Cambois Connection – Marine Scheme

Environmental Statement – Volume 3

Appendix 3.3: MMO Scoping Opinion

sse Renewables

Revision Information

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Marine Management Organisation

Scoping Opinion

Marine Works (Environmental Impact Assessment) Regulations 2007 ("the Regulations")

Title: Berwick Bank Cambois Connection - Marine Scheme

Applicant: SSE Renewables Limited – Berwick Bank Wind Farm Ltd

MMO Reference: EIA/2022/00043

Contents

1 Proposal

The proposed project is for the development of offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at Cambois in Northumberland (the 'Cambois Connection' / 'the Project').

The purpose of this infrastructure is to facilitate the export of green energy from the (separately consented) generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth.

1.1 Project Background

Marine Scheme: The Applicant is proposing the installation of offshore export cables from within the BBWF array area to a proposed landfall location near Cambois, Northumberland.

Onshore Scheme: The Applicant is proposing the installation of a onshore High Voltage Direct Current (HVDC) export cables, an onshore converter station, High Voltage Alternating Current (HVAC) grid cables and works to integrate into the existing National Grid substation at Blyth. This includes all aspects of the Onshore Scheme, down to the seaward-extent of the landfall point at Mean Low Water Springs (MLWS) (there is a necessary level of overlap between the two schemes within the intertidal area).

2 Location

The Berwick Bank Cambois Connection - Marine Scheme is located between the village of Cambois, Northumberland running through the North Sea towards Berwick Bank Wind Farm, located in the outer Firth of Forth which is displayed in Figure 1 below.

Figure 1: Location of proposed works (red polygon)

3 Environmental Impact Assessment (EIA)

The Marine Works (Environmental Impact Assessment) Regulations 2007 ("the Regulations") transposed Council Directive 2011/92/EU (as amended) into UK law for marine licence applications. The regulations aim to protect the environment and the quality of life by ensuring that projects which are likely to have significant environmental effects by virtue of their nature, size or location are subject to an EIA before permission is granted.

Pursuant to regulation 5 of the Regulations, it was agreed between the MMO and SSE Renewables Limited that the proposed works constitute an EIA development under Schedule A2, paragraph 21 of the Regulations, specifically:

Schedule A2 paragraph 21:'Installations for the harnessing of wind power for energy production (wind farms)' of The Marine Works EIA Regulations 2007 ("the Regulations").

Therefore, the application required for the proposed works for a marine licence under Part 4 of the Marine and Coastal Access Act 2009 ("the Act") will be accompanied by an Environmental Statement ("ES").

4 Scoping Opinion

Pursuant of regulation 13 of the Regulations, SSE Renewables Limited have requested a Scoping Opinion from the MMO. In so doing a Scoping Report entitled Cambois Connection - Marine Scheme has been submitted to the MMO for review.

The MMO agrees with the topics outlined in the Scoping Report and in addition, we outline that the following aspects be considered further during the EIA and must be included in any resulting Environmental Statement.

4.1 Conservation of Habitats and Species Regulations 2017

Northumbria Coast SPA and Northumbria Coast RAMSAR

4.1.1 The ES should thoroughly assess the potential for the proposal to affect designated sites. Internationally designated sites (e.g. designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA)) fall within the scope of the Conservation of Habitats and Species Regulations 2017 (as amended). In addition paragraph 181 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites.

4.1.2 Full justification is required for any rock, concrete or other protection to cables where burial is not possible. These justifications should clearly set out what other methods have been considered to reduce protection and why these are deemed unsatisfactory. Disturbance and displacement of seabirds and coastal shorebirds will need careful consideration. Similarly, these birds' supporting habitats will require thorough assessment. The coast at Cambois includes intertidal sand and sand dunes. There has been erosion of this area in the recent past and we advise that the impacts of increased storm events and sea level rise are considered within the ES.

4.2 Other Nature Conservation

Coquet to St Marys MCZ
Berwick to St Mary's MCZ
Farnes East MCZ
Northeast of Farnes Deep HPMA

4.2.1. Marine Conservation Zones - Marine Conservation Zones are areas that protect a range of nationally important, rare or threatened habitats and species. You can see where MCZs are located and their special interest features on https://magic.defra.gov.uk/. Factsheets that establish the purpose of designation and conservation objectives for each of the MCZ's are available at https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-England

4.2.2 The proposed cable routes of the development are within or in proximity to the following Marine Conservation Zones and Highly Protected Marine Area:

- Farnes East MCZ
- Coquet to St Mary's MCZ
- Berwick to St Mary's MCZ
- Northeast of Farnes Deep HPMA

4.2.3 The ES should consider including information on the impacts of this development on MCZ interest features, to inform the assessment of impacts on habitats and species of principle importance for this location. Further information on MCZs is available via the following link: http://publications.naturalengland.org.uk/category/1723382

4.2.4 Further information on the special interest features, the conservation objectives, and relevant conservation advice packages for designated sites is available on Natural England's website: https://designatedsites.naturalengland.org.uk/

Conservation Advice for Farnes East MCZ can be found on the JNCC website here:
https://jncc.gov.uk/our-work/farnes-east-mpa/

4.2.2 Cresswell and Newbiggin Shores SSSI and Northumberland Shore SSSI. Further information on the location of SSSIs and their special interest features can be found at https://magic.defra.gov.uk/

4.2.3 The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within the site listed below and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

4.3 Benthic Ecology

4.3.1 The data sources identified in section 8.4 of the scoping report appear sufficient to inform the Preliminary Environmental Information Report (PEIR) and ES. The potential impacts from the project have been identified and presented in Table 8-1 of the scoping report and The MMO recommend that Table 8.1 is amended to include relevant information in the Assessment Method column for the potential impact to the benthic assemblage "*increases suspended sediment concentrations and associated deposition*" at the Operation and Maintenance phase of the project.

4.3.2 The MMO welcome that impact assessments of nearby OWFs will be reviewed and site-specific benthic surveys comprising sediment sampling (infauna and particle size distribution analysis), seabed imagery (drop down video) and intertidal walkover surveys will be conducted to contribute to the baseline understanding for benthic ecology.

4.3.3 The MMO recommend you consider consulting the OneBenthic database to source additional datapoints (e.g., benthic grabs located within the cable export corridor) that may assist in the overall benthic characterisation.

4.3.4 The impacts listed in Table 8-1 of the scoping report include several that have been scoped out at each stage of the development (i.e., construction, operation and maintenance, and decommissioning) in addition to those that remain scoped in. Those scoped out include impacts on the benthic assemblage because of noise, the potential introduction of Invasive Non-Native Species (INNS), the accidental release of pollutants and Electronic Magnetic Fields (EMF).

4.3.5 The MMO agree with the rationale provided for impacts that have been scoped out. However, although impacts from the introduction of INNS have been scoped out at this stage, you recognise that cable protection is expected to be colonised by a variety of marine organisms. The MMO recommend that consideration is given to the potential colonisation of cable protection by INNS, particularly if the amount of cable protection required is extensive and provides habitat that is otherwise not widespread.

4.3.6 The scoping report states that "*Benthic subtidal and intertidal ecology surveys will be undertaken to collect site specific data*". While there are no specific methods proposed to collect the information required within the scoping report, these details must be provided to the Marine Management Organisation in advance of survey operations for consultation.

4.3.7 The MMO recommend that detailed survey methods, including sample locations, are selected carefully to ensure the feature of interest can be robustly assessed. For example, the seabed imagery technique(s) proposed to assess the presence and extent of the protected features (such as Annex I reef and *Arctica islandica*) within the Farnes East Marine Conservation Zone (MCZ) should facilitate accurate identification and enumeration.

4.3.8 It is unclear what the Assessment Method for the potential impact of "*increases suspended sediment concentrations and associated deposition*" at the Operation and Maintenance phase of the project refers to in Table 8.1 of the scoping report . The text included in the Assessment Method column discusses primary productivity and chemical concentrations rather than providing an assessment of the sensitivity of the benthic assemblage to the impact presented. This appears to be a repeat of the text used for the potential impact "*Increased SSC and associated deposition (including mobilisation of potential contaminants)*" at the Construction and Decommissioning phase of the development in the same table. The MMO recommend that this text is reviewed and the appropriate Assessment Method is included.

4.3.9 The scoping report states, "*it is not possible to provide and exhaustive list of topic-specific mitigation measures*". As such, you commit to several overarching mitigation measures such as;

- minimising the amount of scour protection as far as possible,
- micro-routeing within the export cable corridor,
- development and adherence to detailed environmental management plans (e.g., Marine Pollution Contingency and Control Plan and INNS management plan and,
- development and adherence to an Ecological Clerk of Works during landfall works.

Furthermore, a more detailed description of the mitigation measures will be provided in the Environmental Impact Assessment.

4.3.10 The Farnes East MCZ overlaps partly with the proposed export cable corridor. The MMO recommend that you consider the option to avoid installing cables within the Farnes East MCZ by routing the export cable within the scoping area, yet outside of the Farnes East MCZ.

4.4 Coastal Processes

4.4.1 The only activity scoped out in Table 6.2 is scour, the reason given being that there is limited potential due to widespread burial and the application of mitigation. The MMO consider that mitigation (rock dumping) also leads to secondary scour (in the case of a cable, the dumped rock presents a larger obstruction to flow and so increases the likely scale of scour) so this impact should be calculated and quantified, especially within any designated areas – this is part and parcel of the loss or damage to the seabed and the affected area should be adequately quantified. This is a relatively simple and quick calculation for a desktop assessment and is of particular importance for accurately assessing cumulative impacts.

4.4.2 The proposed methods (for all impact assessments) are described as 'desktop assessment' i.e., no numerical modelling. The MMO consider this appropriate for a cable impacts study, but the exact methods (i.e., what desktop studies, which methods, formulae etc,) are not given and so cannot be assessed at this time.

4.4.2 In particular, for the impact “changes to the landfall morphology”, given the potential to increase environmental despoliation at the eroding landfall site as described in Section 6.5.2, it may become appropriate to conduct a local modelling study for the worst case proposed (cofferdam installation).

4.4.3 As outlined in Section 6.6, the principal mitigation for offshore impacts is cable burial for avoidance of scour (which itself leads to direct sediment and seabed disturbance over a similar area), and the placement of rock protection where burial is not possible or at cable crossings, in turn leading to downstream physical process changes over a similar extent. Thus, mitigation (for largely engineering concerns) creates further impacts at comparable scale and so these should be fully assessed in the EIA.

4.4.4 Section 6.3 defines the study areas as the tidal excursion (4km) rounded up to 10km – this more than doubling appears adequate but the assessment should also be responsive to any evidence that impacts extend beyond this. This would be of particular importance for accurately assessing cumulative impacts.

4.5 Seascape / Landscape

4.5.1 The MMO recommend that details of local landscape character areas mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The ES should include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography.

4.5.2 The ES should include a full assessment of the potential impacts of the development on local landscape character using this link: https://www.gov.uk/guidance/landscape-and-seascape-character-assessments

4.5.3 The MMO encourage the use of Landscape and Seascape Character Assessment (LCA/SCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA/SCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.

4.5.4 The MMO support the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

4.5.5 In order to foster high quality development that respects, maintains, or enhances, local landscape / seascape character and distinctiveness, The MMO encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The EIA process

should detail the measures to be taken to ensure the project design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.

4.5.6 The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context The MMO advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application. The assessment should refer to the relevant National Character Areas which can be found here: http://www.naturalengland.org.uk/publications/nca/default.aspx. Links for Landscape / Seascape Character Assessment at a local level are also available on the same page.

4.6 Fish Ecology and Fisheries

4.6.1 Appropriate data sources have been used to inform the fish ecology baseline, as indicated in Section 9.4 of the report . You have identified the key marine and migratory fish receptors of commercial and ecological importance within the vicinity of the works and identified relevant species that may be vulnerable to the impacts arising from the proposed works.

4.6.2 The scoping report has identified that the cable route overlaps sandeel (*Ammodytidae*) habitat and Atlantic herring (*Clupea harengus*) spawning grounds (as per Coull *et al*., 1998) and Ellis *et al.,* 2012) Therefore, in addition to the data sources outlined in Section 9.4, I recommend that you follow the methodology described in MarineSpace (2013a and 2013b) to determine potential spawning habitat suitability for sandeel and herring respectively. The MarineSpace method assigns confidence levels to a suite of data to provide 'heat maps' indicating suitable spawning grounds and habitat. I note that particle size analysis (PSA) data acquired during benthic surveys of the cable route will be used to inform the herring and sandeel habitat assessments. The PSA data should be included for use when following the MarineSpace methodologies. For the assessment of potential herring spawning habitat, you should use the latest 10 years of International Herring Larvae Survey (IHLS) data. IHLS data is available to download from the International Council for the Exploration of the Sea (ICES) website; Eggs and larvae (ices.dk)

4.6.3 The MMO are satisfied that all impacts that have potential to cause adverse effects to fish receptors as a result of the proposed works have been identified. Impacts are as follows:

- Temporary habitat and species disturbance or loss.
- Temporary increases in suspended sediment concentrations (SSC) and associated sediment deposition and potential release of contaminants.
- Underwater noise.
- Accidental release of pollutants.

- Pre-installation surveys including - Geophysical/ Geotechnical/ Archaeological surveys.
- EMF effects.
- Long-term habitat loss and disturbance.
- Thermal emissions from operational cables.
- Accidental release of pollutants.

4.6.4 You have scoped out the impacts of underwater noise on fish however, there is still potential for behavioural disturbance to fishes, particularly during their spawning periods as a result of underwater noise. This is of particular relevance to herring and cod which have a swim bladder involved in hearing and are vulnerable to noise disturbances (Popper *et al.,* 2014). In addition, herring are benthic spawners that rely on a specific substrate on which to lay their eggs, hence if noise disturbance causes the fish to 'flee' the area, then there may not be suitable alternative spawning grounds nearby. Furthermore, as the cable passes through herring spawning grounds, there is potential for in-combination and cumulative adverse effects to occur as a result of noise disturbance and disturbance to spawning habitat if works are carried out during the herring spawning season. The Banks[1] herring population spawn off the north-east coast of England between August and October (inclusive). For these reasons, the MMO recommend that the effects of underwater noise are scoped into the EIA.

4.6.5 There is potential for unexploded ordnance (UXO) (Section 3.4 & 14.5; point 5) to be present along the cable route. Therefore, there is a potential for significant adverse impacts to occur to fish should UXO clearance / detonation be required. The MMO recognise that UXO clearance works will fall under a separate marine licence and do not form part of this consultation. In the event that UXO clearance works are required along the cable route the MMO advise that Cefas fisheries advisors are consulted through the MMO. Detailed UXO surveying results should also be provided as part of the initial UXO licence application documentation.

4.6.6 You have has scoped out pre-installation surveys (geophysical/geotechnical) from your impact assessment. Some of the surveys you are expecte to carry out include; multi-beam echo sounder (MBES), side-scan sonar, drop-down video (DDV), remotely operated vehicle (ROV)/diver based surveys, magnetometer surveys, grab sampling and core surveys. Given the short duration and limited scale of impact for these activities, the MMO agree that pre-installation surveys can be scoped out.

4.6.7 You have scoped out thermal emissions from operational cables from the impact assessment. You acknowledge that buried cables can increase sediment temperatures by 2.5°C but concludes that significant impacts to fish are unlikely to occur. The MMO recommend that thermal emissions from operational cables are scoped into the assessment for herring and sandeel specifically. Herring are benthic spawners that lay their eggs on gravel substrate. The newly hatched larvae also remain close to the seabed during their yolk absorption period. The duration of egg development and yolk absorption in herring is temperature dependant (see Tables 1 and 2), therefore changes in sediment temperature have

the potential to affect egg and larval development. Sandeels spawn, burrow and hibernate in the sandy sediments. They hibernate during winter months and spawn on the sediment between November to February (inclusive). Sandeel productivity is understood to be affected by temperature in multiple life stages including during their reproductive cycle (Wright *et al*., 2017a, 2017b) and during their egg development (Regnier *et al*., 2018). Accordingly, if seabed sediment temperatures alter beyond natural levels, the environmental conditions that herring and sandeel rely upon for their natural ecology (synchronised spawning/feeding/burrowing behaviour) may also be altered, with potential to cause adverse effects to individuals located above or near to export cables.

Typical durations of egg and larval development in Atlantic herring (from Russell, 1976):

Table 1 Egg development periods

Average temperature	Days
12 - 13° C	7-9
10 - 11° C	10-12
7 - 8° C	14-18
3 -4° C	49

Table 2 Yolk absorption periods

Average temperature	Days
12.8° C	3 & 9
12.0° C	5 & 14
10.7° C	7 & 16
10.3° C	7 & 20

4.6.8 You have scoped in ‘temporary habitat and species disturbance or loss’ into the assessment which is appropriate. You have stated that PSA data acquired during benthic surveys of the cable route will be used to inform the herring spawning habitat and sandeel habitat assessments. These assessments will be integral in identifying any overlaps of the cable route with herring spawning habitat and sandeel habitat, as well as any overlaps in the timing of seabed preparation and cable installation activities with herring and sandeel spawning and hibernation periods.

4.6.9 You have stated that “Given the limited potential for significant fish spawning grounds along the offshore export cable route and the localised nature and small scale of direct seabed disturbance the potential for significant impacts to occur is unlikely.” However, at this stage it is premature to make this assumption as an appropriate assessment to determine the extent and intensity of herring spawning habitat and sandeel habitat has not yet been undertaken. Nor has the timing of seabed preparation and cable installation activities been considered in relation to herring and sandeel spawning and hibernation periods. The likelihood of significant impacts occurring should be determined on the outcomes of the EIA.

4.6.10 The MMO agree with your decision to scope in impacts resulting from increases in suspended sediment concentrations (SSC)and associated deposition. You recognise that SSC has potential to cause significant impacts to fish within the area and more specifically for benthic/seabed dependent species (e.g., for herring spawning).

4.6.11 You have scoped in the effects of electro-magnetic fields (EMF) as a potential impact to electro-sensitive fish receptors, which the MMO agree is appropriate.

You have cited a recent paper by Hutchison *et al.* (2020a) which considers the effects of EMF on benthic dwelling marine species. The MMO direct you to additional papers by Hutchison *et al.* (2020b, 2021) that may also be useful to inform the assessment of EMF. In accordance with the National Policy Statement for Renewable Energy Infrastructure (EN-3) (Dept. of Energy & Climate Change, 2011) Cefas fisheries advisors recommend minimising the potential effects of EMF (and sediment heating) by laying cables to a depth of greater than 1.5m. The effects of EMF on sensitive species e.g., elasmobranchs may be mitigated by adopting this recommendation by increasing the distance between the EMF and the receptor. We recognise that this may be subject to local seabed geology and other receptors in the area.

4.6.12 You have scoped in long-term habitat loss and disturbances into the assessment. This potential impact should be scoped in, however, unless you are confident that you will remove all cable protection materials (e.g., rock berms, mattresses etc) after the projects lifetime then you should assess this habitat loss as permanent, rather than long-term.

4.6.13 You have scoped in a series of impacts to the assessment that have potential to cause adverse effects to commercial fisheries within the area. Impacts are as follows:

- Temporary loss, displacement or restricted access to fishing grounds due to presence of vessels and safety zones during route preparation activities.
- Temporary loss, displacement or restricted access to fishing grounds due to presence of vessels and safety zones during construction.
- Interference with fishing activity as a result of increased vessel traffic, including potential increases to steaming times.
- Potential for fishing gear to become entangled with cable (i.e.. snagging), resulting in damage or loss of fishing gear.
- Long-term habitat loss and disturbance.
- Long-term reduced access to key fishing grounds and resultant displacement.

4.6.14 You have provided adequate rationale to justify the scoping in of these potential impacts. A desk-based review/analysis for this section of the assessment has been proposed, which will make use of the sources outlined in Section 12.4 (point 5). This is appropriate.

4.6.15 The MMO recommend you ensure that impacts to the inshore commercial fisheries fleet (within the 6nm limit) and small-scale fisheries are also accounted for and appropriately assessed, as these sectors are often more vulnerable to the effects of displacement from marine construction works in coastal waters. Furthermore, these sectors are often under-represented when compared to large-scale and industrial fisheries, because much of the fisheries spatial and temporal data (VMS, AIS tracking data) is under used and under studied for smaller and inshore fleets. Additionally, for vessels of 10m and under, there is no statutory requirement for fishermen to declare their catches, although their landings must be recorded on sales notes provided by the registered buyers. This can result in the spatial and temporal distribution/behaviour of small-scale fishers being under- and/or over-estimated, resulting in fishers being displaced from important fishing grounds (Chuenpagdee *et al*., 2012; Metcalfe *et al*., 2017; Birchenough *et al*.,

2021; Behivoke *et al*., 2021). You should consult with the North-Eastern Inshore Fisheries and Conservation Authority (NE IFCA) regarding the project and gathers further information and data from them on inshore commercial fishing activity in north-east England.

4.6.16 The best practice and embedded mitigation measures proposed by you, such as CEMP, OEMP, MARPOL and SOPEP etc, are appropriate. The requirement for any additional fisheries-specific mitigation, such as those for sandeel and herring should be determined on the outcomes of suitable habitat assessments and the EIA.

4.6.17 You have not proposed any piling as part of the project, however, there is potential for UXO in this project which raises some concerns. In the event that UXO detonation/clearance is required, the applicant should carry out underwater noise modelling to determine the likely range of impact in relation to fish spawning and nursery grounds. The noise modelling should be presented as supporting evidence to accompany the marine licence for this activity.

4.7 Shellfish

4.7.1 No concerns were raised for Shellfisheries. The MMO conclude that the project will have no likely significant effect on Shellfisheries.

4.8 Archaeology / Cultural Heritage

4.8.1 In regard to Archaeology and cultural heritage the EIA Scoping Report produced for this proposed project is inadequate and the MMO disagree with the stated approach to produce an EIA chapter which is entirely a desk-based study. We recommend that you prepare a revised EIS Scoping Report for consultation with stakeholders.

4.8.2 The MMO do not concur with the approach that describes use of a Project Design Envelope (PDE) as “indicative”. An EIA Scoping Report that clearly sets out the completion of environmental surveys, technical studies and consultation with stakeholders is required. All such actions are necessary to adequately characterise the environment within which this development could occur and therefore to steer the selection and statutory commitment to deliver mitigation. In consideration of how you are seeking to benefit through the adoption of a PDE, as used by Nationally Significant Infrastructure Projects, and that repeatedly it is stated that this project is at an early stage of design, a draft Environmental Statement or shadow PEIR should be produced for consultation with local and national Stakeholders prior to any subsequent Marine Licence application.

4.8.3 <u>Pre-Installation Surveys</u>

While we appreciate that the list of geophysical survey techniques is not limited to those identified, it is appropriate to highlight the importance of the inclusion of shallow seismic survey to inform the subsequent programme of geotechnical survey. In particular, how any such survey should be optimised to support

archaeological analysis. It is also noted that in this section no mention is made about analysis of those data by professional, accredited and experienced maritime archaeological consultants. This should be addressed in the ES.

4.8.4 Pre-Installation Actives

In consideration of the techniques described for obstacle clearance and pre-sweeping etc., it is essential that detailed archaeological assessment is completed to optimise route selection within the spatially defined cable corridor. We are therefore very concerned about reference to removal of "other obstacles" without any attempt at qualification or procedures to be adopted if such obstacles are revealed to be of archaeological interest.
In sub-section 3.4.2.2. of the scoping document (Pre-Sweep), mention is made about sand waves, we must add that adequate risk assessment is necessary to determine if archaeological sites could presently be concealed in such dynamic seabed features. These same comments are equally applicable to sub-section 3.4.3.1 (Cable Installation Methods).

We find that we must question the approach advocated in sub-section 3.4.2.3 (UXO Clearance), whereby investigation and disposal of UXO should be included within the scope of the Marine Scheme. In general there appears to be a lack of appreciation that it is the purpose of an EIA Scoping Report to consider risk and likely significant effect.
Through inclusion within the scope of the EIA, it is the function of the draft ES to acquire more precise information about UXO risk through desk-based sources of information for corroboration with directly acquired survey data to determine exact locations of UXO and thereby produce a "meaningful assessment". We add that coordination must be prioritised between survey outputs, engineering studies and specialist archaeological analysis and interpretation; this important principle is alluded to in section 14.5.

4.8.5 Cable Installation

It is not the case that this project is at an "early stage" in consideration that this is a formal EIA Scoping Consultation Exercise and that the following project specification appear to be set comprising "…two monopole systems of up to four cables installed in separate trenches alongside each other. The offshore export cables will also have fibre optic (FO) and communications cables…" It is essential that any ES prepared for this project is adequately planned to include archaeological evaluation and that can directly inform any programme for marine cable installation, should consent be obtained. Any ES produced will need to reflect installation techniques as a means to identify a preferred cable route. Furthermore, we are aware that actual cable installation could be conducted by pre-cut trenching or simultaneous lay and burial. For either of these techniques it is directly relevant that archaeological analysis of data includes the ability to identify anomalies of possible archaeological interest which might be partially or completely buried at a depth which could be impacted by cable installation. It is unfortunate that no attempt is made in this EIA Scoping Report to give a required target depth for cable installation.

4.8.6 Offshore Export Cable Landfall

The text seems to imply that surveys are being undertaken. The MMO have noted that no contact has been established with Historic England as an effective means to select environmental criteria inclusive of archaeological survey objectives. The subsection on Horizontal Directional Drilling (HDD) requires clarification as we are aware that this technique is used to go completely under the intertidal zone. It is also expected that the depth estimated for HDD should be provided. The attention to Open-Cut Trench also requires detailed consideration due to the risk to known and unknown historic environment features as could be buried within the present coastal area

4.8.7 Landfall Design Envelope

It is somewhat difficult to see how the exact method and approach to landfall is subject to further detailed assessment and design given the one of either two techniques will be used, as described in section 3.4.5 of the scoping document. Only the actual location of landfall is presently uncertain. This must be updated in the ES.

4.8.8 Scoping Assessment and Methodology

The text states that the "…Scoping Report provides a high level assessment of the potential impacts. This process has been undertaken using best judgement of the available data and professional expertise…". However, this approach seems somewhat different to EIA Scoping Report that focus on justification for inclusion of identified "receptors" and instead appears to direct attention to "predictions of impacts" which presumably will be presented in a subsequent (draft) ES or shadow PIER. We add that such materials should be produced as part of an agreed programme of pre-application consultation and subject to agreement through established systems for paid-for advice services. We recommend that you visit: https://historicengland.org.uk/services-skills/our-planning-services/enhanced-advisoryservices/extended-pre-application-advice/ .
We also recommend that the Applicant reconsider section 5.3.2 (England) to allow for meaningful and timely non-statutory consultation.

Section 6.5 Baseline environment
Section Chapter 14 Marine Archaeology and Cultural Heritage

4.8.9 Section 14.2.2 National legislation

This section outlines the national legislation that is relevant to the assessment of marine archaeology and cultural heritage receptors across the Marine Scheme. The MMO have noted that the Protection of Wrecks Act 1973 has not been included in this list. Given that the landfall location for this cable is Cambois, Northumberland, the works will be taking place within the North East Inshore Marine Planning Area, as such, this legislation could be applied to any heritage assets discovered either through this project or separately. We would expect this legislation to be referred to in future submissions related to this project and for these works to be compliant with the legislation in question.

4.8.10 14.3. Study Area

14.3.1 Seabed Prehistory

The MMO acknowledge the attention directed at the likelihood of encountering prehistoric features of interest in the proposed development corridor probably, which is probably of low potential due to the impacts of the last glaciation and the North Sea lobe (as described in sub-section 14.5.4). We appreciate that there is also a low likelihood of submerged peats, as at Low Hauxley. Therefore, in reference to Table 14-3 regarding impacts and suggested mitigations, we are prepared to accept the approach outlined in this table. Any monitoring scheme for the presence of buried landscapes should be set out in an archaeological Written Scheme of Investigation (WSI), so that should geotechnical survey campaigns encounter buried peats or other palaeoenvironmental material the appropriate sampling strategy is immediately enacted.

4.8.11 Section 14.3.2 Maritime Archaeology

The information provided in this section was not helpful as no attempt was made to explain whether any of the six identified vessels within the marine historic environment study area were located in the English marine planning area. The accompanying Figures 13-1 and 14-1 were of no particular help in clarifying this matter. The use of the term “maritime artefact” is also unhelpful as it is not defined in the Glossary. It is therefore important that in the production of a draft ES that use is made of established terms such as “heritage asset” as defined within the UK Marine Policy Statement (2011). The statement that “HMS/M Unity (1940) was the only maritime artefact which fell under the Protection of Military Remains Act 1986” lacks clarity. The text should be clear whether any of the identified wrecks are designated under the Protection of Military Remains Act 1986 as either a Protected Place or a Controlled Site.

4.8.12 Section 14.3.3 Aviation Archaeology

Insufficient consideration is given to whether there are losses of aircraft recorded within publicly accessible archives. Referral to aviation wrecks within the Newcastle International Airport is not relevant. This section quotes Marine (Scotland) Act 2010 it is therefore necessary for all equivalent statutes for England to be quoted.

4.8.13 Section 14.4 Key Data Sources

It is important that you understand that Historic England’s National Marine Heritage Record is relevant and applicable for heritage assets under consideration for statutory protection within the English Inshore Marine Planning Area. It is therefore essential that all other sources of information are used which are best obtained through the employment of a professional, accredited and experienced maritime archaeological consultant. Table 4-5 includes other cable projects between Scotland and England which will have produced archaeological studies that should inform this proposed project, in addition to any material produced for

the proposed BBWF array area.

4.8.14 Section 14.5 Baseline Environment

The first sentence lacks essential clarity. The text should state explicitly that any draft ES produced (the term “EIAR” is used without explanation) will employ professional, accredited and experienced maritime archaeological consultant(s) to corroborate deskbased sources of information with geophysical survey data acquired specifically for this proposed development. The text mentions “relevant archaeological points” including “seabed history”; without explanation. If you mean conducting Historic Seascape Characterisation, then this should be stated clearly. It is apparent that insufficient attention is given to understanding that the lack of defined spatial records for lost vessels or crashed aircraft does not equate to actual absence. It is entirely likely that this project will encounter presently unknown heritage assets and therefore this risk must be factored into the EIA exercise and associated mitigation strategies for consultation with Historic England. A separate avoidance strategy should be prepared for any charted wrecks i.e. known wreck records, such as held by the UK Hydrographic Office. We note the attention given to applying Historic Environment Scotland Designation Policy and Selection Guidance 2019; it is of course, the case that this guidance is not relevant or applicable to any part of this proposed development that occurs within English Marine Planning Areas.

It is noticeable that this section given inadequate attention to the historic environment as may exist within the intertidal zone on the Cambois coast. Within the intertidal zone there is potential for buried First World War and Second World War defensive features (Northumberland Coast Defences), such that they have been known to appear after extensive storm damage and disappear again. These range from pillboxes to trenches, barbed wire obstructions, etc. Recorded positions are noted on the HER and NRHE all along beach from River Blyth to River Wansbeck and further north. It is important to explain that these features will be of regional and local significance, as they are a visible reminder of the defence of Britain during these key periods. Not only will HER have the data (or should), but local records office may have newspaper reports or photos about where they have been exposed to aid understanding of risk at the proposed electricity export cable landing site.

Historic sea defences are most likely to be at risk from cable installation and landing connection to terrestrial network. Although it is unlikely that these features are presently of nationally significance, they should be identified and located, so that they can be avoided if possible or a suitable mitigation strategy developed for recording them. The relevant local authority archaeological advice service is therefore an essential stakeholder in the preparation of any draft ES should this project proceed with an EIA

4.8.15 Section 14.5.1 Wrecks

The text states that “There are marine cultural heritage statutory designations within the marine historic environment study area” however, this detail is not adequately explained or any inclusion within accompanying figures. The text also includes

other significant errors demonstrating lack of familiarity with the subject matter. For example: 1. Military vessels lost while on military service are not automatically protected under the terms of The Protection of Military Remains Act 1986. 2. Vessels (e.g. merchant vessels) lost due to enemy action resulting in the death of crew onboard have no official status as “War Graves”. Table 14-1 only appears to identify charted wrecks within the marine archaeology and cultural heritage study area within the Scottish Marine Area. We therefore will defer to our colleagues at Historic Environment Scotland regarding the attempt made to attribute “importance” to any of these sites. In sufficient explanation is provided about the “unnamed non-dangerous” wrecks listed in Table 14-2, for example, if any are recorded within English Marine Planning Areas, We add that if any such sites do occur within English Marine Planning Areas that it is entirely possible that they could possess more “importance” than the sites listed in Table 14-1.

4.8.16 Section 14.5.2 Aircraft

We agree that there is the potential for the discovery of previously unknown aircraft and aircraft-related debris to be found on and within the seabed (or intertidal area) within the marine historic environment study area relevant to English administration.

4.8.17 Section 14.5.3. Historic Minefields and Ordnance

This section does not acknowledge that targets which could potentially be UXO might actually be other artefacts of archaeological interest (such as cannon or anchors) and could actually reveal the presence of shipwreck of considerable antiquity. It is for reasons like this that it is essential provision is put in place for coordination between UXO investigations and professional archaeological advice. We also take this opportunity to confirm the primacy of safety measures when dealing with UXO and consultation with Historic England to plan UXO surveys should afford the greatest efficiencies to all parties.

4.8.18 Section 14.6. Designed in Measures

We do not concur that this project is at an “…early stage in the development of the Marine Scheme”, by the very fact that this is a formal EIA Scoping Report consultation. It should therefore be entirely possible to provide an exhaustive and detailed list of topic specific mitigation. However, the mitigation measures alluded to such as a Written Scheme of Investigation (WSI) is presently misdirected at the installation phase of the Marine Scheme, should an EIA Scoping Opinion be forthcoming.
In reference to the production of an archaeological WSI and Protocol for reporting Archaeological Discoveries (PAD) the entire focus for attention should be on the post-consent and pre-construction phase when higher resolution geophysical and geotechnical data are acquired to inform the design and planning of this project should consent be obtained. It is therefore essential that any draft WSI produced and supplied with a draft ES (or shadow PEIR) should adequately assess the risk of encountering presently unknown archaeological and historic sites as could be encountered prior to potentially damaging and destructive activities inclusive of:
• pre-sweeping;

• pre-lay grapnel run;
• cable burial; and
• deployment of anchors for any required installation vessels.

4.8.19 Section 14.7 Scoping of Potential Impacts

We note the content of Table 14-3 which summarises the potential impacts for Marine Archaeology and Cultural Heritage that you will scope in or out of the EIA. Regarding the content of this table, we state the following qualifications:

• “Impact” – Direct loss of or damage to known or unknown marine and intertidal historic environment assets arising from all works necessary to support cable installation.

• “Information required to inform the Assessment: the following should be approach adopted” – Desk based assessment will utilise all existing data which is corroborated with direct access to all geophysical data acquired for this project. The analysis will be conducted by accredited, experienced and professional marine archaeological consultants that will produce technical reports to inform preparation of the Marine Archaeology and Cultural Heritage chapter and will be appended to the draft ES (or shadow PEIR) for consultation with local and national curatorial bodies in England.

• “Assessment Method” – the desk-based assessment will consider the design scenario of two monopole systems of up to four cables installed in separate trenches alongside each other together with fibre optic (FO) and communications cables (as explained in section 3.4.3).

The above text is directly applicable to the following items in Table 14-3:

• Direct loss of or damage to presently known marine and intertidal historic environment assets arising from all works as required to support cable installation;

• Indirect loss of or damage to known marine and intertidal historic environment assets arising from all works as required to support cable installation;

• Direct loss of or damage to unknown marine and intertidal historic environment assets arising from all works as required to support cable installation;

• Indirect loss of or damage to unknown marine and intertidal historic environment assets arising from all works as required to support cable installation;

• Loss of or damage to in-situ submerged palaeoenvironmental sedimentary sequences and prehistoric landscape elements arising from all works as required to support cable installation.

4.8.20 Section 14.8 Potential Cumulative and Transboundary Impacts

The MMO concur with the statements made in this section vis. Cumulative Impact Assessment as summarised in Table 4-5. However, the general principle that the assessment will be made based on information in the public domain requires challenge. This assessment should look to directly access from other development projects all relevant and applicable information and data as relevant and applicable to the sustainable management of all aspects of the marine environment.

4.8.21 Section 14.9. Proposed EIA Methodology

We are not supportive of an approach to assessing impact to marine archaeology and cultural heritage receptors which is an “entirely desk-based study of existing data sources.” You must demonstrate the stated commitment to “undertaking a more detailed geophysical and geotechnical survey” by directly confirming in response to this formal EIA Scoping Report consultation that you will commission professional, accredited and experienced marine archaeological consultants to corroborate all desk-based sources of information with geophysical and geotechnical data directly acquired for this proposed project. We require confirmation that all this work will be completed and subject to consultation with Historic England and the relevant local authority curatorial body through a draft ES prior to formal Marine Licence application.

It is our advice that should an EIA Scoping Opinion be offered that agrees with the production of an ES that an accompanying commitment is made through conditions stated in a draft Marine Licence that will require pre-construction investigation and assessment of any anomalies identified of potential or known archaeological interest. You should also demonstrate this commitment by undertaking a full archaeological review and assessment of all the relevant geophysical and geotechnical data as a stated condition of any Marine Licence consent. The crucial factor being that data collection and archaeological analysis occurs pre-construction. Marine Licence conditions should also state that all relevant information from the geophysical and geotechnical technical reports will be reviewed by professional, accredited and experienced marine archaeological consultants to corroborate all desk-based sources of existing data and information.

Furthermore, the production of any draft ES will append Technical Reports that detail the processing and analysis of all geophysical data acquired for this project and a (draft) Written Scheme of Investigation will state the techniques and methodologies for all geophysical, geotechnical and visual inspection as is likely to be required for this project pre-construction. All such measures are to be stated as conditions of any Marine Licence for enactment post-consent and pre-construction.

The statement that a “Technical Report and WSI has been completed for the BBWF array area and will be submitted within the EIA” is not applicable to England. Therefore, all documentation for this project inclusive of the draft ES accompanying Technical Report and other documentation inclusive of a draft WSI and Reporting Protocol must be directly and entirely relevant to the legal requirements and policy for any element of this proposed development that occurs within English Marine Planning Areas. From the primary information sources identified we make the following amendments for inclusion within any draft ES subsequently produced:

• Consultation of the Northumberland HER via the Heritage Gateway is insufficient for an EIA. Your appointed archaeological consultant should request a HER search from Northumberland for an up-to-date baseline, as not all sites or events are publicly visible on the on-line HER. It is also our advice that aerial photos should be searched for evidence of sea defences within the intertidal zone;

• The seeking of “grey literature” is to include the Online System for reporting Archaeological Investigations (OASIS) and linking research outputs and archives (https://oasis.ac.uk/).

The MMO do not agree that an adequate baseline data can be produced exclusively from available records which is sufficient to determine the location and types of known wrecks and other anomalies as could be present within the study area. It is certainly the case that detailed archaeological led investigation will be essential to ascertain potential archaeological significance. A general statement regarding “Consultation with archaeologist will occur prior to any of the previously mentioned preconstruction surveys” is inadequate.

On numerous occasions in this EIA Scoping Report mention is made about obtaining an “archaeological perspective” (see Section 14.4), this is an unhelpfully vague description and requires attention and clarity.

Professional, accredited and experienced maritime archaeologists are to be directly employed in advising you and to process primary acquired geophysical data, geotechnical materials and visual inspection media. Consultation is then to occur with national curators (Historic England) and local curators through their archaeological advisory service. It is correct that there is potential to impact archaeological assets which have not yet been identified. It is our advice that to reduce this impact that you will adhere to Marine Licence Consent Conditions to delivery agreed programmes and actions for mitigation in consultation with maritime archaeologists, curators and the MMO as the Competent Authority inclusive of the analysis of all pre-construction surveys.

While we appreciate the sentiment expressed whereby the assessment of impacts for marine archaeology and cultural heritage will be conducted in line with the process identified in Section 4. It is essential that the relevant legislation and policy is correctly applied to any area subject to English jurisdiction. Every effort must now be made to engage effectively to inform the design of this proposed development in a meaningful way through consultation with Historic England and the relevant local authority archaeological curatorial body for all elements of the proposed Marine Scheme that occur within local authority planning control.

4.9 Navigation / Other Users of the Sea

4.9.1 The ES 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 during construction and information to mariners
- Effect on small craft navigational and communication equipment
- The risk to drifting recreational craft in adverse weather or tidal conditions.

4.9.2 The development area carries a significant amount of traffic with a number of important commercial shipping routes to/from UK ports. You have referred to MGN-543 within section 13.9 of the scoping report, this document is now superseded by MGN-654. A Navigational Risk Assessment should be submitted in accordance with MGN 654. This should be accompanied by a detailed MGN 654 Checklist which can be found at: https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping

4.9.3 Attention needs to be paid to routing, particularly in heavy weather routing so that vessels can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping should be considered which will be an important issue to assess during the construction phase of this project. It should consider the proximity to other windfarm developments, other infrastructure, and the impact on safe navigable sea room.

4.9.4 A desk-based AIS vessel traffic study is undertaken to the standard of MGN 654 to capture vessels navigating in the study area, this is in addition to existing data and data collected for the generation assets (Berwick Bank OWF) site specific marine vessel traffic surveys and will be carried out to inform the Navigation Risk Assessment (NRA) and EIA for the Cambois Cable connection.

4.9.5 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 Maritime and Coastguard Agency (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 horizontal directional digging (HDD) location.

4.9.6 As high voltage direct current (HVDC)cables are being considered a study should be undertaken to establish the electromagnetic deviation, affecting ship compasses and other navigating systems, of the high voltage cable route to the satisfaction of the MCA. The MCA would be willing to accept a three-degree deviation for 95% of the cable route and for the remaining 5% of the cable route no more than five degrees should be attained. On receipt of the study, the MCA reserves the right to request a deviation survey of the cable route post installation.

4.9.7 Particular consideration will need to be given to the implications of the location of any booster station, if installed on SAR resources and Emergency Response Co-operation Plans (ERCoP). The report must recognise 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)). A SAR checklist will also need to be completed in consultation with MCA, as per MGN 654 Annex 5 SAR requirements.

4.9.8 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, The MMO in consultation with the MCA is likely to be content with the approach.

4.9.10 An assessment of impact on existing aids to navigation, to include both offshore and shore based (where any cabling reaches landfall) aids to navigation.

4.9.11. If it will be necessary for the cables to be protected by rock armour, concrete mattresses or similar protection which lies clear of the surrounding seabed, the impact on navigation and the requirement for appropriate risk mitigation measures needs to be assessed.

4.10 Air Quality & Climate

4.10.1 Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition (England Biodiversity Strategy, Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

4.11 Water Quality

4.11.1 Increases in suspended sediment concentrations (SSC) during construction and operation (e.g. future maintenance works) have the potential to smother sensitive habitats. The ES should include information on the sediment quality and potential for any effects on water quality through suspension of contaminated sediments. The EIA should also consider whether increased suspended sediment concentrations resulting are likely to impact upon the interest features and

supporting habitats of the designated sites as listed above. The ES should consider whether there will be an increase in the pollution risk as a result of the construction or operation of the development. For activities in the marine environment up to 1 nautical mile out at sea, a Water Framework Directive (WFD) assessment is required as part of any application. The ES should draw upon and report on the WFD assessment considering the impact the proposed activity may have on the immediate water body and any linked water bodies. Further guidance on WFD assessments is available here: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

4.11.2 On page 38, under section 7.3 of the Scoping Report, it states 'For the purpose of this Scoping Report, the study area for the sediment and water quality baseline is the same as is proposed for the offshore physical environment and seabed conditions; the study area defined based on the tidal excursion extent'. The study area for the sediment and water quality baseline is therefore the Scoping Boundary plus a 10 km buffer. Further, on page 39, under section 7.5.1.1., it states 'The water and sediment quality study area does not intersect any coastal waterbodies designated under the WFD. The following is presented for context on the wider region.' The MMO have reviewed figure 1-1, the Cambois Connection map, and can confirm that the red 'offshore scoping area' does indeed intersect two WFD water bodies, these are given below. Further information on these water bodies can be found on the Environment Agencies Catchment Data explorer using this link: https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3068

4.12 Seabed / Land / Soil Quality

4.12.1. Details of local landscape character areas must be included and should be mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The EIA must include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography

4.12.2 The EIA should include a full assessment of the potential impacts of the development on local landscape character using https://www.gov.uk/guidance/landscape-and-seascape-character-assessments . The MMO encourage the use of Landscape and Seascape Character Assessment (LCA/SCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA/SCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.

The MMO supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

In order to foster high quality development that respects, maintains, or enhances, local landscape / seascape character and distinctiveness, The MMO encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The Environmental Impact Assessment process should detail the measures to be taken to ensure the project design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.

The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context we advise that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

4.12.3. If it is necessary for the cables to be protected by rock armour, concrete mattresses or similar protection which lies clear of the surrounding seabed, the impact on navigation and the requirement for appropriate risk mitigation measures needs to be assessed. If rock-armour is absolutely necessary, then careful consideration must be given to the size of armour used. Based on previous campaigns, the rock will continue to be hauled in nephrop nets for years to come, damaging catches/net and causing safety issues.

4.12.4 The permanent impact of rock protection and introduction of hard substrates across the entirety of the cable corridor must be included in the ES. This impact has the potential to change both seabed conditions and the physical environment.

4.13 Population and Human Health

4.13.1 This work cuts across key inshore nephrop-fishing grounds. This means that multiple vessels will repeatedly criss-cross over the cable area multiple times per day. If the cable is not able to be buried. Past cable-laying works in this area tell us this is far more difficult than exploratory passes suggest, and far more rock armour is used than is projected. This has already caused multiple incidents of entire hauls being spoiled as an absolute best-case scenario. The worst case is, of course, vessels finding they are unable to lift the weight added by rocks they haul. This has already resulted in the need to cut away nets in order to safely resolve the situation.

4.13.3 Potters also use the area year-round, and it will be necessary for them to relocate or remove pots for the duration of the works.

4.13.4 The MMO suggest that extensive, ongoing consultation with fishers is required, and significant compensation is factored into plans. The best way to minimise this would be to carry out the work in May when the Nephrop fishery largely (but not always completely) closes down. The nephrop season runs roughly October to

April, but recent years have also provided an overnight summer fishery, so the grounds are effectively in constant use.

4.14 Cumulative Impacts & In-Combination Impacts

4.14.1 It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure and activities should be included within the assessment.

4.14.2 An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):
A. existing completed projects;
B. approved but uncompleted projects;
C. ongoing activities;
D. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
E. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.
Please us this link for further information:
https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010056/EN010056-001638-EA3%20-%20JNCC%20and%20NE%20suggested%20tiers%20for%20CIA.pdf

5 Conclusion

The topics highlighted in this scoping opinion must be assessed during the EIA process and the outcome of these assessments **must** be documented in the ES in support of the marine licence application and any associated planning application(s). This statement, however, should not necessarily be seen as a definitive list of all EIA requirements. Given the scale and programme of these planned works other work may prove necessary.

Yours Sincerely,

Y. Golightly

Yvonne Golightly
Marine Case Officer
D 020 8720 4566 / 07881 838 028
E yvonne.golightly@marinemanagement.org.uk

creating a better place
for people and wildlife

Environment Agency

Marine Management Organisation
Lancaster House Hampshire Court
Newcastle Business Park
Newcastle Upon Tyne
NE4 7YH

Our ref: NA/2022/116100/01-L01
Your ref: EIA/2022/00043

Date: 20 January 2023

Dear Yvonne

SCOPING OPINION FOR THE MARINE SCHEME OF THE BERWICK BANK CAMBOIS CONNECTION PROJECT.
BERWICK BANK, CAMBOIS, NORTHUMBERLAND

Thank you for referring the above Scoping Opinion which we received on 07 December 2022. Having reviewed the supporting documentation, we would expect the following matters to be considered and dealt with as part of any application of these works:

Water and Sediment Quality

At this stage the Environment Agency do not agree that water and sediment quality should be scoped out without further review.

On page 38, under section 7.3 of the Marine Scoping Report, it states 'For the purpose of this Scoping Report, the study area for the sediment and water quality baseline is the same as is proposed for the offshore physical environment and seabed conditions; the study area defined based on the tidal excursion extent'. The study area for the sediment and water quality baseline is therefore the Scoping Boundary plus a 10 km buffer. Further, on page 39, under section 7.5.1.1., it states 'The water and sediment quality study area does not intersect any coastal waterbodies designated under the WFD. The following is presented for context on the wider region.'

We have reviewed figure 1-1, the Cambois Connection map, and can confirm that the red 'offshore scoping area' does indeed intersect two WFD water bodies, these are given below. Further information on these water bodies can be found on the Environment Agencies Catchment Data explorer using this link Northumbria TraC Management Catchment | Catchment Data Explorer
Tyne and Wear (GB650301500002)
WANSBECK (GB510302210100)

Migratory Fish Species

The Northumberland coast, estuaries and rivers are important sites for the migration of Atlantic salmon (salmo salar), Sea trout (salmo trutta), European eel (anguilla anguilla) and other fish species.

An assessment is required to understand the impacts of the cable installation and associated works on the behavior of migratory fish species, including, but not limited to; noise, vibration, and sediment disturbance. The assessment needs to consider the inward and coastal migration of adult species as well as the outward migration of smolts (juveniles).

Flood Risk

The development raises some environmental concerns/issues regarding flood risk. The developer may need to undertake further work to show how these issues can be satisfactorily addressed to ensure no adverse environmental impacts.

The location of the cable landfall is unclear at this time, it's location will determine the requirement for a permit.

Consents and Permits

The River Wansbeck is a designated 'main river' and under the Environmental Permitting Regulations certain works within 16m of a tidal main river, or within 16m of any flood defence structure on a tidal main river, require a Flood Risk Activity Permit from the Environment Agency. You can find more information on permit requirements using the following link: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits. If a permit is required, it must be obtained prior to beginning the works.

Please do not hesitate to contact me if you have any questions regarding the advice In this letter.

Yours sincerely

Cameron Chandler
Planning Advisor

Direct dial 07553520763
Direct e-mail cameron.chandler@environment-agency.gov.uk
Team e-mail: planning.nane@environment-agency.gov.uk

Historic England

MMO Case officer: Yvonne Golightly
Date email notification received: 7th December 2022
Response deadline: 4th January 2022

Our ref: Cables/Cambois

Your ref: EIA/2022/00043

Project outline: Berwick Bank Cambois Connection (Scotland-England electricity export cable)

Telephone: 07798 653897

Response: Dr Christopher Pater (Head of Marine Planning)

Date response issued:
21st December 2022

Response: Comments

Summary of our advice

It is our advice that the EIA Scoping Report produced for this proposed project is inadequate and not to the standard expected. We do not agree with the stated approach to produce an EIA chapter which is entirely a desk-based study. We recommend that you direct the Applicant to prepare a revised EIS Scoping Report for consultation with stakeholders.

It is very apparent that no attempt was made to consult with Historic England prior to submission of this document and we do not accept that a formal EIA Scoping Report should be considered as being at an "early stage". We do not concur with their approach that describes use of a Project Design Envelope (PDE) as "indicative". It is our position that we would expect to see an EIA Scoping Report that clearly sets out the completion of environmental surveys, technical studies and consultation with stakeholders. All such actions are necessary to adequately characterise the environment within which this development could occur and therefore to steer the selection and statutory commitment to deliver mitigation.

In consideration of how the Applicant is seeking to benefit through the adoption of a PDE, as used by Nationally Significant Infrastructure Projects, and that repeatedly it is stated that this project is at an early stage of design, a draft Environmental Statement or shadow Preliminary Environmental Information Report (PEIR) should be produced for consultation with local and national Stakeholders prior to any subsequent Marine Licence application.

The proposed project

We understand that the proposed Berwick Bank Cambois Connection project is to install High Voltage Direct Current (HVDC) electricity export cables from the Berwick Bank Wind Farm (BBFW), located in the Scottish marine area along a route through the English Offshore and Inshore Marine Plan areas to a proposed landfall location on the Cambois coastline (Northumberland). We note that the proposed offshore export cables will be installed using a combination of burial (the preferred method of installation) or with cable protection techniques where burial is not possible. The proposed landfall location is to facilitate connection at the Blyth substation, Northumberland which is in line with the National Grid's Electricity System Operator (NGESO) Holistic Network Review, published in July 2022.

Regulatory procedures for this proposed project

We are aware that a Marine Licence from the MMO is required for offshore export cables and supporting activity in the English Offshore Marine Planning Area and for placement of cables, landfall works and supporting activity for the section of the Marine Scheme within the English Inshore Marine Planning Area. We note the statement that The Environmental Impact Assessment (EIA) Scoping Report supplied with this consultation is in accordance with Part 3, Regulation 13 of the Marine Works EIA Regulations 2017 (as amended) ('Scoping opinions'). We defer to the MMO to confirm this matter as the relevant competent authority for these EIA Regulations or any subsequent amendment.

CAMBOIS CONNECTION MARINE SCHEME Volume 1: Environmental Impact Assessment Scoping Report

Prepared Xodus Group for SSE Renewables Developments (UK) Ltd.
Reference: A-100742-S01-A-REPT-001; dated November 2022

Section 3 Project Description

We note that the text states that the project is considered to be at an early stage and that there are several potential options for the Cambois Connection which is reflected in Marine Scheme boundary in this Scoping Report which is to provide "…a necessary level of flexibility." We note that a broad corridor is described to include two export cable route options including a wide intertidal zone. We also note that the EIA is to be carried out on the basis of a Project Design Envelope (PDE) in line with the principles of the Rochdale Envelope, which is commonly adopted for major infrastructure projects. However, we refer this matter to the MMO to determine the appropriateness of claiming a PDE approach given that the Applicant has confirmed that the Planning Act 2008 is not relevant because the Cambois Connection is not a Nationally Significant Infrastructure Project (NSIP) (see Section 2.5.2 and footnote 6).

Section 3.2 The Project Design Envelope/Rochdale Envelope

We request that the MMO questions the position adopted by the Applicant which appears to conflate matters regarding use of PDE, as relevant to an EIA Scoping Report, and how any eventual Marine Licence application is predicated on the acceptability of a PDE approach for a non-NSIP. Furthermore, we must question the requirement for "…allowing reasonable flexibility for future design decisions" in consideration that the Cambois Connection is exclusively about cable installation. The present application does

not appear to highlight what matters require flexibility, for example, number of electricity cable to be installed or whether the overall cable corridor will require spatial or positional change. Regarding the statement that "…adoption of the PDE approach is common for developments of a similar nature to the Cambois Connection", we are aware that other interconnector projects have used the PDE approach, but that some of these projects have been afforded a section 35 (Planning Act 2008) decision by the Secretary of State to accept the project as an NSIP. Nor does is seem appropriate at formal EIA Scoping that this Marine Scheme should be considered to represent "the first version of the PDE."

Section 3.3 Overview of the Wider Proposed Development

The description of the Marine Scheme does not accurately reflect the fact that the proposed export cables from the BBWF array area will pass through the English North East Marine Plan Areas and the English North East Inshore Marine Plan Area to reach the cable landfall location at Cambois (Northumberland). Furthermore, the description of the Onshore Scheme requires clarification whereby it is considered inclusive of "…all aspects of the Onshore Scheme, down to the seaward extent of the landfall as MLWS. It is therefore apparent that both the Onshore and Offshore Scheme will equally consider the Intertidal area without consideration of English Local Planning Authority jurisdiction i.e. landward of Mean Low Water (MLW). It seems that the Applicant has identified a "necessary overlap associated with the EIA for the two schemes". However, this does appear to acknowledge that different EIA regimes are applicable for terrestrial planning areas (inclusive of the intertidal area) and marine planning areas; it is not one EIA regime.

3.4.1. Pre-Installation Surveys

While we appreciate that the list of geophysical survey techniques is not limited to those identified, it is appropriate to highlight the importance of the inclusion of shallow seismic survey to inform the subsequent programme of geotechnical survey. In particular, how any such survey should be optimised to support archaeological analysis. It is also very unfortunate that in this section on mention is made about analysis of those data by professional, accredited and experienced maritime archaeological consultants.

3.4.2. Pre-Installation Actives

In consideration of the techniques described for obstacle clearance and pre-sweeping etc., it is essential that detailed archaeological assessment is completed to optimise route selection within the spatially defined cable corridor. We are therefore very concerned about reference to removal of "other obstacles" without any attempt at qualification or procedures to be adopted if such obstacles are revealed to be of archaeological interest. In sub-section 3.4.2.2. (Pre-Sweep), mention is made about sand waves, we must add that adequate risk assessment is necessary to determine if archaeological sites could presently be concealed in such dynamic seabed features. These same comments are equally applicable to sub-section 3.4.3.1 (Cable Installation Methods).

We find that we must question the approach advocated in sub-section 3.4.2.3 (UXO Clearance), whereby investigation and disposal of UXO should be included within the scope of the Marine Scheme. In general there appears to be a lack of appreciation that it

is the purpose of an EIA Scoping Report to consider risk and likely significant effect. Through inclusion within the scope of the EIA, it is the function of the draft Environmental Statement (ES) to acquire more precise information about UXO risk through desk-based sources of information for corroboration with directly acquired survey data to determine exact locations of UXO and thereby produce a "meaningful assessment". We add that coordination must be prioritised between survey outputs, engineering studies and specialist archaeological analysis and interpretation; this important principle is alluded to in section 14.5.

3.4.3. Cable Installation

It is not the case that this project is at an "early stage" in consideration that this is a formal EIA Scoping Consultation Exercise and that the following project specification appear to be set comprising "…two monopole systems of up to four cables installed in separate trenches alongside each other. The offshore export cables will also have fibre optic (FO) and communications cables…"

It is essential that any ES prepared for this project is adequately planned to include archaeological evaluation and that can directly inform any programme for marine cable installation, should consent be obtained. Any ES produced will need to reflect installation techniques as a means to identify a preferred cable route. Furthermore, we are aware that actual cable installation could be conducted by pre-cut trenching or simultaneous lay and burial. For either of these techniques it is directly relevant that archaeological analysis of data includes the ability to identify anomalies of possible archaeological interest which might be partially or completely buried at a depth which could be impacted by cable installation. It is unfortunate that no attempt is made in this EIA Scoping Report to give a required target depth for cable installation.

3.4.4. Offshore Export Cable Landfall

The text seems to imply that surveys are being undertaken. It is therefore unfortunate that no contact has been established with Historic England as an effective means to select environmental criteria inclusive of archaeological survey objectives. The subsection on Horizontal Directional Drilling (HDD) requires clarification as we are aware that this technique is used to go completely under the intertidal zone. It is also expected that the depth estimated for HDD should be provided. The attention to Open-Cut Trench also requires detailed consideration due to the risk to known and unknown historic environment features as could be buried within the present coastal area.

3.4.5. Landfall Design Envelope

It is somewhat difficult to see how the exact method and approach to landfall is subject to further detailed assessment and design given the one of either two techniques will be used, as described in section 3.4.5. Only the actual location of landfall is presently uncertain.

4.2. Scoping Assessment and Methodology

The text states that the "…Scoping Report provides a high level assessment of the potential impacts. This process has been undertaken using best judgement of the available data and professional expertise…". However, this approach seems somewhat different to EIA Scoping Report that focus on justification for inclusion of identified "receptors" and instead appears to direct attention to "predictions of impacts" which presumably will be presented in a subsequent (draft) ES or shadow Preliminary Environmental Information Report. We add that such materials should be produced as part of an agreed programme of pre-application consultation and subject to agreement through established systems for paid-for advice services. Please direct the Applicant to: https://historicengland.org.uk/services-skills/our-planning-services/enhanced-advisory-services/extended-pre-application-advice/

We also recommend that the Applicant reconsider section 5.3.2 (England) to allow for meaningful and timely non-statutory consultation.

Section 4.4 Overview of the Proposed EIA Methodology

We would certainly hope that the Applicant agrees with this approach given how it is derived from "best-practice and experience from previous comparable projects". For example, other interconnector cable projects have taken the opportunities for pre-application engagement with Historic England. We have provided extensive and detailed comments in this consultation response which are all matters that should have been dealt with during pre-EIA Scoping Report consultation. It is therefore entirely appropriate that we are included as a party for technical engagement should this EIA progresses. We therefore require clarity about how this will work in reference to Figure 5-1 whereby any meetings and/or presentations before submission of a draft ES meaningfully demonstrate how advice has been sought and used in production of any ES. We did note that this figure included "EIAR" which doesn't appear to be explained elsewhere.

Section 6.5 Baseline environment

Section Chapter 14 Marine Archaeology and Cultural Heritage

Section 14.2.2 National legislation

This section outlines the national legislation that is relevant to the assessment of marine archaeology and cultural heritage receptors across the Marine Scheme. Historic England has noted that the Protection of Wrecks Act 1973 has not been included in this list. Given that the landfall location for this cable is Cambois, Northumberland, the works will be taking place within the North East Inshore Marine Planning Area, as such, this legislation could be applied to any heritage assets discovered either through this project or separately. Historic England would expect this legislation to be referred to in future submissions related to this project and for these works to be compliant with the legislation in question.

14.2.4 Guidance

The list of references are to be updated in the production of an draft ES to include:

- Peeters H. et al (2009) (Eds) *North Sea Prehistory Research and Management Framework*

- Gribble J and Leather S (2011) *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector*. Commissioned by COWRIE Ltd (project reference GEOARCH-09).
- Ransley J. et al (2013) (Eds) *People and the Sea: A Maritime Archaeological Research Agenda for England.* Research Reports, 171. Council for British Archaeology, York. 272pp
- Plets R. et al (2013) *Marine Geophysics Data Acquisition, Processing and Interpretation – Guidance Notes*. English Heritage Publishing, Product Code 51811
- Historic England (2021) *Commercial Renewable Energy Development and the Historic Environment*. Historic England Advice Note 15 (HistoricEngland.org.uk);
- The Crown Estate (2021) *Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects*. The Crown Estate, London

14.3. Study Area

14.3.1 Seabed Prehistory

We acknowledge the attention directed at the likelihood of encountering prehistoric features of interest in the proposed development corridor probably, which is probably of low potential due to the impacts of the last glaciation and the North Sea lobe (as described in sub-section 14.5.4). We appreciate that there is also a low likelihood of submerged peats, as at Low Hauxley. Therefore, in reference to Table 14-3 regarding impacts and suggested mitigations, we are prepared to accept the approach outlined in this table. Any monitoring scheme for the presence of buried landscapes should be set out in an archaeological Written Scheme of Investigation (WSI), so that should geotechnical survey campaigns encounter buried peats or other palaeoenvironmental material the appropriate sampling strategy is immediately enacted.

Section 14.3.2 Maritime Archaeology

The information provided in this section was not helpful as no attempt was made to explain whether any of the six identified vessels within the marine historic environment study area were located in the English marine planning area. The accompanying Figures 13-1 and 14-1 were of no particular help in clarifying this matter. The use of the term "maritime artefact" is also unhelpful as it is not defined in the Glossary. It is therefore important that in the production of a draft ES that use is made of established terms such as "heritage asset" as defined within the *UK Marine Policy Statement* (2011). The statement that "HMS/M *Unity* (1940) was the only maritime artefact which fell under the Protection of Military Remains Act 1986" lacks clarity. The text should be clear whether any of the identified wrecks are designated under the Protection of Military Remains Act 1986 as either a Protected Place or a Controlled Site.

Section 14.3.3 Aviation Archaeology

Insufficient consideration is given to whether there are losses of aircraft recorded within publicly accessible archives. Referral to aviation wrecks within the Newcastle International Airport is not relevant. This section quotes Marine (Scotland) Act 2010 it is therefore necessary for all equivalent statutes for England to be quoted.

14.4 Key Data Sources

It is important that the Applicant understands that Historic England's National Marine Heritage Record is relevant and applicable for heritage assets under consideration for statutory protection within the English Inshore Marine Planning Area. It is therefore essential that all other sources of information are used which are best obtained through the employment of a professional, accredited and experienced maritime archaeological consultant. Table 4-5 includes other cable projects between Scotland and England which will have produced archaeological studies that should inform this proposed project, in addition to any material produced for the proposed BBWF array area.

14.5 Baseline Environment

The first sentence lacks essential clarity. The text should state explicitly that any draft ES produced (the term "EIAR" is used without explanation) will employ professional, accredited and experienced maritime archaeological consultant(s) to corroborate desk-based sources of information with geophysical survey data acquired specifically for this proposed development. The text mentions "relevant archaeological points" including "seabed history"; without explanation. If the Applicant means conducting Historic Seascape Characterisation, then this should be stated clearly. It is apparent that insufficient attention is given to understanding that the lack of defined spatial records for lost vessels or crashed aircraft does not equate to actual absence. It is entirely likely that this project will encounter presently unknown heritage assets and therefore this risk must be factored into the EIA exercise and associated mitigation strategies for consultation with Historic England. A separate avoidance strategy should be prepared for any charted wrecks i.e. known wreck records, such as held by the UK Hydrographic Office. We note the attention given to applying Historic Environment Scotland *Designation Policy and Selection Guidance 2019*; it is of course, the case that this guidance is not relevant or applicable to any part of this proposed development that occurs within English Marine Planning Areas.

It is noticeable that this section given inadequate attention to the historic environment as may exist within the intertidal zone on the Cambois coast. Within the intertidal zone there is potential for buried First World War and Second World War defensive features (Northumberland Coast Defences), such that they have been known to appear after extensive storm damage and disappear again. These range from pillboxes to trenches, barbed wire obstructions, etc. Recorded positions are noted on the HER and NRHE all along beach from River Blyth to River Wansbeck and further north. It is important to explain that these features will be of regional and local significance, as they are a visible reminder of the defence of Britain during these key periods. Not only will HER have the data (or should), but local records office may have newspaper reports or photos about where they have been exposed to aid understanding of risk at the proposed electricity export cable landing site.

Historic sea defences are most likely to be at risk from cable installation and landing connection to terrestrial network. Although it is unlikely that these features are presently of nationally significance, they should be identified and located, so that they can be avoided if possible or a suitable mitigation strategy developed for recording them. The relevant local authority archaeological advice service is therefore an essential stakeholder in the preparation of any draft ES should this project proceed with an EIA.

14.5.1 Wrecks

The text states that "There are marine cultural heritage statutory designations within the marine historic environment study area" however, this detail is not adequately explained or any inclusion within accompanying figures. The text also includes other significant errors demonstrating lack of familiarity with the subject matter. For example:

1. Military vessels lost while on military service are not automatically protected under the terms of The Protection of Military Remains Act 1986.
2. Vessels (e.g. merchant vessels) lost due to enemy action resulting in the death of crew onboard have no official status as "War Graves".

Table 14-1 only appears to identify charted wrecks within the marine archaeology and cultural heritage study area within the Scottish Marine Area. We therefore will defer to our colleagues at Historic Environment Scotland regarding the attempt made to attribute "importance" to any of these sites.

In sufficient explanation is provided about the "unnamed non-dangerous" wrecks listed in Table 14-2, for example, if any are recorded within English Marine Planning Areas, We add that if any such sites do occur within English Marine Planning Areas that it is entirely possible that they could posses more "importance" than the sites listed in Table 14-1.

14.5.2 Aircraft

We agree that there is the potential for the discovery of previously unknown aircraft and aircraft-related debris to be found on and within the seabed (or intertidal area) within the marine historic environment study area relevant to English administration.

14.5.3. Historic Minefields and Ordnance

This section does not acknowledge that targets which could potentially be UXO might actually be other artefacts of archaeological interest (such as cannon or anchors) and could actual reveal the presence of shipwreck of considerable antiquity. It is for reasons like this that it is essential provision is put in place for coordination between UXO investigations and professional archaeological advice. We also take this opportunity to confirm the primacy of safety measures when dealing with UXO and consultation with Historic England to plan UXO surveys should afford the greatest efficiencies to all parties.

14.5.4 Submerged Paleological Deposits, Archaeological Sites and Artefacts

We acknowledge that the area relevant to this proposed development probably has low potential, as we explained in our comment above (cf. 14.3.1).

14.6. Designed in Measures

We do not concur that this project is at an "…early stage in the development of the Marine Scheme", by the very fact that this is a formal EIA Scoping Report consultation. It should therefore be entirely possible to provide an exhaustive and detailed list of topic-specific mitigation. However, the mitigation measures alluded to such as a Written Scheme of Investigation (WSI) is presently misdirected at the installation phase of the Marine Scheme, should an EIA Scoping Opinion be forthcoming.

In reference to the production of an archaeological Written Scheme of Investigation (WSI) and Protocol for reporting Archaeological Discoveries (PAD) the entire focus for attention should be on the post-consent and pre-construction phase when higher resolution geophysical and geotechnical data are acquired to inform the design and planning of this project should consent be obtained. It is therefore essential that any draft WSI produced and supplied with a draft ES (or shadow PEIR) should adequately assess the risk of encountering presently unknown archaeological and historic sites as could be encountered prior to potentially damaging and destructive activities inclusive of:

- pre-sweeping;
- pre-lay grapnel run;
- cable burial; and
- deployment of anchors for any required installation vessels.

14.7. Scoping of Potential Impacts

We note the content of Table 14-3 which summarises the potential impacts for Marine Archaeology and Cultural Heritage that the Applicant will scope in or out of the EIA. Regarding the content of this table, we state the following qualifications:

- "Impact" – Direct loss of or damage to known or unknown marine and intertidal historic environment assets arising from all works necessary to support cable installation.
- "Information required to inform the Assessment: the following should be approach adopted" – Desk based assessment will utilise all existing data which is corroborated with direct access to all geophysical data acquired for this project. The analysis will be conducted by accredited, experienced and professional marine archaeological consultants that will produce technical reports to inform preparation of the Marine Archaeology and Cultural Heritage chapter and will be appended to the draft ES (or shadow PEIR) for consultation with local and national curatorial bodies in England.
- "Assessment Method" – the desk-based assessment will consider the design scenario of two monopole systems of up to four cables installed in separate trenches alongside each other together with fibre optic (FO) and communications cables (as explained in section 3.4.3).

The above text is directly applicable to the following items in Table 14-3:

- Direct loss of or damage to presently known marine and intertidal historic environment assets arising from all works as required to support cable installation;
- Indirect loss of or damage to known marine and intertidal historic environment assets arising from all works as required to support cable installation;
- Direct loss of or damage to unknown marine and intertidal historic environment assets arising from all works as required to support cable installation;
- Indirect loss of or damage to unknown marine and intertidal historic environment assets arising from all works as required to support cable installation;
- Loss of or damage to in-situ submerged palaeoenvironmental sedimentary sequences and prehistoric landscape elements arising from all works as required to support cable installation.

14.8 Potential Cumulative and Transboundary Impacts

We are minded to concur with the statements made in this section vis. Cumulative Impact Assessment as summarised in Table 4-5. However, the general principle that the assessment will be made based on information in the public domain requires challenge. This assessment should look to directly access from other development projects all relevant and applicable information and data as relevant and applicable to the sustainable management of all aspects of the marine environment.

14.9. Proposed EIA Methodology

We are not supportive of an approach to assessing impact to marine archaeology and cultural heritage receptors which is an "entirely desk-based study of existing data sources." We encourage the Applicant to demonstrate the stated commitment to "undertaking a more detailed geophysical and geotechnical survey" by directly confirming in response to this formal EIA Scoping Report consultation that they will commission professional, accredited and experienced marine archaeological consultants to corroborate all desk-based sources of information with geophysical and geotechnical data directly acquired for this proposed project. We require confirmation that all this work will be completed and subject to consultation with Historic England and the relevant local authority curatorial body through a draft ES prior to formal Marine Licence application.

It is our advice that should an EIA Scoping Opinion be offered that agrees with the production of an ES that an accompanying commitment is made through conditions stated in a draft Marine Licence that will require pre-construction investigation and assessment of any anomalies identified of potential or known archaeological interest. The Applicant should also demonstrate this commitment by undertaking a full archaeological review and assessment of all the relevant geophysical and geotechnical data as a stated condition of any Marine Licence consent. The crucial factor being that data collection and archaeological analysis occurs pre-construction. Marine Licence conditions should also state that all relevant information from the geophysical and geotechnical technical reports will be reviewed by professional, accredited and experienced marine archaeological consultants to corroborate all desk-based sources of existing data and information.

Furthermore, the Applicant in the production of any draft ES will append Technical Reports that detail the processing and analysis of all geophysical data acquired for this project and a (draft) Written Scheme of Investigation will state the techniques and methodologies for all geophysical, geotechnical and visual inspection as is likely to be required for this project pre-construction. All such measures are to be stated as conditions of any Marine Licence for enactment post-consent and pre-construction.

The statement that a "Technical Report and WSI has been completed for the BBWF array area and will be submitted within the EIA" is not applicable to England. Therefore, all documentation for this project inclusive of the draft ES accompanying Technical Report and other documentation inclusive of a draft WSI and Reporting Protocol must be directly and entirely relevant to the legal requirements and policy for any element of this proposed development that occurs within English Marine Planning Areas. From the primary information sources identified we make the following amendments for inclusion within any draft ES subsequently produced:

- Consultation of the Northumberland HER via the Heritage Gateway is insufficient for an EIA. The Applicant's appointed archaeological consultant should request a HER search from Northumberland for an up-to-date baseline, as not all sites or events are publicly visible on the on-line HER. It is also our advice that aerial photos should be searched for evidence of sea defences within the intertidal zone;
- The seeking of "grey literature" is to include the Online System for reporting Archaeological Investigations (OASIS) and linking research outputs and archives (https://oasis.ac.uk/).

We do not agree that an adequate baseline data can be produced exclusively from available records which is sufficient to determine the location and types of known wrecks and other anomalies as could be present within the study area. It is certainly the case that detailed archaeological led investigation will be essential to ascertain potential archaeological significance. A general statement regarding "Consultation with archaeologist will occur prior to any of the previously mentioned preconstruction surveys" is inadequate.

On numerous occasions in this EIA Scoping Report mention is made about obtaining an "archaeological perspective" (see Section 14.4), this is an unhelpfully vague description and requires attention and clarity.

Professional, accredited and experienced maritime archaeologists are to be directly employed in advising the Applicant and to process primary acquired geophysical data, geotechnical materials and visual inspection media. Consultation is then to occur with national curators (Historic England) and local curators through their archaeological advisory service. It is correct that there is potential to impact archaeological assets which have not yet been identified. It is our advice that to reduce this impact the Applicant will adhere to Marine Licence Consent Conditions to delivery agreed programmes and actions for mitigation in consultation with maritime archaeologists, curators and the MMO as the Competent Authority inclusive of the analysis of all pre-construction surveys.

While we appreciate the sentiment expressed whereby the assessment of impacts for marine archaeology and cultural heritage will be conducted in line with the process identified in Section 4. It is essential that the relevant legislation and policy is correctly applied to any area subject to English jurisdiction. Every effort must now be made to engage effectively to inform the design of this proposed development in a meaningful way through consultation with Historic England and the relevant local authority archaeological curatorial body for all elements of the proposed Marine Scheme that occur within local authority planning control.

14.10 Scoping Questions

- Do you agree with the study area defined for the marine archaeology assessment? *No, it is presently inadequately described for English Marine Planning Areas to allow for informed comment and advice.*

- Do you agree that all available information and data sources have been identified to inform the baseline? Are there any other information and data sources that should be considered?

No, insufficient information and data sources have been used in this EIA Scoping Report. It is essential that a professional, accredited and experienced maritime archaeological consultant/contractor is appointed to obtain the information and data sources necessary to produce an adequate desk-based assessment and to corroborate that information through the analysis and interpretation of survey data directly acquired for this proposed development.

- Do you agree with the scoping decisions of potential impacts?
  We are prepared to accept the factors scoped into the EIA, subject to the amendments stated above vis. direct and indirect loss of or damage to known or unknown marine and intertidal historic environment assets arising from all works necessary to support cable installation.

- Do you agree with the scoping in of potential cumulative impacts?
  We are prepared to concur with Cumulative Impact Assessment as summarised in Table 4-5.

- Do you agree with the scoping out of potential transboundary impacts?
  Yes.

- Do you agree with the proposed approach to EIA methodology? Do you agree with the stakeholder and consultees identified as part of the proposed EIA methodology?
  No, we do not agree with the proposed EIA methodology that relies entirely on access to available records without use of primary data acquisition through dedicated survey campaigns. While we acknowledge the identification of stakeholder and consultees as relevant to any subsequent EIA exercise, we are not satisfied by the lack of consultation and engagement that has so far occurred.

1. Do you consider there is enough information provided in the application and supporting documents to enable you to understand the scope of the works, the method and equipment that will be used, and the timings, should you be required to undertake an inspection of the licenced activities?

YES

2. Please outline any fishing and or other activities carried on by legitimate users of the sea in the area(s) the activities are proposed to be undertaken.

This work cuts across key inshore nephrop-fishing grounds. This means that multiple vessels will repeatedly criss-cross over the cable area multiple times per day. If the cable is not able to be buried. Past cable-laying works in this area tell us this is far more difficult than exploratory passes suggest, and far more rock armour is used than is projected.

This has already caused multiple incidents of entire hauls being spoiled as an absolute best-case scenario. The worst case is, of course, vessels finding they are unable to lift the weight added by rocks they haul. This has already resulted in the need to cut away nets in order to safely resolve the situation.

3. Are the proposed activities likely to interfere with fishing operations or activities carried on by other legitimate users of the sea (static gear/traditional fishing grounds, navigation measures, recreational use etc.)? Please support your view with rationale.

YES. Please see above in relation to the nephrop fishery. Potters also use the area year-round, and it will be necessary for them to relocate or remove pots for the duration of the works.

4. Are the proposed activities likely to have an impact on fish/shellfish stocks i.e. smothering fish beds etc.? Please support your view with rationale.

YES. The laying of rock will destroy and permanently block significant amounts of nephrop habitat.

5. Please describe any seasonality to the local fisheries relevant to the proposed activities i.e. periods when proposed activity would be unacceptable for any reason. Please support your view with rationale.

The area is used by the nephrop fishery from approx. October to May each year, and has recently also been used as a summer nephrop fishery. Potters use the area year-round.

6. Please provide further information about awareness of the proposal locally, as appropriate. What are the local views? Have there been any stake holder events. Have MMO attended any meetings? Have there been any press articles? Has fisheries liaison been organised?)

In the past, Fisheries Liaison Officers have been employed to work with the local fleet, and should be considered and deployed at the earliest opportunity

7. Is there any additional local knowledge about the condition of local conservation areas, beyond data held on SPIRIT, which the licensing team should be aware of?

Cambois falls within St Mary's to Coquet MCZ. The offshore work will also take place in protected areas.

8. Are there any other projects planned or in progress in the area which the licensing team should consider as part of any assessment of in-combination effects?

There are other plans for cable in the area in various stages of development, as well as ongoing windfarm projects which has already led to a reduction in fishing grounds and available space.

9. Are there any conditions which you recommend are included in the licence, should one be granted? Please explain why you consider each to be necessary and proportionate. (This could be restrictions / mitigation or monitoring for example).

If rock-armour is absolutely necessary, then careful consideration must be given to the size of armour used. Based on previous campaigns, the rock will continue to be hauled in nephrop nets for years to come, damaging catches/net and causing safety issues.

Vinu John
Maritime and Coastguard Agency
UK Technical Services – Navigation
105 Commercial Road
Southampton
SO15 1EG
www.gov.uk/mca

Yvonne Golightly
Marine Licensing Officer
Marine Management Organisation
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH

03 January 2023

Dear Ms Golightly

Application for Scoping Opinion for Proposed Marine Licence for The Berwick Bank Offshore Wind Farm Cambois Cable Connection under Regulation 13 And Schedule 4 of The Marine Works (Environmental Impact Assessment) Regulations 2007

The MCA has reviewed the scoping report provided by SSE renewables for the Berwick Bank Offshore Windfarm- Cambois Cable Connection as detailed in your e-mail on the 7th December 2022 and would like to comment as follows:

The Environmental Impact 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 during construction 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 development area carries a significant amount of traffic with a number of important commercial shipping routes to/from UK ports.

We note that the applicant has referred to MGN-543 within section 13.9 of the scoping report and we would like to point out that this document is now superseded by **MGN-654**. A Navigational Risk Assessment should be submitted in accordance with MGN 654. This should be accompanied by a detailed MGN 654 Checklist which can be found at: https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping

Attention needs to be paid to routing, particularly in heavy weather routeing so that vessels can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping should be considered which will be an important issue to assess during the construction phase of this project. It should consider the proximity to other windfarm developments, other infrastructure, and the impact on safe navigable sea room.

We note that a desk-based AIS vessel traffic study is undertaken to the standard of MGN 654 to capture vessels navigating in the study area. We understand that this is in addition to existing data and data collected for the generation assets (Berwick Bank OWF) site specific marine vessel traffic surveys and will be carried out to inform the NRA and EIA for the Cambois Cable connection.

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.

As HVDC cables are being considered a study should be undertaken to establish the electromagnetic deviation, affecting ship compasses and other navigating systems, of the high voltage cable route to the satisfaction of the MCA. The MCA would be willing to accept a three-degree deviation for 95% of the cable route and for the remaining 5% of the cable route no more than five degrees should be attained. On receipt of the study, the MCA reserves the right to request a deviation survey of the cable route post installation.

Particular consideration will need to be given to the implications of the location of any booster station, if installed on SAR resources and Emergency Response Co-operation Plans (ERCoP). The report must recognise 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)). A SAR checklist will also need to be completed in consultation with MCA, as per MGN 654 Annex 5 SAR requirements.

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.

With regards to the specific questions in **section 13.10**

- Do you agree with the study area defined for the shipping and navigation assessment?

Yes, we agree with the study area defined for the shipping and navigation assessment.

- Do you agree that all available information and data sources have been identified to inform the baseline? Are there any other information and data sources that should be considered?

We are content with the data sources identified to inform the baseline.

- Do you agree with the scoping decisions of potential impacts?

Although we are content with the scoped in impacts. We also feel *Collision between Project vessels and infrastructure and third-party activities and operations (including vessel interaction with subsea cables)* should be Scoped In during the construction and Decommissioning phase. As the

justification in **Table 13-1** itself says clearly *the presence of project related vessels during the construction and decommissioning phases of the Marine Scheme has the potential to increase the risk of collision with third party vessels.*

We also believe *Potential anchor interactions with subsea cables* should be scoped in as the majority of the cable route is within anchoring depth and there will always be a risk of anchor interaction, and this should be assessed within the EIA.

- Do you agree with the scoping in of potential cumulative impacts?

Yes, likely cumulative and in combination effects on shipping should be considered which will be an important issue to assess during the construction phase of this project.

- Do you agree with the scoping out of potential transboundary impacts?

We believe there is less transboundary impacts on shipping and navigation receptors that arise as a result of construction, operation and maintenance and decommissioning activities.

- Do you agree with the proposed approach to EIA methodology?

Yes, as long as they are compliant with the above-mentioned statements and MGN-654 guidance.

- Do you agree with the stakeholder and consultees identified as part of the proposed EIA methodology?

Yes, we are content with the stakeholders and consultees identified as part of the proposed EIA methodology.

Yours sincerely,

Vinu John
Navigation Policy Advisor
UK Technical Services Navigation

Date: 20 January 2023
Our ref: 415128
Your ref: EIA/2022/00043

Marine Management Organisation
Lancaster House
Hampshire Court
Newcastle Upon Tyne
NE4 7YH

BY EMAIL ONLY

Natural England
Lancaster House
Hampshire Court
Newcastle Upon
Tyne NE4 7YH
T 0300 060 3900

Dear Yvonne

Location: Berwick Bank Cambois Connection

The Marine Works (Environmental Impact Assessment) Regulations 2007.

Thank you for your consultation which we received 7th December 2022 consulting Natural England on the Berwick Bank Cambois connection Environmental Impact Assessment (EIA) Scoping Report. The following constitutes Natural England's formal statutory response. This is without prejudice to any comments we may wish to make in light of further submissions or on the presentation of additional information.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The advice contained within this letter is provided by Natural England, which is the statutory nature conservation body within English territorial waters (0-12 nautical miles). If the application is located partially outside English territorial waters then the advice from JNCC, the statutory nature conservation body in offshore UK waters (beyond 12 nautical miles) should be sought. Likewise, advice should be obtained from NatureScot for the Scottish section of the cable route.

Case law[1] and guidance[2] has stressed the need for a full set of environmental information to be available for consideration prior to a decision being taken on whether or not to grant planning permission. Annex A to this letter provides Natural England's advice on the scope of the Environmental Impact Assessment (EIA) for this development.

The response in this letter is based on the consultation documents received. However, Natural England is in active dialogue with the developer and we understand that the developer is likely to avoid routing the cable through Farnes East MCZ.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

[1] Harrison, J in *R. v. Cornwall County Council ex parte Hardy* (2001)
[2] *Note on Environmental Impact Assessment Directive for Local Planning* Authorities Office of the Deputy Prime Minister (April 2004) available from http://webarchive.nationalarchives.gov.uk/+/http://www.communities.gov.uk/planningandbuilding/planning/sustainabilityenvironmental/environmentalimpactassessment/noteenvironmental/

Main Points

1. Our advice is limited to English waters, we advise that NatureScot is consulted for Scottish waters. Natural England and JNCC both have an interest in Farnes East MCZ given that it crosses the 12 NM boundary. As such, we both provide advice on this part of the cable route.

2. The applicant recognises that the cable route and installation methodologies are yet to be finalised and provide a Project Design Envelope using the Rochdale principles. Due to this, we are only able to provide high-level advice to this scoping document and anticipate providing more detailed advice as plans and methodologies progress.

3. Other projects scoped in for cumulative or in-combination effects appear limited to offshore wind and cable projects. We advise the applicant includes oil and gas infrastructure in consultation with BEIS. Also, other marine developments should be included through consultation with the MMO. This may include activities such as fishing, pipelines and ports developments. See JNCC and Natural England Suggested Tiers for Cumulative Impact Assessment: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010056/EN010056-001638-EA3%20-%20JNCC%20and%20NE%20suggested%20tiers%20for%20CIA.pdf

4. When assessing impacts in designated sites, impacts should be measured in relation to the proportion of a feature impacted rather than the proportion of the site.

    - Conservation advice for the majority of inshore SPAs and MCZs can be found on Natural England's Designated Sites Views website: https://designatedsites.naturalengland.org.uk/

    - Conservation Advice for Farnes East can be found on the JNCC website: https://jncc.gov.uk/our-work/farnes-east-mpa/

    - Conservation Advice for Berwick to St Mary's MCZ is currently in development. An examination of the Conservation Advice provided for eider in Lindisfarne SPA will provide a good basis for this MCZ assessment. Following this, we advise that the applicant consults us for any other advice required.

5. We urge full justification for any rock, concrete or other protection to cables where burial is not possible. These justifications should clearly set out what other methods have been considered to reduce protection and why these are deemed unsatisfactory.

6. Disturbance and displacement of seabirds and coastal shorebirds will need careful consideration. Similarly, these birds' supporting habitats will require thorough assessment.

7. The coast at Cambois includes intertidal sand and sand dunes. There has been erosion of this area in the recent past and we advise that the impacts of increased storm events and sea level rise are considered within the ES.

Please see Annex A for general guidance on EIA requirements. In Annex B we provide detailed comments on the scoping report. Annex C contains summarised answers to the questions posed in the scoping document.

Please note that Natural England must be consulted on Environmental Statements.

For any queries relating to the specific advice in this letter only please contact me using the details below. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely,

Bethan Rogers
Marine Lead Adviser, Northumbria area team, Natural England
E-mail: bethan.rogers@naturalengland.org.uk

Annex A – Advice related to EIA Scoping Requirements

1. General Principles

1.1 Legislation

Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2017 / Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (Regulation 10) sets out the necessary information to assess impacts on the natural environment to be included in an Environmental Statement (ES), specifically:

- A description of the development – including physical characteristics and the full marine use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape/seascape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment.
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information.
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) sets out the basis of when a scoping report is necessary and the information required to assess impacts on the natural marine environment.

SCHEDULE 3 of the Marine Works EIA Regulations sets out the information to be included in an environmental statement

1. A description of the project and of the regulated activity,...
2. A description of the reasonable alternatives (for example in terms...
3. A description of the relevant aspects of the current state...
4. A description of the factors specified in regulation 21A(2)(a) to...
5. A description of the likely significant effects of the project...
6. The description of the likely significant effects on the factors...
7. A description of the forecasting methods or evidence used to...
8. A description of the measures envisaged to avoid, prevent, reduce...
9. A description of the expected significant adverse effects of the...
10. A non-technical summary of the information provided under paragraphs 1...
11. A reference list detailing the sources used for the descriptions...

(full text is available on gov.uk website)

1.2 Cumulative and in-combination effects

It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure and activities should be included within the assessment.

An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):

A. existing completed projects;
B. approved but uncompleted projects;
C. ongoing activities;
D. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
E. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

We refer the applicant to JNCC and Natural England Suggested Tiers for Cumulative Impact Assessment (planninginspectorate.gov.uk)

Natural England's advice on the scope and content of the Environmental Statement is given in accordance with the National Infrastructure Planning Advice Notes:
Advice notes | National Infrastructure Planning (planninginspectorate.gov.uk)

1.3 Environmental data

Natural England is required to make available information it holds where requested to do so. National datasets held by Natural England are available at:
How to access Natural England's maps and data - GOV.UK (www.gov.uk).

Detailed information on the natural environment is available at www.magic.gov.uk.

Natural England's Site of Special Scientific Interest (SSSI) Impact Risk Zones are a GIS dataset which can be used to help identify the potential for the development to impact on a SSSI. The dataset and user guidance can be accessed from the Natural England Open Data Geoportal. SSSI Impact Risk Zones (England) | SSSI Impact Risk Zones (England) | Natural England Open Data Geoportal (arcgis.com)

Natural England does not hold local information on local sites, local landscape character, priority habitats and species or protected species. Local environmental data should be obtained from the appropriate local bodies. This may include the local environmental records centre, the local wildlife trust, local geo-conservation group or other recording society.

2. Biodiversity and Geology

2.1 Ecological Aspects of an Environmental Statement

Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EcIA) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) and are available on their website.

EcIA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.

The National Planning Policy Framework sets out guidance in S.174-177 on how to take account of biodiversity interests in planning decisions and the framework that the responsible authority should provide to assist developers. National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk)
Further guidance is set out in Planning Practice Guidance on the natural environment which can be found here: Natural environment - GOV.UK (www.gov.uk)

2.2 Internationally Designated Sites

The ES should thoroughly assess the potential for the proposal to affect designated sites. Internationally designated sites (e.g. designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA)) fall within the scope of the Conservation of Habitats and Species Regulations 2017 (as amended). In addition paragraph 181 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites. (NB. sites falling within the scope of regulation 8 of the Conservation of Habitats and Species Regulations 2017 are defined as 'habitats sites' in the NPPF).

The proposed cable routes of the development are within or in proximity to the following internationally designated nature conservation sites:

- Lindisfarne SPA
- Lindisfarne Ramsar site
- Farne Islands SPA
- Northumbria Coast SPA
- Coquet Island SPA
- Northumberland Marine SPA

Further information on the special interest features, their conservation objectives, and any relevant conservation advice packages for designated sites is available on our website https://designatedsites.naturalengland.org.uk/

The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within these sites, and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

2.3 Habitats Regulations Assessment

If the proposal outlined within the scoping document has the potential to significantly affect features of the internationally designated sites and the activity is not directly connected to the management of any designated site it should be assessed under regulation 63 the Conservation of Species and Habitats Regulations (2017). Should a Likely Significant Effect on an Internationally designated site be identified or be uncertain, the competent authority (e.g. the Marine Management Organisation or Local Planning Authority or Government Department) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.

If during the EIA process the potential for a Likely Significant Effect on the conservation objectives of the sites cannot be ruled out the competent authority for the marine licence (MMO / Government Department) should undertake an Appropriate Assessment of the implications for the site in view of its conservation objectives. Noting recent case law (People Over Wind[3]) measures intended to avoid and/or reduce the likely harmful effects on a European Site cannot be taken into account when determining whether or not a plan or project is likely to have a significant effect on a site, therefore consideration is required at Appropriate Assessment. Natural England wishes to be consulted on the scope of the Habitats Regulations Assessment and the information that will be produced to support it and should be formally consulted on any Appropriate Assessment provided for the proposal (Regulation 63).

The consideration of Likely Significant Effects should include any functionally linked habitat outside the designated site. These areas may provide important habitat for mobile species populations that are qualifying features of the site, for example birds and bats. This can also include areas which have a critical function to a habitat feature within a designated site, for example by being linked hydrologically or geomorphologically. Further guidance is set out in Planning Practice Guidance on appropriate assessment here: Appropriate assessment - GOV.UK (www.gov.uk)

[3] People Over Wind and Sweetman vs Coillte Teoranta (ref: C 323/17).

2.4 Nationally Designated Sites, inc. Sites of Special Scientific Interest (SSSI) and Marine Conservation Zones (MCZs)

Sites of Special Scientific Interest (SSSIs) - Further information on the location of SSSIs and their special interest features can be found at MAGIC (defra.gov.uk). The ES should include a full assessment of the direct and indirect effects of the development on the features of special interest within the site listed below and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

- Northumberland Shore SSSI
- Cresswell and Newbiggin Shores SSSI

Marine Conservation Zones - Marine Conservation Zones are areas that protect a range of nationally important, rare or threatened habitats and species. You can see where MCZs are located and their special interest features on MAGIC (defra.gov.uk) . Factsheets that establish the purpose of designation and conservation objectives for each of the MCZ's are available at https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england

The proposed cable routes of the development are within or in proximity to the following Marine Conservation Zones:

- Farnes East MCZ
- Coquet to St Mary's MCZ
- Berwick to St Mary's MCZ

The ES should consider including information on the impacts of this development on MCZ interest features, to inform the assessment of impacts on habitats and species of principle importance for this location. Further information on MCZs is available via the following link:
Natural England Access to Evidence - JNCC and Natural England's advice to Defra on Marine Conservation Zones

Further information on the special interest features, the conservation objectives, and relevant conservation advice packages for designated sites is available on our website https://designatedsites.naturalengland.org.uk/

Conservation Advice for Farnes East MCZ can be found on the JNCC website here:
https://jncc.gov.uk/our-work/farnes-east-mpa/ JNCC is currently reviewing this advice.

2.5 Regionally and Locally Important Sites

The EIA will need to consider any impacts upon local wildlife and geological sites. Local Sites are identified by the local wildlife trust, geoconservation group or a local forum established for the purposes of identifying and selecting local sites. They are of county importance for wildlife or geodiversity. The ES should therefore include an assessment of the likely impacts on the wildlife and geodiversity interests of such sites. The assessment should include proposals for mitigation of any impacts and if appropriate, compensation measures. Contact the local wildlife trust, geoconservation group or local sites body in this area for further information.

2.6 Protected Species - Species protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017 (as amended)

The ES should assess the impact of all phases of the proposal on protected species (including, for example, pinnipeds (seals), cetaceans (including dolphins, porpoises whales), fish (including seahorses, sharks and skates), marine turtles, birds, marine invertebrates, bats, etc.). Information on the relevant legislation protecting these species can be reviewed on the following link https://www.gov.uk/government/publications/protected-marine-species. Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, NBN Atlas, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.

The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System (see link below)*. The area likely to be affected by the proposal should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES. Biodiversity and geological conservation: circular 06/2005 - GOV.UK (www.gov.uk)

In order to provide this information there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants. **For Land Based Impacts:** Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation. Protected species and development: advice for local planning authorities - GOV.UK (www.gov.uk)

2.7 Habitats and Species of Principal Importance

The ES should thoroughly assess the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, published under the requirements of S41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available here https://www.gov.uk/guidance/biodiversity-duty-public-authority-duty-to-have-regard-to-conserving-biodiversity.

Government Circular 06/2005 states that Biodiversity Action Plan (BAP) species and habitats, 'are capable of being a material consideration…in the making of planning decisions'. Natural England therefore advises that survey, impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP.

For Developments with a Land based element

Natural England advises that a habitat survey (equivalent to Phase 2) is carried out on the site, in order to identify any important habitats present. In addition, ornithological, botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present. The Environmental Statement should include details of:

- Any historical data for the site affected by the proposal (e.g. from previous surveys);
- Additional surveys carried out as part of this proposal;
- The habitats and species present;
- The status of these habitats and species (e.g. whether priority species or habitat);
- The direct and indirect effects of the development upon those habitats and species;
- Full details of any mitigation or compensation that might be required.

The development should seek if possible to avoid adverse impact on sensitive areas for wildlife within the site, and if possible provide opportunities for overall wildlife gain.

The record centre for the relevant Local Authorities should be able to provide the relevant information on the location and type of priority habitat for the area under consideration.

2.8 Contacts for Local Records

Natural England does not hold local information on local sites, local landscape character and local or national biodiversity priority habitats and species. We recommend that you seek further information from the appropriate bodies (which may include the local records centre, the local wildlife trust, local geoconservation group or other recording society and a local landscape characterisation document).

3. Designated Landscapes and Landscape/Seascape Character

3.1 Nationally Designated Landscapes

The proposed cable routes of the development do not fall within or adjacent to any designated landscapes. The closest are the Northumberland Coast AONB and the North Northumberland Heritage Coast

3.2 Landscape/Seascape and visual impacts
Natural England would wish to see details of local landscape character areas mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The EIA should include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography.

The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape/seascape assessment methodologies. We encourage the use of Landscape and Seascape Character Assessment (LCA/SCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA/SCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.

Natural England supports the publication *Guidelines for Landscape and Visual Impact Assessment*, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

In order to foster high quality development that respects, maintains, or enhances, local landscape / seascape character and distinctiveness, Natural England encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The Environmental Impact Assessment process should detail the measures to be taken to ensure the project design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.

The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

The assessment should refer to the relevant National Character Areas which can be found on our website. Links for Landscape / Seascape Character Assessment at a local level are also available on the same page.
https://www.gov.uk/government/publications/seascape-assessments-for-north-east-north-west-south-east-south-west-marine-plan-areas-mmo1134

https://data.gov.uk/dataset/3fed3362-2279-4645-8aaf-c6b431c94485/mmo1037-marine-character-areas

4. Access and Recreation
Natural England encourages any proposal to incorporate measures to help encourage people to access the countryside for quiet enjoyment. Measures such as reinstating existing footpaths together with the creation of new footpaths and bridleways are to be encouraged. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green/blue infrastructure. Relevant aspects of local authority green/blue infrastructure strategies should be incorporated where appropriate.

4.1 England Coast Path
The England Coast Path (ECP) is a new National Trail that will extend around all of England's coast with an associated margin of land predominantly seawards of this, for the public to access and enjoy. Natural England takes great care in considering the interests of both land owners/occupiers and users of the England Coast Path, aiming to strike a fair balance when working to open a new stretch. We follow an approach set out in the approved Coastal Access Scheme and all proposals have to be approved by the Secretary of State.

As part of the development of the ECP a 'coastal margin' is being identified. The margin includes all land between the trail and the sea. It may also extend inland from the trail if:

- it's a type of coastal land identified in the Countryside and Rights of Way Act 2000 (CROW Act), such as beach, dune or cliff
- there are existing access rights under section 15 of the CROW Act
- Natural England and the landowner agree to follow a clear physical feature landward of the trail

The England Coast Path and associated coastal margin has been approved by the Secretary of State and is open at the landfall area.

Maps for sections of the ECP and further proposals for adoption are available here: https://www.gov.uk/government/collections/england-coast-path-improving-public-access-to-the-coast

4.2 Rights of Way, Access land, Coastal access and National Trails

The EIA should consider potential impacts on access land, public open land, rights of way and coastal access routes in the vicinity of the development. The National Trails website www.nationaltrail.co.uk provides information including contact details for the National Trail Officer. Appropriate mitigation measures should be incorporated for any adverse impacts. We also recommend reference to the relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

5. Water Quality

Increases in suspended sediment concentrations (SSC) during construction and operation (e.g. future maintenance works) have the potential to smother sensitive habitats. The ES should include information on the sediment quality and potential for any effects on water quality through suspension of contaminated sediments. The EIA should also consider whether increased suspended sediment concentrations resulting are likely to impact upon the interest features and supporting habitats of the designated sites as listed above.

The ES should consider whether there will be an increase in the pollution risk as a result of the construction or operation of the development.

For activities in the marine environment up to 1 nautical mile out at sea, a Water Framework Directive (WFD) assessment is required as part of any application. The ES should draw upon and report on the WFD assessment considering the impact the proposed activity may have on the immediate water body and any linked water bodies. Further guidance on WFD assessments is available here: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

6. Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition (England Biodiversity Strategy, Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

7. Climate Change Adaptation

The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment 'by establishing coherent ecological networks that are more resilient to current and future pressures' (NPPF Para 174), which should be demonstrated through the ES.

Annex B – Detailed comments Berwick Bank export cable "Cambois Connection" EIA scoping consultation report

Below we provide our detailed comments on the EIA scoping report sent to us in December 2022.

Section 1 introduction

No comment

Section 2 Legislative policy and context

We note that the EIA scoping will inform any Habitats Regulations Assessments (with associated consideration of Ramsar sites and Sites of Special Scientific Interest) and Marine Conservation Zone Assessments. Therefore, for clarity, we provide a list of sites and features that will need to be considered for these assessments (see table 1 below).

Table 1 Site and features requiring consideration for inclusion in HRA and MCZ assessments.

Site Name	Designation	Feature Common Name	Feature Latin Name	Breeding Status
Berwick to St Mary's	MCZ	Eider	Somateria mollissima	
Coquet Island	SPA	Arctic tern	Sterna paradisaea	Breeding
Coquet Island	SPA	Common tern	Sterna hirundo	Breeding
Coquet Island	SPA	Roseate tern	Sterna dougallii	Breeding
Coquet Island	SPA	Sandwich tern	Thalasseus sandvicensis	Breeding
Coquet Island	SPA	Seabird assemblage		Breeding
Coquet to St Mary's	MCZ	High energy infralittoral rock		
Coquet to St Mary's	MCZ	High energy intertidal rock		
Coquet to St Mary's	MCZ	Intertidal coarse sediment		
Coquet to St Mary's	MCZ	Intertidal mixed sediments		
Coquet to St Mary's	MCZ	Intertidal mud		
Coquet to St Mary's	MCZ	Intertidal sand and muddy sand		
Coquet to St Mary's	MCZ	Intertidal underboulder communities		
Coquet to St Mary's	MCZ	Low energy intertidal rock		
Coquet to St Mary's	MCZ	Moderate energy circalittoral rock		
Coquet to St Mary's	MCZ	Moderate energy infralittoral rock		
Coquet to St Mary's	MCZ	Moderate energy intertidal rock		
Coquet to St Mary's	MCZ	Peat and clay exposures		
Coquet to St Mary's	MCZ	Subtidal coarse sediment		
Coquet to St Mary's	MCZ	Subtidal mixed sediments		
Coquet to St Mary's	MCZ	Subtidal mud		
Coquet to St Mary's	MCZ	Subtidal sand		

Site Name	Designation	Feature Common Name	Feature Latin Name	Breeding Status
Cresswell and Newbiggin Shores	SSSI	EC - Quaternary of North-East England		
Cresswell and Newbiggin Shores	SSSI	EC - Westphalian		
Farne Islands	SPA	Arctic tern	Sterna paradisaea	Breeding
Farne Islands	SPA	Common tern	Sterna hirundo	Breeding
Farne Islands	SPA	Guillemot	Uria aalge	Breeding
Farne Islands	SPA	Roseate tern	Sterna dougallii	Breeding
Farne Islands	SPA	Sandwich tern	Thalasseus sandvicensis	Breeding
Farne Islands	SPA	Seabird assemblage		Breeding
Farnes East	MCZ	Moderate energy circalittoral rock		
Farnes East	MCZ	Ocean quahog	Arctica islandica	
Farnes East	MCZ	Sea-pen and burrowing megafauna communities		
Farnes East	MCZ	Subtidal coarse sediment		
Farnes East	MCZ	Subtidal mixed sediments		
Farnes East	MCZ	Subtidal mud		
Farnes East	MCZ	Subtidal sand		
Lindisfarne	Ramsar	Bar-tailed godwit	Limosa lapponica	Wintering
Lindisfarne	Ramsar	Greylag goose	Anser anser	Wintering
Lindisfarne	Ramsar	Light-bellied brent goose	Branta bernicla horta	Wintering
Lindisfarne	Ramsar	Redshank	Tringa totanus	Wintering
Lindisfarne	Ramsar	Ringed plover	Charadrius hiaticula	Wintering
Lindisfarne	Ramsar	Waterbird assemblage - Wintering		Wintering
Lindisfarne	Ramsar	Wigeon	Mareca penelope	Wintering
Lindisfarne	SPA	Bar-tailed godwit	Limosa lapponica	Non-breeding

Site Name	Designation	Feature Common Name	Feature Latin Name	Breeding Status
Lindisfarne	SPA	Common scoter	Melanitta nigra	Non-breeding
Lindisfarne	SPA	Dunlin	Calidris alpina alpina	Non-breeding
Lindisfarne	SPA	Eider	Somateria mollissima	Non-breeding
Lindisfarne	SPA	Golden plover	Pluvialis apricaria	Non-breeding
Lindisfarne	SPA	Grey plover	Pluvialis squatarola	Non-breeding
Lindisfarne	SPA	Greylag goose	Anser anser	Non-breeding
Lindisfarne	SPA	Light-bellied brent goose	Branta bernicla hrota	Non-breeding
Lindisfarne	SPA	Little tern	Sternula albifrons	Breeding
Lindisfarne	SPA	Long-tailed duck	Clangula hyemalis	Non-breeding
Lindisfarne	SPA	Red-breasted merganser	Mergus serrator	Non-breeding
Lindisfarne	SPA	Redshank	Tringa totanus	Non-breeding
Lindisfarne	SPA	Ringed plover	Charadrius hiaticula	Non-breeding
Lindisfarne	SPA	Roseate tern	Sterna dougallii	Breeding
Lindisfarne	SPA	Sanderling	Calidris alba	Non-breeding
Lindisfarne	SPA	Shelduck	Tadorna tadorna	Non-breeding
Lindisfarne	SPA	Waterbird assemblage		Non-breeding
Lindisfarne	SPA	Whooper swan	Cygnus cygnus	Non-breeding
Lindisfarne	SPA	Wigeon	Mareca penelope	Non-breeding
Northumberland Marine	SPA	Arctic tern	Sterna paradisaea	Breeding
Northumberland Marine	SPA	Common tern	Sterna hirundo	Breeding
Northumberland Marine	SPA	Guillemot	Uria aalge	Breeding
Northumberland Marine	SPA	Little tern	Sternula albifrons	Breeding
Northumberland Marine	SPA	Puffin	Fratercula arctica	Breeding
Northumberland Marine	SPA	Roseate tern	Sterna dougallii	Breeding
Northumberland Marine	SPA	Sandwich tern	Thalasseus sandvicensis	Breeding

Site Name	Designation	Feature Common Name	Feature Latin Name	Breeding Status
Northumberland Marine	SPA	Seabird assemblage		Breeding
Northumberland Shore	SSSI	Golden plover	Pluvialis apricaria	Non-breeding
Northumberland Shore	SSSI	Purple sandpiper	Calidris maritima	Non-breeding
Northumberland Shore	SSSI	Redshank	Tringa totanus	Non-breeding
Northumberland Shore	SSSI	Ringed plover	Charadrius hiaticula	Non-breeding
Northumberland Shore	SSSI	Sanderling	Calidris alba	Non-breeding
Northumberland Shore	SSSI	Turnstone	Arenaria interpres	Non-breeding
Northumbria Coast	Ramsar	Little tern	Sternula albifrons	Breeding
Northumbria Coast	Ramsar	Purple sandpiper	Calidris maritima	Wintering
Northumbria Coast	Ramsar	Turnstone	Arenaria interpres	Wintering
Northumbria Coast	SPA	Arctic tern	Sterna paradisaea	Breeding
Northumbria Coast	SPA	Little tern	Sternula albifrons	Breeding
Northumbria Coast	SPA	Purple sandpiper	Calidris maritima	Non-breeding
Northumbria Coast	SPA	Turnstone	Arenaria interpres	Non-breeding
Tweed Estuary	SAC	Estuaries		
Tweed Estuary	SAC	Mudflats and sandflats not covered by seawater at low tide		
Tweed Estuary	SAC	River lamprey	Lampetra fluviatilis	
Tweed Estuary	SAC	Sea lamprey	Petromyzon marinus	

Section 3 Project description

The applicant recognises in the EIA Scoping document, that the cable route and installation methodologies are yet to be finalised and they provide a Project Design Envelope using the Rochdale principles. Due to this, we are only able to provide high-level advice to this scoping document and anticipate providing more detailed advice as plans and methodologies progress.

Section	Topic	Comment
3.4.1	Surveys	Where there is potential for removals, deposition, the introduction of noise or other disturbance into designated sites, these will need to be assessed through HRAs and MCZ assessment. EPS licences may be required for surveys using sound.
3.4.2	Pre-installation activities	Where there is potential for removals, deposition, the introduction of noise or other disturbance into designated sites, these will need to be assessed through HRAs and MCZ assessment. EPS licences may be required for activities using or creating sound.
3.6	Decommissioning	Natural England welcomes consideration of decommissioning. If removal could be achieved, then whilst the impacts would no longer be permanent, they would still last for the lifetime of the infrastructure (35 years) and potentially longer as a residual impact. Therefore, because this impact is lasting / long term and site recovery wouldn't be assured, Natural England's view is that reasonable scientific doubt would likely remain regarding the impact of the proposals on the conservation objectives for designated sites. Accordingly, we advise that a precautionary approach is required when considering the impacts to the designated site features both alone and cumulatively.

Section 4 Approach to scoping and EIA method

No comments

Section 5 Stakeholder engagement

No comments

Section 6 Offshore physical environment and seabed conditions

Section	Topic	Comment
6-2	Introduction of scour	Advise this is scoped in as a precaution. Additional scour protection may be required during operation and maintenance and scour become a result of that.

Section 7 Water and sediment quality

We Refer the MMO and the applicant to comments from other statutory consultees who are better placed to advise on these issues, particularly the Environment Agency and Cefas.

Section 8 Benthic subtidal and intertidal ecology

Section	Topic	Comment
8.5.2	Limited data on ocean quahog	We agree there is limited data on ocean quahog, however we advise that the data that is available is used in an assessment of impacts. When this assessment is carried out, we advise the applicant contacts JNCC for any more recent data.
8-1	Increased SSC (suspended sediment concentrations) and deposition	We will require information on a worst-case-scenario for the predicted type, location (maps) and quantity of suspended sediment mobilisation and deposition. We advise this in included in the Environmental Statement, HRA and MCZ assessment.
8-1	Permanent benthic loss / disturbance / change	We will require information on a worst-case-scenario for the predicted type, location (maps) and quantity of habitat loss, disturbance and change. This should include (but not necessarily be limited to) rock protection, concrete / frond mattresses or other forms of cable protection. We advise this in included in the Environmental Statement, HRA and MCZ assessment. Any cable protection is likely to require mitigation through avoidance, reduction or other mitigation.
8-1	Colonisation of hard structures	Consideration of the use of hard structures as stepping stones for Invasive Non-Native Species should be made. The impact of rocky reef species on the existing biota should be addressed.
8-1	EMF	We advise Electromagnetic Fields are scoped in as this may impact the shellfish components of the benthic communities. The following references should be used to inform these assessments: Scott et al 2021 Exposure to Electromagnetic Fields (EMF) from Submarine Power Cables Can Trigger Strength-Dependent Behavioural and Physiological Responses in Edible Crab, Cancer pagurus (L.) J. Mar. Sci. Eng. 2021, 9(7), 776; https://doi.org/10.3390/jmse9070776 Harsanyi et al 2022 The Effects of Anthropogenic Electromagnetic Fields (EMF) on the Early Development of Two Commercially Important Crustaceans, European Lobster, Homarus gammarus (L.) and Edible Crab, Cancer pagurus (L.) J. Mar. Sci. Eng. 2022, 10(5), 564; https://doi.org/10.3390/jmse10050564
8.9	Lack of clarity in first paragraph and bullets	It is unclear which benthic subtidal and intertidal ecology will be considered.

Section 9 Fish and shellfish ecology

Section	Topic	Comment
9-3	Long term habitat loss	Advise that long-term habitat change is also scoped in as the introduction of hard substrate as cable protection may impact the numbers and types of fish and shellfish species present along the cable route and in the vicinity.

Section 10 Offshore and intertidal ecology

Section	Topic	Comment
10	Seasonality of bird features	Different birds use the marine and coastal area at different times. Any mitigation measures designed to protect particular species in a given place and time should be balanced with the potential impacts to other birds.
10.7 and 10-2	Scoping of impacts	We welcome the inclusion of the broad impacts scoped in and advise the following pressures are assessed in the ES, HRA and MCZ assessments: - Abrasion / disturbance of the sea bed - Changes in suspended solids - Penetration and / or disturbance of the substratum below the surface of the seabed, including abrasion - Physical change (to another seabed type) - Physical change (to another sediment type) - Smothering and siltation rate changes - Barrier to species movement - Habitat structure changes – removal of substratum - Introduction of other substances (solid, liquid or gas) - Vibration - Above water noise - Visual disturbance

Section 11 Marine mammals and other megafauna

No comments

Sections 12, 13, 14, 15

We Refer the MMO and the applicant to comments from other statutory consultees who are better placed to advise on these issues.

Annex C – Summary of answers to scoping questions.

Does Natural England agree with…	Section 6 OFFSHORE PHYSICAL ENVIRONMENT AND SEABED CONDITIONS	Section 8 BENTHIC SUBTIDAL AND INTERTIDAL ECOLOGY	Section 9 FISH AND SHELLFISH ECOLOGY	Section 10 OFFSHORE AND INTERTIDAL ORNITHOLOGY	Section 11 MARINE MAMMALS AND OTHER MEGAFAUNA
the study area?	Yes	Yes	Yes	Yes	Yes
baseline data? Other data sources?	Yes. However new data may become available, this may be particularly relevant to designated sites.	Yes. However new data may become available, this may be particularly relevant to designated sites.	Yes. However new data may become available, this may be particularly relevant to designated sites.	Yes. However new data may become available, this may be particularly relevant to designated sites.	Yes. However new data may become available, this may be particularly relevant to designated sites.
the scoping decisions of potential impacts?	See comments in Annex B above	See comments in Annex B above	See comments in Annex B above	See comments in Annex B above	Yes
the scoping in of potential cumulative impacts?	See main point 3	See main point 3	See main point 3	See main point 3	See main point 3
the scoping of potential transboundary impacts?	Yes	Yes	Yes	Yes	Yes
the proposed approach to EIA methodology? Do you agree with the stakeholders identified?	Yes	Yes	Yes	Yes	Yes
the proposed scope of wintering bird surveys to inform the ornithology EIA assessment?	N/A	N/A	N/A	Yes	N/A

Centre for Environment Fisheries & Aquaculture Science

Cefas

PLANNING ACT 2008. APPLICATION BY SSE RENEWABLES DEVELOPMENTS (UK) LTD FOR THE BERWICK BANK OFFSHORE WIND FARM TO CAMBOIS CABLE CONNECTION. ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT, NORTHUMBERLAND, UK
Reference Number: EIA/2022/00043

From: Paul McIlwaine
Cefas, Lowestoft Laboratory
Date: 9th January 2023

To: Yvonne Golightly - MMO (via MCMS)
Cc: Charlotte Clarke

1. With reference to the above application for Berwick Bank Offshore Wind Farm to Cambois cable connection off the Northumberland coast by SSE Renewables Developments (UK) LTD and your request for comments dated 7th December 2022 please find my comments below.

2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for benthic ecology. The response pertains to those areas of the pre-application request that are of relevance to this field. This minute does not provide specialist advice regarding marine processes, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.

3. In providing this advice I have spent 3.75 hours of the allocated 3.75 hours by the MMO. I have booked my time to EIA/2022/00043 (C8509PRE128).

4. Cefas provides comments based on the below category system:
   - Category 1: **Major Comment (Action)-** It is Cefas' advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. MMO are strongly advised to request this further information then re-consult Cefas.
   - Category 2: **Minor Comment (Action)-** There is data/ information/ evidence missing that could affect our assessment. Provision of the data/information would allow for due diligence to ensure we have confidence in the applicant's and our own assessment but would not necessarily preclude the granting of a licence. MMO advised to request further information from applicant and then to re-consult Cefas, however MMO may be able to grant licence if this information is not submitted, provided MMO have clear rationale for their decision.
   - Category 3: **Minor Comment (No Action)-** These highlight those things that should be included as best practice but would not affect our overall decision/ conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. MMO case team could pass this on to applicant however this information is not required for consultation with Cefas.
   - Category 4: **Observation-** Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for MMO case team but this could be passed on to applicant if MMO wish, to pass on areas of good practice.

Document (s) reviewed via MCMS on 19th December 2022.

5. Cambois Connection Marine Scheme Volume 1: Environmental Impact Assessment Scoping Report. Prepared by Exodus on behalf of SSE Renewables (UK) Ltd, 2022, Version No A02.

Description of the proposed works

6. The Cambois Connection Project comprises offshore export cables associated with the separately consented Berwick Bank Wind Farm (located in the outer Firth of Forth, Scotland). Cable landfall and grid connection is at Cambois, Northumberland, England. The applicant previously confirmed with Marine Scotland Licensing Operations Team (MS-LOT) and Marine Management Organisation (MMO) the requirement for an Environmental Impact Assessment and a scoping report has been submitted in support of a request for a formal scoping opinion in relation to the Cambois Connection Project from both MS-LOT and MMO.

7. This advice minute presents my benthic ecology advice for the proposed project based on the information presented in the above cited Environmental Impact Assessment Scoping Report.

Responses to Questions posed by the MMO Case Officer. All responses are observations unless otherwise stated.

Specific questions regarding benthic subtidal and intertidal ecology

MMO Question 1: Do you agree that the data sources identified are sufficient to inform the benthic subtidal and intertidal ecology baseline for the preliminary environmental information report (PEIR) and Environment Statement (ES)?

8. Yes, the data sources identified in section 8.4 of the scoping report (document referenced in paragraph 5) appear sufficient to inform the PEIR and ES.

9. Additionally, third party impact assessments of nearby OWFs will be reviewed and site-specific benthic surveys comprising sediment sampling (infauna and particle size distribution analysis), seabed imagery (drop down video) and intertidal walkover surveys will be conducted to contribute to the baseline understanding for benthic ecology.

10. **Minor Comment (Action)-** I recommend the applicant considers consulting the OneBenthic database to source additional datapoints (e.g., benthic grabs located within the cable export corridor) that may assist in the overall benthic characterisation.

MMO Question 2: Have all potential impacts resulting from the Project been identified for benthic subtidal and intertidal receptors?

11. Yes, the potential impacts have been identified and presented in Table 8-1 of the scoping report (document in paragraph 5).

MMO Question 3: Do you agree that the impacts described in table 8-1 can be scoped out?

12. The impacts listed in Table 8-1 of the scoping report include several that have been scoped out at each stage of the development (i.e., construction, operation and maintenance, and decommissioning) in addition to those that remain scoped in. Those scoped out include impacts on the benthic assemblage because of noise, the potential introduction of Invasive Non-Native Species (INNS), the accidental release of pollutants and Electronic Magnetic Fields (EMF).

13. **Minor Comment (Action)-** I broadly agree with the rationale provided for impacts that have been scoped out. However, although impacts from the introduction of INNS have been scoped out at this stage, the applicant recognises that cable protection is expected to be colonised by a variety of marine organisms. I recommend that consideration is given to the potential colonisation of cable protection by INNS, particularly if the amount of cable protection required is extensive and provides habitat that is otherwise not widespread.

MMO Question 4: For those impacts scoped in table 8-1, do you agree that the methods described are sufficient to inform a robust impact assessment?

14. The scoping report (document referenced in paragraph 5) states that "*Benthic subtidal and intertidal ecology surveys will be undertaken to collect site specific data*". While there are no specific methods proposed to collect the information required within the scoping report, these details will have been provided to the Marine Management Organisation in advance of survey operations for consultation, as stipulated in the Deemed marine Licence.

15. **Minor Comment (No Action)-** I recommend that detailed survey methods, including sample locations, are selected carefully to ensure the feature of interest can be robustly assessed. For example, the seabed imagery technique(s) proposed to assess the presence and extent of the protected features (such as Annex I reef and *Arctica islandica*) within the Farnes East Marine Conservation Zone (MCZ) should facilitate accurate identification and enumeration.

16. **Minor Comment (No Action)-** It is unclear what the Assessment Method for the potential impact of "*increases suspended sediment concentrations and associated deposition*" at the Operation and Maintenance phase of the project refers to in Table 8.1 of the scoping report (document referenced in paragraph 5). The text included in the Assessment Method column discusses primary productivity and chemical concentrations rather than providing an assessment of the sensitivity of the benthic assemblage to the impact presented. This appears to be a repeat of the text used for the potential impact "*Increased SSC and associated deposition (including mobilisation of potential contaminants)*" at the Construction and Decommissioning phase of the development in the same table. I recommend that this text is reviewed and the appropriate Assessment Method is included.

MMO Question 5: Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of the Project on benthic subtidal and intertidal ecology receptors?

17. The scoping report (document referenced in paragraph 7) states "*it is not possible to provide and exhaustive list of topic-specific mitigation measures*". As such, the applicant commits to several overarching mitigation measures such as;
    - minimising the amount of scour protection as far as possible,
    - micro-routeing within the export cable corridor,
    - development and adherence to detailed environmental management plans (e.g., Marine Pollution Contingency and Control Plan and INNS management plan and,
    - development and adherence to an Ecological Clerk of Works during landfall works.

18. Furthermore, a more detailed description of the mitigation measures will be provided in the Environmental Impact Assessment.

MMO Question 6: Any other comments?

19. The Farnes East MCZ overlaps partly with the proposed export cable corridor. I defer to the recommendations of the relevant statutory nature conservation bodies regarding the impact of

the cable installation, and any associated cable protection measures, on the protected features of designated sites. I also recommend that the applicant considers the option to avoid installing cables within the Farnes East MCZ by routing the export cable within the scoping area, yet outside of the Farnes East MCZ (Figure 1).

All specialist areas

MMO Question 7: In view of the scope of the proposals, do you consider the approach provided by the applicant to be sufficient to fully identify and assess the potential impacts?

20. Yes, in my opinion, the potential impacts have been assessed comprehensively at this time.

MMO Question 8: Do you consider any further impacts to be identified and assessed?

21. No, I do not propose further impacts for assessment.

MMO Question 9: Do you consider there to be any information gaps that need highlighting? If yes, then expand.

22. No, I do not currently consider there to be information gaps that require highlighting at this stage.

MMO Question 10: Do you agree with the mitigation measures proposed (if any)? If not, are there any additional measures/changes to proposed measures that you would expect to see?

23. Please see response to MMO Question 5 in paragraphs 6 and 17 above.

MMO Question 11: Is there an adequate description of the potential cumulative and inter-related impacts and effects on the physical and biological environment?

24. Yes, section 8.8 of the scoping report includes a short paragraph on the Potential Cumulative and Transboundary Impacts to benthic subtidal and intertidal ecology which states that "*potential impacts associated with the Marine Scheme will be highly localised*" and therefore there is no potential for transboundary impacts.

25. Furthermore, table 4.5 of the scoping report includes a comprehensive list of projects for consideration within the Cumulative Impact Assessment.

Any additional comments

26. None at this time.

Summary

27. The scoping report submitted by RWE Renewables (UK) Ltd includes relevant potential impacts arising from the installation, operation and maintenance and decommissioning of the Cambois Connection Project.

28. I agree with the report conclusions regarding scoping out of several of the potential impacts.

29. I recommend that Table 8.1 is amended to include relevant information in the Assessment Method column for the potential impact to the benthic assemblage "*increases suspended sediment concentrations and associated deposition*" at the Operation and Maintenance phase of the project.

30. The Cefas OneBenthic dataset may have additional samples to help characterise the scoping area.

31. The applicant may wish to consider avoiding the Farnes East MCZ and instead, route the cable outside the MCZ boundary.

Paul McIlwaine
Specialist Scientist Marine Benthic Ecology

Quality Check	***Date***
Charlotte Clarke	09/01/2023

Appendix

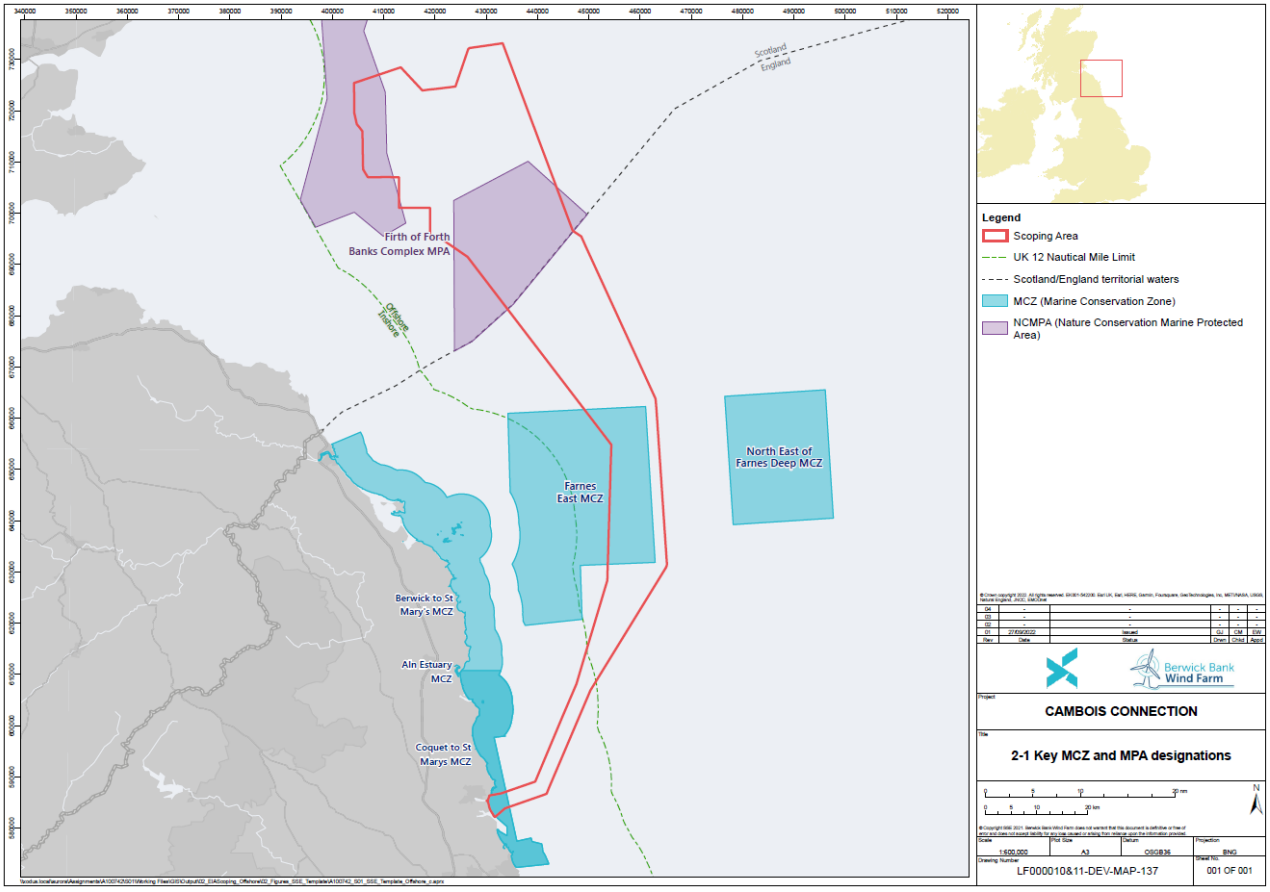

Figure 1. Location of the scoping area in relation to the Marine Conservation Zone and Marine Protected Area designations showing the potential route that could avoid installation works within the Farnes East MCZ.

Centre for Environment Fisheries & Aquaculture Science

Cefas

MARINE AND COASTAL ACCESS ACT (2009) AND MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (AS AMENDED). APPLICATION BY THE XODUS GROUP FOR THE DEVELOPMENT OF THE CAMBOIS CONNECTION SCHEME AT CAMBOIS, NORTHUMBERLAND
Reference Number: EIA/2022/00043

From: Rosalyn Putland
Cefas, Lowestoft Laboratory
Date: 5th January 2023

To: Emma Shore – MMO (via MCMS)
Cc: Rebecca Faulkner – Cefas
Charlotte Clarke – SEAL Case Officer
Luke Harto – MMO Case Manager

1. With reference to the above application for the development of offshore export cables as part of the Cambois Connection Marine Scheme at Cambois in Northumberland by Xodus Group for SSE Renewables Developments Ltd. and your request for comments on the underwater noise response statements dated 12th December 2022, please find my comments below.

2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for underwater noise. The response pertains to those areas of the application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, fish and fisheries, or shellfisheries as, whilst these are within Cefas' remit, they are outside my area of specialism.

3. In providing this advice I have spent 3.75 hours of the allocated 3.75 hours by the MMO. I have booked my time to C8509PRE128.

4. Cefas provides comments based on the below category system:
   Category 1: **Major Comment (Action)-** It is Cefas' advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. MMO are strongly advised to request this further information then re-consult Cefas.
   Category 2: **Minor Comment (Action)-** There is data/ information/ evidence missing that could affect our assessment. Provision of the data/information would allow for due diligence to ensure we have confidence in the applicant's and our own assessment but would not necessarily preclude the granting of a licence. MMO advised to request further information from applicant and then to re-consult Cefas, however MMO may be able to grant licence if this information is not submitted, provided MMO have clear rationale for their decision.
   Category 3: **Minor Comment (No Action)-** These highlight those things that should be included as best practice but would not affect our overall decision/ conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. MMO case team could pass this on to applicant however this information is not required for consultation with Cefas.

Category 4: **Observation-** Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for MMO case team but this could be passed on to applicant if MMO wish, to pass on areas of good practice.

Documents reviewed

5. SSE Renewables Cambois Connection Marine Scheme Volume 1: Environmental Impact Assessment Scoping Report
    1) Introduction
    3) Project Description
    4) Approach to scoping and EIA methodology
    5) Stakeholder engagement and consultation
    9) Fish and Shellfish Ecology
    11) Marine mammals and other megafauna
    16) Summary of scoping report

Description of the proposed works

6. The proposed works for the marine scheme include the installation of offshore export cables from within the Berwick Bank Wind Farm (BBWF) to a proposed landfall location near Cambois, Northumberland. The offshore cables will be approximately 170 km in length and installed using a combination of burial and cable protection techniques (such as rock placement).

7. Pre installation surveys (including the investigation of potential unexploded ordnance (UXOs)) will be considered as a separate marine license with its own environmental assessment and, therefore, has not been considered as part of this Scoping report (Section 1.3 onshore and marine schemes).

8. Underwater noise produced from human activities, including seabed clearance and associated vessel activity, could potentially cause physiological and behavioural effects on aquatic life. The Cambois Marine Scheme Scoping Report has scoped in underwater noise as a potential impact on marine mammals (section 11) and scoped out underwater noise for fishes and shellfish (section 9).

Responses to Questions posed by the MMO Case Officer. All responses are observations unless otherwise stated.

Do you agree that the data sources identified are sufficient to inform the marine mammal baseline for the PEIR and ES?

9. Appropriate evidence has been used throughout the scoping report. For example, the applicant has included an extensive list of datasets to provide baseline data on resident and migratory fishes (section 9.4 key data sources) and marine mammals (section 11.4 key data sources) in the study area. The evidence used is also consistent with that submitted for operations of a similar nature.

Minor comment (no action)

10. It is expected that appropriate published thresholds and criteria will be applied to determine potential behavioural and physiological effects of noise during the EIA, as these were not mentioned directly in the Scoping Report (National Marine Fisheries Service, 2018; Popper et al., 2014).

Is there any further surveys which are required, that have not already been identified?

11. To the best of my knowledge, there are no further surveys that the applicant could use in addition to their key data source lists (section 9.4 and section 11.4).

Are you satisfied underwater noise has been scoped in?

12. In terms of the project description (section 3, Scoping Report), there is potential for underwater noise to be produced during installation, operational maintenance and decommissioning of the export cables.

13. During installation, seabed clearance, cable burial and cable protection activities will produce varying levels of underwater noise depending on the equipment used and/or technique applied. For example, obstacles may need to be cleared from the seabed using subsea ploughs or a pre-lay grapnel run (section 3.4 cable installation). It is anticipated that vessels required to complete cable installation works may include: cable lay vessels (including jack-up and shallow hull barges), support vessels and guard vessels. For the applicant's information, cable lay vessels have been estimated to produce source levels of 188 dB re 1µPa (rms) (Wyatt, 2008)). Additionally, an anchor handling vessel is expected to produce noise levels in line with a tug vessel (172 dB re 1µPa (rms) (Wyatt, 2008). Potential impacts of underwater noise during installation could occur throughout the duration of planned activities and therefore I agree should be scoped into the Environmental Impact Assessment (EIA).

14. During operation and maintenance, the export cables will be monitored for condition throughout the lifetime of the marine scheme using offshore surveys. Underwater noise during operational maintenance is expected to be negligible unless re-positioning of rock placement or additional rock protection is required.

15. At the decommissioning stage, cable recovery may require an environmental and economic impact assessment to assess the impacts of decommissioning activities. I agree with the applicant that potential impacts from underwater noise during decommissioning would be temporary and would occur over a short period. However, there is still the potential for impacts to the offshore environment, so I agree that decommissioning should be considered within the EIA (section 3.6 decommissioning).

16. I agree with the applicant's conclusion to scope in the potential impact of underwater noise on marine mammals given the various activities associated with installation, maintenance and decommissioning of the export cables. Nine different species of cetaceans and two pinniped species are expected to be present within the Northumberland Coastal region. Marine Mammal Mitigation Protocols will be developed for the marine mammal species of relevance during the EIA (section 11 Marine mammals and other megafauna).

Minor comment (no action)

17. The scoping report provides high level information that will be expanded upon during the EIA process, as such some technical data about construction is missing. A greater understanding of the methodology intended during installation is needed to review the effects of underwater noise during the EIA.

Minor comment (no action)

18. Following on from the previous comment, the timing and duration of works (such as cable laying and vessel operations) will also influence noise exposure levels. Within the EIA this information should be provided, using a worst-case scenario if details are not finalised.

Have all potential impacts resulting from the project been identified for marine mammal receptors?

19. Underwater noise impacts associated with construction noise including physiological impacts, barrier effects and displacement have been scoped in during construction and decommission activity. I agree that publicly available information from other projects within the marine scheme will be used to inform potential sources and anticipated noise levels.

Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of the project on receptors?

20. I agree that a Marine Mammal Mitigation Protocol (MMMP) should be implemented in line with the anticipated noise related impacts (Table 11 – 1 Scoping of potential impacts for marine mammal and other megafauna receptors).

Minor comment (no action)

21. The MMMP included in the EIA should consider placing timing constraints on activities with associated underwater noise in line with the calving and nursing periods mentioned in section 11.5 Baseline

Environment.

In view of the scope of the proposals, do you consider the approach provided by the applicant to be sufficient to fully identify and assess the potential impacts?

22. The assessment method described in Table 11 -1 (Scoping of potential impacts for marine mammals and other megafaunal receptors) is suitable for the proposed installation, maintenance and decommissioning of export cables.

Do you consider any further impacts to be identified and assessed?

Major comment:

23. I agree with the applicant's conclusion to scope in the potential impact of underwater noise on marine mammals. However, I do not agree that potential effects of underwater noise during installation should be scoped out for fishes.

24. For fishes, the risk of physiological injury can be assessed using criteria published by Popper et al. (2014). This criterion provides quantitative thresholds for temporary threshold shifts, recoverable injury, and death of fish in response to sound. Although the Popper criteria does not provide quantitative thresholds for continuous sources of noise like cable laying and vessel activity, given that pulse sounds such as piling noise are likely to have a greater effect, they could be applied in the assessment of sound exposure as a precautionary approach.

25. The thresholds for fish sensitivity are formulated using three functional hearing groups (in decreasing order of vulnerability to sound exposure). Firstly, those fishes with a swim bladder or other aid cavities which may aid in hearing (such as Atlantic herring *Clupea harengus*). Secondly, those fishes that do not have swim bladders that aid in hearing (such as European eels *Anguilla Anguilla*) and third those fishes that do not possess a swimbladder (such as elasmobranchs). Examples of fishes from all three functional hearing groups have been mentioned the baseline environment description for fishes and shellfish in the marine scheme location (section 9.5 baseline environment fish and shellfish).

Do you consider there to be any information gaps that need highlighting? If yes, then expand.

26. The applicant has also noted that the proposed site area is commercially and ecologically important for some crab and lobster species, as well as squid (section 9.5 baseline environment fish and shellfish assemblage). Currently there are no established noise criteria for crustaceans and cephalopods therefore, I recommend that the applicant draw on, and support their conclusions related to scoping out the effect of underwater noise using the peer-reviewed literature.

Do you agree with the mitigation measures proposed (if any)? If not, are there any additional measures/changes to proposed measures that you would expect to see?

Minor comment (no action)

27. The timeline for the installation of the export cables is not fully described in the scoping report. During the EIA, the applicant should confirm this timing of installation does not overlap with fish spawning or marine mammal calving periods, as noise produced during an acoustically sensitive event such as during reproductive activities may have larger effects. I defer to the Cefas fisheries team to assess whether the time periods for spawning/nursery specified (section 9.5 baseline environment) are relevant and use the most up to date information.

Is there an adequate description of the potential cumulative and inter-related impacts and effects on the physical and biological environment?

28. The applicant has acknowledged that there is a 'possibility that certain impacts from the Marine Scheme may interact with other projects, plans and activities, which could result in a cumulative effect on fish and shellfish ecology receptors' (Section 9.8 Potential Cumulative and Transboundary Impacts), as well as on 'marine mammals and other megafauna' (Section 11.8 Potential Cumulative and Transboundary Impacts).

29. At this stage, I am unable to comment fully on any potential cumulative effects as I do not have full awareness of other projects (including the timings of work) that may overlap with the construction, operation and decommission of the export cables for the Cambois Marine Scheme. Furthermore, cumulative effects are very difficult to assess, and EIA based cumulative effect assessments (CEAs) led by developers of individual projects have clear shortcomings (when compared to CEAs led by government agencies on a regional or strategic level (Willsteed et al., 2017).

Summary

30. Underwater noise is predicted to be produced during installation, maintenance and decommissioning of the export cables. I agree with the applicant that underwater noise should be scoped in for potential behavioural and physiological effects on marine mammals. However, I do not agree that underwater noise has been scoped out for fishes given that various species occur in the Marine Scheme (both marine and diadromous fishes) with differing functional hearing abilities. I suggest the applicant incorporates the Popper criteria for assessing the effect of noise on fishes within the future EIA. Furthermore, I request that the timing of proposed activities is included in the EIA or a worst-case scenario applied to allow for suitable mitigation.

Dr. Rosalyn Putland
Senior Bioacoustician
Noise and Bioacoustics Team

Quality Check	***Date***
Rebecca Faulkner	16th December 2022
Charlotte Clarke	4th January 2023

References

National Marine Fisheries Service, 2018. 2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) - Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts.

Popper, A.N., Hawkins, A.D., Fay, R.R., Mann, D.A., Bartol, S., Carlson, T.J., Coombs, S., Ellison, W.T., Gentry, R.L., Halvorsen, M.B., Lokkeborg, S., Rogers, P.H., Southall, B.L., Zeddies, D.G., Tavolga, W.N., 2014. Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI. ASA S3/SC1.4 TR-2014. Springer.

Willsteed, E., Gill, A.B., Birchenough, S.N.R., Jude, S., 2017. Assessing the cumulative environmental effects of marine renewable energy developments. Establishing common ground. Sci. Total Environ. 577, 19–32.

Wyatt, R., 2008. Joint Industry Programme on Sound and Marine Life - Review of Existing Data on Underwater Sounds Produced by the Oil and Gas Indstry.

Centre for Environment Fisheries & Aquaculture Science

Cefas

MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (AS AMENDED). APPLICATION BY BERWICK BANK WIND FARM LIMITED FOR THE REVIEW OF AN ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT FOR THE CONSUTRUCTION OF A CABLE CONNECTION SCHEME FROM BERWICK BANK WIND FARM TO CAMBOIS, NORTHUMBERLAND
Reference Number: EIA/2022/00043

From: Charlotte Clarke
Cefas, Lowestoft Laboratory
Date: 9th January 2023

To: Yvonne Golightly - MMO (via MCMS)

1. With reference to the above application for the review of an Environmental Impact Assessment Scoping Report regarding the proposed Cambois Connection Project at Cambois, Northumberland by Berwick Bank Wind Farm Limited, and your request for comments dated 7th December 2022, please find my comments below.

2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for sediment quality in relation to, and regulatory requirements for, dredge and disposal operations. The response pertains to those areas of the pre-application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.

3. In providing this advice I have spent 3.75 hours of the allocated 3.75 hours by the MMO. I have booked my time to EIA/2022/00043 (C8509PRE128).

4. Cefas provides comments based on the below category system:
   - Category 1: **Major Comment (Action)-** It is Cefas' advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. MMO are strongly advised to request this further information then re-consult Cefas.
   - Category 2: **Minor Comment (Action)-** There is data/ information/ evidence missing that could affect our assessment. Provision of the data/information would allow for due diligence to ensure we have confidence in the applicant's and our own assessment but would not necessarily preclude the granting of a licence. MMO advised to request further information from applicant and then to re-consult Cefas, however MMO may be able to grant licence if this information is not submitted, provided MMO have clear rationale for their decision.
   - Category 3: **Minor Comment (No Action)-** These highlight those things that should be included as best practice but would not affect our overall decision/ conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. MMO case team could pass this on to applicant however this information is not required for consultation with Cefas.

Category 4: **Observation-** Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for MMO case team but this could be passed on to applicant if MMO wish, to pass on areas of good practice.

Document (s) reviewed

5. Cambois Connection Marine Scheme Volume 1: Environmental Impact Assessment Scoping Report. Prepared by Exodus on behalf of SSE Renewables (UK) Ltd and Berwick Bank Wind Farm Limited, 2022, Version No A02.

   Sections reviewed (as requested by MMO):

   - 1. Introduction
   - 3. Project Description
   - 4. Approach to Scoping and EIA Methodology
   - 5. Stakeholder Engagement and Consultation
   - 7. Water and Sediment Quality
   - 15. Other Sea Users
   - 16. Summary of Scoping Report

Description of the proposed works

6. In line with the UK's statutory target to achieve net zero emissions by the year 2050, Berwick Bank Wind Farm Limited (BBWFL) ('the Applicant') is planning to submit an application for the development of offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at Cambois in Northumberland (the 'Cambois Connection' / 'the Project'). The purpose of this infrastructure is to facilitate the export of green energy from the (separately consented) generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth.

7. The aspects of the Cambois Connection that are seaward of MHWS are the subject of this Scoping Report, including:
   - Subsea HVDC cables (offshore export cables) from within the BBWF array boundary area located in Scottish waters. The offshore export cables will be approximately 170 km in length and installed using a combination of burial (the preferred method of installation) with cable protection techniques applied where burial is not achieved;
   - The application of cable protection techniques, such as rock placement, where required along the route and where the offshore export cables cross third party assets, such as existing cables and pipelines;
   - A new landfall, to be located on the Cambois coastline; and
   - Supporting works to facilitate the safe and effective installation of offshore export cable, including pre-installation surveys.

Responses to Questions posed by the MMO Case Officer. All responses are observations unless otherwise stated.

MMO Question 1: Are you content the project will not interfere with other dredging operations?

8. Section 15 of the scoping report (document referenced in paragraph 5 of this advice minute) discusses the potential impacts the project may have on other sea users. This includes reference to dredging and disposal operations, specifying (in section 15.5.7) the proximity of the works to three licenced disposal sites: TY042 (BLYTH A + B) and TY043 (Blyth OWF Demo), both of which have been operational since 2017, and Tyne Industrial, which is currently closed.

9. **Minor comment (no action):** Although the report mentions the presence of these disposal sites within the "other users" study area, it makes no reference to the potential impact to other users of these sites. Dredge and disposal operations are also not included within Table 15-1, which details the scoping of potential impacts for other sea users. According to the UK disposal returns data held by Cefas, a total of 149,348 tonnes of material was disposed to TY042 in 2021 (although no material was reported as being disposed to TY043), indicating the site is still being actively used for disposal operations. I recommend the applicant consider the potential impacts to, and cumulative impacts from, these operations within the ES.

10. It is, however, outside of my remit to comment on the likelihood of this project to interfere with other ongoing dredging operations, and therefore I defer to the MMO with regards to their knowledge of dredging and disposal operations within the area.

MMO Question 2: Are you aware of any point sources of contaminants within the study area which may be of concern? If so, are any data available for these?

11. **Major comment (action):** I note that elevated levels of hydrocarbons (polycyclic aromatic hydrocarbons (PAHs) and total hydrocarbons (THCs)) were recently observed during a mid-licence sampling regime for the nearby Blyth Harbour maintenance dredging and disposal operations (under MLA/2014/000482/1). This material is routinely disposed of to TY042, which has been identified by the applicant as being within the vicinity of impact of the proposed work (see paragraph 9 above). The advice provided in review of these results (Charlotte Clarke, 10th June 2021, MLA/2014/000482/1) also noted that levels of PAHs have been of concern in the area for a number of years. I therefore consider it prudent for the applicant to include PAH analysis within their proposed sediment surveys for the works.

MMO Question 3: Have all potential impacts resulting from the Project been identified for marine water quality receptors?

12. The report correctly identified the potential impacts of increased suspended sediment concentration (SSC) and potential release of contaminants, including consideration of Cefas Action Levels, which is appreciated.

13. **Minor comment (action):** However, Section 7 (Water and Sediment Quality) of the report only considers these impacts with regards to the shellfish waters and designated waterbodies, and thus water and sediment quality are scoped out of further investigation due to the lack of such waters in proximity to the works. I note in table 16-1 (Summary of Scoping of Potential Impacts) increased SSC and potential release of contaminants is listed under other specific headings, including benthic ecology, fish and shellfish ecology, and marine mammals, which is appropriate. However, I have not been requested to review these sections, nor do I have the time to do so within the allowance given. Therefore, I recommend the applicant signpost to this information within the water and sediment quality section, as it is otherwise mis-leading for sediment quality to be scoped out of further assessment, when it appears to be scoped in under other sections.

MMO Question 4: Have all potential impacts resulting from the Project been identified for marine sediment quality receptors?

14. See response to question 3 above

MMO Question 5: Any other comments?

15. **Major comment (action):** I note that the applicant is intending to undertake site-specific benthic geophysical surveys along the cable corridor, which will include sediment samples to be

collected in areas of finer sediment where elevated contaminants are more likely to be observed. The report states these samples will be analysed for levels of trace metals and arsenic, but does not list any other proposed analyses. I recommend the applicant at least include analysis of PAHs (see paragraph 11 above), and ideally consult with Cefas to obtain / review an appropriate sampling and analysis plans for these surveys.

16. **Minor comment (no action):** I also note that no definition is given for "finer sediment", nor any criteria for defining "where elevated contaminants are most likely". I recommend the applicant include such definitions within the EIA.

MMO Question 7: Do you consider any further impacts to be identified and assessed?

17. I do not consider any further impacts need to be identified and assessed, although please see paragraphs 11 and 15 of this advice minute regarding the inclusion of hydrocarbon analyses, and paragraph 13 regarding the clarity of whether sediment quality is to be scoped into further assessment.

MMO Question 8: Do you consider there to be any information gaps that need highlighting? If yes, then expand.

18. Please see paragraph 11 and 15 of this advice minute.

19. **Minor comment (no action):** In addition, it is unclear from the scoping report the volumes of material that are likely to be excavated during the works. I recommend the applicant clarify this within the full EIA.

MMO Question 9: Do you agree with the mitigation measures proposed (if any)? If not, are there any additional measures/changes to proposed measures that you would expect to see?

20. The report states that at this stage it is not possible to provide an exhaustive list of topic-specific mitigation measures, however it is anticipated that if any activity considered as 'dredging and disposal' is required, a sample plan and suite of analysis will be agreed with the MMO, which is appropriate.

21. **Minor comment (no action):** It is unclear from the report exactly what the applicant would classify as "dredging and disposal", but I would recommend they consider any works designed to remove and/or redistribute sediment within the marine environment. This would include the trenching for laying cables, pre-sweeping for burial (if required), and construction of an open cut trench (OCT) for the landfall (as it is anticipated this would be excavated to mean low water springs). With regards to the potential OCT for the landfall operations, I note the report states material would be temporarily retained on Cambois coastline for future backfill. I recommend if this methodology is deemed necessary that the applicant consult with Cefas regarding the potential requirements for a disposal site to be designated for these works.

MMO Question 11: Is there an adequate description of the potential cumulative and inter-related impacts and effects on the physical and biological environment?

22. Table 4.5 of the report includes a comprehensive list of projects for consideration within the Cumulative Impact Assessment, and Section 7.8 specifies that cumulative effects for water and sediment quality will be considered further within the full EIA. This is appropriate for this stage in the process.

Summary

23. In summary, I am content with the approach to the EIA outlined in the scoping report. However, I recommend the applicant provide more clarity within the report regarding the anticipated impacts of sediment quality, as well as ensure they include a more thorough suite of sediment analysis within their proposed benthic surveys.

Charlotte Clarke
Senior Advisor

Quality Check	***Date***
Joe Perry	09/01/2023

Centre for Environment Fisheries & Aquaculture Science

Cefas

MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (AS AMENDED). APPLICATION BY BERWICK BANK WIND FARM LTD FOR THE REVIEW OF ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT AT CAMBOIS CONNECTION.
Reference Number: EIA/2022/00043

From: Steve Wallbridge
Cefas, Lowestoft Laboratory
Date: 9th January 2023

To: Yvonne Golightly – MMO (via MCMS)
Cc: Charlotte Clarke, SEAL Case Officer

1. With reference to the above application for review of SSE Renewables Cambois Connection Environmental Impact Assessment Scoping Report by Berwick Bank Wind Farm Ltd and your request for comments dated 7th December 2022 please find my comments below.

2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for marine processes. The response pertains to those areas of the pre-application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.

3. In providing this advice I have spent 3.75 hours of the 3.75 hours allocated by the MMO. I have booked my time to EIA/2022/00043 (C8509PRE128).

4. Cefas provides comments based on the below category system:
   - Category 1: **Major Comment (Action)-** It is Cefas' advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. MMO are strongly advised to request this further information then re-consult Cefas.
   - Category 2: **Minor Comment (Action)-** There is data/ information/ evidence missing that could affect our assessment. Provision of the data/information would allow for due diligence to ensure we have confidence in the applicant's and our own assessment but would not necessarily preclude the granting of a licence. MMO advised to request further information from applicant and then to re-consult Cefas, however MMO may be able to grant licence if this information is not submitted, provided MMO have clear rationale for their decision.
   - Category 3: **Minor Comment (No Action)-** These highlight those things that should be included as best practice but would not affect our overall decision/ conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. MMO case team could pass this on to applicant however this information is not required for consultation with Cefas.
   - Category 4: **Observation-** Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for MMO case team but this could be passed on to applicant if MMO wish, to pass on areas of good practice.

Document (s) reviewed

5. CAMBOIS CONNECTION MARINE SCHEME Volume 1: Environmental, Impact Assessment Scoping Report. Xodus Group for SSE Renewables Developments (UK) Ltd. Revision A02, dated 04/11/2022.

Description of the proposed works

6. This is an application for the development of offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at Cambois in Northumberland to facilitate the export of green energy from the generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth.

7. The Scoping Report relates to the Marine Scheme which will comprise the following:
    - Subsea HVDC export cables from within the BBWF array, approximately 170km;
    - Cable protection (e.g., rock placement) where required and where the offshore export cables cross third party assets, such as existing cables and pipelines;
    - Landfall on the Cambois (Northumberland) coastline; and
    - Supporting works including pre-installation surveys

Responses to Questions posed by the MMO Case Officer. All responses are observations unless otherwise stated.

MMO Question 1: Do you agree that the data sources identified, including project specific surveys, are sufficient to inform the marine physical processes baseline for the PEIR and ES?

8. I believe the sources listed in Section 6.4 are appropriate and largely appear sufficient to define a baseline for a desktop assessment (but see response to Question 4 below).

MMO Question 2: Do you agree that all the pathways, receptors and potential impacts have been identified for marine physical processes?

9. As commonly practised, the applicant notes that marine processes are often defined as pathways, not receptors. I consider this acceptable if the assessment does not by this method allow major environmental changes to be unconsidered or unquantified.

10. The receptors (Section 6.1) defined for the project are ‘designated sites’ and ‘bedforms’, so is rather broad at this stage. The same Section 6.1 also defines (and also broadly) the relevant aspects of the physical environment that should be considered.

MMO Question 3: Do you agree that the impacts described in Table 6-2 can be scoped out for marine physical processes?

11. **Major comment**: The only activity scoped out in Table 6.2 is scour, the reason given being that there is limited potential due to widespread burial and the application of mitigation. However, I consider that mitigation (rock dumping) also leads to secondary scour (in the case of a cable, the dumped rock presents a larger obstruction to flow and so increases the likely scale of scour) so this impact should be calculated and quantified, especially within any designated areas – this is part and parcel of the loss or damage to the seabed and the affected area should be adequately quantified. This is a relatively simple and quick calculation for a desktop assessment and is of particular importance for accurately assessing cumulative impacts.

MMO Question 4: For those impacts scoped in Table 6-2, do you agree that the methods described are sufficient to inform a robust impact assessment?

12. The proposed methods (for all impact assessments) are described as 'desktop assessment' i.e., no numerical modelling. In general, I would consider this appropriate for a cable impacts study, but the exact methods (i.e., what desktop studies, which methods, formulae etc,) are not given and so cannot be assessed at this time.

13. **Minor comment (no action)**: In particular, for the impact "changes to the landfall morphology", given the potential to increase environmental despoliation at the eroding landfall site as described in Section 6.5.2, it may become appropriate to conduct a local modelling study for the worst case proposed (cofferdam installation).

MMO Question 5: Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of the Project on the marine physical process receptors?

14. As noted in Section 4.5.5, the scoping does not provide a detailed review of designed-in mitigation measures.

15. **Minor comment (no action)**: As outlined in Section 6.6, the principal mitigation for offshore impacts is cable burial for avoidance of scour (which itself leads to direct sediment and seabed disturbance over a similar area), and the placement of rock protection where burial is not possible or at cable crossings, in turn leading to downstream physical process changes over a similar extent. Thus, mitigation (for largely engineering concerns) creates further impacts at comparable scale and so these should be fully assessed in the EIA.

MMO Question 6 Do you have any specific requirements for the marine physical processes modelling methodology?

16. **Minor comment (no action)**: Section 6.3 defines the study areas as the tidal excursion (4km) rounded up to 10km – this more than doubling appears adequate but the assessment should also be responsive to any evidence that impacts extend beyond this (I would imagine this is highly unlikely but would be appropriate, for example, if impacts on a sediment transport pathway are significant and lead to downstream deficits beyond the envelope of direct impacts). This would be of particular importance for accurately assessing cumulative impacts.

Any additional comments

17. I have no further comments at the scoping stage, as the quantified details of the specific assessments proposed are not yet available.

Summary

18. I believe that the scoping out of scour effects should be reconsidered.

Steve Wallbridge
Senior Coastal Process Scientist

Quality Check	*Date*
Charlotte Clarke	09/01/2023

Centre for Environment Fisheries & Aquaculture Science

Cefas

MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017. APPLICATION BY BERWICK BANK WIND FARM LIMITED FOR THE INSTALLATION OF OFFSHORE EXPORT CABLES AT CAMBOIS, NORTHUMBERLAND.

Reference Number: EIA/2022/00043

From: Pedro Warner
Cefas, Lowestoft Laboratory
Date: 9th January 2023

To: Luke Harto - MMO (via MCMS)
Cc: Fisheries Advice - Other Cefas Specialists
Charlotte Clarke - SEAL Case Officer

1. With reference to the above application for the Cambois Connection marine scheme at Cambois, Northumberland by Berwick Bank Wind Farm Limited (BBWFL), and your request for comments dated 7th December 2022 please find my comments below.

2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for fish and fisheries in relation to, and regulatory requirements for the installation of offshore export cables. The response pertains to those areas of the pre-application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.

3. In providing this advice I have spent 7.5 hours of the allocated 7.5 hours by the MMO. I have booked my time to EIA/2022/00043 (C8509PRE128).

4. Cefas provides comments based on the below category system:
   - Category 1: **Major Comment (Action)-** It is Cefas' advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. MMO are strongly advised to request this further information then re-consult Cefas.
   - Category 2: **Minor Comment (Action)-** There is data/ information/ evidence missing that could affect our assessment. Provision of the data/information would allow for due diligence to ensure we have confidence in the applicant's and our own assessment but would not necessarily preclude the granting of a licence. MMO advised to request further information from applicant and then to re-consult Cefas, however MMO may be able to grant licence if this information is not submitted, provided MMO have clear rationale for their decision.
   - Category 3: **Minor Comment (No Action)-** These highlight those things that should be included as best practice but would not affect our overall decision/ conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. MMO case team could pass this on to applicant however this information is not required for consultation with Cefas.

Category 4: **Observation-** Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for MMO case team but this could be passed on to applicant if MMO wish, to pass on areas of good practice.

Documents reviewed

5. Cambois Connection Marine Scheme, Volume 1: Environmental Impact Assessment Scoping Report, Xodus Group, November 2022, Rev. 02. Sections read:
   - 1 - Introduction
   - 3 - Project Description
   - 4 - Approach to Scoping and EIA Methodology
   - 5 - Stakeholder Engagement and Consultation
   - 9 - Fish and Shellfish Ecology
   - 12 - Commercial Fisheries
   - 16 - Summary of Scoping Report

6. Cambois Connection: Figure 1-1 The Cambois Connection, Drawing No. LF000010&11-DEV-MAP-136.

Description of the proposed works

7. In line with the UK's statutory target to achieve net zero emissions by the year 2050, Berwick Bank Wind Farm Limited (BBWFL) (hereafter referred to as 'the Applicant') is planning to submit an application for the development of offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at Cambois in Northumberland (the 'Cambois Connection'). The aspects of the Cambois Connection that are seaward of MHWS are the subject of the Scoping Report.

8. The scoping boundary for the Cambois Connection Marine Scheme overlaps with the Berwick Bank Wind Farm (BBWF) array area as the offshore export cables form part of the Cambois Connection, which will connect into Offshore Converter Station Platforms (OCSPs) located within the BBWF array area; it is important to note that whilst linked to the Cambois Connection, the BBWF is subject to separate consenting.

9. The application for the proposed works are as follows:
   - The offshore export cables will be approximately 170 km in length and installed using a combination of burial (the preferred method of installation) with cable protection techniques applied where burial is not achieved.
   - The application of cable protection techniques, such as rock placement, where required along the route and where the offshore export cables cross third party assets, such as existing cables and pipelines.
   - A new landfall, to be located on the Cambois coastline.
   - Supporting works to facilitate the safe and effective installation of offshore export cable, including pre-installation surveys (an investigation of potential Unexploded Ordnance (UXO) will be considered as a separate marine licence with its own environmental assessment and, therefore, has not been considered as part of this Scoping Report).

Responses to Questions posed by the MMO Case Officer. All responses are observations unless otherwise stated.

MMO Question 1: Do you agree that the data sources identified are sufficient to inform the fish ecology baseline for the PEIR and ES?

10. Yes, the Applicant has used appropriate data sources to inform the fish ecology baseline, as indicated in Section 9.4 of the report (documents reviewed point 5). The Applicant has identified the key marine and migratory fish receptors of commercial and ecological importance within the vicinity of the works and identified relevant species that may be vulnerable to the impacts arising from the proposed works.

11. **Major Comment (Action):** The scoping report has identified that the cable route overlaps sandeel (*Ammodytidae*) habitat and Atlantic herring (*Clupea harengus*) spawning grounds (as per Coull *et al*., 1998) and Ellis *et al.,* 2012) Therefore, in addition to the data sources outlined in Section 9.4, I recommend that the Applicant follows the methodology described in MarineSpace (2013a and 2013b) to determine potential spawning habitat suitability for sandeel and herring respectively. The MarineSpace method assigns confidence levels to a suite of data to provide 'heat maps' indicating suitable spawning grounds and habitat. I note that particle size analysis (PSA) data acquired during benthic surveys of the cable route will be used to inform the herring and sandeel habitat assessments. The PSA data should be included for use when following the MarineSpace methodologies. For the assessment of potential herring spawning habitat, the Applicant should use the latest 10 years of International Herring Larvae Survey (IHLS) data. IHLS data is available to download from the International Council for the Exploration of the Sea (ICES) website; Eggs and larvae (ices.dk)

MMO Question 2: Have all potential impacts resulting from the Project been identified for fish receptors?

12. Yes, I am satisfied that all impacts that have potential to cause adverse effects to fish receptors as a result of the proposed works have been identified. Impacts are as follows:

- Temporary habitat and species disturbance or loss.
- Temporary increases in suspended sediment concentrations (SSC) and associated sediment deposition and potential release of contaminants.
- Underwater noise.
- Accidental release of pollutants.
- Pre-installation surveys including - Geophysical/ Geotechnical/ Archaeological surveys.
- EMF effects.
- Long-term habitat loss and disturbance.
- Thermal emissions from operational cables.
- Accidental release of pollutants.

MMO Question 3: Do you agree that the impacts described in table 9-3 can be scoped out?
Underwater Noise

13. **Major Comment (Action):** The Applicant has scoped out the impacts of underwater noise on fish. Whilst I am generally in agreement that construction noise arising from the proposed construction works (e.g., seabed preparation, cable laying and vessel noise) is unlikely to generate noise levels that will cause significant physiological effect to fish receptors, there is still potential for behavioural disturbance to fishes, particularly during their spawning periods as a result of underwater noise. This is of particular relevance to herring and cod which have a swim bladder involved in hearing and are vulnerable to noise disturbances (Popper *et al.,* 2014). In addition, herring are benthic spawners that rely on a specific substrate on which to lay their eggs, hence if noise disturbance causes the fish to 'flee' the area, then there may not be suitable

alternative spawning grounds nearby. Furthermore, as the cable passes through herring spawning grounds, there is potential for in-combination and cumulative adverse effects to occur as a result of noise disturbance and disturbance to spawning habitat if works are carried out during the herring spawning season. The Banks[1] herring population spawn off the north-east coast of England between August and October (inclusive). For these reasons, I recommend that the effects of underwater noise are scoped into the Applicant's environmental impact assessment (EIA).

14. **Minor Comment (No Action):** I note that there is potential for unexploded ordnance (UXO) (Section 3.4 & 14.5; point 5) to be present along the cable route. Therefore, there is a potential for significant adverse impacts to occur to fish should UXO clearance / detonation be required. However, I recognise that UXO clearance works fall under a separate marine licence and do not form part of this consultation. In the event that UXO clearance works are required along the cable route I request that Cefas fisheries advisors are consulted.

Accidental release of pollutants

15. The Applicant has scoped out accidental release of pollutants from their assessment on the basis of the following embedded mitigation and best practice measures proposed, which aim to ensure that the risks of pollutants are minimised; Construction Environmental Management Plan (CEMP), Operations Environmental Management Plan (OEMP), The International Convention for the Prevention of Pollution from Ships (MARPOL) and Shipboard Oil Pollution Emergency Plan (SOPEP). I am content with their scoping out of this impact, however, I defer to my colleagues in the Cefas SEAL team for further comments on the adequacy of these measures in relation to the proposed works.

Pre-installation surveys

16. The Applicant has scoped out pre-installation surveys (geophysical/geotechnical) from their impact assessment. Some of the surveys the Applicant is expected to carry out include; multi-beam echo sounder (MBES), side-scan sonar, drop-down video (DDV), remotely operated vehicle (ROV)/diver based surveys, magnetometer surveys, grab sampling and core surveys. Given the short duration and limited scale of impact for these activities, I am content that significant impacts to fish arising from these activities is unlikely to occur, and therefore agree that pre-installation surveys can be scoped out.

Thermal emissions from operational cables

17. **Major Comment (Action):** The Applicant has scoped out thermal emissions from operational cables from their impact assessment. The Applicant acknowledges that buried cables can increase sediment temperatures by 2.5°C but concludes that significant impacts to fish are unlikely to occur. I recommend that thermal emissions from operational cables are scoped into the assessment for herring and sandeel specifically. Herring are benthic spawners that lay their eggs on gravel substrate. The newly hatched larvae also remain close to the seabed during their yolk absorption period. The duration of egg development and yolk absorption in herring is temperature dependant (see Tables 1 and 2), therefore changes in sediment temperature have the potential to affect egg and larval development. Sandeels spawn, burrow and hibernate in the sandy sediments. They hibernate during winter months and spawn on the sediment between November to February (inclusive). Sandeel productivity is understood to be affected by temperature in multiple life stages including during their reproductive cycle (Wright *et al.*, 2017a,

[1] Within my remit as a regulatory fisheries advisor for English waters I can only comment on the potential impacts to Bank herring. I defer to Marine Scotland for any comments relating to potential impacts to the Buchan herring population.

2017b) and during their egg development (Regnier *et al*., 2018). Accordingly, if seabed sediment temperatures alter beyond natural levels, the environmental conditions that herring and sandeel rely upon for their natural ecology (synchronised spawning/feeding/burrowing behaviour) may also be altered, with potential to cause adverse effects to individuals located above or near to export cables.

Typical durations of egg and larval development in Atlantic herring (from Russell, 1976):

Table 1 Egg development periods

Average temperature	Days
12 - 13° C	7-9
10 - 11° C	10-12
7 - 8° C	14-18
3 -4° C	49

Table 2 Yolk absorption periods

Average temperature	Days
12.8° C	3 & 9
12.0° C	5 & 14
10.7° C	7 & 16
10.3° C	7 & 20

MMO Question 4: For those impacts scoped in tables 9-3 do you agree that the methods described are sufficient to inform a robust impact assessment?

Temporary habitat and species disturbance or loss

18. The Applicant has scoped in 'temporary habitat and species disturbance or loss' into their assessment which I agree is appropriate. As per point 11, the Applicant has stated that PSA data acquired during benthic surveys of the cable route will be used to inform the herring spawning habitat and sandeel habitat assessments. These assessments will be integral in identifying any overlaps of the cable route with herring spawning habitat and sandeel habitat, as well as any overlaps in the timing of seabed preparation and cable installation activities with herring and sandeel spawning and hibernation periods.

19. **Major Comment (Action):** The Applicant has stated that "Given the limited potential for significant fish spawning grounds along the offshore export cable route and the localised nature and small scale of direct seabed disturbance the potential for significant impacts to occur is unlikely." However, at this stage it is premature to make this assumption as an appropriate assessment to determine the extent and intensity of herring spawning habitat and sandeel habitat has not yet been undertaken. Nor has the timing of seabed preparation and cable installation activities been considered in relation to herring and sandeel spawning and hibernation periods. The likelihood of significant impacts occurring should be determined on the outcomes of the EIA.

Temporary increases in suspended sediment concentrations (SSC) and associated sediment deposition and potential release of contaminants

20. I agree with the Applicant's decision to scope in impacts resulting from increases in SSC and associated deposition. The Applicant recognises that SSC has potential to cause significant impacts to fish within the area and more specifically for benthic/seabed dependent species (e.g., for herring spawning).

EMF Effects

21. **Minor Comment (Action):** The Applicant has scoped in the effects of electro-magnetic fields (EMF) as a potential impact to electro-sensitive fish receptors, which I agree is appropriate. The Applicant's has cited a recent paper by Hutchison *et al.* (2020a) which considers the effects of EMF on benthic dwelling marine species. I direct the Applicant to additional papers by Hutchison *et al.* (2020b, 2021) that may also be useful to inform the assessment of EMF. In accordance with the National Policy Statement for Renewable Energy Infrastructure (EN-3) (Dept. of Energy

& Climate Change, 2011) Cefas fisheries advisors recommend minimising the potential effects of EMF (and sediment heating) by laying cables to a depth of greater than 1.5m. The effects of EMF on sensitive species e.g., elasmobranchs may be mitigated by adopting this recommendation by increasing the distance between the EMF and the receptor. We recognise that this may be subject to local seabed geology and other receptors in the area.

Long-term habitat loss and disturbance

22. **Minor Comment (Action):** The Applicant has scoped in long-term habitat loss and disturbances into their assessment. I agree that this potential impact should be scoped in, however, unless the Applicant is confident that they will remove all cable protection materials (e.g., rock berms, mattresses etc) after the projects lifetime then they should assess this habitat loss as permanent, rather than long-term.

Commercial Fisheries

23. The Applicant has scoped in a series of impacts to their assessment that have potential to cause adverse effects to commercial fisheries within the area. Impacts are as follows:
    - Temporary loss, displacement or restricted access to fishing grounds due to presence of vessels and safety zones during route preparation activities.
    - Temporary loss, displacement or restricted access to fishing grounds due to presence of vessels and safety zones during construction.
    - Interference with fishing activity as a result of increased vessel traffic, including potential increases to steaming times.
    - Potential for fishing gear to become entangled with cable (ie. snagging), resulting in damage or loss of fishing gear.
    - Long-term habitat loss and disturbance.
    - Long-term reduced access to key fishing grounds and resultant displacement.

24. The Applicant has provided adequate rationale to justify the scoping in of these potential impacts. A desk-based review/analysis for this section of the assessment has been proposed, which will make use of the sources outlined in Section 12.4 (point 5). This seems appropriate.

25. **Minor Comment (Action):** I recommend the Applicant ensures that impacts to the inshore commercial fisheries fleet (within the 6nm limit) and small-scale fisheries are also accounted for and appropriately assessed, as these sectors are often more vulnerable to the effects of displacement from marine construction works in coastal waters. Furthermore, these sectors are often under-represented when compared to large-scale and industrial fisheries, because much of the fisheries spatial and temporal data (VMS, AIS tracking data) is under used and under studied for smaller and inshore fleets. Additionally, for vessels of 10m and under, there is no statutory requirement for fishermen to declare their catches, although their landings must be recorded on sales notes provided by the registered buyers. This can result in the spatial and temporal distribution/behaviour of small-scale fishers being under- and/or over-estimated, resulting in fishers being displaced from important fishing grounds (Chuenpagdee *et al*., 2012; Metcalfe *et al*., 2017; Birchenough *et al*., 2021; Behivoke *et al*., 2021). I recommend the Applicant consults with the North-Eastern Inshore Fisheries and Conservation Authority (NE IFCA) regarding the project and gathers further information and data from them on inshore commercial fishing activity in north-east England.

MMO Question 5: Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of the Project on fish receptors?

26. As per point 15, the best practice and embedded mitigation measures proposed by the Applicant, such as CEMP, OEMP, MARPOL and SOPEP etc, are appropriate. The requirement for any additional fisheries-specific mitigation, such as those for sandeel and herring should be determined on the outcomes of suitable habitat assessments and the EIA.

MMO Question 6: Do you have any specific requirements for the fish ecology modelling methodology?

27. **Minor Comment (No Action):** To the best of my knowledge, the Applicant has not proposed any piling as part of the project. Therefore, I have no significant concerns regarding the need for underwater noise modelling in respect to fish ecology. However, I note that there is potential for UXO in this project which raises some concerns. In the event that UXO detonation/clearance is required, I would expect the Applicant to carry out underwater noise modelling to determine the likely range of impact in relation to fish spawning and nursery grounds. The noise modelling should be presented as supporting evidence to accompany the marine licence for this activity.

MMO Question 7: Any other comments?

28. I have no other comments.

Summary

29. The Applicant has provided a high-level scoping assessment identifying all major impacts and receptors that are likely to fall vulnerable to the impacts of the proposed works. I have made some recommendations regarding some impacts currently scoped out of the assessment that should be scoped in and have recommended additional sources of information (Marine Space 2013a & 2013b) to inform the habitat assessments for herring and sandeel.

Pedro Warner
Fisheries Adviser

Quality Check	***Date***
Georgina Eastley	03/01/2023
Charlotte Clarke	09/01/2023

References

Behivoke, F., Etienne, M.-P., Guitton, J., Randriatsara, R. M., Ranaivoson, E. & Leopold, M. (2021). Estimating fishing effort in small-scale fisheries using GPS tracking data and random forests. Ecological Indicators, 123, 107321.

Birchenough, S. E., Cooper, P. A. & Jensen, A. C. (2021). Vessel monitoring systems as a tool for mapping fishing effort for a small inshore fishery operating within a marine protected area. Marine Policy, 124, 104325.

Chuenpagdee, R. (2012). Global partnership for small-scale fisheries research: Too big to ignore. SPC Traditional Marine Resource Management and Knowledge Information Bulletin, 29, 22-25.

Coull, K.A., Johnstone, R. & Rogers, S.I. (1998). Fisheries Sensitivity Maps in British Waters. Report to United Kingdom Offshore Operators Association (UKOOA), Aberdeen. 58pp.

Department of Energy & Climate Change. (2011). National Policy for Renewable Energy Infrastructure (EN-3). [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf

Ellis J.R., Milligan S.P., Readdy L., Taylor N. and Brown M.J. (2012). Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas Lowestoft 147, pp. 5

Henriksen, O., Rindorf, A., Brooks, M. E., Lindegren, M., & van Deurs, M. (2021). Temperature and body size affect recruitment and survival of sandeel across the North Sea. ICES Journal of Marine Science, 78(4), 1409-1420.

Hutchison, Z.L., Gill, A.B., Sigray, P., He, H. and King, J.W. (2020a). Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. Scientific reports, 10(1), pp.1-15.

Hutchison, Z.L., Secor, D.H. and Gill, A.B. (2020b). The interaction between resource species and electro-magnetic fields associated with electricity production by offshore wind farms. Oceanography 33(4):96–107.

Hutchison, Z.L., Gill, A.B., Sigray, P., He, H. and King, J.W. (2021). A modelling evaluation of electromagnetic fields emitted by buried subsea power cables and encountered by marine animals: Considerations for marine renewable energy development. Renewable Energy, Volume 177, Pages 72-81.

MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd., (2013a). Environmental Effect Pathways between Marine Aggregate Application Areas and Sandeel Habitat: Regional Cumulative Impact Assessments. A report for BMAPA.

MarineSpace Ltd, ABPmer Ltd, ERM Ltd, Fugro EMU Ltd and Marine Ecological Surveys Ltd., (2013b). Environmental Effect Pathways between Marine Aggregate Application Areas and Atlantic Herring Potential Spawning Habitat: Regional Cumulative Impact Assessments. Version 1.0. A report for the British Marine Aggregates Producers Association.

Metcalfe, E. K., Collins, T., Abernethy, K. E., Boumba, R., Dengui, J. C., Miyalou, R., Parnell, R. J., Plummer, K. E., Russell, D. J. F. & Safou, G. K. (2017). Addressing uncertainty in marine resource management; combining community engagement and tracking technology to characterize human behavior. Conservation Letters, 10, 460-469.

Popper, A.N., Hawkins, A.D., Fay, R.R., Mann, D.A., Bartol, S., Carlson, T.J., Coombs, S., Ellison, W.T., Gentry, R.L., Halvorsen, M.B., Løkkeborg, S., Rogers, P.H., Southall, B., Zeddies, D.G. & Tavolga, W.N. (2014). Asa S3/Sc1.4 Tr-2014 Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report Prepared by ANSI-Accredited Standards Committee S3/Sc1 a. Springer briefs in Oceanography.

Regnier, T., Gibb, F. M., and Wright, P. J. (2018). Temperature effects on egg development and larval condition in the lesser sandeel, Ammodytes marinus. Journal of Sea Research, 134: 34–41.

Russell, F.S. (1976)**.** The eggs and planktonic stages of British marine fishes. Academic Press,

London. 482pp.

Taormina, B., Bald, J., Want, A., Thouzeau, G., Lejart, M., Desroy, N., & Carlier, A. (2018). A review of potential impacts of submarine power cables on the marine environment: Knowledge gaps, recommendations and future directions. Renewable and Sustainable Energy Reviews, 96, 380-391.

Wright, P. J., Orpwood, J. E., and Boulcott, P. (2017a). Warming delays ovarian development in a capital breeder. Marine Biology, 164: 0

Wright, P. J., Orpwood, J. E., and Scott, B. E. (2017b). Impact of rising temperature on reproductive investment in a capital breeder: the lesser sandeel. Journal of Experimental Marine Biology and Ecology, 486: 52–58.