in this analysis where these are available (e.g. Cleasby et al. 2015 for gannet).

In our advice on the scoping for the original Berwick Bank project we advised that collision risk should be modelled using the stochastic CRM (sCRM), i.e. that model developed by Masden (2015) and subsequently implemented as a user friendly web application (McGregor et al. 2018). The key benefit of the sCRM over the deterministic Band (2012) model is that confidence intervals are produced providing a quantitative estimation of uncertainty around the predicted numbers of collisions. However, MSS are now aware that the sCRM requires bespoke avoidance rates (ARs), this is explained in Cook (2021). While Cook (2021) does provide ARs for both the deterministic and stochastic implementations of the Band (2012) model, these rates are not currently endorsed by SNCBs nor by MSS; this is due to some potential issues around the analysis and data included in that analysis, an issue which MSS understands is currently being investigated.

At this time, MSS thus advise use of the deterministic Band (2012) model for the primary assessment of collision risk. This is in common with the recommendation of NS and RSPB. In common with NS, MSS are also content for sCRM outputs to be presented for context using the ARs from Bowgen and Cook (2018).

NS advise using ARs following the joint SNCB guidance (2014), which MSS support. As stated in NS's response (Appendix A – Table 2) and in RSPB's response there are no agreed ARs for the Extended Band (2012) model (option 3) for gannet and kittiwake, thus the inclusion of 98.0 % in the OSR (Table 6.14) under Cook et al. 2014 is incorrect. MSS note that NS provide ARs with standard deviations (SDs) and a recommendation that +/- 2 SD (equivalent to 95% confidence intervals)

should be used. MSS advise that clarity is sought from NS on how they recommend that these SDs be used. Are NS recommending running the deterministic Band (2012) model three times, i.e. for AR-2.SD, AR, AR+2.SD; or something else?

RSPB advise that a default AR of 98.0% is used for the basic Band (2012) model for the breeding season for gannet, noting that current derived ARs for the species only include non-breeding season data and that gannet are known to show different behaviour during the breeding season. While MSS consider this to be quite a precautionary approach, we do support inclusion of CRM outputs for gannet also with an AR of 98.0% for context, but would expect the primary assessment to follow the rates from the SNCB guidance (2014).

MSS supports NS's recommendation that monthly maximum density values be used within collision risk modelling.

A summary of proposed species parameters (morphometrics, flight speed, and nocturnal activity rates) are provided (OSR – Table 6.15, also see paragraph 278). Two different flight speeds are provided, the first column following standard guidance (using Alerstam et al. 2007 and Pennycuick 1997), the second column presents flight speeds from Skov et al. (2018). It is proposed that the Developer will use the standard guidance flight speeds for the primary assessment with the Skov et al. (2018) flight speeds for comparative purposes. MSS are content with this approach. MSS note that as existing ARs use the Alerstam et al. (2007) and Pennycuick (1997) flight speeds in their calculation, it is not appropriate to use these ARs with alternative flight speeds, thus while the CRM could be run using the Skov et al. (2018) flight speeds the results would not be meaningful.

RSPB advise that standard deviations (SDs) are provided around the input parameters (*inter alia* flight speed and wingspan) required when using the sCRM as these are not currently included in the table in the OSR (Table 6.15). MSS note that these SDs can be obtained from Table 1 of Cook (2021).

MSS support NS's recommendation that the flight type for gannet be set to gliding not flapping in the CRM (this amending what is currently proposed in the OSR – paragraph 279 and Table 6.15).

MSS advise that agreement be sought through the Roadmap process (or otherwise) on the appropriate Nocturnal Activity rates to use in the assessment. NS do not provide recommendations in their response on Nocturnal Activity rates, while RSPB request rates for 25% and 50% for all gulls, and the Developer includes rates in the OSR (table 6.15) but notes that further discussion on these will be required through the Roadmap process (OSR – paragraph 279).

With respect to assessment of collision risk for migratory water birds, it is noted that “*MS commissioned strategic report containing information on the development of the sCRM tool and the risk of collision to migratory species*” and that if this is available within the EIA timescale this would be used. MSS do not have a final publication date for this work, however we anticipate that it will not be available in time to feed into the EIAR. However, the report should be available around March 2022 and as such it should be available to Marine Scotland to consider alongside the EIAR report during determination. In the absence of this report MSS support NS's recommendation to use the earlier Marine Scotland (2015) report to inform the assessment.

Apportioning

The Developer's proposed approach to apportioning of effects to the appropriate seabird populations and seasons is outlined in the OSR (paragraphs 284 – 288). With respect to breeding season apportioning the OSR does not specify what method would be used for apportioning, which is noted

on by RSPB too. NS's consultation response also does not specify what apportioning approach should be taken, thus MSS advise that this is clarified with NS (although that may not be necessary should this be clarified separately via the Roadmap process). Following on from the scoping responses to the original Berwick Bank project and subsequent Roadmap discussion, MSS advise that for those species where the MS Apportioning Tool (Butler et al. 2020) can be used (i.e. kittiwake, common guillemot, and razorbill) that this is used following the method in that tool based on the Wakefield et al. (2017) GPS derived distributions (termed the 'MSS Apportioning method' in the tool documentation). For other species, the 'theoretical approach' should be used, which is outlined in a NS guidance note (NatureScot 2018).

Effects should be apportioned between adults and sub-adults. MSS support the NS recommendations on this (i.e. in the NS consultation response).

For the majority of species apportioning during the non-breeding season should follow the BDMPS approach (Furness 2015), which is proposed by the developer (OSR – paragraph 287) and also recommended by NS. Exceptions are for species that largely remain in the same region during breeding and non-breeding periods, NS give guillemot and herring gull as examples of such species. The OSR also mentions razorbill, however, recent studies using light-level geolocation to track guillemot and razorbill during the non-breeding season indicate that razorbill largely leave the breeding region during the non-breeding season whereas guillemot may stay closer to the vicinity of their breeding colonies (Buckingham et al. *in press*). Therefore MSS advise that the BDMPS approach be used for the razorbill.

NE, in their response on the HRASR request that the BDMPS approach is used for apportioning during the non-breeding season for guillemot as a feature of Flamborough and Filey Coast SPA, noting limited empirical evidence at this time to support alternative approaches. MSS suggest a precautionary approach that could be consistent with this response would be to apply the BDMPS approach for guillemots to SPAs outwith the Forth and Tay region (thus including Flamborough and Filey Coast SPA), however MSS suggest that further discussion is required around this point (e.g. via the Roadmap process).

Population Viability Analysis (PVA)

MSS support the use of the Natural England PVA tool (Searle et al. 2019) for PVA, which is proposed by the Developer (OSR – paragraph 289 – 292) and also supported by NS.

The Developer proposes to undertake PVA for SPA populations where assessed mortality exceeds 0.2% (note percent rather than percentage point) of survival rates. NS advise that PVA be run for populations where calculated colony mortality exceeds 0.02 percentage points above the baseline mortality rate (i.e. one minus annual survival rate). MSS suggest that the Developer's suggested threshold is under-precautionary, while the NS threshold is potentially over-precautionary. RSPB do not specifically propose a threshold though note that the further discussion is proposed. MSS advise that a more appropriate level could be a 0.05 percentage point increase above the baseline mortality rate.

A comparison of the equivalent percentage of baseline mortality for a low (80%) and high (95%) exemplar annual survival for seabird species is given below (Table 1). While there is no definite threshold for running a PVA, previous guidance around the Birds Directive (though this focussed on birds subject to hunting) suggests "... *'small numbers' should be considered as being any taking of around 1% of the annual mortality ...*" (EC 2008). MSS advise that clarification is sought from NS on an appropriate threshold value to be used when determining whether a PVA is required.

Table 1. Comparison of threshold mortality rates at which PVA should be ran as proposed by the Developer, NatureScot, and MSS

	Developer	NatureScot	MSS
Threshold	<i>mortality exceeds 0.2% of survival rates</i>	<i>mortality exceeds 0.02 percentage points above the baseline mortality rate</i>	<i>mortality exceeds 0.05 percentage points above the baseline mortality rate</i>
Percentage of baseline mortality when annual survival is 95%	3.8%	0.4%	1.0%
Percentage of baseline mortality when annual survival is 80%	0.8%	0.1%	0.25%

Ecosystem approach

There is little information provided on the proposed approach to considering ecosystem impacts (OSR – paragraphs 293 – 294). A webpage (<https://ecosystemsknowledge.net/tool-assessor-list-of-tools>) is referred to for potential tools to consider; MSS are not familiar with these tools, however following a brief review these tools do not appear to be suitable. MSS's expectation for an ecosystem based approach would be that connections through the ecosystem are considered, which for marine birds would include consideration of supporting habitat for the birds themselves and their prey, and thus how any changes in prey and/or supporting habitat from the development could ultimately lead to impacts on the bird populations (see also our advice above under *key impacts*). NS only provide brief comments on this point recommending further discussion through the Roadmap process, which MSS supports. NS mention the proposed OWEC PrePared project; while this project is relevant in considering ecosystem level effects, the project would only be starting in 2022 thus this will not be relevant at the assessment stage but may be relevant to consider in terms of potential for post-consent monitoring should the Development be consented.

Cumulative impacts

With respect to the approach to cumulative impacts, MSS are generally content with the approach outlined by the Developer (OSR - paragraphs 293 – 299). MSS agree with the points raised by NS in their consultation response.

MSS suggest consideration for cumulative impacts broadly follow the tiered approach originally proposed by NE and JNCC (see: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010056/EN010056-001638-EA3%20-%20JNCC%20and%20NE%20suggested%20tiers%20for%20CIA.pdf>).

Tier 1 comprises *built and operational projects*. In theory older projects will at some point become part of the baseline once changes in seabird populations have taken effect, e.g. with changes in at sea distribution and background mortality rates. However, as the NE & JNCC note advises, any project should be included where: “*any residual impact may not have yet fed through to and been captured in estimates of “baseline” conditions e.g. “background” distribution or mortality rate for birds.*” MSS advise that it is thus likely appropriate to include the majority of existing offshore wind projects in cumulative assessment at this time as it would take some years for seabird populations to adapt to developments given their life-history (i.e. late age at first breeding, low reproductive rates, and long

lifespans). The time lag between a development becoming operational and any effects being realised at the population level is unknown but likely to be some years. Current levels of monitoring at most seabird colonies also mean that we currently could only detect relatively large changes in population size and demographic rates (Cook et al. 2019).

Scoping questions

In the course of considering the points above MSS have considered most of the issues raised in the scoping questions given in the OSR (section 6.4.8). However, for completeness we here sign-post the relevant sections of our advice.

- *Do you agree that the existing data available to describe the offshore and intertidal ornithology is sufficient to describe the environment in relation to the Proposed Development?*

Yes.

- *Do you agree that all receptors and impacts have been identified for offshore and intertidal ornithology?*

No, please see response under *key impacts* above.

Do you agree with the suggested designed in measures and is this mitigation appropriate?

We have provided some comments around designed in mitigation above (see Inbuilt mitigation). However, we note that further mitigation may be appropriate to consider later in the assessment process to mitigate for assessed impacts.

MSS note that RSPB suggest that consideration is given to developing a biosecurity plan to mitigate for the risk of introduction of non-native species to islands in the Development region. It is not clear that this is a risk in this case, but MSS in principle support consideration being given to development of a biosecurity plan.

- *Do you agree with the proposed approach to assessment?*

We broadly agree with the proposed approach to assessment, however with some exceptions which are covered in our advice above.

- *Do you agree with the proposal to scope out pollution impacts during all phases of the Proposed Development?*

MSS agree with this with respect to ornithology, assuming the mitigation and monitoring commitments (OSR – Appendix 2) relevant to pollution are adhered to. RSPB have accepted pollution impacts being scoped out for ornithology for all project phases though note need for e.g. submission or reference to pollution prevention plans, which MSS consider is consistent with the Developer's commitments (OSR – Appendix 2).

- *Do you agree with the sites screened into the MPA Assessment (as presented in Appendix 17)?*

MSS have no comments with respect to ornithology on the screening for the MPA Assessment.

Habitats Regulations Appraisal (HRA) – Likely Significant Effect (LSE) Screening

Marine SPAs

In common with NS, MSS agree that all features of Outer Firth of Forth St Andrews Bay Complex SPA should be screened in.

Breeding seabird SPAs

The approach to establishing connectivity is outlined in the HRASR (paragraphs 134 - 139). While MSS support the general approach, using mean-max foraging ranges plus SD from Woodward et al. (2019), in common with NS we advise that by-sea distances should be used rather than straight-line distances (which include distance over land as well as sea). The HRASR does refer to *effective flight distance*, which MSS assumes corresponds to by-sea distance, though it appears that this was assessed qualitatively rather than quantitatively. However, as sites from the west coast were excluded on the basis that features of these sites are highly unlikely to use waters in proximity to the proposed Development and *effective flight distance* was considered, MSS are content that using by-sea distance would likely not lead to any changes in the sites that have been identified to screen in.

It is noted that Ramna Stacks and Gruney SPA (Leach's storm petrel) and Auskerry SPA (European storm petrel) are scoped out due to scarcity of records of these species in the baseline surveys. While this basis is appropriate for most species we note that petrel species may be more active at night and have lower detectability in at-sea surveys than most species. As such, there is potential for false negatives from at-sea survey datasets. However, given the distance to these sites and likely foraging areas for these colonies MSS are content that these sites are scoped out on basis of no LSE rather than connectivity.

NE provide specific advice around screening for Farne Islands SPA, MSS have not formed a view on this though note that these points should be considered.

Non-breeding season seabird SPA connectivity

MSS agree with the general approach taken here, however we agree with NS that any UK SPA contributing to the appropriate BDMPs region for the non-breeding season should be screened in then taken forward for determination of LSE. MSS's understanding is that all sites with potential for LSE from the development alone or in combination should be included for HRA. This would include sites where the contribution of the development alone would likely only comprise a small proportion of in-combination impact (see e.g. final paragraph of section 5.2.1.1. in HRA for Norfolk Boreas – available from: <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/norfolk-boreas/>).

Given NS's opinion that they "... consider that a step has been missed here and consideration of adverse effect on site integrity is being pre-judged" and NE's response noting a lack of detail on how no LSE was concluded; MSS suggest that clarification is needed on what if any remedy is required.

Impact pathways and determination of Likely Significant Effect

MSS are generally in agreement with NS's response on these sections, however we make the following additional/confirmatory points.

NS noted that under Section 5.5.2 (in HRASR) that consideration of water clarity/suspended has been omitted noting that both NS and MSS have previously advised that this be considered. MSS reiterate that this should be included. However, in most cases those species affected by Changes in Prey Availability will also be those that could be sensitive to changes in water clarity.

Table 5.17 – LSE Matrix for Outer Firth of Forth and St Andrews Bay Complex SPA

We agree with NS that direct habitat loss should be assessed across all project phases including decommissioning. We also agree with NS that breeding and non-breeding gannet should also be screened in for *barrier to movement*.

Marine Mammals

EIA Scoping Report

As highlighted in our previous advice for the initial Berwick Bank Scoping Report, our chief concern with respect to marine mammals is underwater noise generated during construction (e.g. turbine foundation installation, UXO clearance, geophysical surveys) and the potential for this to cause behavioural disturbance and/or auditory injury.

In reviewing this scoping report, MSS have considered the information in the main report (with particular reference to section 6.3), Appendix 9: Marine Mammal Baseline Environment, Appendix 17: Marine Protected Area (MPA) Screening and the corresponding advice from NatureScot (NS).

MSS acknowledge that ongoing advice is also being provided to the applicant in parallel through the Roadmap process, and that some of the content of the Scoping Report may have become outdated or updated through this process. MSS note that NS have identified in their advice areas where the Scoping Report could be updated in light of the roadmap discussions.

The applicant poses five questions in section 6.3.8. Our brief responses are provided below, and more information is provided in subsequent paragraphs:

1. MSS broadly agree with the data sources listed, however several sources of information have been published or updated since our previous scoping response. These have been highlighted by MSS during the Roadmap process and have been discussed further below, and in the advice from NS.
2. MSS acknowledge that various designed-in measures have been listed in section 2.7 and 6.3.5. Whilst MSS are broadly content with the measures relating to marine mammals here, we note that many of these are plans or procedures that have yet to be written, and therefore it is not possible to agree with these plans or procedures in name only. We advise that further appropriate mitigation measures should be identified following the results of the EIA, and details included therein where possible.
3. MSS broadly agree that the relevant impact pathways have been identified to be brought forward into the EIA (see more detail on specific impacts below).
4. MSS note that based on previous advice from MSS, the preliminary screening for MPAs has identified the Southern Trench ncMPA to be brought forward for the MPA Main Assessment. Whilst MSS are content this site has been considered, we agree with NS that this site can be screened out. Given the Southern Trench ncMPA is the only MPA within the regional study area with marine mammal features, MSS are content that no further marine mammal MPAs are to be included.
5. MSS are content that the impacts listed in Table 6.9 can be scoped out of the EIA.

6.3.2. Study area

MSS agree with the list of species to be included in the assessment:

- Harbour porpoise *Phocoena phocoena*
- Bottlenose dolphin *Tursiops truncatus*
- Minke whale *Balaenoptera acutorostrata*

- White beaked dolphin *Lagenorhynchus albirostris*
- Grey seal *Halichoerus grypus*
- Harbour seal *Phoca vitulina*

The applicant states here that for species with Management Units (Mus) extending over a very large scale (i.e. minke whale and white-beaked dolphin), the assessment will focus on the appropriate SCANS-III block only. MSS, in agreement with NS, recommended in their initial advice (see Berwick Bank Wind Farm Proposal Offshore EIA Scoping Opinion, 2020) that these species should be assessed against (i) the whole management unit population and (ii) at a regional scale, based on SCANS III Block R.

6.3.3 Baseline environment & Appendix 9: Marine Mammals Baseline Environment

MSS note that NS recommend using the most recent MU estimates from IAMMWG (2021). MSS are currently awaiting the full methodology from this report to be presented, although understand that the values for the North Sea Management Units have simply presented SCANS-III results. However, the values presented in IAMMWG (2021) are those from an earlier version of the SCANS-III analysis, and have subsequently been updated. We therefore recommend that the abundance estimates provided in the updated Hammond et al. (2021) report are used. We are content with the shape and areas of the management units provided in IAMMWG (2021).

With respect to bottlenose dolphins on the east coast of Scotland, MSS provided advice during the Roadmap process on both the most appropriate abundance estimate to use, and on the most appropriate distribution of bottlenose dolphins for the assessment. MSS advise that the best estimate of the Moray Firth SAC bottlenose dolphin population size is 224 (95% = 214 – 234). This is based on a five-year weighted mean population size using data from 2015 – 2019, which are presented in Arso Civil et al. (2021). This approach incorporates the variability in population estimates over this timeframe and has been discussed and agreed with University of Aberdeen and University of St Andrews, the two institutions involved in monitoring the population, and NS. The workings for this calculation can be provided on request.

For the distribution of bottlenose dolphins, MSS recommended that the assessment use two different distributions of density to account for the range expansion and habitat preferences of the east coast bottlenose dolphin population. One approach evenly distributes the east coast proportion of the population within the 20 m depth contour across the population range between Peterhead and the Farne Islands. The other distributes this same proportion of the population according to the habitat preference model in Arso Civil et al. (2019), focussing more on the key areas (both in terms of the extent of bottlenose dolphin use of the area and in terms of the potential areas of impact) around the Tay. These approaches, and the justification behind them, are outlined in more detail in the MSS advice to the applicant dated 09 December 2021. As understood from recent correspondence from the applicant (dated 13 December 2021), the first approach will represent an ‘average’ density scenario and the second will represent a ‘maximum’ density scenario. MSS are content with the two density estimates generated using these approaches (densities of 0.197 and 0.294 animals / km², respectively). Correspondence continues between MSS, NS and the Developer through the Roadmap process.

With respect to seals, MSS acknowledge NS’s rationale and preference for the Carter et al. (2020) habitat preference maps and using the current scalars to calculate absolute abundance. MSS’s concerns centre around the fact that the maps as presented only provide relative density estimate, rather than absolute, and that the scalars that are available have not been confirmed as being appropriate for this application. Marine Scotland has requested advice on these scalars through the

SCOS process, which will take place early in 2022. Following this, MSS will be in a position to confirm whether the scalars are appropriate. Until that time, MSS consider that the scalars can be used, but with caution, noting that they may require updating.

MSS are content with the designated sites included in table 6.7, with more detail provided in our response to the HRA Screening Report below.

6.3.5. Designed-in measures

MSS note the applicants plan to develop some key management plans for the wind farm construction relating to marine mammals, such as a Piling Strategy (PS), Vessel Management Plan (VMP) and Marine Mammal Mitigation Protocol (MMMP). While we welcome the commitment to these to aid mitigation planning, we advise that such plans do not rule out the potential for additional mitigation measures, depending upon the results of the impact assessment to be presented in the EIAR and HRA. We also recommend that key mitigation actions are detailed in the EIAR, where they are required to aid decision making.

MSS welcome the commitment to use deflagration to dispose of unexploded ordnance. However, we note that the deflagration technique is currently only offered by one company and that other low order UXO clearance technologies are available. To avoid difficulty with later licensing processes, it may be sensible to refer to “low order techniques” for unexploded ordnance disposal, rather than strictly to the specific method of deflagration.

MSS recommend that a Marine Mammal Mitigation Protocol will also be required for any UXO disposal, due to the potential risk of underwater noise.

6.3.6. Potential impacts after the implementation of designed in measures

MSS agree that injury and disturbance from UXO clearance should be scoped in to the assessment for the construction phase. We note that the use of low order UXO clearance techniques should significantly reduce the noise emitted during clearance, however there is still the potential for some noise (e.g. from the detonation of the donor charge) and therefore still a potential risk of injury and disturbance. MSS note that any data collection and analysis undertaken (i.e. aerial surveys) to characterise the baseline environment for the other sources of underwater noise (e.g. piling), will also be relevant for the UXO assessment, and this data may prove useful in the EPS licensing process.

MSS agree that disturbance from pre-construction surveys should be scoped in for the construction phase, however in addition to disturbance there is the potential for injury to marine mammals. We also recommend that quantitative (rather than qualitative) assessment using appropriate underwater noise modelling should be undertaken for pre-construction surveys (e.g. geophysical), due to the risk of injury and disturbance to marine mammals from certain survey techniques.

MSS agree that disturbance from vessels, injury from vessel collision and effects from changes in prey availability should be scoped in for all phases. However MSS note that in both their previous and current advice, NS advised separation of vessel presence and noise from noise generated by other construction related activities. We support this approach, noting this previous advice has not been reflected in the current scoping report.

MSS agree the following impact pathways can be scoped out of further consideration:

- Accidental pollution (all phases)

- Increased suspended sediment concentrations and associated sediment deposition (all phases)
- Disturbance to seals on land (pre-construction and construction)
- EMF (all phases)
- Disturbance from operation noise (operation phase)

6.3.7. Proposed approach to the environmental impact assessment

With regard to paragraph 206, MSS recommend that in addition to underwater noise produced during pile-driving, geophysical surveys and vessel noise. The underwater noise generated from UXO clearance should also be assessed quantitatively.

Throughout the scoping report there are no mentions of additional underwater noise abatement methods and technologies other than deflagration (e.g. bubble curtains). MSS advise that noise abatement methods for noisy activities, such as impact piling, should be considered where practicable and discussed in the EIA report.

MSS agree with the list of potential cumulative effects to be included in the cumulative assessment and note that, together with NS, further discussions are required to agree the approach to this assessment.

HRA Screening Report

MSS have reviewed the Berwick Bank HRA Stage 1 Screening Report and acknowledge the appropriate changes implemented since the initial Berwick Bank LSE Screening Report was reviewed.

In agreement with NS, MSS are content with the list of SACs outlined in Table 4.3 and with the impact pathways to be assessed. MSS support the decision to include the Firth of Tay and Eden Estuary SAC, with its declining population of harbour seals, in the assessment.

MSS note that NS provided advice on connectivity and reference populations for the grey seal SACs (Isle of May and Berwickshire and Northumberland Coast) to the development area and we are content with this.

MSS note that some of the baseline information in section 5.4.2 and 5.4.3 is outdated and has been superseded by advice given to the applicant in the roadmap process for the EIA Scoping, particularly regarding bottlenose dolphins:

- The appropriate population size to use for bottlenose dolphins on the east coast of Scotland, using a weighted 5-year mean based on estimates in Arso Civil et al. 2021, has been described in the EIA Scoping advice above.
- The most appropriate approaches to estimating density for bottlenose dolphins have also been described in more detail above.

MSS are content with the impact pathways and determination of Likely Significant Effects (LSE) outlined in tables 5.10-5.15.

Further discussion will be required on the methods to be used to undertake quantitative assessments of impacts to the SAC populations that are to be included in the HRA.

Marine fish ecology

Study area

MSS agree with the study area for fish and shellfish ecology.

Impact pathways scoped in/out

MSS are content that all of the potential impacts have been identified for fish and shellfish ecology and agree with the impacts scoped in and out of the Offshore EIA. MSS welcome the use of low order unexploded ordinance (UXO) clearance techniques for the clearance of UXO that cannot be removed or avoided.

MSS note that the development area is a high intensity spawning ground for sandeel. MSS recommend a further review of sandeel spawning grounds which should identify suitable habitat for sandeels to inform the impact assessment and the need for mitigation. There are methods to judge whether spawning is likely within an area, such as sediment analysis. Sandeels prefer spawning substrate with a low clay silt fraction (<10%) and typical sandeel habitat is within the 20 – 100 m water depth range (Mazik *et al.* 2015 and Lancaster *et al.* 2014).

MSS note that the development area is a spawning ground (undetermined intensity) for *Nephrops* and that underwater video survey data provided by Marine Scotland showed that *Nephrops* abundance was high in the inshore waters of the southern parts of the spawning and nursery grounds. MSS recommend further consideration of the overlap of the development area, particularly the cables, with *Nephrops* grounds in terms of habitat loss, disturbance and the potential impacts of electromagnetic fields (EMF) from cables.

MSS note that the development area is a high intensity nursery ground for herring. The report states that, 'a further review of the herring spawning and nursery grounds will be undertaken to support the fish and shellfish ecology assessment following guidelines set out by Boyle and New (2018) considering seabed sediment type and records of herring larvae from the IHLS over the past decade'. This review will be important to confirm and refine spawning areas within the study area and inform the EIA. MSS would appreciate having sight of this review and the findings when they are available.

Table 8.3 currently only considers the spatial overlap of fish spawning and nursery areas with the proposed development area rather than also considering the temporal overlap. MSS recommend updating Table 8.3 to include fish spawning periods to consider peak spawning periods in comparison with the proposed construction timetable. This might help to avoid conflict and any impacts on spawning fish.

In terms of proposed mitigation in Table 6.5, it appears that mitigation will only be considered for the potential for disturbance or disruption to diadromous fish for underwater noise, increased sediment concentrations and associated sediment deposition and EMF and not marine fish. MSS seek clarification that mitigation will also be considered for these impacts for marine fish.

MSS suggest that a key consideration for the environmental impacts of underwater noise on fish should be on herring, as this species is sensitive to noise impacts and there are known herring spawning and nursery grounds in the area. The spawning period for herring in the Banks/Dogger region is August – October.

Loud, impulsive noise generating activities e.g. pile driving and UXO clearance during this time period have the potential for significant impacts on spawning herring, and should be assessed

appropriately, and mitigation should be considered. This assessment should include underwater noise modelling, taking into account sound exposure criteria provided by Popper et al. (2014) and should follow a precautionary approach where it is assumed that fish will remain stationary and not flee from noise, as there is little evidence for this. For herring, the criteria suggest that mortality and potential mortal injury will occur from pile driving at 207 dB SELcum or >207 dB peak. In addition to this, sound abatement measures that are used for marine mammals may go some way towards mitigating noise impacts for fish. MSS recommend the avoidance of loud, impulsive noise generating activities e.g. pile driving and UXO clearance, during important fish peak spawning periods.

MSS is content that EMF from subsea electrical cabling has been scoped in for the EIA, however the assessment approach states that no modelling is required for this impact. MSS recommend that the developer provides evidence for either predicted or known EMF emissions from their cables to predict the range of EMF emissions from the cable. This range can then be considered against background levels of geomagnetism. MSS also recommend further consideration of the potential impacts of EMF on elasmobranchs and marine invertebrates such as lobster, *Nephrops* and crabs while taking into account recent scientific evidence, for example, papers by Scott et al. (2018, 2021) and Hutchison et al. (2020, 2021).

MSS would welcome the development of a strategic project to measure and monitor EMF, and would encourage the involvement of this developer in any future strategic projects to contribute to the evidence base and improve assessments of EMF impacts. This work will also be important in helping to improve our understanding of the potential for population level effects on fish and invertebrates.

Data

MSS agree that most of the existing data on fish and shellfish resources have been included, however MSS advise that the Developer should refer to a report which provides a modelled spatial representation of the probability of the presence of 0 age group fish (fish in the first year of their life) and the probability of aggregations of 0 age group fish (Aires *et al.* 2014). It is recommended these data are presented visually in conjunction with the Coull *et al.* (1998) and Ellis *et al.* (2012) nursery maps, as there are certain limitations with the data. Further details are available here: <https://www2.gov.scot/Topics/marine/science/MSInteractive/Themes/fish-fisheries/fsm>

In addition to the Coull *et al.* (1998), Ellis *et al.* (2010) and Aires *et al.* (2014) data, new information is available regarding the spawning areas of cod, haddock and whiting (González-Irusta and Wright 2016; González-Irusta and Wright 2016; González-Irusta and Wright 2017). The whiting paper is available but the associated layers are not available as yet. The three papers contain the new information however they are not yet available on NMPI. We hope to get these online shortly to enable use of them. Links to the new reports are available in the references section at the bottom of this response.

MSS also recommend reference to the ORJIP study on 'Impacts on fish from piling at offshore wind farm sites: collating population information, gap analysis and appraisal of mitigation options' which was published in 2018 (Boyle and New 2018).

A recent study has also been published on 'A verified distribution model for the lesser sandeel *Ammodytes marinus*' by Langton *et al.* (2021). In this study, species distribution models were developed to predict the occurrence and density of sandeels in parts of the North Sea and Celtic Seas regions. It provides information on environmental requirements for sandeel habitat and indicates potential areas where anthropogenic impacts on sandeel populations should be considered. MSS recommend that the developer considers this new research in the EIA.

In Appendix 8, Table 8.1, 2018 landings data by ICES rectangle are used. MSS would like to highlight that 2020 landings data is now available, although MSS would urge careful interpretation of these most recent data due to the impacts of the Covid pandemic on the commercial fishing industry.

MPA assessment

MSS is content that the Turbot Bank MPA which is designated for Sandeels can be scoped out of the MPA assessment. However it is designated for Raitt's sandeel (*Ammodytes marinus*) and lesser sandeel (*Ammodytes tobianus*) species not *Ammodytes americanus*. MSS advise that this error should be amended.

Commercial fisheries

Potential impacts

MSS agree that all potential impacts have been identified for commercial fisheries receptors. MSS welcome the inclusion of a minimum turbine spacing of 1000 m in the offshore wind farm configuration. This will help to permit fishing to continue within the wind farm area post construction.

MSS note that the project area including the cable route overlaps with ICES rectangles 40E7, 41E7 and 41E8, and in particular areas of scallop dredging and demersal trawling for *Nephrops*. The report states that the developer will undertake post-lay and cable burial inspection surveys, monitoring of the cables and that an assessment will be made of the as-laid data (geophysical) to assess the potential for snagging. This will then inform the requirement for an over-trawl ability study, which would then be planned and undertaken in discussion with fisheries stakeholders. MSS is content that the developer has already identified the potential need for an over-trawl survey to minimise, as far as reasonably practicable, the risks of fishing gear snagging on cables.

MSS advise that an assessment of possible cumulative effects on fisheries should discuss the potential for fisheries management measures within Marine Protected Areas (MPA). Further developments will be published on the Marine Scotland website as information becomes available. We note that whilst fisheries management measures have in the past been consulted on for the Firth of Forth Banks Complex MPA, none are currently in place. Map layers showing current fisheries management measures (Marine Conservation Orders) are now available on Marine Scotland's National Marine Plan interactive (NMPI) which may be accessed here:
<http://marine.gov.scot/information/mpa-and-sac-management-marine-conservation-orders-mcos-and-fisheries-management-measures>

MSS commissioned a project to develop good practice guidance for assessing fisheries displacement by other licensed marine activities. This project has been completed and the final report is awaiting publication. MSS advise that this guidance, when published, may be useful in EIA.

Additional datasets

In Appendix 8, Table 8.1 – 2018 landings data by ICES rectangle are used. MSS would like to highlight that 2020 landings data is now available, although MSS would urge careful interpretation over this data due to the impacts of the Covid-19 pandemic on the commercial fishing industry.

Diadromous fish

MSS is content that the wider and local study areas proposed for fish and shellfish can also be used for diadromous fish.

Fish assemblage

The diadromous fish species which should be considered are correctly identified as Atlantic salmon, sea trout, sea lamprey, river lamprey, European eel, Allis shad, twaite shad and sparling (European smelt). It is correct that the species which have the greatest potential to be present within the vicinity are Atlantic salmon, sea trout, eels and sea lamprey. In discussion during the Roadmap meeting of 16 December 2021, we agreed that sparling and river lamprey are unlikely to be present within the wind farm site.

MSS note that epibenthic trawls (e.g. those carried out to inform this proposed development and that of Seagreen 1) provide little information on salmon and sea trout which spend much of the time close to the sea surface.

No site-specific surveys are proposed to inform the baseline characterisation or impact assessment on diadromous fish species. There will be a need to bring in a range of other available information. MSS consider that even when this has been done, there will still be a major need for improved information on the spatial and temporal distribution of diadromous fish, including particularly salmon and sea trout, in the vicinity of the development (see ScotMER diadromous fish evidence map: <https://www2.gov.scot/Topics/marine/marineenergy/mre/research/maps>). MSS advise that MS-LOT should consider how developers might contribute to addressing knowledge gaps regarding the distribution and conservation of diadromous fish at sea.

Impacts proposed to be scoped in for fish and shellfish

MSS agree that with the impact pathways to be scoped in for diadromous fish. MSS also agree with NatureScot's (NS) comments regarding diadromous fish on the Scoping Report in their letter of 7 December 2021.

With respect to noise, MSS advise that piling ramp up and soft start are unlikely to be effective mitigation for salmon and sea trout. Harding *et al.* (2016) found that salmon did not show immediate avoidance behaviour in the presence of piling noise, although the sound level was greatly above that which salmon can detect.

UXO clearance may be a major source of impulsive noise with potential impacts on diadromous fish. Appropriate timing of the operations may be important and should be considered within the EIA. Emigrating salmon smolts are potentially a very sensitive life stage and are likely to pass through the development area in May and possibly early June.

In regard to EMF, MSS would note that there are potential effects on migrating diadromous fish which are navigating using geomagnetic cues which will need consideration in the EIA.

With regard to the colonisation of hard structures, MSS would note that the potential reef effects of the structures include the direct effect on numbers or behaviour of migrating or foraging diadromous fish, and also on the abundance and behaviour of predators such as seabirds, marine mammals and fish, which may subsequently impact on migrating or foraging diadromous fish.

Cumulative impacts and potential transboundary effects

MSS note that because of long distance migrations any effects of construction, operation and maintenance, and decommissioning may be much wider than the footprint of the project and could involve effects on diadromous fish from other countries, notably England.

MSS recommend that the applicant considers the resilience of salmon and sea trout populations to loss of fish, in any population impact modelling for diadromous fish (see <https://www2.gov.scot/Topics/marine/Salmon-Trout-Coarse/fishreform/licence/status> for more details in relation to salmon).

Shellfish assemblage

It is stated that the River South Esk, River Dee and River Spey SACs have primarily been designated as SACs due to the presence of the freshwater pearl mussel. This should instead say that they are designated as SACs with freshwater pearl mussel as a species that are a primary reason for selection of the site, and Atlantic salmon and in some cases lamprey species are also primary species interests.

HRA Screening Report

MSS agree with all of NS advice regarding SAC sites for diadromous fish, potential impact mechanisms and the likelihood of significant effect in their letter of 7 December 2021. This has also been discussed through the Roadmap process.

Benthic Ecology

EIA Scoping Report

MSS agree with all comments made by NatureScot (NS) in relation to benthic ecology. We have the following additional comments on the content of the EIA Scoping Report.

Section 5.5: Climatic assessment

MSS welcome the assessment of climatic effects. However, this assessment is not complete without an evaluation of the loss of carbon sequestered into the sediment (blue carbon) within the footprint of the project. The ability of the ocean to effectively re-mineralise oceanic carbon is becoming increasingly recognised. Marine sediments are a crucial reservoir for long-term carbon storage (Sala *et al.* 2021). Given the potential scale of this wind farm (307 turbines and 4.1 GW with a total area of 1,142 km²) and the fact that it overlaps with a ncMPA, MSS consider that it is important to evaluate the loss of the carbon stores within sediments and associated fauna in the footprint of the development (foundations and cabling).

The subtidal sands and gravels and burrowed mud at the development site provide a relatively stable seabed environment occupied by taxa that provide a high contribution to carbon cycling. The majority of the carbon is likely to be stored in the surficial sediments (top 10 cm; Smeaton *et al.* 2020). Biogenic habitats are likely to contain higher levels of carbon than purely sedimentary habitats. Estimates of dry bulk density and organic carbon for values of each of the Folk classes derived from North Sea samples are provided in Diesing *et al.* (2017), Smeaton *et al.* (2020), Sala *et al.* (2021) and Porter *et al.* (2020) and references therein, although values for biogenic taxa, e.g. *Sabellaria*, dense *Chone* sp. (as reported in the benthic survey) should also be incorporated. A technique used to model the organic and mineral particle flux for an offshore wind farm overlapping with a Natura 2000 site in Belgian waters (Ivanov *et al.* 2021) has recently been published, although this level of detail may be more applicable for a monitoring study rather than an EIA. A simpler evaluation within the climatic assessment would be welcomed.

Section 6. Study area

MSS do agree with the study area and protected sites that have been screened into the assessment.

Table 6.3: Impact pathways

In addition to those impacts already described, MSS advise that the following impacts should be considered:

- Changes in prey species availability and whole ecosystem effects
- Impact of changes in hydrodynamics and sediment movement on the benthic communities (see also **Physical Environment/Coastal Processes** section, below)
- Impact of disposal of UXOs on the sediment and benthic communities (if UXOs are found)
- Impacts on intertidal through HDD or open cut trenching (noting that, in the benthic Roadmap meeting of 16 December 2021, the Developer confirmed that HDD would be used with no intertidal impacts expected)
- MSS note that impact of noise including particle motion is included in section 5.2.

Section 6.1.4

MSS advise scoping in the following impacts and phases in addition to those already listed:

- Disposal of UXOs on the sediment and benthic communities (construction phase)
- Habitat loss and disturbance in the intertidal and nearshore due to either HDD at the entry and exit points or open cut trenching (construction and operation phase)
- Movement of re-suspended sediment at the cable landfall site (construction phase)
- Invasive and non-native species (operation as well as construction and decommissioning phases)
- The impact of drilling fluids/effluent and drill cuttings being dispersed into the water column/onto the seabed (construction phase)
- Permanent loss of protected species or habitats that have colonised sub-structures (decommissioning phase)

MSS would also like clarification that the following aspects are included in those impacts that have been scoped in.

Temporary or long term habitat loss

MSS advise that cable burial, cable protection and scour protection are likely to have a long-term (rather than a temporary) impact on *Arctica islandica* (ocean quahog). The act of jetting or ploughing of up to 3 m to make the cable trench will remove the majority of ocean quahog within it. Backfilling the habitat will effectively replace the sediment, but MSS assume that individuals will likely die via burial or disturbance. In the future ocean quahog may recruit into the back-filled area but these will be new recruits and not adults. They reach sexual maturity at 10 + years of age (Thorarinsdottir, 1999) and recruitment occurs very intermittently. Witbaard and Mann (2013) report two recruitment events in 30 years. Ocean quahog live for 100+ years and cannot be replaced within a short time span. Further information on recovery times can be found in the sensitivity assessment provided by the [MarESA](#) assessment. Ocean quahog is listed as an OSPAR Threatened and Declining Species and as a Priority Marine Feature. The MPA assessment concluded that the ocean quahog population in the Firth of Forth Banks ncMPA were in unfavourable condition in December 2020, and that mitigation for renewable energy developments may need to be put in place to still enable recovery of the feature ([JNCC 2020](#)). MSS advise that the EIA and the MPA assessment should consider impact of all cable laying, installation of scour protection and turbine foundations as a long-term or permanent impact on quahog.

Invasive and non-native species (INNS)

MSS advise that introduction of non-native species may occur at any phase of the development and should therefore be scoped in for the operational phase as well as for construction and decommissioning. The wind farm has a 25 year lifespan and so the operational phase has arguably the longest time frame for non-native species to colonise the hard substrates. This could be confirmed by routine monitoring of foundation structures, particularly in the splash zone.

Colonisation of hard structures

This is scoped in already, but MSS would like confirmation that the assessment will encapsulate the expected change in ecosystems within the ncMPA from one that protects soft sediment to one that incorporates both hard and soft substrata. The hard substrata (turbine foundations) will be colonised by sessile epifauna and provide a reef effect that will attract fish and mobile epifauna (Hutchison et al. 2020a; Mavraki et al. 2020). MSS advise that this additional hard substratum should be quantified within the MPA assessment. It should firstly include an assessment of the total surface area of hard substrata including foundations, cable protection and OSPs; and secondly include an assessment of the total area in which a change in ecosystem is predicted through reef effects on and around the foundations, the cable protection and scour protection. Thirdly, the assessment should include the effect of marine growth detritus on the seabed and consider smothering and enrichment effects on the underlying seabed, together with biogeochemical changes. The size of the predicted area of enrichment for each turbine should be quantified with inclusion of speed and direction of currents.

Impact to benthic invertebrates due to electromagnetic fields (EMF)

MSS advise that, given the number and length of cables that will be required for this development (approximately 1,225 km of array cabling and 94 km of interconnector cabling), this impact should be quantified as far as possible. MSS advise that EMF emissions should be assessed for the specific cable types used in this development. Predicted values of emissions on the surface must be provided in the EIA, taking account of depth of burial or cable protection. Evidence suggests that even low levels of emissions (similar to background) are perceivable to sensitive species and may result in behavioural responses (e.g. Hutchison et al. 2020b), although effects on benthic species of relevance to Scotland are still uncertain. The total area where the cable EMF emissions are detectable should be provided in relation to both the site development area and the area of the MPA. The assessment on species effects will need to be qualitative due to lack of specific evidence on relevant species at various levels of emission. MSS would welcome the opportunity for strategic research in this area, in particular the opportunity to take *in situ* measurements of EMF emissions in the field and to improve knowledge on EMF effects on relevant species.

Impacts to be scoped out

MSS agree that the impacts listed in table 6.4 can be scoped out of the benthic assessment.

6.1.7. Proposed approach to the Environmental Impact Assessment

MSS advise that Pearce and Kimber (2020) should be considered which details how the Gubbay (2007) guidance can be used together with the habitat descriptors provided by OSPAR to define quality of reef (e.g. *Sabellaria spinulosa*). Golding (2020) should be used together with Irving (2009) for identification of stony reef habitats.

MSS is content with the applicant using the term, Important Ecological Features. However, it is necessary to clarify the listing for each feature, e.g. Annex I under the EC Habitats Directive, OSPAR Threatened and Declining Habitats or Priority Marine Features. Note that since this scoping report was written, 'kelp forest habitat' has been designated by [OSPAR](#) in this region, which may be relevant to the shallow water and intertidal zone at the cable landfall site.

Note also, that the impact of the development on the PMFs outwith the MPA must be taken into account in the EIA in accordance with [GEN 9](#) in the National Marine Plan (2015).

MPA Assessment

Many of the comments in the EIA scoping section above are applicable to the MPA assessment. As a general comment, MSS advise that for all qualifying features within the MPA, the percentage of habitat loss within the MPA must be considered cumulatively with other plans and projects. It should account for the habitat loss and disturbance from the whole development, together with other developments such as Seagreen Alpha and Bravo and Seagreen 1A.

HRA Screening Report

MSS agree that likely significant effects on the Berwickshire and North Northumberland Coast SAC from increases in suspended sediment and sediment deposition should be screened in for all phases. The likely significant effect could be determined by modelling of sediment plumes when the precise location of the export cable is determined. MSS agree with those impacts scoped out of the HRA.

Physical environment / coastal processes

- *Do you agree with the data sources which are suggested for the assessment of physical processes?*

MSS have reviewed Appendix 6 which lists data sources. We note the reference to the Scottish Shelf Model for climatological hydrodynamic model output, including water current velocities, water elevations and temperature and salinity fields (please contact oceanography@marlab.ac.uk for data access/info). Please also note that there is now a 26 year reanalysis from this hydrodynamic model – the Scottish Shelf Waters Reanalysis Service (SSW-RS, <https://tinyurl.com/SSW-Reanalysis>). The Marine Scotland Science Oceanography group also have a 3D FVCOM model of the Firth of Forth and Tay region, with around 100 m node spacing close to the coast, currently only run for first six months of 2003, but this might provide useful context and/or tidal validation work.

For bathymetry data you may find the Seabed Mapping Data Service useful, as there are a lot of high resolution bathymetry data available for the surrounding region. <https://seabed.admiralty.co.uk/>

MSS query whether the Developer has considered where to obtain forcing data for the hydrodynamic model. We presume standard datasets, recommended by DHI, will be used. The Copernicus Marine Service (<https://marine.copernicus.eu/>) has a number of data available, including the Atlantic-European North West Shelf - Ocean Physics Analysis and Forecast at 1.5 and 7 km resolution. ECMWF also host the ERA5 atmospheric model data.

- *Do you agree that all receptors and impacts have been identified for physical processes?*

As indicated in the scoping report, physical processes provide a pathway to impact of the biological receptors, and this has been identified in Table 5.1 and the receptors proposed in 5.1.7.7 are considered to be appropriate. Given that much of the region is part of the Firth of Forth Banks Complex Nature Conservation MPA (<https://data.jncc.gov.uk/data/92fb7e5e-5e68-4e66-bde3-afd9c27d6b14/FFBC-4-ConservationStatements-v1.0.pdf>), which offers protection to offshore subtidal sands and gravels and their associated biological communities, it would be prudent to include these sediment features as a receptor. The MPA Assessment should assess whether there

are likely to be significant changes to these sediment structures. This could be done as part of the proposed Mike21 hydrodynamic and sediment modelling work.

- *Do you agree with the suggested designed in measures and is this mitigation appropriate?*

MSS consider that the proposed measures are sensible. We recommend the applicant considers monitoring scour around the wind turbine foundations, in addition to the cable route. There are also a number of processes impacting suspended sediment scoped into the development assessment for physical processes (Table 5.1). We advise it would be prudent to consider monitoring of suspended sediments and bed features, at least within the Firth of Forth Banks Complex ncMPA. This may not be necessary, depending on the outcome of the modelling work during the EIA stage.

- *Do you agree with the proposed approach assessment?*

Yes, we recommend the proposed application of a 2D hydrodynamic model coupled to sediment entrainment/plume and transport modules. The proposed plume models are appropriate for the foundation and cable installation options.

Most of the proposed assessment appears to be on the entrainment and transport of sediment, focusing on suspended sediment concentrations. MSS recommend that the ultimate fate of entrained sediment (during foundation preparations, cable installation etc.) be modelled as this may impact the benthic communities, e.g. smothering from sediment etc.

There is no mention of changes to water column processes, such as current speeds, mixing and stratification, that occur due to the presence of the wind turbine foundations. This could impact primary productivity as well as higher trophic levels. MSS note that the Developer proposes to model the foundation structures, and suggest that they perform a simple analysis on how current speeds and stratification may be changed by the large number of structures being installed. This should be done through a seasonal cycle or at least for a number of conditions to adequately represent a seasonal cycle. Similarly, the large number of turbines may change the near-sea-surface wind velocities within and downstream of the development zone. MSS recommend that the applicant considers this to determine if it has any effect on the current speeds in the region. This could simply be an additional model run with a wind speed deficit applied over the proposed development area to test whether this changes any physical or oceanographic characteristics.

- *Do you agree that transboundary impacts of marine physical processes receptors should be scoped out of the Proposed Development EIA?*

Yes, we agree that transboundary impacts of marine physical processes receptors can be scoped out of the Proposed Development EIA.

Aquaculture

There are currently no aquaculture sites registered with Marine Scotland Science located in the immediate vicinity of the revised Berwick Banks development.

There are no expected changes to the aquaculture sites operating in the vicinity of the revised development. The nearest aquaculture sites are both land based tank sites using pumped seawater. There is a site at St Abbs operated by St Abbs Marine Station currently active and stocked with a variety of marine finfish and shellfish species, and also a lobster hatchery at North Berwick operated by The Firth of Forth Lobster Hatchery stocked with European lobsters of various sizes. From the information provided accurate distances are hard to calculate and are therefore estimated from the maps provided; however the nearest boundary of the development is over ~35 km from the aquaculture sites and the cable landfall is ~15-25 km from the aquaculture sites.

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Hopefully these comments are helpful to you. If you wish to discuss any matters further then please contact the REEA Advice inbox at MSS_Advice@gov.scot

Yours sincerely,

Renewable Energy Environmental Advice group
Marine Scotland Science

T: +44 (0)131 244 2500
E: MSS_Advice@gov.scot

Emma Lees
Marine Scotland Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

24 January 2022

BERWICK BANK OFFSHORE WIND FARM - COMMERCIAL FISHERIES CLARIFICATION REQUEST

Marine Scotland Science (MSS) have reviewed the relevant documentation and have provided the following comments.

Commercial fisheries

MSS have provided comments to the below questions from MS-LOT in relation to the Berwick Bank scoping report:

(1) Does MSS still consider that a fisheries displacement assessment should be carried out in line with its advice on the previously scoped Berwick Bank project (dated 19 November 2020)?

Yes, MSS advise that a fisheries displacement assessment should be carried out in line with previous advice. Marine Scotland have commissioned a project, 'Developing good practice guidance for assessing fisheries displacement by other licensed marine activities'. A final good practice report has been produced and is awaiting publication. MSS recommend that this guidance is referred to once it is published.

(2) Does MSS still consider, in line with its advice to the previously scoped Berwick Bank project (dated 19 November 2020), that a clear stance should be adopted at an early stage in the process on whether or not fishing will be possible over cables as this will have implications for the fisheries displacement assessment?

MSS recommend that cables and cable protection measures should be made safe for fishing to reduce the risk of fishing gear snagging on cable protection materials. Preferentially this should involve burial of cables; where burial is not possible due to seabed conditions, any cable protection should be over-trawlable.

(3) Does MSS still consider, in line with its advice to the previously scoped Berwick Bank project (dated 10 December 2020), that a practical over-trawl ability study should be carried out using local vessels and gear to test the safe use of fishing gear and to minimise, as far as reasonably practicable, the risks of fishing gear snagging on cables?

Yes, MSS recommend over-trawl surveys be carried out using local vessels and gear to test the safe use of fishing gear and to minimise, as far as reasonably practicable, the risks of fishing gear snagging on cables.

(4) Does MSS still consider, in line with its advice to the previously scoped Berwick Bank project (dated 10 December 2020), that the risk of snagging fishing gear is not a concern for shipping and navigation and should be reviewed separately rather than as part of the shipping and navigation assessment?

MSS recommend that the risk of snagging fishing gear should be considered within a commercial fisheries assessment, rather than as part of the shipping and navigation assessment.

(5) Does MSS still consider, in line with its advice to the previously scoped Berwick Bank project (dated 10 December 2020), that sale of fish and the supply chain should be assessed in the EIAR?

The sale of fish and the supply chain should be assessed as part of the socio-economic assessment. There may be a requirement for further discussion between MS-LOT and MSS in due course, on whether this assessment (or other aspects relating to commercial fisheries) should sit within the EIAR or in a separate document/appendix..

(6) Does MSS still consider, in line with its advice to the previously scoped Berwick Bank project (dated 19 November 2020), that more information is required on plans for decommissioning and if the intention is for all infrastructure to be removed from the marine environment, highlighting the potential safety hazard that any disused infrastructure left in the marine environment poses for commercial fishing?

Yes, MSS recommend that more information is required on plans for decommissioning and if the intention is for all infrastructure to be removed from the marine environment, the potential safety hazard that any disused infrastructure left in the marine environment poses for commercial fishing should be highlighted.

Hopefully these comments are helpful to you. If you wish to discuss any matters further then please contact the REEA Advice inbox at MSS_Advice@gov.scot

Yours sincerely,

Renewable Energy Environmental Advice group
Marine Scotland Science

From: [AULD, Alasdair E](#)
To: [MS Marine Renewables](#)
Cc: [NATS Safeguarding; Bamlett R \(Rebecca\)](#)
Subject: RE: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021 - Appendix 14 now available [SG30350]
Date: 19 November 2021 16:23:43
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[SG30350 Berwick Bank Offshore Windfarm - TOPA - Issue 1.pdf](#)

Emma

NATS' concerns in relation to the proposed development were outlined in the report we submitted in response to the original design on the 20th of October 2020 (attached for reference).

Although we've been unable to fully update our position without detailed coordinates for the development boundaries (these were requested from the developer on the 27th of October 2021) we are confident that, as stated below, "*the development would generate an unacceptable level of clutter on our Primary RADAR infrastructure*" as previously identified.

In terms of what should be included in any EIA our advise would be that the developer validate the position in relation to the generation of radar clutter and explore options as to how this could be mitigated. It appears that the developer is aware of this requirement as the Scoping Report includes a proposal to have a "*RLOS and operational assessments to be carried out by NERL.*" as part of the data collection and analysis phase.

A *RLOS and operational assessment* would allow us to firm up the concerns we've already raised and would be good starting point to explore options for how we could live with the development.

Regards,

Alasdair

NATS Safeguarding

Technical and Operational Assessment (TOPA)

Berwick Bank Offshore Wind Farm

NATS ref: SG30350

Issue 1

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Publication History

Issue	Month/Year	Change Requests and summary
1	September 2020	Scoping Request

Document Use

External use: Yes

Referenced Documents

1. Background

1.1. En-route Consultation

NATS en-route plc is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility it has a comprehensive infrastructure of RADAR's, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a wind farm.

In this respect NATS is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC).

In order to discharge this responsibility NATS is a statutory consultee for all wind farm applications, and as such assesses the potential impact of every proposed development in the UK.

The technical assessment sections of this document define the assessments carried out against the development proposed in section 3.

2. Scope

This report provides NATS En-Route plc's view on the proposed application in respect of the impact upon its own operations and in respect of the application details contained within this report.

Where an impact is also anticipated on users of a shared asset (e.g. a NATS RADAR used by airports or other customers), additional relevant information may be included for information only. While an endeavour is made to give an insight in respect of any impact on other aviation stakeholders, it should be noted that this is outside of NATS' statutory obligations and that any engagement in respect of planning objections or mitigation should be had with the relevant stakeholder, although NATS as the asset owner may assist where possible.

3. Application Details

Scottish Government submitted a request for a NATS technical and operational assessment (TOPA) for the development at Berwickbank Offshore Wind Farm. It will comprise a large number of turbines contained within the boundary points as detailed in Table 1 and shown in the diagrams contained in Appendix B.

Turbine	Lat	Long	East	North	Tip Height (m)
A	56.0619	-1.3912	438009	685619	310
B	56.1502	-1.3936	437771	695444	310
C	56.1503	-1.5855	425852	695363	310
D	56.1368	-1.6446	422187	693846	310
E	56.3338	-1.6953	418939	715751	310
F	56.3546	-1.6599	421116	718084	310
G	56.4342	-1.6913	419135	726937	310
H	56.4466	-1.6538	421441	728322	310
I	56.4619	-1.6131	423943	730043	310
J	56.4815	-1.5656	426854	732244	310
K	56.4896	-1.4608	433302	733187	310
L	56.1596	-1.2453	446974	696581	310

Table 1 – Turbine Details

4. Assessments Required

The proposed development falls within the assessment area of the following systems:

RADAR	Lat	Long	nm	km	Az (deg)	Type
Great Dun Fell Radar	54.6841	-2.4509	90.4	167.4	17.3	CMB
Lowther Hill Radar	55.3778	-3.7530	84.8	157.0	52.4	CMB
Perwinnes Radar	57.2123	-2.1309	47.7	88.4	160.3	CMB
Nav	Lat	Long	nm	km	Az (deg)	Type
None						
AGA	Lat	Long	nm	km	Az (deg)	Type
None						

Table 2 – Impacted Infrastructure

4.1. En-route RADAR Technical Assessment

4.1.1. Predicted Impact on Perwinnes RADAR

Using the theory as described in Appendix A and development specific propagation profile it has been determined that the terrain screening available will not adequately attenuate the signal, and therefore this development is likely to cause false primary plots to be generated. A reduction in the RADAR's probability of detection, for real aircraft, is also anticipated.

4.1.2. En-route operational assessment of RADAR impact

Where an assessment reveals a technical impact on a specific NATS' RADAR, the users of that RADAR are consulted to ascertain whether the anticipated impact is acceptable to their operations or not.

Unit or role	Comment
Aberdeen Offshore ATC	Unacceptable
Prestwick Centre ATC	Unacceptable

Note: The technical impact, as detailed above, has also been passed to non-NATS users of the affected RADAR, this may have included other planning consultees such as the MOD or other airports. Should these users consider the impact to be unacceptable it is expected that they will contact the planning authority directly to raise their concerns.

4.2. En-route Navigational Aid Assessment

4.2.1. Predicted Impact on Navigation Aids

No impact is anticipated on NATS' navigation aids.

4.3. En-route Radio Communication Assessment

4.3.1. Predicted Impact on the Radio Communications Infrastructure

No impact is anticipated on NATS' radio communications infrastructure.

5. Conclusions

5.1. En-route Consultation

The proposed development has been examined by technical and operational safeguarding teams. A technical impact is anticipated, this has been deemed to be unacceptable.

Appendix A – Background RADAR Theory

Primary RADAR False Plots

When RADAR transmits a pulse of energy with a power of P_t the power density, P , at a range of r is given by the equation:

$$P = \frac{G_t P_t}{4\pi r^2}$$

Where G_t is the gain of the RADAR's antenna in the direction in question.

If an object at this point in space has a RADAR cross section of σ , this can be treated as if the object re-radiates the pulse with a gain of σ and therefore the power density of the reflected signal at the RADAR is given by the equation:

$$P_a = \frac{\sigma P}{4\pi r^2} = \frac{\sigma G_t P_t}{(4\pi)^2 r^4}$$

The RADAR's ability to collect this power and feed it to its receiver is a function of its antenna's effective area, A_e , and is given by the equation:

$$P_r = P_a A_e = \frac{P_a G_r \lambda^2}{4\pi} = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4}$$

Where G_r is the RADAR antenna's receive gain in the direction of the object and λ is the RADAR's wavelength.

In a real world environment this equation must be augmented to include losses due to a variety of factors both internal to the RADAR system as well as external losses due to terrain and atmospheric absorption.

For simplicity these losses are generally combined in a single variable L

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4 L}$$

Secondary RADAR Reflections

When modelling the impact on SSR the probability that an indirect signal reflected from a wind turbine has the signal strength to be confused for a real interrogation or reply can be determined from a similar equation:

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r_t^2 r_r^2 L}$$

Where r_t and r_r are the range from RADAR-to-turbine and turbine-to-aircraft respectively. This equation can be rearranged to give the radius from the turbine within which an aircraft must be for reflections to become a problem.

$$r_r = \sqrt{\frac{\lambda^2}{(4\pi)^3}} \sqrt{\frac{\sigma G_t G_r P_t}{r_t^2 P L}}$$

Shadowing

When turbines lie directly between a RADAR and an aircraft not only do they have the potential to absorb or deflect, enough power such that the signal is of insufficient level to be detected on arrival.

It is also possible that azimuth determination, whether this done via sliding window or monopulse, can be distorted giving rise to inaccurate position reporting.

Terrain and Propagation Modelling

All terrain and propagation modelling is carried out by a software tool called ICS Telecom (version 11.1.7). All calculations of propagation losses are carried out with ICS Telecom configured to use the ITU-R 526 propagation model.

Appendix B – Diagrams

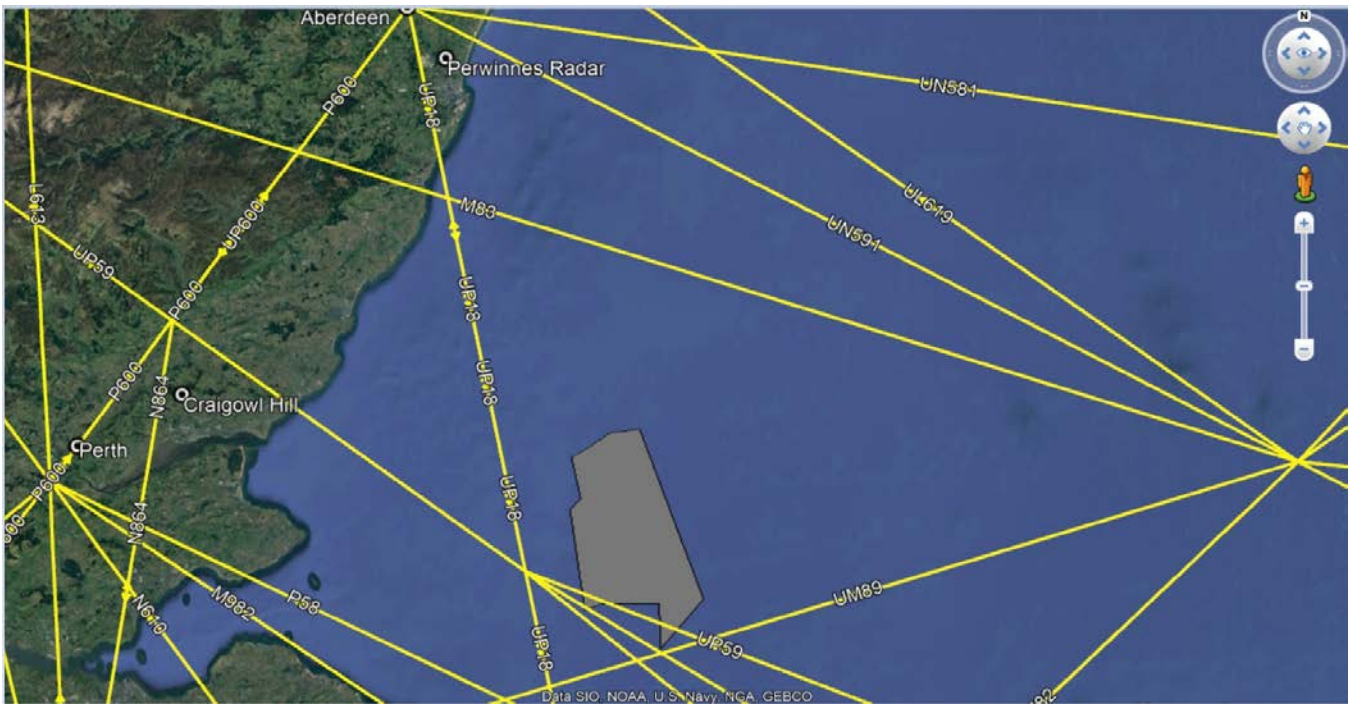


Figure 1: Proposed development location shown on an airways chart

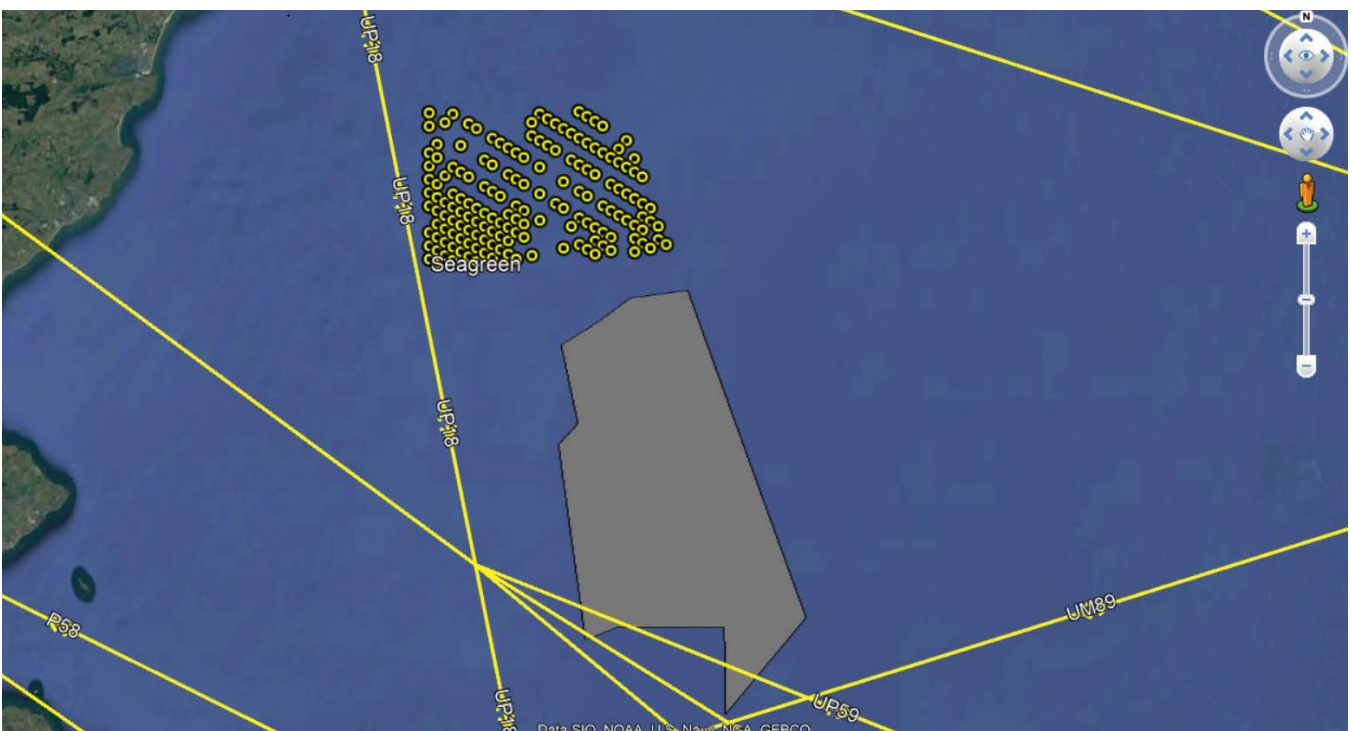


Figure 2: Proposed development shown alongside other recently assessed applications



Date: 07 December 2021
Our ref: 373858



Marine Scotland, Marine Planning and Policy
Scottish Government,
Marine Laboratory,
375 Victoria Road,
Aberdeen,
AB11 9DB

Lancaster House,
Hampshire Court,
Newcastle-Upon-
Tyne, NE4 7YH
0300 060 3900

BY EMAIL ONLY

Dear Emma Lees

Berwick Bank Offshore Wind Farm Habitats Regulations Appraisal screening report

Thank you for your consultation on the Habitats Regulations Appraisal screening report associated with the marine licence application for the Berwick Bank Offshore Wind Farm. Natural England has reviewed the report and can provide the following advice. Please note that advice given in this letter is for impacts in English waters between mean high water springs and 200 nautical miles, or the median line.

Natural England's advice is detailed in Annex 1 of this letter.

For any queries relating to the content of this letter please contact me using the details provided below.

Yours sincerely,

Ruth Cantrell

Northumbria Team
E-mail: Ruth.Cantrell@naturalengland.org.uk
[Redacted]

Annex 1 - Natural England advice on Habitats Regulations Appraisal Screening report December 2021.

1. General Comments

1.1 Coastal Processes

We assume that impacts to coastal processes on English Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) have been screened out due to the distance of the development from those sites. Natural England advises that the Coastal Processes chapter of the relevant document will need to demonstrate that the development will not have indirect effects that could extend as far as English SPAs and SACs.

1.2 Justification for No LSE Conclusions

We note a general paucity of justification for instances where it is considered there is no LSE, and suggest there may be merit in providing greater evidence to support no LSE in any future iterations of the report. In particular, we note that in-combination effects are often excluded on the basis that the contribution of the Berwick Bank OWF project will be minimal, or will only result in a minimal increase in baseline levels. We consider that this approach will require the Environmental Statement to clearly quantify the baseline and the predicted increase in pressures (spatially as well as temporally) where relevant, e.g. with respect to vessel movements and disturbance to birds and marine mammals.

2. Detailed Comments

Section	Comment
Section 4.4, paragraph 140	<p><u>Flamborough and Filey Coast SPA – common guillemot</u></p> <p>Natural England advises that common guillemot from the Flamborough and Filey Coast SPA should be screened in for potential impacts during the non-breeding season. Whilst Furness (2015) indicates that non-breeding individuals are likely to stay relatively close to their breeding colony in the non-breeding season, there is limited empirical evidence currently exists to support this, to quantify the extent over which this operates, and whether it applies to the same extent for all colonies. Natural England requests that to assess the potential impacts on Flamborough and Filey Coast SPA guillemot in the non-breeding season, the traditional approach of apportioning birds to the relevant SPA using the BDMPS populations as prescribed by Furness (2015).</p> <p>We recognise that this advice differs from that provided by NatureScot / Marine Scotland, who advise that the breeding season mean/max, +1SD foraging ranges should also be used in the non-breeding season for this species, which we do not wish to contradict. However, we consider a specific exception to this advice should be made when considering impacts on Flamborough and Filey Coast SPA, due to the potential for the Berwick Bank OWF to contribute to the in-combination impacts that multiple North Sea developments are already exerting on this SPA feature. We note that other Scottish projects already appear in the English in-combination assessments for this species, so this exception would facilitate the inclusion of Berwick Bank in future assessments.</p> <p>Furness, R. (2015). <i>Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS)</i>. Natural England Commissioned Report no. 164.</p> <p>Continues ...</p>

<p>Section 4.4, table 4.5</p>	<p><u>Farne Islands SPA</u></p> <p>We note that breeding Sandwich tern (<i>Thalasseus sandvicensis</i>) has been omitted from the relevant qualifying features of the Farne Islands SPA. We recommend this is included in the assessment and screened in as it is within the mean-max foraging range +1SD.</p> <p>We also note that the list of seabird assemblage components, whilst capturing the main components of the assemblage, omits fulmar, black-headed gull, great black-backed gull, lesser black-backed gull, herring gull and razorbill. We advise that these species are included in the HRA screening assessment. We recognise that this is not captured in our current iteration of Conservation Advice on the Designated Sites System.</p>
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Date: 07 December 2021
Our ref: 372081



Marine Scotland, Marine Planning and Policy
Scottish Government,
Marine Laboratory,
375 Victoria Road,
Aberdeen,
AB11 9DB

Lancaster House,
Hampshire Court,
Newcastle-Upon-
Tyne,
NE4 7YH
0300 060 3900

BY EMAIL ONLY

Dear Emma Lees

Berwick Bank Offshore Wind Farm Environmental Impact Assessment scoping report

Thank you for your consultation on the Environmental Impact Assessment scoping report associated with the marine licence application for the Berwick Bank Offshore Wind Farm. Natural England has reviewed the report and can provide the following advice. Please note that advice given in this letter is for impacts in English waters between mean high water springs and 200 nautical miles, or the median line.

Natural England considers that all matters in which we have an interest in English waters have been adequately considered in the Environmental Impact Assessment.

For any queries relating to the content of this letter please contact me using the details provided below.

Yours sincerely,

Ruth Cantrell

Northumbria Team
E-mail: Ruth.Cantrell@naturalengland.org.uk
[Redacted]

Marine Scotland
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

07 December 2021

Our ref: CNS REN OSWF Berwick
Bank - Pre application

For the attention of: Emma Lees
By email only: Emma.Lees@gov.scot

Dear Emma

FORTH & TAY OFFSHORE WIND – BERWICK BANK - REVISED DESIGN

NatureScot ADVICE ON EIA SCOPING AND HRA SCREENING REPORTS

Thank you for consulting SNH (hereinafter referred to as NatureScot) on the Environmental Impact Assessment (EIA) scoping and Habitats Regulations Appraisal (HRA) screening reports, submitted by Berwick Bank Wind Limited (SSER), for a revised design combining Berwick Bank Wind Farm and Marr Bank Wind Farm into one wind farm project to be known as the Berwick Bank Wind Farm.

Our advice on the natural heritage interests to be addressed within the Environmental Impact Assessment Report (EIA Report) and Habitats Regulations Appraisal (HRA) for this larger project, located 33.5 km east of the East Lothian coastline, is outlined below.

We are grateful for the extension to the scoping consultation deadline, which has enabled us to combine our advice for these two consultations.

Policy context

We are currently facing two crises, that of climate change and biodiversity loss and as the Scottish Government's adviser on nature, our work seeks to inspire, enthuse and influence others to manage our natural resources sustainably.

NatureScot works in support of the Scottish Government's vision for an energy sector that delivers secure, affordable and clean energy for Scotland¹. We provide advice in the spirit of Scotland's

¹ Scottish Government Energy Strategy 2017: <https://www.gov.scot/Publications/2017/12/5661/3>

National Marine Plan² which balances the promotion of the sustainable development of offshore wind, whilst protecting our biodiversity and taking account of seascapes, landscapes and visual impacts.

Proposal

The proposal includes a project design envelope approach covering an area of 1,314 km², comprises:

- up to 307 wind turbine generators to be installed with either suction caisson jacket or piled jacket foundations, with a maximum rotor blade diameter expected to be no greater than 310 m, a maximum blade tip height of 355 m above LAT and a minimum blade tip of 37 m above LAT,
- wind turbine capacity between 14-24MW
- up to 10 offshore substation platforms installed with piled jackets foundations,
- a network of cabling (approx. 1,225 km array and 94 km of interconnector cabling)
- an export cable corridor, as per Figure 3.2 with up to 12 offshore export cables (1,072 km in length) and scour protection of up to 2km², connecting the offshore substation(s) to the onshore substation with landfall either at Thorntonloch and or Skateraw Harbour on the East Lothian coastline. From here, the export cables will connect to a SPT 400kV Grid Substation located at Branxton, southeast of Torness Power station. Landfall will involve either trenchless (HDD or direct pipe) or open cut trench installation.
- a proposed consent period of 35 years.

The scoping report considers all of the offshore infrastructure of the proposed wind farm, seaward of MHWS, as does our advice, noting that technical assessments of the intertidal area (between MHWS and MLWS) have been included.

Consents and licences are also being sought within the scoping report for:

- removal of unexploded ordnance (UXO),
- pre-construction geophysical surveys,
- pre-construction geotechnical surveys.

Although we note, as per paragraph 125 section 4.6, that should additional pre-construction licences be required these will be discussed and agreed during the pre-construction phase of the proposed development. The EIA Report must make it clear what consents and licences are being sought for what activity and ensure all relevant information is provided to enable an assessment of the potential impacts including where appropriate European Protected Species licensing.

We note that SSER are also considering an additional offshore export cable route which is not part of the proposed development but will be considered within the cumulative assessment (as per paragraph 84, section 2.3) – if this is an integral part of the project then we consider that it should be included within the EIA Report.

Background

Previously, we provided advice (letter dated 07 October 2020) on the original Berwick Bank Wind Farm proposal, one of two projects to be developed via Phase 2 of the former Firth of Forth Round Three Zone, which included Berwick Bank Wind Farm and Marr Bank Wind Farm. The Scottish

² <https://www.gov.scot/Publications/2015/03/6517>

Ministers subsequently issued a Scoping Opinion on 09 March 2021. Following this, a detailed review of both the initial Berwick Bank Wind Farm and Marr Bank Wind Farm site environmental constraints was undertaken by SSER and the consenting approach for these two project proposals has been adjusted and is now reflected in this revised design.

In providing our advice, we have taken account of the direction provided within the Scoping Opinion. We have also taken into account ongoing discussions through the roadmap process - noting that for some of the receptors, much of the narrative on impact assessment methods in the scoping report has moved on. We consider our advice outlined below (see Appendices) to be an update to our advice of October 2020 – however where this still remains relevant or provides helpful context we have sought to signpost this.

Digital EIA

A digital version of the scoping report was provided alongside the PDF version. We have reviewed this alternative approach and will provide comments separately. We commend SSER for the improvements they have made to the layout, content and functionality of the PDF version of the scoping report which has made navigating the document much easier. Further discussion and agreement is needed in consultation with Marine Scotland on the approach to digitisation for the EIA Report and forthcoming application.

Assessment Approach

The proposed development is located within an area likely to be sensitive for ornithological interests and we recommend that the best available tools and evidence are used to inform the EIA process. This will help our own assessment as well as helping to inform processes and guidance for the upcoming ScotWind round.

Through the roadmap process, SSER has advised that the ability to use SeabORD and MRSea within the ornithological impact assessment is unlikely due to the project timescales for Berwick Bank. We provide advice based on the alternative tools and methods, noting our preference to use these tools, but understanding that this may not be feasible.

We have some concerns about the approach taken with respect to ‘designed in measures’ as per section 2.7, and referred to as mitigation in Appendix 2. Much of these include the development and adherence to post consent plans, or adherence to international regulations which doesn’t strictly constitute mitigation. The EIA Report must clearly articulate those mitigation measures which informed by the EIA (or HRA) are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development.

Natural heritage interests to be considered

We refer you to our advice as detailed below within receptor-specific technical appendices for key natural heritage interests to be considered in the EIA Report:

- Advice on ornithological interests is provided in **Appendix A**.
- Advice on marine mammal interests is provided in **Appendix B**.
- Advice on seascape landscape and visual impact assessment (SLVIA) is provided in **Appendix C**.
- Advice on benthic interests is provided in **Appendix D**.
- Advice on fish and shellfish interests is provided in **Appendix E**.

- Advice on Firth of Forth Banks Complex Nature Conservation Marine Protected Area (NCMPA) including physical processes in provided in **Appendix G** which incorporated advice received from JNCC.

Given the significant overlap of the project with the Firth of Forth Banks Complex NCMPA particularly in combination with Seagreen (1 & 1A), we advise that serious consideration should be given to the potential need for measures for equivalent environmental benefit, depending on the outcome of the assessment.

Habitats Regulations Appraisal (HRA)

An HRA screening report has been provided, as received on 09 November 2021, which we have reviewed alongside the scoping report. We previously provided advice as per letter dated 14 December 2020 for the original design.

Advice provided within **Appendix F** provides an update to this and covers:

- Annex I habitats
- Diadromous fish interests
- Ornithological interests
- Marine mammal interests

We maintain our view that in this location and due to the uncertainty around both the predicted and actual impacts for the consented Forth and Tay wind farms, that there may be a predicted adverse effect on site integrity for a number of seabird features and their colonies.

We will continue to engage with SSER through the roadmap process as well as to provide advice on a without prejudice basis to the parallel derogation process currently being undertaken by SSER.

Further information and advice

NatureScot will continue to provide further advice on natural heritage interests, as part of the road map process and as part of the pre application process, as work is undertaken by the applicant in support of their formal submission. Please contact myself, Karen Taylor or Erica Knott in the first instance for any further advice.

Yours sincerely,

Karen Taylor

Marine Sustainability Manager

karen.taylor@nature.scot

[Redacted]

NatureScot SCOPING ADVICE for BERWICK BANK REVISED DESIGN

APPENDIX A – ORNITHOLOGICAL INTERESTS

Offshore and intertidal ornithological interests are considered in Section 6.4 of the Berwick Bank revised design scoping report. We are pleased to see that that greater narrative and consideration is provided in the scoping report (revised design) on impact assessment methods and tools for which we provide advice below. We also highlight that our previous advice, as per letter dated 07 October 2020, still largely remains applicable particularly for context unless specified below. We have also responded to the scoping questions raised within our advice below. Please see Appendix F for advice on European sites.

Study areas

We are broadly content with the regional, offshore and intertidal study areas and narrative as outlined in section 6.4.2, noting that the northern buffer will overlap with Seagreen 1. With respect to the non-breeding season however where a regional assessment is required for relevant species, the definition should be the population equivalent to that which is present during the breeding season, using the distance of the species-specific breeding season mean-max foraging range plus 1 standard deviation (Woodward et al. 2019). Each species will have its own regional population defined by its own foraging range. Further advice is provided below as to the species-specific applicability of using a Biologically Defined Minimum Population Scale (BDMPS) approach.

Baseline characterisation (including Appendix 10)

We are content with the data sources and desk top study information provided in Appendix 10 and acknowledge that we have provided preliminary advice (without prejudice) on the interim baseline report, through the roadmap process, indicating that we are also supportive of the general approach for analysis of the aerial survey data.

We wish to see modelled abundance as produced by MRSea provided (if this package can be shown to function effectively with this dataset), as it would provide greater facility in understanding the variation in distribution in response to environmental variables. If this is not possible then design-based estimates will need to be used. Further discussion and agreement is needed through the roadmap process on the characterisation of the cable corridor route which has only been discussed briefly to date.

Potential impacts

Direction was provided in the previous Scoping Opinion (March 2021) regarding the need to fully consider impacts to key prey species and their habitats. While Table 6.10 does capture indirect effects from noisy construction / decommissioning activities including UXO detonation upon key prey species, impacts (temporary and long term) to those habitats that support key prey species from construction / decommissioning activity and presence of the wind turbines should be considered more explicitly. Similarly, Table 6.10 should clearly articulate consideration of potential impacts from cable installation activities as well as ongoing maintenance and repair operations particularly with respect to vessel activity.

Impact assessment

Seasonality

The breeding and non-breeding periods should follow NatureScot guidance on seasonal definitions³. However, we agree there are benefits to defining the non-breeding season further for some species, for example, a high pulse of guillemot through the wind farm during the post breeding dispersal period is not really reflective of non-breeding densities and so is best treated separately and should not count as the non-breeding seasonal peak. However, where variation in the months is more expected, then the monthly density should still count for any ½ months used that go towards calculating seasonal peak-mean values. That is to say, if April is split, but has a high density that will count to a peak-mean, it should count for both

³ NatureScot (2020) Seasonal Periods for Birds in the Scottish Marine Environment: <https://www.nature.scot/sites/default/files/2020-10/Guidance%20note%20-%20Seasonal%20definitions%20for%20birds%20in%20the%20Scottish%20Marine%20Environment.pdf>

seasons. Table 6.11 should therefore be revised to remove post-breeding and pre-breeding seasons (i.e. add them to non-breeding season) for gannet, kittiwake, and puffin. The flightless moult period for guillemot and razorbill should be retained and the non-breeding season period should cover September to March.

Seabird populations, foraging range and connectivity.

We agree with the approach indicated in paragraphs 265 to 267 and Table 6.12 in section 6.4.7.

Displacement and barrier effects

Resolution is still required as to whether SeabORD is used in the impact assessment – we anticipate that a decision will be reached via the road map process on this. There is no requirement for use of ‘regional populations’ to assess auk displacement in the breeding season, as per paragraph 271 section 6.4.7, and we query the need for a non-breeding season assessment of puffin. The assessment should use mean-max foraging range plus 1 standard deviation to apportion to breeding colony populations. Common guillemot however should be treated as a regional population based on the mean-max foraging range plus 1 standard deviation in the non-breeding season. Other species are to be assessed using the BDMPS (Furness, 2015) derived populations.

We have reviewed the information provided in Table 6.13 and in line with our current position on displacement and mortality rates we recommend that the key rates to be taken forward into the assessment as per Table 1 below:

Table 1	Displacement rate	Mortality rate (breeding season)	Mortality rate (non-breeding season)
Auks – guillemot, razorbill and puffin	60%	3% and 5%	1% and 3%*
Gannet	70%	1% and 3%	1% and 3%
Kittiwake	30%	1% and 3%	1% and 3%

*As discussed above, assessment on puffin in the non-breeding season is not required.

We advise that collision and displacement will need to be considered as additive within the assessment for gannet – and the density should not be adjusted. We recognise that macro-avoidance is similar to displacement and there is potential for an approach that could allow for this to be taken account. However, using the current avoidance rates we are unable to disentangle this element from other aspects of the avoidance rate, therefore the method proposed could result in a double counting of the macro avoidance.

Collision risk

With reference to paragraph 274 in section 6.5.7, we expect the results from the Band (deterministic) model to be used as the primary assessment for collision risk. We are content to see the outputs from the stochastic Collision Risk Model (sCRM) for context using Avoidance Rates (ARs) based on Bowgen & Cook (2018).

SNCB guidance (2014)⁴ on avoidance rates (AR) should be used with a standard deviation of +/- 2 as per Table 2 below:

Table 2	Basic model (option 1 & 2)	Extended model (option 3)
Gannet	0.989 +/- 0.002	N/A
Kittiwake	0.989 +/- 0.002	N/A
Large gulls	0.995 +/- 0.001	Herring Gull 0.990 +/- 0.002 LBB Gull 0.989 +/- 0.002.

We are content with the ARs provided for Arctic tern.

⁴ SNCB Position Note on avoidance rates for use in collision risk modelling (2014) <https://www.nature.scot/sncb-position-note-avoidance-rates-use-collision-risk-modelling>

Table 6.15 should be amended to so that the flight type for gannet is gliding not flapping. With reference to paragraph 280 in section 6.4.7, we would expect monthly maximum density values to be used within collision risk modelling.

Potential collision risk to migratory water birds and seabirds on passage should be assessed with reference to the site specific survey results and the approach outlined in the Marine Scotland commissioned report on strategic assessment of collision risk of Scottish offshore wind farms to migrating birds (Marine Scotland, 2014)⁵. This should also take account of any update via the ScotMER project on the strategic review of migratory routes.

Apportioning

For the auk species where age-class by observation is not possible, we expect stable age structure models to be used. For those species such as gannet, kittiwake and gulls where it is possible to assign between adults and immatures, then we would expect this to be done.

Although for most species non-breeding season impacts will be apportioned using the BDMPS approach (Furness, 2015), for species where we expect a majority of the breeding season population to be present in the surrounding region in non-breeding season (for example guillemot and herring gull) the correct population to assess impacts for in the non-breeding season is a regional one defined by the breeding season mean-max foraging range plus 1 standard deviation distance.

Population viability analysis (PVA)

As per our previous advice, we support use of the NE PVA tool⁶ and are content with the proposal to apply this for 35 and 50 years, where the former reflects the consent period being sought. We would expect a PVA to be carried out where the calculated colony mortality exceeds a 0.02 percentage point increase in baseline mortality rate. Survival and productivity rates should be taken from Horswill and Robinson (2015), unless more recent site specific values are available which should be considered and made available

Ecosystem approach

We recommend further discussion is undertaken through the road map process to agree a suitable approach, including consideration of the upcoming OWEC PrePared project that is due to commence in 2022 and completed in 5 years.

Cumulative impacts

We agree with the approach outlined in paragraphs 295 to 298, section 6.4.7, other than to note the disparity between the intention to use the revised Inch Cape design envelope and the direction from Scottish Ministers via the previous Scoping Opinion which should be resolved. In addition, we expect for the cumulative assessment for breeding birds that the mean-max foraging range plus 1 standard deviation is used to scope additional projects in Scottish and English waters.

We are content with the approach as outlined in Appendix 3 (paragraphs 32 and 33, section 3.3.1.6) such that there will be no transboundary impacts on birds in the breeding season, but there is potential impacts in the non-breeding season on birds originating from non-UK colonies which will be assessed in the EIA Report.

⁵ Scottish Marine and Freshwater Science Volume 5 Number 12: Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds, report available from: <http://www.gov.scot/Resource/0046/00461026.pdf>

⁶ Searle, K., Mobbs, D., Daunt, F. & Butler, A. 2019. A Population Viability Analysis Modelling Tool for Seabird Species. Natural England Commissioned Reports, Number 274. <http://publications.naturalengland.org.uk/publication/4926995073073152>

also see https://github.com/naturalengland/Seabird_PVA_Tool

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APPENDIX B – MARINE MAMMALS

Marine mammal interests are considered in Section 6.3 of the Berwick Bank revised design scoping report. We have responded to the scoping questions raised within our advice below. Please see Appendix F for further information on those European sites which have marine mammal qualifying features.

Study areas

We are content with the use of species-specific Management Units (MU) for baseline reference populations and for informing the assessment as described in section 6.3.2 and recommend use of the most recent IAMMWG (2021) MU population estimates. We understand that this report is being reviewed to include a full description of data analysis, however we don't anticipate that the figures will change.

Baseline environment (Appendix 9)

We are content with the data sources and desktop study information provided in Appendix 9 and acknowledge that we have provided preliminary advice (without prejudice) on the interim baseline report, through the roadmap process. We have reviewed the information presented in section 6.3.3 and Appendix 9 for key species (harbour porpoise, bottlenose dolphin, minke whale as well as grey and harbour seal) and provide advice below where we have identified areas that need further consideration or correction.

Bottlenose dolphin

As advised through the roadmap process, we recommend the use of the weighted mean population size for bottlenose dolphins of 224 (95% CI = 214 – 234)⁷, using data from 2015-2019 based on the population estimates presented in Arso Civil et al. (2021)⁸. We advise that this is currently being updated in IAMMWG (2021) as the previously published abundance of 189 was incorrect.

Grey seal

For grey seal, we advise that there is potential connectivity with the cable route and both the Isle of May SAC⁹ as well as Berwickshire and North Northumberland Coast SAC. We are content with the use of the North Sea pup production area given that grey seal SACs were designated on the basis of the numbers of pups born during the breeding season and therefore the reference population should be the wider pup production areas. But the North Sea region is a large area, therefore we recommend the use of the Firth of Forth area for the Isle of May, and the Firth of Forth plus the Farne Islands for Berwickshire and North Northumberland Coast (see SCOS 2020)¹⁰. This latter site crosses the border between Scotland and England and needs to be considered in the assessment.

As discussed through the roadmap process, we advise the Carter et al. (2020)¹¹ habitat preference maps should be used for the prediction of the at-sea seal abundance and distribution. The habitat preference maps reflect the most up to date predictions in terms of telemetry and count information (compared with Russel et al. 2017) and can be used to predict absolute numbers using current scalars – noting that updated scalars are likely to be available soon.

⁷ <https://www.nature.scot/doc/east-coast-scotland-bottlenose-dolphins-estimate-population-size-2015-2019>

⁸ Arso Civil, M., Quick, N., Mews, S., Hague, E. Cheney, B.J., Thompson, P.M. & Hammond, P.S. (2021). Improving understanding of bottlenose dolphin movements along the east coast of Scotland. Final report. Report number SMRUC-VAT-2020-10 provided to European Offshore Wind Deployment Centre (EOWDC), March 2021 (unpublished).

⁹ <https://sitelink.nature.scot/site/8278>

¹⁰ SCOS, 2020. Scientific advice on matters related to the management of seal populations 2020, St Andrews: Sea Mammal Research Unit, University of St Andrews.

¹¹ Carter, M.I., Boehme, L., Duck, C.D., Grecian, J., Hastie, G.D., McConnell, B.J., Miller, D.L., Morris, C., Moss, S., Thompson, D. and Thompson, P. (2020). Habitat-based predictions of at-sea distribution for grey and harbour seals in the British Isles. Sea Mammal Research Unit, University of St Andrews, Report to BEIS, OESEA-16-76/OESEA-17-78.

Potential impacts

We have reviewed Table 6.8, section 6.3.5, and where necessary we have provided further advice on some of the potential impact pathways, as below.

Vessel disturbance

Table 6.8, section 6.3.5, groups together disturbance from vessel use and other construction activities. As per previous direction (March 2021), we wish to see separation of the effects from vessel noise and presence (given the differing sizes, types and number of vessels needed for the differing stages of development) and these other activities, and how the influence of such may change depending on the marine mammal species being considered. Cumulatively it will be important to understand the likely level and effect of such disturbance and whether it could result in population level effects on marine mammals.

UXO Clearance and noisy pre-construction activity

We note and welcome inclusion of UXO clearance and other noisy pre-construction activities as per our previous advice.

Change in prey species availability

Table 6.8, section 6.3.6, doesn't capture changes in prey availability as a result of habitat loss or disturbance in adequate detail. More consideration is required in the EIA Report to ensure that impacts to key prey species (such as sandeel, herring, mackerel and sprat) and their habitats are considered across all development phases for Berwick Bank alone and in-combination with other wind farms in the Forth / Tay area, particularly given the importance of this area for a number of prey species. We recognise most EIA Reports concentrate on receptor specific impacts, however increasingly we need to understand the impacts at the ecosystem scale. Consideration across key trophic levels will enable better understanding of the consequences (positive or negative) of any potential changes in prey distribution and abundance on marine mammal (and other top predator) interests and how this may influence population level impacts. Advice within the benthic interests and fish/shellfish assessment will be helpful in this regard.

Approach to assessment

Where there has been an update to our previous advice (letter dated 07 October 2020) which has a bearing on the assessment as proposed in section 6.3.7, we provide advice as below.

UXO assessment

We support the Joint SNCB/DEFRA/MS statement – Marine environment: unexploded ordnance clearance joint interim position statement¹². With that in mind, we would need the risk assessment to consider a high order detonation in terms of impact and mitigation as the worst case scenario, unless the preferred low order/deflagration method has robust supporting evidence that can be presented.

Assessing injury risk

As discussed through the roadmap process, we have concerns regarding the use of the 0.5% conversion factor (CF) methodology to estimate the source level, because the literature to support the 0.5% CF is limited and typically based on measurements taken from much shallower water than Scottish offshore wind farm locations, and using a much lower hammer energy. Noise measurements in the Moray Firth estimated an initial CF of >10%, during the soft start impact piling of the pin piles, measured when the pin piles were above the water surface (Thompson et al. 2020).

We advise that a range of CFs are adopted: 1%, 4% and 10%. The precedent for using 1% and 4% CFs was based on the recommendation from the consultants for Moray West, with the 4% CF suggested following consideration of the Neart Na Gaoithe ES. We have previously advised on the use of 10%, as agreed by Marine Scotland Science, in part based on the CF as determined from measurements in the Moray Firth

¹² <https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement>

(Thompson et al. 2020¹³). This advice also takes account of source levels used in other offshore wind farm monopile installations, as well as our own calculation of the range of source levels returned when using 1 to 10% conversion factor using the SEL model.

We are content with the approach outlined in Paragraph 31, Section 5.2.7, whereby scenarios with and without ADD mitigation will be modelled.

Cumulative impacts

As referred to in Table 6.8, section 6.3.6, the significance of underwater noise disturbance to marine mammals and the consequences of this on relevant populations should be assessed using the iPCoD approach (interim population consequences of disturbance model)¹⁴, depending on underwater noise modelling outputs. Requirements for population modelling should therefore be discussed and agreed through the road map process.

We will also need to agree the approach to cumulative impact assessment for marine mammal interests for HRA, EIA and EPS licensing requirements.

¹³ Thompson, P.M., Graham, I.M., Cheney, B., Barton, T.R., Farcas, A. and Merchant, N.D., 2020. Balancing risks of injury and disturbance to marine mammals when pile driving at offshore windfarms. *Ecological Solutions and Evidence*, 1(2), p.e12034.

¹⁴ <http://www.marine.gov.scot/information/interim-population-consequences-disturbance-model-ipcod>

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APPENDIX C – SEASCAPE, LANDSCAPE AND VISUAL IMPACT ASSESSMENT (SLVIA)

Seascape/landscape interests are considered in Section 7.5 of the Berwick Bank revised design scoping report. We have responded to the scoping questions raised within our advice below and unless specifically referred to consider those issues raised as per our previous scoping advice (letter dated 07 October 2020) to have been adequately addressed. Our advice does not cover the cultural heritage aspects as this is outwith our remit and advice should be sought from the relevant local authorities / Historic Environment Scotland in this regard.

Our advice below is based on the application as we understand it, in the context of the revised scoping report, aiming to keep the application focused and proportionate. However, in order to further understand and clarify the likely landscape / coastal character and visual implications of the proposal we might request additional information as the application progresses.

Study area

The selection of the study area should be based on distance as well as topography since an elevated receptor will see turbines at greater distances. A 60km study area, as illustrated in Figure 7.8, is in our view appropriate for this proposal where the maximum blade tip height reaches 355m above LAT.

Baseline information

We are content with the proposed baseline information as described in section 7.5.3 and Appendix 14 which captures regional seascape character, landscape baseline and designations. The assessment and baseline mapping should include all relevant offshore wind farms that are built, under construction, consented and proposed and where possible make use of the most up-to-date offshore wind farm layouts, as per the Development Specification & Layout Plan.

Viewpoints

Selection of viewpoints

Twenty representative and six illustrative viewpoints are proposed for the visual assessment as described in Appendix 14 and mapped in Figure 7.15. It is not clear what role these illustrative viewpoints will fulfil nor why these viewpoints will not have full visualisation details including written assessment as is proposed for the representative viewpoints

As per our previous scoping advice (letter dated 07 October 2020) viewpoints should represent and clarify the likely extent of visibility from the Angus coast, East Fife, Isle of May, East Lothian including North Berwick Law and Dunbar as well as Scottish Borders including St Abb's Head. We therefore support the list of proposed representative viewpoints. Given the increased extent and proximity to the Isle of May we also request a full assessment for this viewpoint.

Viewpoint photography

Narrative is provided in paragraphs 440 and 441 (section 7.5.3) as well as Appendix 14 (section 14.2.4.5) on visibility which goes on to say in paragraph 446 that ...*'the photographs for all viewpoints will, where possible, be taken in good visibility conditions'*.... The term 'good visibility' is in reference to terminology used by the Met Office. To be able to comply with EIA Regulations, and in keeping with our guidance: *Offshore Renewables – guidance on assessing the impact on coastal landscape and seascape - Guidance for Scoping an Environmental Statement*¹⁵, the worst case scenario should be assessed and illustrated and as such photography should be carried out where possible in conditions so that the wind farm is at its most visible (i.e. in 'very good' or 'excellent' conditions as per the Met Office terms).

¹⁵ Scottish Natural Heritage (2012) Offshore Renewables – guidance on assessing the impact on coastal landscape and seascape Guidance for Scoping an Environmental Statement - <https://www.nature.scot/doc/guidance-offshore-renewables-assessing-impact-coastal-landscape-and-seascape-guidance-scoping>

Night time viewpoints

We support the intention to select one night time viewpoint from each local authority area located within the SLVIA study area (section 7.53 paragraph 447 and Appendix 14 paragraph 379). These should be selected in accordance with our offshore guidance (paragraph 4.4) which states ... *In views out to sea from land, the experience is often of 'darkness' at night, with no lights out on the sea, except for shipping. This is an important attribute especially on the East Coast, where there is a relative lack of landfall/opposing shores.*

Designed in measures

Paragraph 450 (section 7.5.4) states that the relationship of the wind farm array to the Northumberland Coast AONB is a key design objective, in line with its national designation. However, the assessment should include and provide narrative on the cumulative design issues of Berwick Bank in combination with the three consented wind farms in the Forth & Tay comprising Seagreen, Inch Cape and Neart na Gaoithe.

Potential impacts

We are content with the impacts proposed to be scoped in for seascape, landscape and visual resources as per Table 7.10, but disagree that seascape character is scoped out of the lighting assessment as per Table 7.11. Please see advice above with respect to night time viewpoints as the seascape and coastal character assessment will inform this.

Impact assessment

As referenced above, we refer you to our Offshore Renewables guidance which is missing from the technical guidance listed in paragraph 457 section 7.5.6.

We request all graphic and visualisation material to be provided in hard copy format to the correct sizes in colour as per NatureScot Visualisation Guidance¹⁶. This includes, but is not limited to ZTV information (printed at A3 or larger), spatial graphics, wirelines and photomontages (to allow for correct horizontal fields of view these are typically far larger than A3) and cumulative information. Ideally all hard copy information to be included in ring binder(s) to allow for ease of removal for site work.

Due to the constraints of home working, we also request that one hard copy of the SLVIA narrative assessment (including all relevant appendices) are included in a stand-alone volume (s) if possible.

Cumulative effects

Agreement should be sought from the relevant local authorities as to which onshore wind farm developments are most appropriate to be considered within the cumulative assessment.

¹⁶ <https://www.nature.scot/doc/visual-representation-wind-farms-guidance>

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APPENDIX D – BENTHIC INTERESTS

Benthic interests are considered in Section 6.1 of the Berwick Bank revised design scoping report. Our advice below focuses on those habitats and communities that are protected features of the Firth of Forth Banks Complex Nature Conservation MPA as well as others habitats / species of conservation importance including PMFs and Annex I. Please see Appendix G for further commentary on Firth of Forth Banks Complex NCMMPA. We have responded to the scoping questions raised within our advice below.

Study areas

We are content with the proposed development study area which comprises the development site and cable route and will inform baseline characterisation and identification of benthic receptors that require further assessment. We are also content with the revised regional study area (Figure 6.1) which will encompass the three neighbouring (consented) wind farms and their export cable routes. Our advice below is provided on a without prejudice basis as we have not seen the site specific benthic survey report.

Baseline characterisation (Appendix 7)

We are content with the data sources and desktop study information provided in Appendix 7, along with the inclusion of the benthic subtidal ecology validation survey (paragraph 168, Appendix 7 section 7.2). We welcome the use of FeAST – Feature Activity Sensitivity Tool¹⁷ during the characterisation of the baseline environment.

Key species and habitats

Table 6.2, section 6.1.3, identifies protected sites with benthic interests in proximity to the wind farm array area and cable route. All of protected features of the Firth of Forth Banks nature conservation Marine Protected Area (ncMPA) which overlaps with the proposed development array must be screened in (see Appendix G) as should Barns Ness Coast SSSI. Impacts on the geodiversity feature of Barns Ness Coast SSSI must be assessed, however the habitat features are not found near to the cable landfall site, and these features do not need to be assessed. All other SSSIs can be screened out on the basis of no overlap. We would expect the identification of European sites to follow that of the Berwick Bank wind farm Habitats regulations Appraisal (HRA) Stage 1 screening report – please see Appendix F and our advice.

We expect consideration to be given to key Annex I habitats (e.g. *Sabellaria spinulosa* reef, rocky reef) and Priority Marine Features (PMFs)¹⁸ in the EIA Report.

Potential impacts

We have reviewed Table 6.3, section 6.1.6, and where necessary we have provided further advice on some of the potential impact pathways, as below.

Habitat loss / disturbance

Two potential foundation types are being considered for the project, with the worst-case impact expected from the suction caisson jackets which could have a total impact area of 9.64km² (307 turbines x 31,416m²) across the Berwick Bank revised design wind farm site boundary. We consider that the caisson foundations, with the greatest seabed footprint (including maximum amount of scour protection which changes the physical characteristics of the benthic habitat) to represent the worst-case option.

Direction was provided in the previous Scoping Opinion (March 2021) regarding the need to fully include all appropriate preconstruction seabed preparation works in Table 6.3.

¹⁷ <https://www.marine.scotland.gov.uk/FEAST/>

¹⁸ <https://www.nature.scot/professional-advice/protected-areas-and-species/priority-marine-features-scotlands-seas>

We are pleased to see that scour of seabed sediments has been scoped in as per Table 5.1, section 5.1.6, as well as the way scour protection has been considered across the various potential impact pathways as described in Table 6.3, section 6.1.6.

Colonisation of hard structures

Direction was provided in the previous Scoping Opinion (March 2021) regarding the potential necessity to remove encrusted growth over the lifetime of the wind farm development, dependant on the foundation type – if necessary, this should be factored in.

The proposal involves the introduction of hard substrate into a mainly sedimentary environment. Some of the hard substrate will be deposited in the Firth of Forth Banks Complex NCMPA which has designated features based on sediment type ‘offshore subtidal sands and gravel’, ‘shelf banks and mounds’ and ‘moraines’. We encourage the developer to seek to minimise the amount of hard substrate material used and that the worst-case quantity is assessed for the lifetime of the project. We note that the long-term effect of the introduction of hard substrate into a naturally sandy or muddy seabed is not fully understood at present and as such should be carefully considered.

We advise detailed commentary is provided in the EIA Report on stabilisation material needed for the jackets as well as for cables and any other infrastructure as part of the proposed development to allow further understanding of the potential nature conservation impact. This would include:

- location of dump sites;
- type/ size / grade of rock to be used;
- tonnage / volume to be used;
- contingency tonnage / volume to be used;
- method of delivery to the seabed;
- footprint of stabilisation material;
- assessment of the impact (particularly in the NCMPA and its three composite sites).

Where protective material cannot be avoided, we recommend using a more targeted placement method, e.g. use of a fall pipe vessel rather than using vessel-side discharge methods.

Section 2.3.4 indicates that the proposed development is likely to include ‘estimated scour protection of 2 km²’. The scoping report for the original smaller footprint wind farm proposal estimated >4.5km² of scour protection. Therefore this figure should be clarified, including details of scour protection requirements for individual turbines, foundation types and for cables.

As advised previously, there may be a need for strategic monitoring to understand the impact of hard structure colonisation, change in community structure and local species diversity.

Approach to impact assessment

We are content with the approaches outlined in Table 6.3, section 6.1.6, and the need to assess the significance of effects upon benthic receptors including Annex I habitats.

Firth of Forth Banks Complex Nature Conservation MPA

It is critical that the EIA Report makes a clear assessment of the specific impacts of the proposed development in itself and cumulatively against all designated features of the Firth of Forth Banks Complex NCMPA. Please see Appendix G for further advice.

PMF assessment

Direction was provided in the previous Scoping Opinion (March 2021) regarding our expectations that the assessment will quantify where possible the likely impacts to key PMFs and consider whether this could lead to a significant impact on the national status¹⁹ of the PMFs being considered.

¹⁹ <https://www.nature.scot/priority-marine-features-guidance>

Cumulative impacts

The impacts of the Berwick Bank revised design proposal must be fully considered in relation to the consented Seagreen projects (Seagreen 1 & 1A) based on the likely worst-case scenario for benthic impact/ footprint. It would be beneficial for the analysis to contain tables, or another format, to enable us to accurately assess the impact of the project alone and then cumulatively across all offshore wind projects, and any other relevant marine activities, which will occur in the Firth of Forth Banks Complex NCMPA to provide meaningful and accurate nature conservation advice. This will need to cover the three areas of the NCMPA, as well as overall for this composite site.

NatureScot SCOPING ADVICE for BERWICK BANK REVISED DESIGN

APPENDIX E – FISH AND SHELLFISH INTERESTS

Fish and shellfish interests are considered in Section 6.2 of the Berwick Bank revised design scoping report. Our advice below focuses on those fish and shellfish species and where appropriate their associated habitat that are protected features of European sites or Nature Conservation MPAs as well as those that are of conservation importance including Priority Marine Features (PMFs) and key prey species. Please see Appendix F for HRA Screening advice and Appendix G for further commentary on Firth of Forth Banks Complex NCMPA. We have responded to the scoping questions raised within our advice below.

Study areas

We are content with the two study areas as defined in Figure 6.4, section 6.2.3.

Baseline environment

Direction was provided in the previous Scoping Opinion (March 2021) regarding the advice to screen out Turbot Bank MPA, based on the lack of connectivity and distance of 96.2km from the proposed development. This position is supported by NatureScot.

Diadromous fish

Table 8.2 in Appendix 8 of the scoping report correctly includes the River Teith SAC, however the relevant features are noted as being only sea lamprey and river lamprey. Atlantic salmon is also a feature of the River Teith SAC and should have been included as it has been in Table 4.2 in the HRA screening report.

Section 8.3.3 in Appendix 8 of the scoping report makes reference to the fish and shellfish ecology assessment carried out for Seagreen Alpha / Bravo (SSE Renewables, 2012) which identified eight diadromous fish species and considered five of these as having the greatest potential to be present within the vicinity of Seagreen Alpha / Bravo wind farm. It's not clear however from the narrative within section 8.3.3 whether sparling and Allis and twaite shad will be included in the Berwick Bank revised design impact assessment. We agree with previous advice from Marine Scotland (as per letter dated 19 November 2020), that the species which have the greatest potential to be present within the vicinity of the development are likely to be Atlantic salmon, sea trout, European eel, river and sea lamprey. However, we expect justification, based on available evidence, on the exclusion of sparling and the two shad species to be provided in the EIA Report.

Section 8.3.3 (Appendix 8) also highlights that adult migration to spawning rivers and smolt migration from natal rivers is relevant (which is correct in relation to some species), but this is not inclusive of all relevant diadromous fish species. For example, some sea trout are understood to spend much of their duration at sea feeding in the nearer-shore environment relatively close to their rivers of origin, although others migrate long distances; it would also be incorrect to identify European eels as either adults migrating to spawning rivers or smolts migrating from natal rivers. The EIA Report must utilise language that is accurate and reflective of the ecology of all relevant diadromous fish species.

Section 8.3.3 (Appendix 8) of the scoping report (paragraph 218) refers to the timing of fish migration as an important element of the baseline characterisation and that this will be collected through desktop data sources, including rod catch data from rivers on the east coast of Scotland, recent papers and Marine Scotland smolt survey data from the east coast of Scotland. We agree that the timing of fish migration is a crucial element of the data that will require careful consideration in the impact assessment and in what mitigation may be necessary and when it should be applied.

For example, Atlantic salmon stocks comprise a number of distinct temporal components (spring, summer and autumn multi-sea-winter fish and grilse) and this means that adult Atlantic salmon may enter Scotland's rivers at all times of the year. We have some understanding of their behaviour when entering

ivers – for example, Smith & Smith (1997)²⁰ found that up-estuary movements that led to river entry were predominantly nocturnal and tended to occur during the ebb tide. Penetration into the non-tidal reaches of the river also tended to occur at night, but the timing of salmon movements was no longer significantly associated with tidal phase. In rivers, the parr-smolt transformation is typically associated with increasing temperatures in spring, and is regulated by photoperiod and water temperature. Smelting normally takes place between April-June in Scotland although there is variation between rivers. There have been some studies exploring diurnal movement during coastal migration. For example, Hedger et al. (2008)²¹ found that swimming speed and direction were consistent with smolt migrating offshore nocturnally and using daytime for prey detection and predator avoidance; Dempson et al. (2011)²² found slightly more movement during the night than the day. Other species of diadromous fish migrate during the autumn months or can move back and forth between freshwater and marine environments.

Priority Marine Features (PMFs)

In addition to being qualifying features of European sites, Atlantic salmon, sea lamprey and river lamprey are Priority Marine Features (PMF)²³. European eel, sea trout and sparling are also PMFs.

European eel is a conservation priority due to a dramatic drop in its population over the last 20 years; it is listed as ‘critically endangered’ on the IUCN Red list. Very little is known about their migration pathways – either as juveniles or adults – see Malcolm et al. (2010)²⁴ for a review of available data in relation to migration routes and behaviour, and Gill & Bartlett (2010)²⁵ for effects of noise and EMF.

Sea trout support a number of fisheries in Scotland and many of these fisheries have undergone declines in the last 25 years. Note that sea trout can also be a host species for freshwater pearl mussel (FWPM) – see below. Malcolm et al. (2010) also reviews available data in relation to sea trout migration routes and behaviour and Gill & Bartlett (2010) considers effects of noise and EMF on sea trout.

Sparling are found in coastal waters and estuaries and have been recorded in the Forth. They have been heavily over exploited in the past and this has been blamed for the loss of some populations.

Given sparling primarily utilise coastal and estuarine environments, this species is less likely to be present in the offshore development area, however may be present in the export cable corridor. However due to the temporary nature of cable laying activities, we advise this species can be scoped out from further assessment.

We welcome the approach to consider the importance of fish species (such as herring, sandeels, mackerel and sprat) as key prey species to better inform the impact assessment for seabirds and marine mammals, noting that many of these are also PMFs. The epibenthic trawls from both the proposed development and also Seagreen 1 (previously Alpha / Bravo) highlight a number of other PMF fish species, including anglerfish, cod and whiting, with ling also likely to be found in the vicinity of the proposed development. Recognition of their PMF status and associated importance should be acknowledged in the EIA Report.

Marine fish

We are content with the relevant species described in section 6.2.3.

²⁰ Smith, I.P. & Smith, G.W. (1997). Tidal and diel timing of river entry by adult Atlantic salmon returning to the Aberdeenshire Dee, Scotland. *Journal of Fish Biology* 50: 463-474

²¹ Hedger, R., D., Martin, M., Hatin, D., Caron, F., Whoriskey, F., G., Dodson, J., J. (2008) Active migration of wild Atlantic salmon *Salmo salar* smolt through a coastal environment. *Marine Ecology Progress Series*. Vol 355: 235-246.

²² Dempson, J., B., Robertson, M., J., Pennell, C., J., Furey, G., Bloom, M., Shears, M., Ollerhead, L., M., N., Clarke, K., D., Hinks, R., Robertson, G., J. (2011) Residency time, migration route and survival of Atlantic salmon *Salmo salar* smolts in a Canadian fjord. *Journal of Fish Biology*.

²³ <https://www.nature.scot/professional-advice/protected-areas-and-species/priority-marine-features-scotlands-seas>

²⁴ Malcolm I.A., Godfrey J., Youngson A.F. (2010) Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland's coastal environment: implications for the development of marine renewables. *Scottish Marine and Freshwater Science* Vol 1, No 14

²⁵ Gill, A.B., Bartlett, M. (2010) Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. *Scottish Natural Heritage Commissioned Report* No.401

Shellfish

We are content with the relevant shellfish species and acknowledge the inclusion of ocean quahog aggregations as a feature of the Firth of Forth Banks Complex NCMPA, as per paragraph 155, section 6.2.7. However, limited use was made of the available data in relation to ocean quahog aggregations - such information can be found on the Conservation Advice section of the JNCC site information centre²⁶. The EIA Report should include maps of sampling locations where ocean quahog is found during the site-specific survey together with the information available from the JNCC mapper²⁷ in relation to the proposed locations of turbine jacket foundations and cables. The EIA Report should also detail how many individual ocean quahog (separated to adults and juveniles) were found in which and how many grab sample locations, as well as locations where siphons of the species were observed on underwater imagery.

Indirect effects on freshwater pearl mussel (FWPM), for which Atlantic salmon as well as sea trout are a host species during a critical parasitic phase of the mussels' lifecycle need also to be considered within the EIA Report.

Spawning and / or nursery grounds

Direction was provided in the previous Scoping Opinion (March 2021) regarding consideration of impacts to the offshore subtidal sands and gravels feature of the Firth of Forth Banks Complex NCMPA as spawning habitat.

We welcome the intention as per paragraph 225 in Appendix 8, section 8.3.5, that a further review of the herring spawning and nursery grounds will be undertaken to support the fish and shellfish ecology assessment as per the guideline in Boyle and New (2018).

We agree with those species outlined in Appendix 8 Table 8.3, however the narrative is very heavily weighted towards these as commercial species with limited consideration to their PMF status and ecological importance as key prey species.

Potential impacts

Table 6.5, section 6.2.5, of the scoping report summarise the impacts proposed to be scoped into the assessment.

With respect to ocean quahog, there is no mention of potential impacts of the proposed development on ocean quahog aggregations or of cumulative impacts from the Seagreen projects (Seagreen 1 & 1A) or any proposed mitigation measures to minimise damage to this protected species. We expect a detailed assessment of impacts on this protected feature which is also an OSPAR threatened and / or declining species.

Habitat loss / disturbance

Direction was provided in the previous Scoping Opinion (March 2021) regarding the need to fully include all appropriate pre-construction seabed preparation works in Table 6.5 which has been omitted.

Underwater noise

We are content with the inclusion of particle motion and sound pressure as outlined in the approach to assessment in Table 6.5. With respect to Atlantic salmon, recent research by Harding et al. (2016)²⁸ should be considered which found that soft-start and ramp-up procedures associated with piling activity may be ineffective as mitigation to protect Atlantic salmon from noisy activities, as fish did not show immediate avoidance behaviour in the presence of piling noise. In addition, available research on Atlantic salmon behaviour at sea (see above) indicates that ceasing relevant noisy activities (such as piling) during the hours

²⁶ <https://jncc.gov.uk/our-work/firth-of-forth-banks-complex-mpa/>

²⁷ <https://jncc.gov.uk/mpa-mapper/?zoom=9¢er=-1.652,56.398&layerIds=65,85,63,48,46,74&baseLayerId=-2&activeFilters>

²⁸ Harding H., Bruinthes R., Radford A., N., Simpson S., D. (2016) Measurement of hearing in the Atlantic salmon (*Salmo salar*) using auditory evoked potentials, and effects of pile driving playback on salmon behaviour and physiology. Scottish Marine and Freshwater Science Report Vol 7 No 11

of darkness could help to mitigate potential impacts from noise. Consideration should be given to limiting or ceasing relevant noisy activities during daylight hours including during periods when high numbers of young Atlantic salmon could be migrating through these waters, depending on the findings of the assessment of potential impacts from sound pressure and particle movement.

As per our previous advice, UXO clearance should be explicitly considered in the assessment – it is missing from Table 6.5. Additionally, disturbance from construction-related noisy activities should be assessed depending on the foundation type / installation method.

EMF

Impacts from EMF from subsea electromagnetic cabling must consider all relevant fish species, including elasmobranch species, nephrops and diadromous fish.

Recent research on EMF effects from underwater cables concluded that we are still not that knowledgeable on the effects of EMF on fish and benthic species. This is likely to be addressed further through a strategic project via ScotMER in the longer term.

Increased suspended sediments

As per our previous advice, the potential creation and dispersal of suspended sediments may vary with differing foundation types and / or construction / decommissioning methods. The EIA Report should detail expected concentrations of sediment, their distribution and duration within the context of species-specific behaviour to enable assessment of potential impacts and their significance.

There is limited information on critical levels of exposure to suspended solids, and behavioural responses of the relevant fish species to high sediment levels. We know that some fish species may stay within estuarine environments (which may have high levels of suspended sediment) for most, or all, of their life cycle. Fish represent the largest and most mobile element in the aquatic ecosystems of estuaries, where they show tolerance of high turbidity, temperature extremes and a wide range of salinities and dissolved oxygen concentrations (Potts & Swaby, 1993)²⁹. Diadromous species pass through these environments as they migrate to feeding or spawning areas. While we expect that fish are likely to move away from or avoid areas of high suspended solids, this should be informed by the expected concentrations of sediment, distribution and duration and an assessment of this in light of fish avoidance behaviour.

Colonisation of hard structures

We are content that the colonisation of hard structures has been scoped into the fish and shellfish section.

Change in prey species availability

Table 6.5 doesn't capture changes in prey availability as a result of habitat loss or disturbance in adequate detail. More consideration is required in the EIA Report to ensure that impacts to key prey species (such as sandeel, herring, mackerel and sprat) and their habitats are considered across all development phases for Berwick Bank alone and in-combination with other wind farms in the Forth / Tay area, particularly given the importance of this area for a number of prey species³⁰. We recognise most EIA Reports concentrate on receptor specific impacts, however increasingly we need to understand the impacts at the ecosystem scale. Consideration across key trophic levels will enable better understanding of the consequences (positive or negative) of any potential changes in prey distribution and abundance on marine mammal (and other top predator) interests and how this may influence population level impacts. Therefore consideration of how this loss / disturbance may affect the recruitment of key prey (fish) species through impacts to these important spawning and or nursery ground habitats should also be assessed. In addition, the PrePared OWEC project will also assist in the understanding of predator-prey relationships in and around offshore wind farms which will start in January 2022 and will run for 5 years.

²⁹Potts, G., W., Swaby, S., E. (1993) Review of the status of estuarine fishes. Final report to English Nature (Contract No: F72-12-54).

³⁰ <http://data.jncc.gov.uk/data/4d478592-6a82-4a75-97ad-de7057da9e8a/FFBC-3-ApplicationMPASelectionGuidelinesv5.0.pdf>

Approach to impact assessment

We welcome the inclusion of habitat suitability assessment for sandeels and herring spawning / nursery grounds using data from the benthic ecology surveys as per paragraph 158, section 6.2.7

Firth of Forth Banks Complex Nature Conservation MPA – Ocean quahog

It is critical that the EIA Report makes a clear assessment of the specific impacts of the proposed development in itself and cumulatively against all designated features of the Firth of Forth Banks Complex NCMPA including ocean quahog - Please see appendix G for further advice.

PMF assessment

Direction was provided in the previous Scoping Opinion (March 2021) regarding our expectations that the assessment will quantify where possible the likely impacts to key PMFs and consider whether this could lead to a significant impact on the national status³¹ of the PMFs being considered.

Cumulative impacts

As per our previous advice, the EIA Report must consider the cumulative effect of key impacts such as habitat loss / change from Berwick Bank revised design wind farm in combination with the neighbouring wind farms in the Forth / Tay area especially in relation to diadromous fish as well as key fish and shellfish species that contribute ecological importance as a prey resource. This may differ depending on the life stage being considered.

Next steps

As above, we advise on the need to better incorporate impacts to essential fish habitats (e.g. spawning and nursery grounds) and the related trophic implications from changes to prey species availability. By the time of submission, research may be available that could help inform this assessment – e.g. essential fish habitat mapping through ScotMER³²; the NatureScot / Marine Scotland Science project on herring spawning ground and larval connectivity in Scotland, as well as PrePared as mentioned above.

³¹ <https://www.nature.scot/priority-marine-features-guidance>

³² <https://www.gov.scot/policies/marine-renewable-energy/science-and-research/>

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APPENDIX F – HABITATS REGULATIONS APPRAISAL – LIKELY SIGNIFICANT EFFECT SCREENING

We have reviewed the Habitats Regulations Appraisal (HRA) Stage 1 Screening Report (document reference: EOR0766 Rev 04 - 28 October 2021) for the Berwick Bank revised design offshore wind farm and provide advice, as outlined below, on those European sites and their qualifying features (QFs) for which we consider it reasonable to expect a likely significant effect (LSE) either alone or in-combination with other plans or projects. This includes advice on the approach taken for connectivity and suitability of potential impact pathways. Our advice follows the same structure as laid out in the HRA screening report.

In reviewing this document, we note despite previous advice for the original design, (as per letter dated 14 December 2020) that limited narrative has been provided to adequately justify some of the decisions made within the LSE matrix tables.

Annex I habitats

Identification of European Sites and Features

Identification of Annex I habitat features is considered in Section 4.1.3, section 4.1.3, of the Berwick Bank revised design screening report.

We are content with the single site screened in for consideration of LSE – Berwickshire and North Northumberland SAC and with habitat features identified in Table 4.1.

Impact pathways and determination of Likely Significant Effect

Determination of likely significant effect for Annex I habitat features is considered in Section 5.2.

Table 5.3 LSE matrix for Annex I

We are content with the impacts outlined in Table 5.3, section 5.2.3, and agree with the justification and conclusions provided to include Berwickshire and North Northumberland Coast SAC.

Diadromous fish

Identification of European Sites and Features

All SACs north of the River Dee SAC have been screened out on the basis, as per Paragraph 108 (section 4.2.2), *that Atlantic salmon smolts move northwards in the Moray Firth and directly across the North Sea*, however results from tracking work undertaken in the Moray Firth³³ indicate that smolts migrated in a more broadly north-easterly direction in the Moray Firth and there are knowledge gaps in relation to the onwards movement of these fish. Despite this it might be reasonable to expect that Atlantic salmon smolts originating from the Moray Firth would be unlikely to travel extensively in a southerly direction. Research undertaken by Malcolm et al in 2010³⁴ indicated that the primary direction of travel of adult Atlantic salmon on the east coast is likely to be northerly (although there was also some southerly movement).

There is very limited information on the distribution and behaviour of river and sea lamprey in marine waters but we agree with the approach that those SACs screened in with respect to Atlantic salmon interests are likely to be “suitably precautionary” in regard of these two lamprey species.

³³ Newton, M. Honkanen, H. Lothian, A. and Adams, C. (2019) The Moray Firth Tracking Project – Marine Migrations of Atlantic Salmon (*Salmo salar*) Smolts Proceedings of the 2019 SAMARCH Project: International Salmonid Coastal and Marine Telemetry Workshop pg 19-22 <https://atlanticsalmontrust.org/wp-content/uploads/2020/07/SAMARCH-Tracking-Conference-Nov-2019-final-1-2.pdf>

³⁴ Malcolm I.A., Godfrey J., Youngson A.F. (2010) Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland’s coastal environment: implications for the development of marine renewables. Scottish Marine and Freshwater Science Vol 1, No 14.

We are content therefore with the list of European sites, as per Table 4.2 (section 4.2.3), to be taken forward for determination of LSE for Atlantic salmon, river and sea lamprey. We support inclusion of freshwater pearl mussel (FWPM), for which Atlantic salmon are a host species during a critical parasitic phase of the mussels lifecycle and so there is a need to consider indirect impacts upon this species to ensure population is not adversely affected.

Impact pathways and determination of Likely Significant Effect

The HRA screening report concludes no LSE for some potential impacts on the basis of a fairly limited consideration. For example, increases in suspended sediments during construction are screened out on the basis that similar (alternative) habitats are widespread within “....this part of the North Sea....”, that fish will be able to avoid areas of temporarily increased sediment, and any effects would be temporary (paragraph 199). Without some understanding of expected concentrations of sediment, their distribution and duration, and the data on which the summary of fish avoidance behaviour is based, it is difficult in our view to screen this out at this stage, particularly as there are likely to be high numbers of young Atlantic salmon migrating through the area each year. There is limited information available on critical levels of exposure to suspended solids, and behavioural responses of the relevant fish species to high sediment levels, a more detailed analysis of available data could have been presented in the HRA screening report. We know that some fish species may stay within estuarine environments (which may have high levels of suspended sediment) for most, or all, of their life cycle. Fish represent the largest and most mobile element in the aquatic ecosystems of estuaries, where they show tolerance of high turbidity, temperature extremes and a wide range of salinities and dissolved oxygen concentrations (Potts & Swaby 1993)³⁵. Fish are likely to move away from or avoid areas of high suspended solids, however the approach taken prematurely prejudging the significance of these effects.

Recent research on EMF effects from underwater cables concluded that we are still not that knowledgeable on the effects of EMF on fish and benthic species. This is likely to be addressed further through a strategic project via ScotMER in the longer term.

Underwater noise impacts should consider both sound pressure and particle motion (as per Table 6.5 section 6.2.5 of the Scoping report). We are content with the inclusion of particle motion and sound pressure as outlined in the approach to assessment in Table 6.5. Recent research by Harding et al. 2016³⁶ should be considered which found that soft-start and ramp-up procedures associated with piling activity may be ineffective as mitigation to protect Atlantic salmon from noisy activities as they did not show immediate avoidance behaviour in the presence of piling noise. In addition, available research on Atlantic salmon behaviour at sea (see Appendix E) indicates that ceasing relevant noisy activities (such as piling) during the hours of darkness could help to mitigate potential impacts from noise. Consideration should be given to limiting or ceasing relevant noisy activities during daylight hours including during periods when high numbers of young Atlantic salmon could be migrating through these waters, depending on the findings of the assessment of potential impacts from sound pressure and particle movement.

Further advice on the timing of fish migration is provided in Appendix E. The narrative on the rationale for likely significant effects in combination with other plans or projects as provided in paragraphs 211 – 213 in section 5.3.4 is unclear.

Tables 5.4-5.9 - LSE matrices for sites with Atlantic salmon / FWMP and lamprey species as QFs

We support the impact pathways and likely significant effect conclusions as per Tables 5.4 – 5.9 where underwater noise effects are screened in during construction / decommissioning, EMF effects and colonisation of hard structures during O & M and in-combination effects across all phases for all qualifying

³⁵ Potts, G., W., Swaby, S., E. (1993) Review of the status of estuarine fishes. Final report to English Nature (Contract No: F72-12-54).

³⁶ Harding H., Bruinthes R., Radford A., N., Simpson S., D. (2016) Measurement of hearing in the Atlantic salmon (*Salmo salar*) using auditory evoked potentials, and effects of pile driving playback on salmon behaviour and physiology. Scottish Marine and Freshwater Science Report Vol 7 No 11

features. However, as discussed above, increases in SSC and sediment deposition should also be screened in during the construction and decommissioning phase.

Ornithology

In line with Scottish Government policy³⁷ Ramsar sites are protected by whatever underpinning designation is relevant to the particular feature(s).

Identification of European Sites and Features

Marine SPAs

We agree that all features of the Outer Firth of Forth St Andrews Bay Complex SPA should be screened in.

Please be aware that the conservation objectives for this site are currently being revised in line with a programme for all European sites to have their conservation objectives updated. We expect that these, together with the Conservation Management Advice, will be available in early 2022.

Breeding seabird SPAs

We notice from paragraph 137, section 4.4.2, and Table 4.5 that distance from the proposed development to SPA has been measured using the straight line distance. Connectivity for seabird species (excluding gulls that can travel significant distances over land) should be assessed on the 'at-sea' distance. We are content to screen out those sites and species as listed in paragraph 137 on this basis.

Consideration has been given to all breeding seabird colony SPAs on the east coast of Scotland and north (including Orkney and Shetland) and northwest Scotland with 32 sites located within the mean-max foraging range plus 1 standard deviation (SD) screened into the initial list (as per Woodward et al. 2019). To note the figure for Common tern is incorrect and should be 18.0 + 8.9. We agree with the species listed in paragraph 138, section 4.4.2 that have been screened out on the basis that they were recorded infrequently and in low numbers across the two-year aerial survey campaign during the breeding season, except where they are qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA or of migratory water bird SPAs. This together with the approach used when straight line distance is not biologically meaningful, means that 4 of the 32 identified SPAs have been screened out, these are: Aukery SPA, Marwick Head SPA, Priest Islands SPA and Ramna Stacks and Gruney SPA – however, Table 4.5 could have made this more apparent.

Non-breeding season seabird connectivity

We agree with the species listed in paragraph 142, section 4.4.2 that have been screened out on the basis that they were recorded infrequently and in low numbers across the two-year aerial survey campaign during the non-breeding season or passage periods, except where they are qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA or of migratory water bird SPAs.

However, any UK SPA contributing birds to the BDMPS for the non-breeding season assessment should be screened in and taken forward for determination of likely significant effect – we consider that a step has been missed here and consideration of adverse effect on site integrity is being pre-judged.

Migratory water birds

We are content with the 17 SPAs for migratory water bird features that have been screened in as per Table 4.5.

Impact pathways and determination of Likely Significant Effect

We reiterate our previous advice that going forward in the HRA that disturbance and displacement effects should be separated out, but understand why they have been grouped together here.

³⁷<https://www.gov.scot/publications/implementation-of-scottish-government-policy-on-protecting-ramsar-sites/>

As above, Table 5.16 should include those sites / species brought forward for the non-breeding season assessment. We wish to understand the rationale as to why guillemot has been excluded for East Caithness Cliffs SPA but razorbill has been included? And why puffin has been included for Hoy SPA. Also, North Rona and Sule Sgeir has been correctly named in Table 5.16, but is incorrectly labelled as 'North Rona and Sule Stack SPA' in Table 5.18. Also, fulmar is a seabird assemblage feature of this site.

Potential collision risk to migratory water birds and seabirds on passage should be assessed with reference to the site specific survey results and the approach outlined in the Marine Scotland commissioned report on strategic assessment of collision risk of Scottish offshore wind farms to migrating birds (Marine Scotland, 2014)³⁸. This should also take account of any update via the ScotMER project on the strategic review of migratory routes.

Section 5.5.2 has omitted consideration of water clarity/suspended sediment despite previous advice on this pathway from ourselves and Marine Scotland Science.

Table 5.17 – LSE Matrix for Outer Firth of Forth and St Andrews Bay Complex SPA

As per previous advice, direct habitat loss should be assessed across all phases including decommissioning for all qualifying features of this site – we don't agree it should be omitted. Geese and migratory water bird qualifying features should be screened in for collision and barrier to movement. Breeding and non-breeding gannet should also be screened in for barrier to movement. We agree with the how the various breeding and non-breeding gull features have been determined.

Tables 5.30 - 5.35, 5.39, 5.40, 5.43 - LSE matrices for sites with breeding fulmar as a QF

Fulmar are expected to be able to absorb the loss of a potential foraging site as they have such large foraging ranges and can find alternative areas. We agree therefore with that the following SPAs can be screened out across all impact pathways: Handa, Cape Wrath, Shiant Isles, Rousay, Calf of Eday, West Westray, Sumburgh Head, Flannan Isles and St Kilda.

We are content in how fulmar has been dealt with in Tables 5.20, 5.22 – 5.29, 5.37, 5.38, 5.41, 5.42, 5.44, 5.45 for the following sites: Fowlsheugh, Coquet, Buchan Ness to Collieston Coast, Troup, Pennan and Lion's Heads, East Caithness Cliffs, Flamborough and Filey Coast, North Caithness Cliffs, Hoy, Copinsay, Fair Isle, North Rona and Sula Sgeir (see above re incorrect name), Foula, Noss, Fetlar, Hermaness, Saxa Vord and Valla Field SPAs.

Table 5.28, 5.41, 5.44, 5.45 - LSE matrices for breeding sites with great skua as a QF

We are content that great skua are only likely to interact with the development during the passage periods. Therefore we agree with the approach to screen in collision and in-combination effects (Hoy, Foula, Fetlar and Hermaness, Saxa Vord and Valla Field SPAs), and out for all other impact pathways.

Tables 5.18 - 5.29, 5.36, 5.37, 5.38, 5.42, 5.44, 5.45 LSE Matrices for breeding colony SPAs

See above for advice on fulmar and great skua. We are content that disturbance / displacement effects have been screened out for all gull species and in for seabird species including gannet. All species likely to be at risk of collision have been screened in, noting there is a colour coding error for Table 5.26. We agree with the species screened in for barrier to movement during the O & M phase. All seabirds and gull species have been screened in for changes to prey across and in-combination effects across all phases as previously advised.

Tables 5.46 – 5.62 - LSE Matrices for sites with migratory water birds as QFs.

We agree with the approach where geese and migratory water bird qualifying features have been screened in for collision and barrier to movement during the operation and maintenance phase, but out for all other impact pathways. The approach to in-combination effects is curious – we would have expected in-

³⁸ Scottish Marine and Freshwater Science Volume 5 Number 12: Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds, report available from: <http://www.gov.scot/Resource/0046/00461026.pdf>

combination effects to only be considered during the operation and maintenance phases where a likely significant effect has been concluded. In-combination effects cannot be considered where it contributes no impact and so should be screened out for construction and decommissioning phases.

Marine mammals

Identification of European Sites and Features

As per paragraph 122, section 4.3.1, we support the use of telemetry data to inform potential connectivity with Firth of Tay and Eden Estuary SAC for harbour seal and agree that despite its location slightly beyond the usual 50km screening buffer, that this site is screened in. Grey seal SACs in Scotland are designated as breeding sites and while they are known to forage some considerable distance they tend to stay within 20km of the breeding colony during the breeding season – we therefore don't consider it necessary to use a 100km screening buffer for this species.

We therefore agree with the list of SACs and their qualifying features, as per Table 4.3, located within Scottish waters that should be screened in. Advice from Natural England should be sought with respect to the Southern North Sea SAC.

Please be aware that the conservation objectives for the seal SACs are currently being revised in line with a programme for all European sites to have their conservation objectives updated. We are unable to advise when these may be published but will keep you updated as far as we can.

Impact pathways and determination of Likely Significant Effect

In Section 5.4.2, the site overview for the Firth of Tay and Eden Estuary SAC for harbour seal states that '*around 600 adults haul out at the site to rest, pup and moult*'. This is no longer up-to-date - the latest estimate is 41 individuals (SCOS, 2020³⁹) indicating a more than 90% decline in the population. In addition we highlight that this site is currently 'unfavourable, declining'.

Similarly, we advise an update to the bottlenose dolphin population figure in the site overview for the Moray Firth SAC as per paragraph 220 (section 5.4.2). We recommend the use of a weighted mean population size for bottlenose dolphin of 224 (95% CI = 214 – 234)⁴⁰, using data from 2015-2019 based on the population estimates presented in Arso Civil et al. (2021)⁴¹. This update should also be reflected in paragraph 225 in section 5.4.3.

Potential impact pathways

With respect to underwater noise from unexploded ordnance (UXO), we advise, as per the recent joint SNCB/DEFRA position statement⁴², that the risk assessment considers a worse case of high order detonation in terms of impact and mitigation, unless there is robust supporting evidence that can be presented to show the consistent performance of the preferred low order / deflagration method.

As advised for the original LSE screening, letter dated 14 December 2020, underwater noise from vessels should be screened in for grey seal, harbour seal and bottlenose dolphin for all activities across the lifespan of the project.

We agree that changes in prey availability should be considered. However, the narrative within paragraphs 256 – 260 in section 5.4.3 primarily focuses on impacts to prey species from underwater noise, rather than also including the direct impact of habitat loss / prey disturbance from the installation of foundations,

³⁹ <http://www.smru.st-andrews.ac.uk/files/2021/06/SCOS-2020.pdf>

⁴⁰ <https://www.nature.scot/doc/east-coast-scotland-bottlenose-dolphins-estimate-population-size-2015-2019>

⁴¹ Arso Civil, M., Quick, N., Mews, S., Hague, E. Cheney, B.J., Thompson, P.M. & Hammond, P.S. (2021). Improving understanding of bottlenose dolphin movements along the east coast of Scotland. Final report. Report number SMRUC-VAT-2020-10 provided to European Offshore Wind Deployment Centre (EOWDC), March 2021 (unpublished).

⁴² Marine environment: unexploded ordnance clearance joint interim position statement (2021) <https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement>

cables, scour protection. In addition, the colonisation of hard structures within soft sediment habitats influences communities and any changes (positive or negative) in prey distribution should also be considered. Lastly, we disagree with the statement in paragraph 259 - *'effects on fish populations from...habitat disturbance are likely to be temporary, localised, short-term and therefore not significant'*, given the current uncertainties and potentially significant effects on spawning.

Whilst we agree with the decision to screen out direct effects of EMF on marine mammals as outlined in paragraph 288, section 5.4.3, we recommend consideration is given to the effects of EMF on changes in prey availability. During the O & M phase, we advise that effects of EMF and colonisation of hard structures within soft sediment habitats are likely to have a greater effect on changes in prey availability than underwater noise.

Tables 5.10 - 5.12, 5.14

We agree with the approach outlined in Tables 5.10-5.12, and 5.14 (as per Berwickshire and North Northumberland Coast, Isle of May, Firth of Tay and Eden Estuary and Moray Firth SACs) other than for Table 5.14 (Berwickshire and North Northumberland Coast SAC) which omits underwater noise impacts for bottlenose dolphin from vessel activity - this needs to be assessed across all phases particularly with respect to the export cable route and landfall.

In-combination assessment

We are content with the approach as laid out in section 6. For species/site specific advice please see above.

NatureScot SCOPING ADVICE for BERWICK BANK REVISED DESIGN

APPENDIX G – NATURE CONSERVATION MARINE PROTECTED AREAS (NCMPAs) AND PHYSICAL PROCESSES

We provide below advice with respect to the Firth of Forth Banks Complex Nature Conservation Marine Protected Area (NCMPA) which overlaps with some of the proposed development footprint. This has been informed by advice received from JNCC and includes our review of section 5, offshore physical environment.

Given the distance from the proposed development both Turbot Bank NCMPA and Southern Trench NCMPA should be screened out. Please see Appendix D (Benthic Ecology) and E (Fish / shellfish) for advice on specific site features.

Firth of Forth Banks Complex Nature Conservation Marine Protected Area

The Firth of Forth Banks Complex NCMPA is a composite site and the boundaries of each of the three areas were determined by the presence and extent of the important features contained within them. The Berwick Bank development proposal should consider the three composite sites within the NCMPA, both alone and in-combination, as part of the assessment on the site (see below). The EIA Report should include detailed information and figures on the potential impact to the three composite sites, as well as the overall NCMPA.

Further information on the site can be found in the conservation advice section of the Firth of Forth Banks Complex NCMPA webpage – JNCC site information centre (SIC)⁴³.

Conservation objectives

The Firth of Forth Banks Complex NCMPA is designated for:

- ocean quahog aggregations (*Arctica islandica*),
- offshore subtidal sands and gravels,
- shelf banks and mounds
- moraines representative of the Wee Bankie key geodiversity area.

The **conservation objectives of the site** are that the protected features:

- so far as already in favourable condition, remain in such condition; and
- so far as not already in favourable condition, be brought into such condition, and remain in such condition.

With respect to the **ocean quahog aggregations** within the NCMPA, this means that:

- the quality and quantity of its habitat and the composition of its population in terms of number, age and sex ratio are such as to ensure that the population is maintained in numbers which enable it to thrive.

With respect to the **offshore subtidal sands and gravels** within the NCMPA, this means that:

- extent is stable or increasing; and
- structures and functions, quality, and the composition of characteristic biological communities (which includes a reference to the diversity and abundance of species forming part of or living within the habitat) are such as to ensure that they remain in a condition which is healthy and not deteriorating.

With respect to the **shelf banks and mounds large-scale feature** within the NCMPA, this means that:

- the extent, distribution and structure is maintained;
- the function is maintained so as to ensure that it continues to support its characteristic biological communities (which includes a reference to the diversity of any species associated with the large-

⁴³ <https://jncc.gov.uk/our-work/firth-of-forth-banks-complex-mpa/>

- scale feature) and their use of the site for, but not restricted to, feeding, courtship, spawning, or use as nursery grounds; and
- the processes supporting that feature are maintained.

With respect to the **Wee Bankie key (moraines) geodiversity area** within the NCMPA, this means that:

- its extent, component elements and integrity are maintained;
- its structure and functioning are unimpaired; and
- its surface remains sufficiently unobscured for the purposes of determining whether the above criteria are satisfied.

Further information on the site conservation objectives and supplementary advice on the conservation objectives can be found on the JNCC site information centre (SIC).

Potential impacts

Our previous advice on physical processes / environment and the NCMPA (as per letter dated 07 October 2020 –referred to as Appendix F) have largely been considered and reflected in the Berwick Bank revised design scoping report.

Sediment scour

We are pleased to see that sediment scour has been scoped in as per paragraph 207, Section 5.1.1. Information should also be provided within the EIA Report to assess the impact from the introduction of protective materials for scour protection on the designated features of the site and the potential alteration of habitat. Further comments in relation to rock protection measures are provided below.

Physical change

The proposal involves the introduction of hard substrate into a mainly sedimentary environment. Some of the hard substrate will be deposited within the Firth of Forth Banks Complex NCMPA which has designated features based on sediment type: ‘offshore subtidal sands and gravel’, ‘shelf banks and mounds’ and ‘moraines’. We encourage SSER to seek to minimise the amount of hard substrate material used and that the worst-case quantity is assessed for the lifetime of the project. We note that the long-term effect of the introduction of hard substrate into a naturally sandy or muddy seabed is not fully understood at present and as such should be carefully considered.

We advise detailed commentary is provided in the EIA Report on stabilisation material needed for the jackets as well as for cables and any other infrastructure as part of the proposed development to allow further understanding of the potential nature conservation impact. This would include:

- location of dump sites;
- type/ size / grade of rock to be used;
- tonnage / volume to be used;
- contingency tonnage / volume to be used;
- method of delivery to the seabed;
- footprint of stabilisation material;
- assessment of the impact (particularly in the NCMPA and its three composite sites).

Where protective material cannot be avoided, we recommend using a more targeted placement method, e.g. use of a fall pipe vessel rather than using vessel-side discharge methods.

Section 2.3.4 indicates that the proposed development is likely to include ‘estimated scour protection of 2 km²’. The scoping report for the original smaller footprint wind farm proposal estimated >4.5km² of scour protection. Therefore this figure should be clarified, including details of scour protection requirements for individual turbines, foundation types and for cables.

There are emerging research studies looking at differing elements around scour and cable protection measures and whether their impacts can be reduced, altered to be more beneficial etc. We will provide

any updates of relevance from these studies that should be taken into account either during the pre-application stage or as part of any pre-construction discussions if consents are awarded.

Coastal recession

We are pleased to see our previous advice has been considered with coastal recession scoped in as per Table 5.1, section 5.1.6, including potential for beach lowering which will help inform appropriate cable burial depth, in order to provide necessary adaptation to this aspect of climate change.

Approach to impact assessment

As per paragraph 425 – 429, section 17.1.2 (Appendix 17), the EIA Report needs to provide an assessment of whether the proposed development is capable of affecting, other than insignificantly, the protected features of the NCMPA and whether the proposal will result in a significant risk of hindering the achievement of the conservation objectives⁴⁴.

Mapping requirements

We welcome the inclusion of Figure 6.1 (section 6.12 and in Appendices 7 and 17) which shows the boundaries of the Firth of Forth Banks Complex NCMPA overlaying the proposed development array area. The boundaries are mentioned in the map legend of Figure 6.1, but the text describing the figure does not allude to the NCMPA. The EIA Report should include more detailed maps showing the protected features of the site in relation to the planned installations of turbine jackets and cables, particularly in relation to the Berwick Bank, and Seagreen (Seagreen 1 & 1A) wind farm developments. Further information can be found on the JNCC mapper⁴⁵. This will aid in the interpretation of the information presented and allow us to provide accurate advice.

The EIA Report should also include a map of the wind turbine layout in relation to the Firth of Forth Banks Complex NCMPA to allow accurate interpretation of the number of turbines and associated protection materials in the site and where they are planned in relation to the protected features of the site.

Worst-case scenario

The scoping report includes two potential foundation types for the project, with the worst-case impact expected from the suction caisson jackets which could have a total impact area of 9.64km² (307 turbines x 31,416m²) across the Berwick Bank revised design offshore wind farm site boundary. We consider that the caisson foundations, with the greatest seabed footprint (including maximum amount of scour protection which changes the physical characteristics of the benthic habitat) to represent the worst-case option.

In the EIA Report, we would expect to see the tables for each foundation type to include the impact of each option on the NCMPA and its three composite sites. It is understood some foundation types will have a noise and/or seabed footprint and therefore some parameters may be irrelevant, however this should be noted in the table or explained within the text.

We recommend that the term ‘diameter foundation footprint’ as used in Tables 2.2 and 2.3 in section 2.3.4 is changed to ‘foundation footprint’. A diameter is a one-dimensional line and thus it cannot have an area, i.e. its unit is m and not m². We understand that this is meant to represent the footprint area of the turbine foundations.

Hydrodynamic and hydro-sedimentary modelling

Notwithstanding the information provided in section 5.1.7, we would welcome further discussion via the road map process on the methodology for hydrodynamic and hydro-sedimentary modelling. This will enable agreement on the spatial and temporal scope, nature of outputs (and their presentation) and key modelling assumptions, etc.

⁴⁴ <https://www.webarchive.org.uk/wayback/archive/3000/https://www.gov.scot/resource/0042/00428637.pdf>

⁴⁵ <https://jncc.gov.uk/mpa-mapper/?zoom=9¢er=-1.652,56.398&layerIds=65,85,63,48,46,74&baseLayerId=-2&activeFilters>

Cumulative impacts

We advise that the impacts of the Berwick Bank revised design proposal are fully considered in relation to the consented Seagreen 1 projects (Seagreen 1 & 1A) based on the likely worst-case scenario for benthic impact/ footprint. It would be beneficial for the analysis to contain tables, or another format, to enable us to accurately assess the impact of the project alone and then cumulatively across all offshore wind projects, and any other relevant marine activities, which will occur in the Firth of Forth Banks Complex NCMPS to provide meaningful and accurate nature conservation advice. As noted above this will need to be for the three composite sites of the NCMPS, as well as overall for this site.

Next steps

We note the next steps proposed in section 6.1.9 and strongly advise effective use of the 'avoid, reduce and mitigate' hierarchy with respect to the impacts on designated sites. We appreciate the commitment to discussing the initial findings of the impact assessment as well as appropriate mitigation and monitoring with stakeholders. Given the significant overlap of the project with the Firth of Forth Banks Complex NCMPS and our advice, particularly in combination with Seagreen (1 & 1A), serious consideration should be given to the potential need for measures for equivalent environmental benefit, depending on the outcome of the assessment.

Lees E (Emma)

From: Caitlin Cunningham <Caitlin.Cunningham@nature.scot>
Sent: 14 January 2022 15:08
To: Lees E (Emma)
Cc: Bamlett R (Rebecca); Karen Taylor
Subject: FW: CNS REN OSWF Berwick Bank - Pre application

Follow Up Flag: Follow up
Flag Status: Completed

Dear Emma,

We have been contacted by Berwick Bank, as per the email below, requesting our advice with respect to securing photographs from the VP proposed on the Isle of May. We have considered this request and can advise as follows:

NatureScot advice

We agree that the unpredictability of current weather conditions and potential difficulties regarding transport to the island may prove problematic for the requirement of very good or excellent visibility when taking photos. Therefore we agree that OPEN can progress with the assessment based on a wireline image, providing that a full written description of the Isle of May context is included. This will highlight and clarify any differences between the 'Fife coastline' and Isle of May in relation to coastal experience and views.

Best Wishes,

Caitlin

Caitlin Cunningham (She/Her) | **Marine Sustainability Adviser** | **Sustainable Coasts & Seas**
NatureScot | Battleby, Redgorton, Perth PH1 3EW | t: [Redacted]
nature.scot | [@nature_scot](https://twitter.com/nature_scot) | *Scotland's Nature Agency* | *Buidheann Nàdair na h-Alba*

From: [Andrew Boon](#)
To: [MS Marine Renewables](#)
Cc: [Bamlett R \(Rebecca\)](#); [NIFCA](#)
Subject: RE: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021
Date: 19 November 2021 13:50:36
Attachments: [image001.png](#)

Hi Emma,

Thank you for contacting us regarding this consultation. I can confirm that NIFCA has felt that as the scope of this project falls outside of our district, and given the lack of any direct impacts to activities that NIFCA is responsible for managing, we felt it not appropriate for us to comment on the consultation. NIFCA has a statutory duty to manage the exploitation of sea fisheries resources, and given the only impacts proposed in this report to areas within the district are visual, this falls outside of our remit somewhat.

We would like to raise the issue of electromagnetic fields (EMFs) on the movements of shellfish in the area. A recent study in the region found that EMFs emitted from Marine Renewable Energy Devices (MREDs), such as cables, will likely affect edible crabs both behaviourally and physiologically, suggesting that the impact of EMF on crustaceans must be considered when planning the location and installation of MREDs. I do note that this research was not done involving buried cables, with the cables in this project set out to be buried wherever possible, therefore the impacts may not be as significant as those reported in the research.

The full paper can be found here:

https://www.researchgate.net/publication/324923544_Understanding_the_effects_of_electromagnetic_field_emissions_from_Marine_Renewable_Energy_Devices_MREDs_on_the_commercially_important_edible_crab_Cancer_pagurus_L

I note that in the scoping report it is stated that “EMF generated through the subsea electrical cabling may affect fish and shellfish prey/predator relationship by inhibiting/interfering with fish and shellfish behaviours due to changes in background EMFs.”, however there was no mention of mitigatory or designed in measures to reduce these impacts. Is the project satisfied that the burial of the cable will be enough to reduce these impacts and therefore minimise the impacts on associated fish and shellfish species?

I am aware that in the scoping report that some of the desk-based fisheries monitoring work may fall into the northern-most areas of our district, however we would be unable to provide such region-specific fisheries statistics for such a relatively small area of our district.

Despite this, if we can be of any further help going forward, please don't hesitate to get in touch.

Thanks,



Northern Lighthouse Board

84 George Street
Edinburgh EH2 3DA

Tel: 0131 473 3100
Fax: 0131 220 2093

Website: www.nlb.org.uk
Email: enquiries@nlb.org.uk

Your Ref: Berwick Bank OWF – EIA Scoping Report
Our Ref: AL/OPS/ML/ O6_20_696

Ms Emma Lees
Marine Licensing Casework Officer
Marine Scotland – Marine Planning and Policy
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

27 October 2021

ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017, THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017, AND THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007

Berwick Bank Offshore Wind Farm - EIA Scoping Report

Thank you for your e-mail correspondence dated 21st October 2021 relating to the EIA Scoping Report submitted by **SSE Renewables** for the development of the Berwick Bank Offshore Windfarm, in the Outer Firth of Forth.

Northern Lighthouse Board have no objection to the content of the Scoping Report and note the inclusion of Section 7.2.4 – Potential Proposed Development Impacts. Of particular interest to NLB is the potential ‘funneling’ of marine traffic between both existing and proposed offshore developments, and an assessment of these interactions, along with the increased allision and collision risk, is welcomed.

NLB also note Section 7.2.5, confirming SSE Renewables engagement with NLB with regard to lighting and marking requirements across both the construction and operational phases of the Berwick Bank windfarm.

Yours sincerely
[Redacted]

Peter Douglas
Navigation Manager

NLB respects your privacy and is committed to protecting your personal data.
To find out more, please see our Privacy Notice at www.nlb.org.uk/legal-notice/

Neart na Gaoithe Offshore Wind Limited
Atria 1, 6th floor
144 Morrison Street
Edinburgh
EH38EX
Scotland, United Kingdom

Marine Scotland Licensing Operations Team
By email only: ms.renewables@gov.scot

Date 18/11/21

Document Reference: NNG-NNG-ECF-LET-0062

Dear Sirs,

Thank you for the opportunity to comment on the Berwick Bank Wind Farm Offshore Scoping Report. The below comments have been made on behalf of Neart na Gaoithe Offshore Wind Limited (NnGOWL).

SSE Renewables have correctly identified construction, operation and decommissioning phase impacts to NnGOWL assets in Table 7.16. Due to the close proximity, and overlap in some cases, of the Berwick Bank Wind Farm to some of our assets, we would encourage SSE Renewables to engage with NnGOWL as early as possible, particularly where crossing and proximity agreements may be required.

We note the use of NnG Offshore Wind Farm Environmental Statement as a key desktop report to inform the Berwick Bank Environmental Impact Assessment. Please do not hesitate to consult with NnGOWL if you have any queries.

Yours sincerely

[Redacted]

Claire Gilchrist
Offshore Consents Manager
Neart na Gaoithe Wind Limited



Northumberland

County Council

Marine Scotland
Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Your Ref:
Our Ref: Berwick Bank Offshore Wind Farm
Enquiries to:
Direct Line: Kevin Tipple
E-mail: 01670 623631
Date: kevin.tipple@northumberland.gov.uk
1 November 2021

Dear Sir or Madam

Berwick Bank Offshore Wind Farm Scoping Report (October 2021)

Thank you for providing Northumberland County Council with an opportunity to comment on the above scoping report. The Council previously commented on the Scoping Report for this proposed development in October 2020 and are pleased to note that those comments have been taken into account.

We have reviewed the scoping report and have the following comments to make. The comments focus on those matters that the Council considers are most relevant to potential effects of the proposed development on Northumberland.

Berwickshire and North Northumberland Special Area of Conservation (SAC)

The above designation, which overlaps with Northumberland, is identified in the scoping report as a designated site with relevant benthic ecology features in proximity to the proposed development (Table 6.2, Page 51). It is agreed that this designation should be considered in the EIA.

Cultural heritage

The scoping report identifies nationally important designated heritage assets considered as potential receptors in Table 7.13 (Page 135). The heritage assets identified include Lindisfarne Priory, Lindisfarne Castle, Bamburgh Castle and Berwick upon Tweed, which are located within Northumberland.

The Council agree with the proposed cultural heritage study area and the list of potential receptors in Table 7.13, which takes account of comments made in October 2020 in relation to potential receptors in Northumberland. We also agree in principle to the proposed approach to data gathering and assessment.

Seascape, landscape and visual resources

Rob Murfin, Director of Planning

County Hall, Morpeth, Northumberland, NE61 2EF
T: 01670 625542 E: rob.murfin@northumberland.gov.uk
www.northumberland.gov.uk



The seascape, landscape and visual impact assessment (SLVIA) study area for the proposed development is proposed as covering a radius of 60 km from the array area of the proposed development, as shown in Figure 7.8. The SLVIA study area includes parts of North Northumberland around Berwick upon Tweed and Holy Island and includes part of the Northumberland Coast Area of Outstanding Natural Beauty (AONB) and North Northumberland Heritage Coast.

In relation to the data sources listed in Appendix 14, we are content that this identifies the relevant key sources of information for seascape, landscape and visual as applicable to Northumberland. These include the Northumberland Landscape Character Assessment (2010), Northumberland Coast AONB Management Plan 2020-2024, and Northumberland Northumberland Coast AONB Landscape Sensitivity and Capacity Study (August 2013).

The Council agree with the extent of the study area, baseline and the proposed approach to assessment. Relevant visual receptors have been identified in the report, including the users of important recreational routes and transport routes, visitors to tourist sites and historic environment assets, and coastal settlements such as Berwick upon Tweed. The Council also agree with the viewpoints within Northumberland listed in Appendix 14, which take account of comments made in October 2020. The Council does not have any additional viewpoints to propose.

I trust that these comments are of some assistance. If you have any queries or would like to discuss any matters further, please do not hesitate to contact me.

Yours faithfully

[Redacted]

Rob Murfin
Interim Executive Director of Planning and Local Services

Emma Lees
Marine Licensing Casework Officer
Marine Scotland

By email: ms.marinerenewables@gov.scot

06 December 2021

Dear Ms Lees,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) SCOPING AND HABITATS REGULATIONS APPRAISAL (HRA)
SCREENING OPINION REQUEST FOR BERWICK BANK OFFSHORE WINDFARM**

RSPB Scotland welcomes this opportunity to comment on the updated scoping and screening reports for revised Berwick Bank Offshore Windfarm proposal.

RSPB Scotland are supportive of the use of renewable technology. It must however be carefully located to avoid negative impacts on sites and species of conservation importance. Across Scotland, the abundance of seabird species has already declined by 49% from the 1986 baseline and colonies are now even more sensitive to adverse impacts and pressures. This project is located within an environmentally sensitive region. It lies adjacent to the proposed Firth of Forth and St Andrew's Bay Complex marine Special Protection Area (SPA) and within foraging range of a number of breeding seabird colony SPAs. We therefore have serious concerns over the potential risks this project poses to seabird populations both on an individual basis and in-combination with other offshore proposals, including the consented Neart Na Gaoithe, Inch Cape and Seagreen One (Alpha and Bravo) projects and the future Scotwind/Sectoral Marine Plan for Offshore wind projects. There is substantial collision potential for kittiwake and gannets as well as considerable displacement potential for guillemot, razorbill, and puffins

To assess these risks adequately, use must be made of the latest and best available science. We agree the proposal is likely to have a significant effect on the conservation objectives of several protected sites and species. As identified in the submitted documents, an Appropriate Assessment (AA) to assess the likely significant effects of the proposal in more detail and identify ways to avoid or minimise any effects is therefore required. In regard to the EIA, the proposed structure of the EIA Report (EIAR) appears to allow all pertinent issues to be addressed.

We have provided detailed comments in the Annex below. These are relevant to both the EIA Scoping and HRA Screening opinion requests. For both elements, we have focused our attention on ornithological issues (Chapters 5.5, 6 and 7 in the HRA screening and Sections 6.4 and Appendix 10 in the EIA screening). RSPB Scotland, alongside Marine Scotland Licensing, Marine Scotland Science and NatureScot are also part of the ornithological road map group. This group has been valuable in supporting the assessment process. Comments and advice to the developer on matters including data collection, modelling and analysis have been provided. Given the purpose of the road map group, we expect these discussions and the advice provided will be reflected in the assessment supporting the application.

Please do not hesitate to contact me if you require any further information or clarification.

Yours sincerely,

Catherine Kelham
Senior Marine Conservation Planner

RSPB Scotland Headquarters
2 Lochside View
Edinburgh Park
Edinburgh
EH12 9DH

Tel: 0131 317 4100
Facebook: RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk/Scotland



The RSPB is part of BirdLife International,
a partnership of conservation organisations
working to give nature a home around the world.

Annex: RSPB Scotland Comments

Do you agree that the existing data available to describe the offshore and intertidal ornithology is sufficient to describe the environment in relation to the Proposed Development?

We agree the existing data as set out in Appendix 10 provides a suitable data set for the assessment. We welcome the use of site-specific data from the 25-month digital aerial transect surveys conducted between March 2019 and April 2021 and from the boat-based seabird surveys undertaken in July and August 2020 and between April and June 2021.

Do you agree that all receptors and impacts have been identified for offshore and intertidal ornithology?

We agree that all likely receptors and impacts have been identified for offshore and intertidal ornithology.

We agree with the proposed Offshore Ornithology Regional Study area (Figure 6.11) based on the mean-maximum foraging range of the Northern Gannet and using data from Woodward *et al.* (2019), the Offshore Ornithology Area comprising the development Array Area plus 16 km buffer (Figure 6.12) and the Intertidal Ornithology Study Area (Figure 6.13)/ approach to offshore study areas.

As in paragraph 247, not all the designated sites that may be affected by the proposal are listed in the EIA scoping report. We believe there is likely to be the greatest potential for effect on:

- Forth Islands SPA;
- Fowlsheugh SPA;
- St Abb's Head to Fast Castle SPA;
- Outer Firth of Forth and St Andrew's Bay Complex SPA;
- Buchan Ness to Collieston Coast SPA.

In relation to Table 6.10 and the displacement and disturbance risk during operation of the development, we wish to highlight the potential risks to guillemot must be considered in light of the autumn 2021 mass mortality.

Do you agree with the suggested designed in measures and is this mitigation appropriate?

We note the designed in mitigation for ornithology includes:

- Raising the draught gap to 37m above LAT to reduce potential number of collisions for species including kittiwake and gannet;
- Reducing the boundary of the proposed array area by 128km² to lessen potential barrier and displacement effects
- Development of and adherence to a vessel management plan
- Use of low-order deflagration to clear UXOs where necessary
- Development of an Environmental Management Plan (including a marine pollution contingency plan)

We welcome all these measures and agree that requirements for and feasibility of additional mitigation measures must be considered and consulted upon through the pre-application and application process as appropriate.

Do you agree with the proposed approach to assessment?

We welcome the ornithology road map process and reiterate our earlier comment that discussions from this group must be reflected by the developer in their application submission.

In regard to seabird foraging ranges and connectivity, we support use of Woodward *et al* 2019 but suggest that if any site-specific data that exceeds distances from this paper is available, it should be used instead.

Use of the Band model (2012) to predict collision risk is appropriate. Option 2 and Option 3 should use flight height distribution from Johnson *et al.* (2014) with corrigendum.

The range of suggested Avoidance Rates in Table 6.14 are welcome, as a range is more representative of the uncertainty inherent in Avoidance Rates. Ultimately, however, the RSPB decisions on significance of impact will be based on those

given in the SNCBs recommendations, based on Cook *et al.*, (2014) with the exception of breeding season gannet. We would recommend some amendments and additions. The Cook *et al.*, (2014), and subsequent SNCB recommendations, rates for gannet and kittiwake did not include a value for Option 3, as there was insufficient data to calculate these. The inclusion of a default 98% in the table is misleading. Notwithstanding the remaining issues with the calculations in Cook (2021), the values given are the calculated rates from that report, but not the rates that are *recommended* by the report's author, to reflect whether the underlying data have been collected across a range of sites that capture variability in bird activity levels. This distinction is crucial and not given in the table. Finally, we recommend that a default Avoidance rate of 98% is used for the basic model options during the breeding season, as there is no data on breeding gannet included in the cited reviews and birds will modify their behaviour while constrained by nesting. Other seabirds have been shown to vary their interactions with wind farms temporally, (Thaxter et al. 2015) and gannet are known to vary breeding season flight behaviour depending on breeding status (Lane *et al.*, 2020) which will have a direct influence on Avoidance Rate

Table 6.15 should include the Standard Deviations around the parameters for use in the stochastic Collision Risk Model. Nocturnal Activity Rates of 25% and 50% should be presented for all gulls. While the flight speed calculated by Skov *et al.*, (2018) are of interest, due to underlying issues with these data, RSPB decisions will be based on generic flight speeds

Very little detail on the apportioning methods has been provided and we welcome ongoing discussion on this matter.

In relation to the PVA, we note it is proposed report counterfactuals and to focus on birds where the assessed mortality exceeds a change to adult annual survival rates of 0.2% over both a 35 year and 50-year period. Further discussion with consultees is also proposed. This approach with further discussion is broadly acceptable.

Do you agree with the proposal to scope out pollution impacts during all phases of the Proposed Development?

We accept the proposal to scope out pollution impacts during all phases of the proposed development from the EIA but believe regard should be given to impact of pollution within development application. For example, this could be through the submission of and/or reference to, the creation of and adherence to pollution prevention plans as appropriate.

Other comments:

The Firth of Forth and Tay area sees much marine traffic. This raises potential for biosecurity breaches at seabird islands, most of which are designated SPAs with breeding seabird qualifying features. Non-native invasive species to islands can have devastating consequences. As part of the construction, deconstruction and maintenance, the applicant will be contributing to this marine traffic and transporting materials to and from land. The biosecurity risk must be considered as part of the application and suitable measures, for example the creation and implementation of a biosecurity plan, identified.

Royal Yachting Association Scotland

Caledonia House
1 Redheughs Rigg
South Gyle
Edinburgh
EH12 9DQ

T +44 (0)131 317 7388
E admin@ryascotland.org.uk
W www.ryascotland.org.uk

9 November 2021

Marine Scotland – Marine Planning and Policy
Scottish Government
Marine Laboratory, 375 Victoria Road,
Aberdeen, AB11 9DB
ms.marinerenewables@gov.scot

Dear Emma,

Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion

RYA Scotland has been in contact with the developers and their consultants over their plans. We are happy with what is proposed for the EIA.

In terms of the questions posed in section 7.2.8:

1. the data sources described are sufficient,
2. the designed-in measures are appropriate,
3. the list of consultees is sufficient, although RYA should be RYA Scotland,
4. the cumulative effects of all offshore developments between the border with England and Duncansby Head should be considered as these would be encountered by vessels on passage from the south to the Caledonian Canal and the Northern Isles and vice versa (Hywind and Forthwind can be excluded).

Yours sincerely,

[Redacted]

Dr G. Russell FRMetS MCIEEM

Planning and Environment Officer, RYA Scotland

Emma Lees
Marine Scotland – Marine Planning and Policy

By Email

Please ask for:

Our Ref:

Your Ref:

E-Mail:

Date:

Scott Shearer

21/01637/SCO

sshearer@scotborders.gov.uk

08.12.2021

Dear Emma,

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND
MARINE LICENCES FOR THE BERWICK BANK OFFSHORE WIND FARM LOCATED 39.2
KILOMETRES EAST OF EAST LOTHIAN**

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT)
(SCOTLAND) REGULATIONS 2017**

**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) (SCOTLAND) REGULATIONS 2017**

**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) REGULATIONS 2007**

I refer to your above consultation of 20th November 2021. The following advice constitutes the formal scoping comments of Scottish Borders Council who will be a “relevant authority” consultee in the event of a Section 36 Application being submitted to the Scottish Government for determination.

Policy Context

The main Local Development Plan policy to be considered is Policy ED9: Renewable Energy Development, which states that, ‘The Council will support proposals for both large scale and community scale renewable energy development including commercial wind farms, single or limited scale wind turbines, biomass, hydropower, biofuel technology, and solar power, where they can be accommodated without unacceptable significant adverse impact considerations’. Renewable energy developments, including wind energy proposals, will be approved provided that there are no relevant unacceptable significant adverse impacts or effects that cannot be satisfactorily mitigated. Policy ED9 also states that, ‘If there are judged to be relevant significant adverse or effects that cannot be satisfactorily mitigated, the development will only be approved if the Council is satisfied that the wider economic, environmental and other benefits of the proposal outweigh the potential damage arising from it’.

Policy ED9 also lists a range of Development Management considerations which are taken from para 169 of Scottish Planning Policy. Consequently it is important that the Environmental Assessment refers to the various issues identified within the Scoping response in order that they are fully addressed as part of the subsequent planning application submission.

It should be noted that the Council’s Supplementary Guidance (SG) on Renewable Energy, has also now been approved and adopted as part of the Local Development Plan. Any S36 application

at Berwick Bank will need to be supported by an EIA that references and assesses the scheme against the new SG. Impacts on the Berwickshire Coastline are likely to be of significant importance in this assessment against the SG. The proposed turbine height of 355m to blade tip is outwith the scope of current guidance and is significantly higher than any offshore or onshore windfarms experienced in Scottish Borders to date. However NatureScot has produced design guidance relating to Marine Scotlands Draft Plan for Offshore Wind that is more relevant to the size of turbines within this proposal.

Offshore Biological Environment

Relevant matters relating to the ecological interest of the designated sites in our region will be dealt with by the statutory agencies.

Offshore Human and Socio-Economic Environment

Aviation

Impacts and comment on potential effects will be expected from the MOD, Edinburgh/Aberdeen Airports and NATS. Policy ED9 in the Council's Local Development Plan takes account of defence and aviation safety matters and would reflect any comments from the aforementioned bodies. However, the issue of lighting is a separate matter considered under landscape and visual effects.

Seascape, Landscape, Visual Resources and Cultural Heritage

The following comments are from the Council Landscape Architect:

I refer to the applicant's Scoping Report dated October 2021 and confirm that the general approach to landscape and visual assessment is appropriate and acceptable. I have the following more specific comments on the report:

The Amended Proposal

A number of changes have been made to the original proposal.

- There are 307 no. turbines of 355m high to blade tip above the Lowest Astronomical Tide (LAT) (formerly 310m in 20/01037/SCO)
- The ZTV study area has increased from 50km to 60km radius from the outer edge of array.
- The area covered by the proposal is now 1,314km² combining Marr Bank and Berwick Bank. A slight reduction in total area of the two sites.
- The nearest point to the Scottish Borders from the outer edge of the array of the proposal is 33.5km. The previous proposal was 40km approximately.

Study Area

A 60km radius ZTV study area Fig 7.15 has been selected to reflect the increased height of turbines to 355m. As demonstrated in SNH guidance 2017 Visual Representation of Wind Farms, turbine height informs the extent of the ZTV study area required. Although not on a pro-rata basis this is due to greater height of turbines increasing their potential for visibility. At 355m to blade tip from the Lowest Astronomical Tide (LAT) the turbines are more than double the height mentioned in the guidance.

Zone of Theoretical Visibility (ZTV) – Fig 7.15

The ZTV to blade tip is of insufficient scale to clearly illustrate the extent of theoretical visibility in relation to sensitive receptors. However it appears (although unclear) from the Blade Tip ZTV that the greatest potential for visibility will be within 50km of the site and concentrated along the coast with further areas towards the border with East Lothian and on the eastern edge of the Lammermuirs. I refer to SNH Guidance 'Visual Representation of Windfarms', Version 2.2 (2017) in relation to the mapping of ZTVs. Please note that SBC require this information, at a 1:50,000 scale, with the proposed viewpoint positions superimposed. This information is required to allow the Council to confirm landscape and visual receptors. The proposed viewpoints shown at Figure

7.15 of the Scoping Report cannot be fully agreed until this necessary ZTV information has been provided.

Distance

NatureScot (SNH) were consulted on Marine Scotlands Draft Plan for Offshore Wind (Dec 2019). NatureScot's Seascape, Landscape and Visual Impact Assessment of the plan includes design guidance. At 3. It states that distance from the coastline is one of the key aspects which dictates the level of landscape and visual impact on sensitive receptors and therefore 'distance and in particular the effects of the curvature of the earth present a significant opportunity to minimise visual impacts of large scale development along more sensitive coastlines'.

Table 2. Design Approach Framework, identifies that for Regionally important landscapes and seascapes of distinctive coastal character, 45km + distance from the outer array to the sensitive receptor would reduce significant effects of 300m high turbines. However, this suggests that with turbines of 355m height at 33.5km distance from sensitive receptors the reduction of significant effects along the Berwickshire coastline may be difficult to achieve.

Cumulative effects

The main clusters of onshore wind farm development occur in the Lammermuir Hills (Crystal Rig and Aikengall) and around Penmanshiel and Coldingham Moors (Drone Hill, Penmanshiel and Quixwood Moor). In addition Howpark is due to be constructed. The main cumulative effects with the offshore windfarm should be assessed. In addition the study area should be assessed for 'sequential' cumulative impacts.

Viewpoints

On receipt of an updated ZTV at 1:50,000 the exact viewpoints and appropriate visual representation can be agreed. However in addition to the representative viewpoints to be included in the assessment Ewielairs hill on the north eastern edge of the Lammermuir Hills Special Landscape Area should be considered for inclusion. Sequential viewpoints should also be considered from the path, road and rail network, within the study area eg. A1, A1107, the Berwickshire Coastal Path and east coast railway line.

A paper copy of the ZTV at 1:50,000 would be welcome at this stage and paper copies of all future mapping and visualisations would be preferred.

Cultural Heritage

The following comments are from the Council Archaeologist:

Comments on Scoping Report

The Scoping Report covers all the topics necessary for the proposed development all in the one document. This includes Marine Archaeology (chapter 7.4), as well as Seascape, Landscape and Visual Resources Landscape (chapter 7.5) and Cultural Heritage (chapter 7.6).

- Marine Archaeology (Chapter 7.4)

Within the Marine Archaeology chapter 7.4 the summary of the archaeological survey work carried out between August and October 2019 is outlined. The variety of the maritime archaeological resource as including previous land surfaces, as well as the series of wrecks (both designated and undesignated) as well as the further anomalies of interest recorded. The range of possible impacts has been considered in the construction, operation and maintenance as well as decommissioning have been considered. The Scoping Report's measures to be adopted as part of the proposed development, such as the provision of a Protocol for Archaeological Discoveries, are outline, and in the case of the protocol supported by the further Outline Written Scheme of Investigation prepared with the justifications made backed up by the Marine Archaeology Technical Report also provided to me.

Answering the Scoping Questions to Consultees in this chapter (7.4.7);

- *Do you agree with the Study Area as defined e.g. the Berwick Bank Offshore Wind Farm Proposed Development Array Area, the Berwick Bank Offshore Wind Farm ECC and a wider search area encompassing 2 km from the limits of the offshore Proposed Development up to the MLWS ?* – I am content with the proposed search area for these maritime archaeology aspects.
- *Do you agree that the designed in measures described provides a suitable means for managing and mitigating the potential effects of the Proposed Development on the marine archaeology receptors?* – having read and examined the Scoping Report and the Technical Report of work carried out thus far, then I am also content that the work in the Outline Written Scheme of Investigation as the Protocol for Archaeological Discoveries would afford the chance of investigation and recording of any further archaeological finds or features that would be encountered during fieldwork. The avoidance of some features in Archaeological Exclusion Zones is welcomed. Some of this work, having already been carried out, are the next steps that have already as mentioned in 7.4.8.
- *Do you agree that it is appropriate to scope out those impacts proposed to be scoped out that the assessment of marine archaeology receptors should be scoped out of the Proposed Development EIA?* – I am not sure that this question makes complete sense to me; should it broken into two parts?

Seascape, Landscape and Visual Resources Landscape (Chapter 7.5)

The Scoping Report also includes notes upon the landscape and seascape impacts of the scheme as a number of receptors have been identified. These include a number of archaeological and historical sites, with consultations made with a number of local authorities as a whole. The area of seascape includes parts of both the Firths of Forth and Tay, as well as Aberdeenshire, Angus, Fife, East Lothian and Northumberland in addition to the Scottish Borders.

A Zone of Theoretical Visibility has been prepared, now extending to 60km in all directions. This includes a number of historic landscape features or larger sites both inside and outside of the Scottish Borders area. There are a number of archaeological and historical sites within those locations suggested for viewpoints. The Scottish Borders Local Development Plan's Policy EP8 for Archaeology includes the contribution given to settings of archaeological monuments, as well as their appreciation. The range of visual receptors is an impressive listing and for the reasons given well chosen for the varied usage and users of the Scottish Borders coastline and beyond; it would be helpful if the Zone of Theoretical Visibility and the viewpoint locations could be passed on as GIS shapefiles.

Answering the Scoping Questions to Consultees in this chapter (7.5.9);

- *Do you agree that the data sources identified in Appendix 14 are sufficient to inform the baseline for the Proposed Development EIA Report?* – Yes.
- *Do you agree that all the designated areas within the ZTV have been identified?* – From the Scottish Borders Council Archaeology Service point of view, yes.
- *Do you agree with the proposed viewpoint list in Appendix 14 Table 7.11 or do you have any proposed additions or alternatives?* – I think this means for Table 14.4 of the Appendix 14 and am broadly happy with the listing, but recommend the inclusion of the mid-20th century Crosslaw Radar Station site (Canmore ID 158569) as discussed below, which is alongside the A1107, at NT 82961 68735.
- *Have all potential impacts resulting from the Proposed Development been identified for seascape, landscape and visual receptors?* – yes for those where Scottish Borders Council Archaeology Service interests, though it may also be necessary to consider any lighting requirements to assess any landscape and visual impacts with illustrations prepared for different lighting conditions (such as through the day or night). The 'generally not apparent' needs some sort of confirmation.

- *Do you agree that the impacts described in Table 7.11 can be scoped out?* – Yes, from the Scottish Borders Council Archaeology Service point of view.
- *For those impacts scoped in (Table 7.10), do you agree that the methods described are sufficient to inform a robust impact assessment?* – Yes, from the Scottish Borders Council Archaeology Service point of view.
- *Do you have any specific requirements for the SLVIA methodology and/or visual representations (photomontages/ZTVs) to be included in the SLVIA?* – A preference would be for photomontages from the various locations, and that these also are undertaken for a variety of conditions.
- *Do you agree that the designed in measures described provide a suitable means for managing and mitigating the potential effects of the Proposed Development on seascape, landscape and visual receptors?* – Yes, from the Scottish Borders Council Archaeology point of view.

Cultural Heritage (Chapter 7.6)

The Scottish Borders Local Development Plan 2016 is the local policy basis for the assessing development proposals, below the level of national Scottish Planning Policy and Historic Environment Policy for Scotland. The scope of the policy for archaeology (EP8) considers both Scheduled Monument, as well as other designated archaeological landscapes, as well as undesignated sites. This also notes that the council should also consider the acceptability of proposals upon sites and their settings.

There are many archaeological sites in the surroundings of this proposal, including those on land and also within the Scottish Borders. The coastal fringe of the Scottish Borders, and indeed the very coastal edge, has many archaeological monuments and it shown by the Zone of Theoretical Visibility that the proposed wind farm would be visible to them.

These sites include span much of the range of archaeological periods represented in the area. They include the likes of Iron Age fortification at Earns Heugh and Cockburnspath, as well as Medieval churches at St Helen's, Cockburnspath, and on Kirk Hill, St Abb's Head, as well as fortifications of Eyemouth Fort and Fast Castle. Whilst the wind farm may well be visible as a landscape (or more accurately seascape) feature at a distance, these sites do not have settings that include so far offshore – rather the views up to these sites from the sea or along the coast from other in similar positions (whether cliff top or along the cliffs) are their settings or where the very coastal edge higher ground than inland portions. It is with the impact to them through their landscape or seascape appreciation, such as in the appearance of any lighting of the turbines, rather than archaeological settings are noted above. The notes on the variable intensity of any navigation lights are noted.

There are, however, a few exceptions to this general rule, but at this stage it is unclear if the development of the wind farm would affect their settings. These sites are the 19th century St Abb's Head lighthouse on the very edge of the line of cliffs, as well as the slightly inland Drone Hill and Crosslaw Radar Station sites of the early and mid-20th century dates. These sites for both light and radio waves were specifically located at points to have a wide and clear vista for their work for others to note the light and therefore avoid the rocks, as well as for others to be detected. These sites are all of note for their historical significance, though none are designated as Scheduled Monuments as yet. For the St Abb's Head lighthouse the site more clearly locatable in the ZTV illustration Figure 7.15 and needs little specific location (Canmore ID 263053).

Of these, it would be useful if further information can be provided to assess if the wind farm would be clearly visible from Crosslaw to impact upon its appreciation as a Cold War monument. I myself have seen the distant coastline northwards for its appreciation of location for as wide a view of sight possible and the general communications crucial for the operation of a radar station from this site and notice the continuing interest in Cold War archaeological sites of many. (See for example

the recent publication by John Schofield et al. 2021 'Cold War: a Transnational Approach to a Global Heritage', *Post-Medieval Archaeology* 55(1), 39-58; <https://doi.org/10.1080/00794236.2021.1896211>). The site should be considered as a viewpoint (Canmore ID 158569) and alongside the A1107, at NT 82961 68735.

Answering the Scoping Questions to Consultees in this chapter (7.6.9);

- *Do you agree that the proposed cultural heritage study area is appropriate?* – Yes, from the Scottish Borders Council Archaeology Service point of view.
- *Do you agree with the proposed list of potential receptors (Table 7.13) or are there other assets where you consider there might be significant effects?* – The suggestion has been made for the Crosslaw Radar Station above, and it would be useful to consider the St Abb's Head itself (with Listed Building lighthouse, foghorn and lighthouse keeper's cottages) as well.
- *Do you agree that the impacts listed in Table 7.15 can be scoped out?* – Yes, from the Scottish Borders Council Archaeology Service point of view (though cultural heritage assets may arguably extend to offshore as well).
- *Do you agree with the proposed approach to baseline data gathering and impact assessment?* – yes, the Scoping Report, and the additional information sent to me direct (dealt with below), seems to do everything that I am expecting it to do.

Comments on the Marine Archaeology Technical Report and Outline Written Scheme of Investigation

I have further read and examined both of these documents supplied direct to me by Suzanne Gailey on 3 November 2021.

I am happy that the Marine Archaeology Technical Report has fully recorded and detailed the survey work carried out in 2019. This has detailed the numerous physical, potential and documentary recorded sites and anomalies within the area for the avoidance in the construction and the cabling associated with the wind farm. A series of archaeological exclusion zones are proposed and this is to be welcomed.

I would recommend that this report is archived with the Scottish Borders Historic Environment Record (HER) and the other HERs that cover the coastline adjacent to this proposed development. I have also examined the Outline Written Scheme of Investigation (WSI) and am content with that towards the protocol for the further recovery and recording of any archaeological information from the proposed construction and cable works. This has been outlined as a Protocol for Archaeological Discoveries and there is nothing that appears to be missing to me for this. This makes reference to the variety and significance, as well as the potential dangers, of the archaeological record in the area, and the reporting that will be further necessary should any discoveries made. Again, I would recommend that any reports of any fresh findings also be archived with the Scottish Borders HER and the other HERs that cover the coastline adjacent to this development.

Cultural Heritage Conclusions

In conclusion, I am content with the work that has been carried out thus far and the methods and locations of future work (with some possible additions) in order to assess whether the application would have any impact upon archaeological and historical sites within the coverage of the Scottish Borders Council remit and HER

Socio-Economic Impacts and Tourism

We welcome that specific impacts of the development on the established local rural businesses and tourism generally within the Scottish Borders is now to be covered in the Offshore Socio-Economic and Tourism Study area.

Infrastructure

Traffic and Transport

The following comments have been received from the Council Roads Planning Service:

This proposal is unlikely to have an impact on the road network within the Scottish Borders, however should the applicant be looking to utilise the road network within the Scottish Borders then a Transport Assessment will be required detailing all proposed trips along with swept path analysis for abnormal loads.

I trust that this is of assistance and if there are any queries please contact me.

Yours sincerely

Scott Shearer
Peripatetic Planning Officer

Lees E (Emma)

From: Shona Guinan <Shona.Guinan@rpsgroup.com>
Sent: 04 January 2022 09:57
To: Shona Guinan
Subject: RE: [OFFICIAL] RE: Berwick Bank Wind Farm - Marine Archaeology
Attachments: image006.png; image007.jpg

From: Elliott, Keith <Keith.Elliott@scotborders.gov.uk>
Sent: 21 December 2021 13:59
To: Suzanne Gailey <suzanne.gailey@rpsgroup.com>
Subject: RE: [OFFICIAL] RE: Berwick Bank Wind Farm - Marine Archaeology

CAUTION: This email originated from outside of RPS.

Dear Suzanne,

Yes (for me) it can be scoped out; the other documents indicate what there and how being avoided by the scheme, as well as if consented how anything archaeological encountered to be dealt with.

All the documents work in combination, hence my earlier reply, for any affects upon archaeological remains to be not significant for the next stages of application in my view.

Hope that helps,

Keith

A Keith Elliott
Archaeology Officer

Scottish Borders Council
Heritage and Design
Corporate Improvement and Economy
Council Headquarters
Newtown St Boswells
Scottish Borders
TD6 0SA

Email: Keith.Elliott@scotborders.gov.uk
Tel: 01835 824 000 ext 8886
Web: www.scotborders.gov.uk

Service e-mail: archaeology@scotborders.gov.uk

Web: <https://www.scotborders.gov.uk/info/20013/environment/603/archaeology/1>

[Web](#) | [Twitter](#) | [Facebook](#) | [Flickr](#) | [YouTube](#)

How are you playing [#yourpart](#) to help us keep the Borders thriving?

From: Suzanne Gailey <suzanne.gailey@rpsgroup.com>
Sent: 21 December 2021 13:30
To: Elliott, Keith <Keith.Elliott@scotborders.gov.uk>
Subject: RE: [OFFICIAL] RE: Berwick Bank Wind Farm - Marine Archaeology

Hi Keith,

Many thanks. To clarify on this basis am I right in assuming that you therefore agree that Marine Archaeology can be scoped out of the EIA in this instance?

Regards

Suzanne Gailey BA (Hons) MA MCIfA

Director Archaeology and Heritage

RPS | Consulting UK & Ireland

20 Farringdon Street

London, EC4A 4AB, United Kingdom

T +44 20 3691 0500

D +44 207 832 1488 M +[Redacted]

E suzanne.gailey@rpsgroup.com



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From: [Planning South East](#)
To: [MS Marine Renewables](#)
Cc: [Bamlett R \(Rebecca\)](#)
Subject: RE: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - SEPA ref 3149
Date: 04 November 2021 13:59:23
Attachments: [image001.png](#)
[FW Berwick Bank Offshore Wind Farm - Consultation on Request for Scoping Opinion - Response Required by 7 October 2020.msg](#)

PUBLIC

Emma,

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36
APPLICATION AND MARINE LICENCES FOR THE BERWICK BANK
OFFSHORE WIND FARM LOCATED 39.2 KILOMETRES EAST OF EAST
LOTHIAN**

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) (SCOTLAND) REGULATIONS 2017
REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) (SCOTLAND) REGULATIONS 2017
REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS
(ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007
SEPA Ref: 3149**

Thank you for consulting SEPA. We responded to request for scoping opinion for the Berwick Bank Offshore Wind Farm on the 16 September 2020 (see attachment). We understand that this is a re-consultation because of the addition of Marr Bank Wind Farm into the Berwick Bank project.

We confirm that SEPA has no site specific comments on the off-shore aspects of the project. We have been and are going to continue to respond to the East Lothian Council when consulted on any planning applications. However, as some aspect within our remit may be covered in the offshore report, please find below a summary of our standing advice.

Bathing Waters:

Any operation should be cross checked to see if the proposed site is in or adjacent to a designated bathing water (within 2 km). If so, ideally all physical operations should be done outwith the Bathing Water Season (1 June to 15 September) unless a strong case can be made as to why a particular operation would not present a risk to Bathing Waters. Please refer to the Bathing waters section of our website <https://www2.sepa.org.uk/bathingwaters/> for further guidance on the Bathing Waters Directive (2006/7/EC).

Pollution Prevention:

To prevent pollution and safeguard marine ecology interests it is vital that good working

practice is adopted and appropriate steps taken to prevent water pollution and minimise disturbance to sensitive receptors. SEPA recommends that measures need to be in place to contain and prevent construction and waste materials e.g. paint from falling from a structure into the water body beneath.

Disposal of dredged material:

Dredged material should be disposed of at an offshore sea disposal site and work should be carried out in line with best dredging practices. Material should be deposited on the beach below MHWS and allowed to disperse naturally. If any dredged material accumulates above MHWS, disposal operations must cease until the material has dispersed.

Sediment Plumes:

Where appropriate, measures should be put in place to minimise the release of sediment plumes.

Works on-shore & restoration:

The applicant should refer to the appropriate sections in the Guidance for Pollution Prevention (GPPs) and CIRIA Guidance, in particular, Coastal and Marine Environmental Site Guide (C584), 2003, to ensure that disturbance to the shoreline is minimised and the shore restored to as near its former condition following the works as reasonably possible on completion of the works.

Where appropriate, any rubbish materials should be removed and disposed of at a licensed onshore site.

The developer is reminded to comply with all relevant environmental legislation and to check our website at <https://www.sepa.org.uk/regulations/> and contact SEPA via the online form with any site specific issues. The applicant should consider if waste deposition could constitute landfill and should therefore be subject to authorisation under PPC.

Please ensure that conditions cover decommissioning where appropriate and the removal of all devices and as much of the support infrastructure is removed and all waste materials are removed and reused, recycled or disposed of at a licensed onshore site.

Please also refer to [SEPA Guidance LUPS-GU13](#) - SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations.

Please do not hesitate to contact me should you require any clarification in relation to this response

Regards

Silvia

Silvia Cagnoni
Senior Planning Officer
Scottish Environment Protection Agency
e: planning.se@sepa.org.uk
[Redacted]

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Dh'fhaodadh gum bi am fiosrachadh sa phost-d seo agus ceanglachan sam bith a tha na chois diomhair, agus cha bu chòir am fiosrachadh a bhith air a chleachdadh le neach sam bith ach an luchd-faighinn a bha còir am fiosrachadh fhaighinn. Chan fhaod neach sam bith eile cothrom fhaighinn air an fhiosrachadh a tha sa phost-d no a tha an cois a' phuist-d, chan fhaod iad lethbhreac a dhèanamh dheth no a chleachdadh arithist.

Mura h-ann dhuibhse a tha am post-d seo, feuch gun inns sibh dhuinn sa bhad le bhith cur post-d gu postmaster@sepa.org.uk.

Oifis chlàraichte: Taigh Srath Alain, Pàirc Gnothachais a' Chaisteil, Sruighlea FK9 4TZ. Fo Achd Riaghladh nan Cumhachdan Rannsachaidh 2000, dh'fhaodadh gun tèid an siostam puist-d aig SEPA a sgrùdadh bho àm gu àm.



Our Ref: MM/ 21/11

Your Ref:

20th November 2021

E-mail:

Scottish Fishermen's Federation
24 Rubislaw Terrace
Aberdeen, AB10 1XE
Scotland UK

T: +44 (0) 1224 646944
F: +44 (0) 1224 647078
E: sff@sff.co.uk

www.sff.co.uk

Dear

Berwick Bank Pre Application Consultation/ Scoping

The Scottish Fishermen's Federation (SFF) is pleased to respond to this PAC/Scoping on behalf of the 450 plus fishing vessels in membership of its constituent associations, The Anglo Scottish Fishermen's Association, Fife Fishermen's Association. Fishing Vessel Agents and Owners Association, Mallaig & North West Fishermen's Association, Orkney Fisheries Association, Scottish Pelagic Fishermen's Association, the Scottish White Fish Producer's Association and Shetland Fishermen's Association.

The SFF notes that the Executive Summary (ES) has not one, out of thirteen, material benefits of the restructuring of Berwick & Marr into one farm, which is specifically relevant to commercial fisheries. This would appear to be in contravention of the following policies from Scotland's National Marine Plan.

General Policy (GEN) 2 Economic benefit: Sustainable development and use which provides economic benefit to Scottish communities is encouraged when consistent with the objectives and policies of this Plan.

GEN 3 Social benefit: Sustainable development and use which provides social benefits is encouraged when consistent with the objectives and policies of this Plan.

GEN 4 Co-existence: Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision making processes, when consistent with policies and objectives of this Plan.

GEN 9 Natural heritage: Development and use of the marine environment must Protect and, where appropriate, enhance the health of the marine area.

GEN 17 Fairness: All marine interests will be treated with fairness and in a transparent manner when decisions are being made in the marine environment.

GEN 19 Sound evidence: Decision making in the marine environment will be based on sound scientific and socio-economic evidence.

And also the specific policies in the SNMP which refer to the protection of fishing wherever possible.

The SFF is concerned about the fourth para in the ES, which is not clear about grid connection and export cables. It is known that there is a connection for the project in the Torness area, but it is only for 2.1GW, which is way short of the required capacity. This will inevitably result in a variation application, increasing the work that stakeholders have to put in to the development applications. The SFF believes that this application of the Rochdale envelope whilst giving a bit of free scope for developers is an added burden on stakeholders.

Page 2, para 23, on the possible repowering of the farm after 35 years, adds another dimension to the problem of displacement of commercial fisheries, so should be assessed on the basis of 70years loss of access.

Page 13, para 2.3.9.110 & 112, is not acceptable to the SFF, our experience with the whole subject of cable installation, both inter-array and export, leads us to believe this should be assessed and agreed pre-application.

Page 14, listing the measures designed in, for the project, the following lines are of great concern to the SFF; Development and adherence to a Cable Plan (CaP); Development of, and adherence to, a Decommissioning Plan; Development of, and adherence to, a Vessel Management Plan (VMP); Development of, and adherence to, Ongoing consultation with the fishing industry and appointment of a Fisheries Liaison Officer (FLO); Development of a Fisheries Management and Mitigation Strategy (FMMS); Development of a Fisheries Management and Mitigation Strategy (FMMS); Adherence to good practice guidance with regards to fisheries liaison (e.g. FLOWW, 2014;2015); Timely and efficient distribution of Notice to Mariners (NtM), Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development; Use of guard vessels and Offshore Fisheries Liaison Officers (OFLOs), as appropriate; Implementation Navigational Safety Plan (NSP); Undertaking of post-lay and cable burial inspection surveys and monitoring, Participation in the Forth and Tay Commercial Fisheries Working Group (FTCFWG) and liaison with Fisheries Industry Representatives (FIRs), as appropriate; The use of locally manufactured content where possible and appropriate; The use of local contractors (where possible) during construction for onshore infrastructure and potential offshore construction work where possible and appropriate; Employment and training possibilities for local people on the operation and maintenance of a wind farm where feasible; Supporting the community through sponsorship of local groups and teams.

All of these make the right statements, but our experience with developments serves to strengthen our belief that these all need to be discussed and agreed with the fishing industry before the farm gets licenced. The final topic "supporting the community" is not aligned with ScotGov advice on Community Benefit and if more explanation, on any of these points is required, happy to discuss.

Page 22, para 169 only includes SFF as engaged, but should also note Scottish White Fish Producers Assoc, Anglo-Scottish FMA, Pittenweem FMA, St Andrews FMA and the Arbroath FMA along with the appropriate FIR for the area.

Page 22, para 182, as ever the SFF disputes the matrix design, as it does not properly consider the impact on individual fishing businesses, which is in contravention of SNMP as per the list in the second paragraph of this response.

Scoping Questions (Answers only where needed)

• **Do you agree with the suggested designed in measures and is this mitigation appropriate?**

The designed in measures, are as much of a problem as a mitigation.

Scour Protection; introduces new material to the environment which will make it difficult to restore the seabed post decommissioning.

Monitoring the protection during O&M; Should define the construction phase too, also needs to define what actions are followed up.

Adherence to a Cable Plan; at this stage in the project it is impossible to say this. Recent experience in this area shows that after 10 years of surveys the plan is a guesstimate.

• **Do you agree that transboundary impacts of marine physical processes receptors should be scoped out of the Proposed Development EIA.**

No, given the huge amount of seabed in this region being allocated for development, trans boundary impacts are almost inevitable so should be scoped in.

• **Do you agreement with approach to transboundary assessment?**

The SFF is not comfortable with the reliance on desk top studies and modelling. The developer should take the opportunity to add knowledge and data on these matters for the common good.

Page 35, para 5.2.5.24, if there is not enough evidence available this is another opportunity for the developer to add knowledge and data. At this stage in the evolution of the renewables industry, every opportunity to learn should be taken.

• **Do you agree that all potential impacts (Table 6.3) have been identified for benthic subtidal and intertidal ecology?** The impacts identified are good, but the assessment and modelling assumptions are poor. If it does not exist, develop the science. The subject of EMF in particular must be addressed as research is beginning to show negative impacts from the cable EMF.

• **Do you agree that the impacts described in Table 6.4 can be scoped out of the benthic subtidal and intertidal ecology EIA section?** Happy with that.

• **Do you agree that the existing desktop data on fish and shellfish resources in the fish and shellfish study area is sufficient to characterise the fish and shellfish baseline?** No, it is very difficult to simply define everything from stats, the project FLO/FIR relationship should be utilised to access stakeholder knowledge.

• **Do you agree that all potential impacts (Table 6.5) have been identified for fish and shellfish ecology?** Impact 3, given the predominance of scallops in the area, really needs to be checking that spawning will not be affected. Impact 5, needs to be cognisant of recent science which appears to show that EMF is impacting on crustacean breeding behaviour, which is probably more important than the predator/prey link. Impact 6 needs to ensure it covers the life cycle of the colonisers, as studies in Belgium seem to show that this can have an unhealthy side effect.

Page 63, para 6.2.9.164, The fishing industry sees a great need for strategic monitoring of fish and shellfish, in order to properly assess the full impact of the farm on the commercial fishing industry.

Page 90, para 7.1.4.311, should include EMF in the O&M section. As per SNMP, the socio-economic impacts on the fishing industry need to be considered, including the supply chain serving the industry.

Finally, the SFF would point out that, as per Appendix 5, table 5.1, the project presented to NS & MS LOT in December 2019, but first contact with fishing did not take place until December 2020. We would contend that does not meet the definition of “early and open engagement” as defined in the SNMP **GEN 18 Engagement**: Early and effective engagement should be undertaken with the general public and all interested stakeholders to facilitate planning and consenting processes.

Yours sincerely MM

Emma Lees
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Your ref:
Marine

Our ref:
GB01T19K05

Date:
19/11/2021

ms.marinerenewables@gov.scot

Dear Sirs,

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT)
(SCOTLAND) REGULATIONS 2017**

**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) (SCOTLAND) REGULATIONS 2017**

**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT
ASSESSMENT) REGULATIONS 2007**

**SCOPING OPINION FOR PROPOSED SECTION 36 APPLICATION AND MARINE LICENCES
FOR THE BERWICK BANK OFFSHORE WIND FARM**

With reference to your recent correspondence on the above development, we acknowledge receipt of the Offshore EIA Scoping Report (SR) dated October 2021 and prepared by RPS in support of the above development.

This information has been passed to SYSTRA Limited for review in their capacity as Term Consultant to Transport Scotland – Roads Directorate. Based on the review undertaken, we would provide the following comments.

Proposed Development

The proposed Berwick Bank offshore wind farm will comprise up to 307 wind turbines with a maximum rotor blade diameter of up to 310m, a maximum blade tip height of 355m above lowest astronomical tide ("LAT") and a minimum blade tip of 37m above LAT. The site is located in the outer Firth of Forth and Firth of Tay, 33.5km east of St Abb's Head. We note that the export cables which form part of the Proposed Development will make landfall on the East Lothian coast, specifically at Thorntonloch or at Skateraw. The nearest trunk road to the proposed development is the A1(T) at Thorntonloch/ Skateraw.

Assessment of Environmental Impacts

We note that the SR relates solely to the offshore elements of the proposed development. We also note that Figure 1.3 of the SR indicates that Traffic and Transport will be dealt with within an Onshore EIA Report.

Transport Scotland would state at this stage that we have no comment to make on the offshore elements of the proposal, however, the following should be noted:

It is not clear whether the construction materials, components of the turbines and the foundation materials will travel to site by road or sea. Transport Scotland would, therefore, request confirmation of the potential impact of any increase in HGV traffic on the trunk road network if it is to be used in relation to the construction of the development. Potential trunk road related environmental impacts such as driver delay, pedestrian amenity, severance, safety etc will require to be considered and assessed where appropriate (i.e. where Institute of Environmental Management and Assessment Guidelines for further assessment are breached). These specify that road links should be taken forward for assessment if:

- Traffic flows will increase by more than 30%, or
- The number of HGVs will increase by more than 30%, or
- Traffic flows will increase by 10% or more in sensitive areas.

In the case of the EIA report, the methods adopted to assess the likely traffic and transportation impacts on traffic flows and transportation infrastructure, should comprise:

- Determination of the baseline traffic and transportation conditions, and the sensitivity of the site and existence of any receptors likely to be affected in proximity of the trunk road network;
- Review of the development proposals to determine the predicted construction and operational requirements; and
- Assessment of the significance of predicted impacts from these transport requirements, taking into account impact magnitude (before and after mitigation) and baseline environmental sensitivity.

Where significant changes in traffic are not noted for any link, no further assessment needs to be undertaken.

Abnormal Loads Assessment

No indication is given as to whether the construction phase of the development will involve the use of abnormal load vehicles on the trunk road network or whether materials will all be shipped in and out by sea. In the event that there are Abnormal Loads to be transported, Transport Scotland will require to be satisfied that the size of turbines proposed can negotiate the selected route and that transportation will not have any detrimental effect on structures within the trunk road route path.

If necessary, a full Abnormal Loads Assessment report should be provided with the Environmental Impact Assessment (EIA) that identifies key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.

I trust that the above is satisfactory and should you wish to discuss any issues raised in greater detail, please do not hesitate to contact Alan DeVenny at SYSTRA's Glasgow Office, on 0141 343 9636.

Yours faithfully
[Redacted]

Gerard McPhillips

**Transport Scotland
Roads Directorate**

cc Alan DeVenny – SYSTRA Ltd.

17 November 2021

Emma Lees
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

By email: ms.marinerenewables@gov.scot

Dear Emma

Berwick Bank Offshore Wind Farm (revised design)

Thank you for giving VisitScotland the opportunity to comment on the above wind farm development.

Our response focuses on the crucial importance of tourism to Scotland's local and national economy, and of the natural landscape for visitors.

Background Information

VisitScotland, as Scotland's National Tourism Organisation, has a strategic role to develop Scottish tourism in order to get the maximum economic benefit for the country. It exists to support the development of the tourism industry in Scotland and to market Scotland as a quality destination.

While VisitScotland understands and appreciates the importance of renewable energy, tourism is crucial to Scotland's economic and cultural well-being. It sustains a great diversity of businesses throughout the country. According to a recent independent report by Deloitte, tourism generates £11 billion for the economy and employs over 200,000 - 9% of the Scottish workforce. Tourism provides jobs in the private sector and stimulates the regeneration of urban and rural areas.

One of the Scottish Government and VisitScotland's key ambitions is to grow tourism revenues and make Scotland one of the world's foremost tourist destinations. This ambition is now common currency in both public and private sectors in Scotland, and the expectations of businesses on the ground have been raised as to how they might contribute to and benefit from such growth.

Importance of scenery to tourism

Scenery and the natural environment have become the two most important factors for visitors in recent years when choosing a holiday location.

The importance of this element to tourism in Scotland cannot be underestimated. The character and visual amenity value of Scotland's landscapes is a key driver of our tourism product: a large majority of visitors to Scotland come because of the landscape, scenery and the wider environment, which supports important visitor activities such as walking, cycling, wildlife watching and visiting historic sites.

The VisitScotland Visitor Experience Survey (2015/16) confirms the basis of this argument with its ranking of the key factors influencing visitors when choosing Scotland as a holiday location. In this

study, over half of visitors rated scenery and the natural environment as the main reason for visiting Scotland. Full details of the Visitor Experience Survey can be found on the organisation's corporate website, here: <https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers/scotland-visitor-survey-2015-16-full.pdf>

Taking tourism considerations into account

We would suggest that full consideration is also given to the Scottish Government's 2008 research on the impact of wind farms on tourism. In its report, you can find recommendations for planning authorities which could help to minimise any negative effects of wind farms on the tourism industry. The report also highlights a request, as part of the planning process, to provide a tourism impact statement as part of the Environmental Impact Analysis. Planning authorities should also consider the following factors to ensure that any adverse local impacts on tourism are minimised:

- The number of tourists travelling past en route elsewhere
- The views from accommodation in the area
- The relative scale of tourism impact i.e. local and national
- The potential positives associated with the development
- The views of tourist organisations, i.e. local tourist businesses

The full study can be found at www.scotland.gov.uk/Publications/2008/03/07113507/1

Conclusion

Given the aforementioned importance of Scottish tourism to the economy, and of Scotland's landscape in attracting visitors to Scotland, VisitScotland would strongly recommend any potential detrimental impact of the proposed development on tourism - whether visually, environmentally and economically - be identified and considered in full. This includes when taking decisions over turbine height and number.

VisitScotland strongly agrees with the advice of the Scottish Government –the importance of tourism impact statements should not be diminished, and that, for each site considered, an independent tourism impact assessment should be carried out. This assessment should be geographically sensitive and should consider the potential impact on any tourism offerings in the vicinity.

VisitScotland would also urge consideration of the specific concerns raised above relating to the impact any perceived proliferation of developments may have on the local tourism industry, and therefore the local economy.

I hope this response is helpful to you.

Yours sincerely

Beth Thoms

Government & Parliamentary Affairs
VisitScotland

From: [Fiona Read](#)
To: [MS Marine Renewables](#)
Cc: [Bamlett R \(Rebecca\)](#)
Subject: RE: Berwick Bank Offshore Wind Farm (revised design) - Consultation on Request for Scoping Opinion - Response Required by 20 November 2021 - Appendix 14 now available
Date: 08 November 2021 11:38:03
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)

Dear Emma,

Thank you for including WDC in the present consultation, due to limited capacity we will not be responding to the consultation.

Best wishes,

Fiona

Fiona Read

Policy officer

End Bycatch

WDC, Whale and Dolphin Conservation

[Redacted]

whales.org

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