



Sheringham and Dudgeon Extension Projects Case Team
Planning Inspectorate
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(Email only)

MMO Reference: DCO/2019/00004
Planning Inspectorate Reference: EN010109

14 November 2022

Dear Sir/Madam,

Planning Act 2008: Proposed Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP).

This document comprises the Marine Management Organisation's ("MMO") initial comments in respect of the above Development Consent Order application ("DCO Application") in the form of a relevant representation.

This is without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This is also without prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.

Relevant Representation

On the 03 October 2022 the MMO received notice under Section 56 of the Planning Act 2008 ("PA 2008") that the Planning Inspectorate ("PINS") had accepted an application made by Equinor New Energy Limited (the "Applicant") for a DCO Application (MMO ref: DCO/2019/00004; PINS ref: EN010109) for the Sheringham Shoal Offshore Wind Farm Extension Project (SEP) and Dudgeon Offshore Wind Farm Extension Project (DEP).

The DCO Application includes a draft development consent order ("DCO") and an Environmental Statement ("ES"). The draft DCO includes, at Schedules 10, 11, 12 and 13 a draft Deemed Consent under Part 4 (Marine Licensing) of the Marine and Coastal Access Act 2009 ("Deemed Marine Licence" (DML)).



The DCO Application seeks authorisation for the construction, operation and maintenance of two offshore wind farm generation stations DEP and SEP and associated onshore and offshore infrastructure and all associated development (the "Project").

Please find the MMO comments below.

Yours faithfully,

Nicola Wilkinson
Marine Licensing Case Officer

[Redacted signature block]

Copies provided to:

Marine Licensing Senior Case Manager – [Redacted]

Marine Licensing Case Manager – [Redacted]



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The MMO's role in Nationally Significant Infrastructure Projects (NSIPs)

The MMO was established by the Marine and Coastal Access Act 2009 (the “2009 Act”) to make a contribution to sustainable development in the marine area and to promote clean, healthy, safe, productive and biologically diverse oceans and seas.

The responsibilities of the MMO include the licensing of construction works, deposits and removals in English inshore and offshore waters and for Northern Ireland offshore waters by way of a marine licence. Inshore waters include any area which is submerged at mean high water spring (“MHWS”) tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area.

In the case of NSIPs, the Planning Act 2008 (the “2008 Act”) enables DCO's for projects which affect the marine environment to include provisions which deem marine licences. As a prescribed consultee under the 2008 Act, the MMO advises developers during pre-application on those aspects of a project that may have an impact on the marine area or those who use it. In addition to considering the impacts of any construction, deposit or removal within the marine area, this also includes assessing any risks to human health, other legitimate uses of the sea and any potential impacts on the marine environment from terrestrial works.

Where a marine licence is deemed within a DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement and revocation of provisions relating to the marine environment. As such, the MMO has a keen interest in ensuring that provisions drafted in a deemed marine licence (“DML”) enable the MMO to fulfil these obligations.

Further information on licensable activities can be found on the MMO's website [here](#). Further information on the interaction between the Planning Inspectorate and the MMO can be found in our joint advice note 11 Annex B [here](#).



1 The Proposed Development

The Sheringham Shoal Offshore Wind Farm Extension (SEP) and Dudgeon Offshore Wind Farm Extension (DEP) project will comprise the construction, operation and maintenance of:

1) SEP is the proposed extension to the operational Sheringham Shoal Offshore Wind Farm and will comprise up to 23 wind turbine generators, together with the associated onshore and offshore infrastructure. The offshore export cable corridor from SEP to landfall will be approximately 40km in length and the onshore cable corridor will be approximately 60km in length.

2) DEP is the proposed extension to the operational Dudgeon Offshore Wind Farm and will comprise up to 30 wind turbine generators, together with the associated onshore and offshore infrastructure. The offshore export cable corridor from DEP to landfall will be approximately 62km in length and the onshore cable corridor will be approximately 60km in length.

In recognition of the fact that each project is owned by separate companies, Scira Extension Limited (SEL) and Dudgeon Extension Limited (DEL), and in order to provide sufficient flexibility to the way in which the two extension projects can be constructed, the Order provides for the authorised development to be delivered in a number of ways as follows:

Scenario 1 means each project is constructed separately in any one of the following ways:

- the construction of the Sheringham Shoal Extension Project only where the Dudgeon Extension Project does not proceed to construction;
- the construction of the Dudgeon Extension Project only where the Sheringham Shoal Extension Project does not proceed to construction;
- sequential construction of the Sheringham Shoal Extension Project then the Dudgeon Extension Project or vice versa; or
- concurrent construction of the two projects;

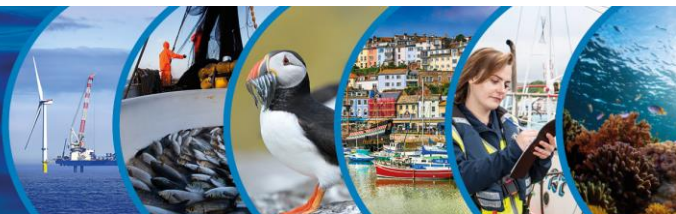
Scenario 2 means the two projects are constructed sequentially and whichever project is constructed first will install the ducts for the second project;

Scenario 3 means either SEL or DEL constructs on behalf of both itself and the other project an integrated onshore substation and connection to National Grid's Norwich Main Substation (the relevant works are identified in the Order as the scenario 3 integrated onshore works) and all other onshore and offshore works are constructed either concurrently or sequentially;

Scenario 4 means either SEL or DEL constructs on behalf of both itself and the other project both the onshore and offshore integrated works including the integrated offshore substation, the integrated onshore substation and the onshore and offshore cables (the relevant works are identified in the Order as the integrated offshore works and scenario 4



integrated onshore works) and all other onshore and offshore works are constructed either concurrently or sequentially.



2 General comments

2.1 Major Comments

- 2.1.1 The MMO note that 39 days has been given to submit Relevant Representations, opposed to longer review periods provided for other projects of this nature. Given the size, scale, and complexity of the project, the MMO do not consider that this time frame was appropriate and insufficient time to enable the MMO to conduct an in-depth and thorough review of the documents submitted to PINS. In-line of projects of a similar scale (e.g. East Anglia One North) a time-scale of 56 days would have been more appropriate.
- 2.1.2 Due to the time constraints the MMO would like to highlight that if any new issues are raised during examination, that were not highlighted within our relevant representation, this will likely be due to the complexity of the case and the short turnaround time of this response.
- 2.1.3 The MMO has concerns about the timeframes for submission of documents. The MMO advise that a 6-month lead period (prior to the commencement of activities) rather than 4-month, would be more appropriate to allow sufficient time to review the submissions and resolve any issues; the submissions may require multiple rounds of consultation and the shorter the lead time, the higher the risk that there will be delays to the Applicant's project delivery timeframe. In addition to this the MMO has requested the removal of a determination timescale. These matters are expanded in sections 3.8.62 – 3.8.67.
- 2.1.4 The MMO has concerns on the use of materiality within the DCOs. This has been expanded in sections 3.8.75 – 3.8.79.
- 2.1.5 The Applicant should demonstrate that they have considered whether the project adheres to all the relevant marine plans and policies in the area. The MMO recommends that this is presented in a single, coherent document instead of a number of separate references throughout the submission. The relevant marine plan policies that should be met can be identified using the Explore Marine Plans tool and policy information on the following website:
- <https://www.gov.uk/guidance/explore-marine-plans>
- 2.1.6 Once a comprehensive marine plan assessment has been provided, the MMO will provide comment on this.



2.2 Minor Comments

2.2.1 As far as the MMO are aware, no direct notification was received from the applicant regarding the Section 56 notice via email or by post. While the MMO were aware a general notice had been submitted to PINS, it is usually standard practice to receive a direct notification from the applicant, declaring the deadline for submission.

3 Development Consent Order (DCO) and Deemed Marine Licences (DMLs)

- 3.1 The MMO were given the opportunity to view and provide comments on the draft DCO and DML on the 9 May 2022, prior to submission to PINS. This advice was provided to the applicants on the 20 June 2022. The MMO note that there has been significant changes made to the DCO and while a number of concerns raised in our response to the applicant on the 20 June 2022 have been addressed, the MMO have flagged where any new or outstanding issues remain.
- 3.2 The MMO note that a revised DCO was submitted to PINS on the 27 October 2022. The MMO was not notified of the updated submission, or that an updated submission was planned prior to examination. The MMO has carried out the majority of its review using the DML submitted to PINS as part of the application submission but where possible references made are for the most up to date DCO. The MMO would also like to highlight that no notification was received regarding this change.
- 3.3 The MMO has reviewed the DCO, including the four DML's within the DCO (schedules 10-13). The following comments unless otherwise stated are relevant to all four DML's but the MMO would still recommend all are checked for potential discrepancies between wording etc.

3.4 The MMO General comments on the DCO

3.4.1 *Part 6 (31) "Deemed marine licence under the 2009 Act"*. The MMO note that due to the separate ownership of the projects by SEL and DEL, individual DMLs relating to SEP and DEP would potentially be granted to the separate companies. Considering the scenarios above, where some aspects of the construction of the project would be shared, the MMO would like further clarification on how separate ownership of the DMLs would impact responsibility for undertaking joint project works, and post consent submissions.

3.5 DCO Authorised Development comments - Schedule 1

3.5.1 *Part 1 Article 1 "Work No. 1A— in the event of scenario 1, scenario 2, scenario 3 or scenario 4, an offshore wind turbine generating station with a gross electrical output capacity of more than 100 megawatts"*.



The MMO is still reviewing this requirement with regards to the wording “over 100 megawatts” and will provide an update at the next deadline

Further associated development

3.5.2 *“In connection with such Work Nos. 1A to 7A and to the extent that they do not otherwise form part of any such work, further associated development comprising such other works as may be necessary or expedient for the purposes of or in connection with the relevant part of the authorised development and which fall within the scope of the work assessed by the environmental statement, including—*

- (a) scour protection around the foundations of the offshore structures;*
- (b) cable protection measures such as the placement of rock and/or concrete mattresses, with or without frond devices;*
- (c) the removal of material from the seabed required for the construction of Work Nos. 1A to 5A and 7A and the disposal of inert material of natural origin within the Order limits produced during construction drilling, seabed preparation for foundation works, cable installation preparation such as sandwave clearance, boulder clearance and pre-trenching and excavation of horizontal directional drilling exit pits;*
- (d) removal of static fishing equipment; and*
- (e) temporary landing places, moorings or other means of accommodating vessels in the construction or maintenance of the authorised project;”*

For scour protection the MMO highlights that scour protection has been used to stabilise the use of jack-up barges in similar offshore wind farm locations and the MMO would like further clarification if the Applicant will be intending to do similar within the Project.

In addition to this the MMO would like clarity on where the disposal volumes for drill arisings in connection with any foundation drilling are within the draft DCO (dDCO)/DML. The MMO believes that drill arising should be explicitly stated within the dDCO/DML and the following section should be included in the above Article:

- (f) disposal of drill arisings in connection with any foundation drilling up to a total of XX cubic metres.*

3.5.3 *Part 2 Article 1 – Ancillary works - “Works within the Order limits which have been subject to an environmental assessment recorded in the environmental statement comprising—*

- (a) temporary landing places, moorings or other means of accommodating vessels in the construction or maintenance of the authorised development;*
- (b) temporary or permanent buoys, beacons, fenders and other navigational warning or ship impact protection works; and*



(c) temporary works for the benefit or protection of land or structures affected by the authorised development.”

The MMO recommends including a provision for permitting the temporary deposit and removal of any equipment required to undertake the monitoring and mitigation activities outlined in the DML/ Post consent plans.

3.6 DCO Requirements comments - Schedule 2

3.6.1 *Part 1 Requirement 4.—(1) Within Work No. 1A, the wind turbine generator foundations must not have:—*

(a) a total combined seabed footprint (including scour protection) exceeding 483,491 square metres;

(b) a total combined amount of scour protection exceeding 429,770 square metres; or

(c) a total combined volume of scour protection exceeding 1,074,770 cubic metres.

(2) Within Work No. 1B, the wind turbine generator foundations must not have:—

(a) a total combined seabed footprint (including scour protection) exceeding 610,726 square metres;

(b) a total combined amount of scour protection exceeding 542,867 square metres; or

(c) a total combined volume of scour protection exceeding 1,357,168 cubic metres.

The MMO requests that the maximum volume of scour protection per turbine and per each structure is presented within the dDCO and DML as well as the total combined volume.

3.6.2 *Part 1 Requirement 9 – “The authorised project must not commence until notification has been submitted to the relevant planning authority as to whether the undertaker intends to commence scenario 1, scenario 2, scenario 3 or scenario 4.*

(2) The Sheringham Shoal Extension Project onshore works must not be commenced until a written scheme setting out the phases of construction of the Sheringham Shoal Extension onshore works has been submitted to and approved by the relevant planning authority, which scheme may subsequently be amended from time to time as notified to the relevant planning authority.



(3) The Dudgeon Extension Project onshore works must not be commenced until a written scheme setting out the phases of construction of the Dudgeon Extension onshore works has been submitted to and approved by the relevant planning authority, which scheme may subsequently be amended from time to time as notified to the relevant planning authority.

(4) Each scheme must be implemented as notified under sub-paragraphs (2), (3) and (4)."

The MMO would like clarification on how far in advance of construction starting will the scenario be decided, and once a scenario is decided is it likely that the chosen scenario could change? If so, how would this impact the reporting requirements for the scenario decision. This should be clarified and secured within both the DCO and the DMLs.

3.7 MMO Comments on Deemed Marine Licences (Schedules 10-13)

General Comments on the DML

3.7.1 The MMO has concerns about the timeframes for submission of documents. The MMO advise that a 6-month lead period (prior to the commencement of activities) rather than 4-months, would be more appropriate to allow sufficient time to review the submissions and resolve any issues; the submissions may require multiple rounds of consultation and the shorter the lead time, the higher the risk that there will be delays to the Applicant's project delivery timeframe. In addition to this the MMO has requested the removal of a determination timescale. These matters are expanded in sections 3.8.62 – 3.8.67.

3.7.2 The MMO has concerns on the use of materiality within the DMLs. This has been expanded in sections 3.8.75 – 3.8.79.

Interpretations

1.1 The MMO has provided the below comments on the interpretation's sections within the DMLs (Part 1(1)(1)). Where appropriate these are the same for all 4 DMLs, and where consideration is required within the DCO.

3.7.3 *"authorised project"* – There is a lack of consistency within the DML's as to how they are referred to. Throughout the DML's there are references to "this licence" as well as "marine licence". The MMO recommend that this is amended to make more consistent across all schedules of the DML.

3.7.4 *"cable crossing" means the crossing of existing subsea cables and pipelines by the array, inter-array or export cables authorised by the Order and forming part of the authorised project together with physical protection measures including cable protection;"*



The MMO would like to understand whether this is for all cable crossings? In addition, please can the Applicant clarify if cable protection is needed to be included within this interpretation since cable protection is a separate interpretation.

- 3.7.5 “*Cromer Shoal Chalk Beds MCZ*” – There is a slight typographic error in schedule 12. “der” should be “order”.
- 3.7.6 “*Draft Marine Mammal Mitigation Protocol*” – The explanation for the definition is missing the word ‘mammal’ in schedule 11 and should be updated to match the other DML’s.
- 3.7.7 “*Dudgeon Extension Project offshore works*” – In schedule 12 the definition is missing the hyphen after “means”. This punctuation is present in the other DML’s.
- 3.7.8 “*Dudgeon Extension Project onshore works*” (b) – The wording is not the same for all four DML’s. For example the wording for schedule 10 is different from that of schedules 11-13. The MMO recommend schedule 10 is update for consistency and to match the other DML’s. The “-“ is also missing in schedule 12.
- 3.7.9 “*gravity base structure foundation*” means a structure principally of steel, concrete, or steel and concrete which rests on the seabed either due to its own weight with or without added ballast, skirts or other additional fixings, and associated equipment including scour protection, J-tubes, corrosion protection systems, access platforms and equipment and separate topside connection structures or integrated transition pieces”

The MMO note that the wording is not consistent across the four DML’s and the wording differs. Schedules 11-13 are the same but schedule 10 missing 'structure' out of the sentence. The MMO recommend schedule 10 is update for consistency and to match the other DML’s.

The MMO would like clarity on whether any additional information is required for this interpretation such as: transition piece, fenders and maintenance equipment, boat access systems, access ladders and access and rest platform(s) and equipment.

- 3.7.10 ““*HDD*” or “*horizontal direction drilling*” refers to a boring technique involving drilling in an arc between two points;”

The MMO asks if further information can be set out such as ““*horizontal directional drilling*” means a trenchless technique for installing an underground duct between two points without the need to excavate vertical shafts”



- 3.7.11 The definition order is not the same between the four schedules. For example “interlink cable” is above “intrusive activities” in schedules 11-13 but in schedule 10 it is below “integrated offshore works” The order should be the same across all four DML’s.
- 3.7.12 *“intrusive activities”* – The MMO note that schedule 13 appears to have a minor punctuation error and there is an additional semicolon after “wet storage areas”. The MMO recommend this is removed.
- 3.7.13 *“jacket foundation” means a lattice type structure constructed of steel, which may include scour protection and additional equipment such as J-tubes, corrosion protection systems and access platforms;”*

The MMO would like clarity on whether any additional information is required for this interpretation such as: transition piece, fenders and maintenance equipment, boat access systems, access ladders and access and rest platform(s) and equipment.

- 3.7.14 *“maintain”* – The MMO recommend that the definition of ‘maintain’ is amended to remove references to ‘adjust’ and ‘alter’. The current definition is not in-line with the MMO’s interpretation of maintain/maintenance; ‘upkeep or repair an existing structure or asset wholly within its existing three-dimensional boundaries’.
- 3.7.15 The MMO recommend that a definition is included for the Marine Case Management System (“MCMS”), furthermore, reference should be made to MCMS for submissions of post consent documentation or notifications within the four DML’s.
- 3.7.16 *“mean high water springs”* – There is inconsistency between the word order of “mean high water springs” across the DCO’s. For example schedule 10 states “mean high water springs or MHWS” while in schedules 11-13 it is “MHWS or mean high water springs”. The MMO recommend schedule 10 is amended to reflect the word order of schedules 11-13.
- 3.7.17 *“mean low water springs”*– As with the MMO’s comment for MHWS’s (3.7.16 of this response), the same error in word order is true for “mean low water springs” for schedule 10. The MMO’s advice is the same for MHWS and recommend that schedule 10 is amended to reflect schedules 11-13.
- 3.7.18 *““monopile foundation” means a steel pile driven or drilled into the seabed and associated equipment including scour protection, J-tubes, corrosion protection systems and access platforms and equipment;”*

The MMO would like clarity on whether any additional information is required for this interpretation such as: transition piece, fenders and maintenance equipment, boat access systems, access ladders and access and rest platform(s) and equipment.



- 3.7.19 “*offshore works plans*” – The MMO note that this word has been defined only within schedule 11 but does not appear to be used anywhere within any of the DML’s. The MMO recommend that this is removed if it is not required..
- 3.7.20 “*onshore works*” – There is a slight discrepancy in wording between the schedules 10 and 11. Schedule 11 contains the additional wording “works no’s” before “8B to 22B”, but this wording does not appear in schedule 10.
- 3.7.21 There is no current interpretation for “operation”. The MMO recommends one is included.
- 3.7.22 “*order*” will eventually need amending to include the year.
- 3.7.23 “*order land*” – The MMO note that there is currently no definition for “land plans” within part 1(1). The MMO recommend this is included.
- 3.7.24 “*order limits*” –There appears to be a small reference error in schedule 11. The MMO think this should be paragraph 5 rather than 4. Additionally, the MMO note that there is no definition for “land plans”.
- 3.7.25 “*outline marine traffic management plan*” – In schedules 10 and 12 this starts with the word “the” which has been omitted from schedules 11 and 13. The MMO recommend it is either kept or removed for all schedules to remain consistent.
- 3.7.26 “*phase*” – Schedule 10 contains additional wording to state “part 2 of this licence”. The MMO recommend that this wording is also included in schedules 11-13 as it provides clarity as to what it is the provision is referring to.
- 3.7.27 “*scenario 1*” – There appears to be minor formatting differences between the DML’s. For example schedule 10 does not include a hyphen after “following ways” but there is one included in schedules 11-13. The MMO recommend this is either removed from schedules 11-13 or included in schedule 10, as there should be consistency across all the DML’s.
- 3.7.28 “*scenario 3*” – Schedule 11 is missing the word “sequential” from the definition as this is included in schedules 11-13.
- 3.7.29 “*Sheringham Shoal Extension Project onshore works*” – There appears to be a discrepancy between DML’s. Schedule 12 not in line with 10,11 and 13 – The MMO suggest it should be 'onshore works, 8A to 22A' rather than 'onshore works operated 18A to 22A'.
- 3.7.30 “*Sheringham Shoal Extension Project scenario 4(b)*” – This list appears to be missing works number 6A from the list. The MMO recommend the DML’s are checked to make sure no references to works numbers are accidentally omitted.



- 3.7.31 “*Statutory historic body*” – The MMO question whether this is correct or if it should be Historic England, rather than “Historic Buildings and Monuments Commission”?
- 3.7.32 “*suction bucket*” – The definition for this wording differs across the schedules. For example, schedule 10 states: “*suction bucket*” means a steel cylindrical structure attached to the legs of a jacket foundation which partially or fully penetrates the seabed and remains in place using its own weight and hydrostatic pressure differential”. While schedules 11-13 is slightly different and makes reference to a “monopile foundation”. The MMO recommend that the wording is the same across all schedules.
- 3.7.33 “*wind turbine generator*” – There is a minor formatting difference between the DML’s. Schedules 10, 12 and 13 contain the word “and” after “project”, however, this isn’t included in schedule 11. It also appears that schedule 12 is missing part of the wording found in the other schedules (“and forming part of the authorised project”). The MMO recommend that this is amended so that the wording is the same across all four DML’s.
- 3.7.34 *Part 1(1)(4)(a)* – The MMO notes the applicant has included an address for the Centre for Environment, Fisheries and Aquaculture Science (“CEFAS”) as an address for correspondence. The MMO would like to remind the applicant that no documents should be sent directly to CEFAS, due to the commercial agreement between Cefas and the MMO. Correspondence with Cefas should be undertaken through the MMO, as CEFAS act as the scientific advisors for the MMO. The MMO requests this reference be removed.
- 3.7.35 The MMO recommend that under licensed activities any deposits or removals required for mitigation and monitoring should be included (e.g. noise monitoring equipment or bubble curtains). This is to ensure the avoidance of any future uncertainty about whether a project needs a separate consent to deposit/remove such items required for mitigation.
- 3.7.36 *Part 1 (3)(a)* – The MMO note a slight formatting discrepancy between the DML’s. The word “GMT” is not in brackets for schedule 12 but is for schedules 10,11 and 13. The MMO recommend schedule 12 is updated to be in line with the other schedules.
- 3.7.37 *Part 1 (4)* - The MMO notes that the dDCO states that the substances or articles authorised for deposit at sea include plastics and synthetics as well as marine coatings and other chemicals. We recommend that depositing such materials and substances at sea should be avoided, where possible.
- 3.7.38 *Part 1 (5)* – The MMO note that there is a minor difference in formatting across the schedules. Schedules 10 and 11 are the same but both schedules 12 and 13 contain the additional word “below” at the end of the sentence. The MMO recommend that this wording is included in schedules 10 and 11 for consistency.



3.7.39 *Part 1 (5)* – The MMO note that the coordinates in schedule 13 appear to contain several errors where coordinates are incomplete (e.g. Row 176 and row 182 are missing the “15” from the latitude column). The MMO recommend that the DML’s are checked to ensure all coordinates are correct and that the onus is on the Applicant to ensure the coordinates accurately reflect the works area of the project.

3.7.40 *Part 1 (7)* - The MMO request the inclusion of a provision within the DML that notification to the MMO of incorrect notification is required. The MMO suggest the following wording is included:

Should the undertaker become aware that any of the information on which the granting of this licence was based was materially false or misleading, the undertaker must notify the MMO of this fact in writing as soon as is reasonably practicable. The undertaker must explain in writing what information was materially false or misleading and must provide to the MMO the correct information.

With respect to any condition which requires the licensed activities to be carried out in accordance with the plans, protocols or statements approved under this licence, the plans, protocols or statements so approved are taken to include amendments that may be approved in writing by the MMO subsequent to the first approval of those plans, protocols or statements provided it has been demonstrated to the satisfaction of the MMO that the subject matter of the relevant amendments do not give rise to any materially new or materially different environmental effects to those assessed in the environmental information.

3.7.41 *Part 1 (7)* – The MMO have commented on this previously, when reviewing the first iteration of the dDCO. The MMO’s position is that this provision should simply state that section 72 of the 2009 Act is applicable to the licence and this amendment should also be reflected in Article 5 (benefit of order) in the DCO. The MMO recommend a full stop is inserted after “licence” on line 2 and the remainder of the provision be deleted – this recommendation is in line with other DCO/DMLs.

The MMO reserves the right to comment further and in more detail in relation to this provision and the provision in the DCO.

3.7.42 *Part 1 (2)(f)* – The MMO consider the term “inert material of natural origin” to be vague as it isn’t clear what inert material of natural origin is or could be.



3.8 Part 2 “Conditions”

General comments

- 3.8.1 *Part 2 (1)(1)* – There appears to be a very minor punctuation error in schedule 12 as there appears to be an extra hyphen after the (1).
- 3.8.2 *Part 2 (4)(1) of schedules 10 and 11 and part 2 (3)(1) of schedules 12 and 13* – There is currently no time frame in which notification has to be sent to the MMO.
- 3.8.3 *Part 2 (3)(1)(c)* – In schedule 11 the (c) is italicised whereas others in the list (and in other schedules are not). The MMO believes this is just a minor error but for consistency it should be the same as the rest of the list.
- 3.8.4 *Part 2 (2)(1)(b)* - There is a slight discrepancy in formatting between the schedules. For example, schedule 10 has an “or” at the end of the line after “d” but schedule 11 does not. Schedule 11 then as an “or” at the end of line (b) while schedules 10 does not.
- 3.8.5 *Part 2 (3)(1)(e) of schedule 10*– There is a discrepancy in numerical formatting across the DML’s. For example the number “1000” is written as “1,000” in schedule 10. The MMO recommend that this format is amended to be in line with schedules 11, 12 and 13 (no comma) and the DML’s checked for consistency.

Part 2 (4)(1) of schedules 10 and 11 and part 2 (3)(1) of schedules 12 and 13 – “(1) *The authorised project must not be commenced until a notification has been submitted to the MMO as to whether the undertaker intends to commence scenario 1, scenario 2, scenario 3 or scenario 4.*

(2) *The authorised project must not be commenced until a written scheme setting out, with regards to the relevant scenario notified under sub-paragraph (1), the phases of construction of the authorised project has been submitted to and approved in writing by the MMO.*

(3) *The scheme must be implemented as approved.”*

The MMO consider this provision to be vague in that “notification to the MMO” does not provide a timescale of when this is to be provided to the MMO and how (e.g. via MCMS). The MMO has set out its opinion on timescales in paragraph (3.8.62 – 3.8.67) of this response.

The MMO would like clarification on how far in advance of construction starting will the scenario be decided, and once a scenario is decided is it likely that the chosen scenario could change? If so how would this impact the reporting requirements for the scenario decision. This should be clarified and secured within both the DCO and the DMLs.



3.8.6 *Part 2 (5)(2) of schedules 10 and 11 and part (4)(2) of schedules 12 and 13* – The MMO does not consider this provision to be entirely clear, specifically which entity the “its” is referring to. It needs to be clearer if this is referring to the undertaker or the operator. If it refers to the undertaker this should be explicit.

3.8.7 *Part 2 (6) of schedules 10 and 11 and part 2 (5) of schedules 12 and 13* - The MMO suggest that in order that neither party unreasonably withholds agreement, it is recommend that the following phrase is added to the end of the provision: - “, such agreement not to be unreasonably withheld or delayed”.

3.8.8 *Part 2 (6)(1)(b)* – The MMO note that schedule 13 appears to be missing the (1) from between “paragraph” and “(a)”. The MMO also recommend the following revision to the wording in all schedules:

“within 28 days of receipt of a copy of this licence and any subsequent amendments or revisions to it, those persons referred to in paragraph (a) must confirm receipt in writing to the MMO.”

3.8.9 *Part 2 (5)(3)(c) of schedules 10 and 11 and part 2 (6)(3)(c) of schedules 12 and 13* – The MMO do not consider this provision to be very clear. The current wording does not make it clear if this provision intends to cover all vessels used or if this a reference to all vessels under the control of the undertaker, or are their potentially additional vessels not falling under the undertaker’s control from which authorised deposits or removals are to be made.

3.8.10 *Part 2 (6)(7) of schedules 12 and 13 and Part 2 (7)(7) of schedule 10 and 11* – The MMO suggest the following amendments to this provision:

“the undertaker must-

(a) inform the Kingfisher Information Service of Seafish by email to kingfisher@seafish.co.uk of details of the vessel route, timings and locations relating to the construction of the authorised project or relevant part-

(i) at least 14 days prior to the commencement of offshore activities, for inclusion n the Kingfisher Fortnightly Bulletin and offshore hazard awareness data; and

(ii) on completion of construction of all offshore activities;

(b) within five days of informing Kingfisher Information Service of Seafish above, confirmation must be provided to the MMO.”



- 3.8.11 *Part 2 (7) of schedules 10 and 11 and part (6) of schedules 12 and 13* – In the first version of the draft DCO sent to the MMO on the 9 May 2022 there was a section for notification to UKHO (Part 2 (8)(10)). The DML now has a notification to UKHO for completion (e.g. Schedule 10 Part 2 (7)(10) but not one for commencement. The MMO recommends that this is reinstated and the provision should also include that copies of notifications to be sent to the MMO.
- 3.8.12 *Part 2 (7)(1)(b) of schedules 10 and 11 and part 2 (6)(1)(b) of schedules 12 and 13* – The MMO note that the formatting across the DML's is inconsistent. Schedule 12 "1(a) must confirm" is referred to as just "(a)" in schedules 10,11 and 13.
- 3.8.13 *Part 2 (7)(3) of schedules 10 and 11 and part 2 (6)(3) of schedules 12 and 13* – The MMO recommend the inclusion of the wording "and any subsequent amendments or revisions to it" after "copies to this licence".
- 3.8.14 *Part 2 (7)(3)* – In schedule 12 this provision notes that reports must be provided to Trinity House ("TH") on the availability of aids to navigation in accordance with the frequencies set out in the aids to navigation management plan agreed pursuant to condition 12(1)(f)(vii), but the reference is to the reporting and recording of wreck or wreck material. The MMO consider this to be a minor error and instead the reference should probably be 12(1)(h), like in schedule 13.
- 3.8.15 *Part 2 (7)(3)(c) of schedules 10 and 1 and part 2 (6)(3)(c) for schedules 12 and 13* - The MMO request clarity on what is meant by "transport managers" which appears in this provision but is not defined within part 1(1).
- 3.8.16 *Part 2 (7)(3)(c) of schedules 10 and 1 and part 2 (6)(3)(c) for schedules 12 and 13* – The MMO request clarity on whether this provision is intended to cover all vessels used under the control of the undertaker or are their potentially additional vessels not falling under the undertaker's control from which authorised deposits or removals are to be made. The MMO recommend this should be made clear within the provision.
- 3.8.17 *Part 2 (7)(3)(c) of schedule 11 and part 6(3)(c) for schedule 13* The MMO require a copy of the licence to be onboard each vessel and is a standard condition on all marine licences where vessels are required. The MMO note that this has been amended to "and" for schedules 10 and 12 but not schedules 11 and 13. They should be amended from "or" to "and" in the following places: schedule 11: Part 2 (7)(3)(c); schedule 13: Part 2 (6)(3)(c).
- 3.8.18 *Part 2 (7)(7) of schedules 10 and 11 and part 2 (6)(7) of schedules 12 and 13* – The MMO recommend the following amendments are made to provide clarity for this provision: "7) the undertaker must-



- (a) inform the Kingfisher Information Service of Seafish by email to kingfisher@seafish.co.uk of details of the vessel route, timings and locations relating to the construction of the authorised project or relevant part-
 - (i) at least 14 days prior to the commencement of offshore activities, for inclusion in the Kingfisher Fortnightly Bulletin and offshore hazard awareness data; and
 - (ii) on completion of construction of all offshore activities;
- (b) within five days of informing Kingfisher Information Service of Seafish above, confirmation must be provided to the MMO.”

- 3.8.19 *Part 2 (7)(9) of schedules 10 and 11 and part 2 (6)(9) of schedules 12 and 13* – No definition has been provided for “VHF” within the definitions (within part 1(1) of the DML’s). The MMO recommend this is included.
- 3.8.20 *Part 2 (7)(9) of schedules 10 and 11 and part 2 (6)(9) of schedules 12 and 13* – There appears to be discrepancy between the DML’s for this provision. Schedule 12 states “unless otherwise agreed” whilst schedules 10, 11 & 13 states “or otherwise agreed”. The MMO recommend schedule 12 is updated to be the same as the other DML’s.
- 3.8.21 *Part 2 (7)(11) of schedules 10 and 11 and part 2 (6)(11) of schedules 12 and 13* – The MMO note that only schedule 12 has the word “the” before “UKHO” and recommend that this is removed.
- 3.8.22 *Part 2 (7)(11) of schedules 10 and 11 and part 2 (6)(11) of schedules 12 and 13* – The MMO suggest that it should be specified that contact should be made through MCMS.
- 3.8.23 *Part 2 (7)(12) of schedules 10 and 11 and part 2 (6)(12) of schedules 12 and 13* – It is not clear in this provision how mariners will be notified, the MMO recommend additional wording is included e.g “in accordance with (7)(9)(for schedules 10 and 11) or (6)(9)(for schedules 12 and 13) .
- 3.8.24 *Part 2 (10)(1) of schedules 10 and 11 and part 2 (9)(1) of schedules 12 and 13* – The MMO recommend the wording of this provision is considered further by the Applicant. The MMO suggest deleting “in writing by the Air Navigation Order 2016(hh)” and to insert “by the Air Navigation Order 2016(hh)” after “safety” and after “directed” insert “in writing”.
- 3.8.25 *Part 2 (10)(2) of schedules 10 and 11 and part 2 (9)(2) of schedules 12 and 13* – There should be a comma inserted after “in writing” at line 3. Additional the MMO note that there is no time frame specified for notification of any changes to information provided at 10(2)(a)-(e)(for schedules 10 and 11) or 9(2)(a)-(e) (for schedules 12 and 13), or following the completion of construction of the authorised project.



- 3.8.26 *Part 2 (11)(1) of schedules 10 and 11 and part 2 (10)(1) of schedules 12 and 13* – The MMO suggest that if a citation or date can be provided in relation to the International Convention for the Prevention of Pollution from Ships this detail should be included as a footnote.
- 3.8.27 *Part 2 (11)(5) of schedules 10 and 11 and part 2 (10)(5) of schedules 12 and 13* – The MMO recommended in our previous review of the DML prior to submission to PINS submission that both TH and the Maritime and Coastguard Agency (“MCA”) are included within this provision. The MMO note that TH has been included but the MCA has not. The MMO recommend that MCA are included or justification as to why not provided.
- 3.8.28 *Part 2 (11)(5) of schedules 10 and 11 and part 2 (10)(5) of schedules 12 and 13* – The MMO recommend a definition is included for “inert origin” and that this is included in part 1(1) all of the DML’s.
- 3.8.29 *Part 2 (11)(7) and (1) of schedules 10 and 11 and part 2 (10)(7) and (10) of schedules 12 and 13* – The MMO request clarity as to the reason for the difference between the misplaced or lost rock and dropped object from being different. For example in DCO’s they can be combined to form one provision and suggest this may also be suitable for this project, e.g.:

“(1) In the event that any rock material is misplaced or lost below MHWS, the relevant undertaker must report the loss to the District Marine MMO Local Enforcement Office and MMO Marine Licensing Team using the dropped object procedure and via return of a completed Marine Licence Dropped Incident Report (MLDIR1), as soon as possible , and in any event within 48 hours of becoming aware of an incident and if the MMO reasonably considers such material to constitute a navigation or environmental hazard (dependent on the size and nature of the material) the relevant undertaker must use reasonable endeavours to locate the material and recover it.

(2) On receipt of the MLDIR1, the MMO may require, acting reasonably, the relevant undertaker to carry out relevant surveys. The relevant undertaker must carry out surveys in accordance with the MMO's reasonable requirements and must report the results of such surveys to the MMO.

(3) On receipt of such survey results, the MMO may, acting reasonably, require the relevant undertaker to remove specific obstructions from the seabed. The relevant undertaker must carry out removals of specific obstructions from the seabed in accordance with the MMO's reasonable requirements and at its own expense.

(4) Where the relevant undertaker has been unable to locate or recover material pursuant to discharging its duties under sub-paragraphs (1) to (3) it must demonstrate to the MMO that reasonable attempts have been made to locate, remove or move any such material.”



- 3.8.30 *Part 2 (12) of schedules 10 and 11 and part 2 (11) of schedules 12 and 13* – The MMO do not consider this provision to be necessary as section 86 of the 2009 Act provides a defence for action taken in an emergency in breach of any licence conditions. The MMO require justification or rationale from the applicant as to why this provision is considered necessary.
- 3.8.31 *Part 2 (12)(1)(b) of schedules 12 and 13* - The MMO note that these conditions are worded and formatted differently e.g., schedule 12 appears to be missing the (iii) before 'proposed pre-construction surveys' and the wording is different. It is important to check if this is supposed to be the same as schedule 13 or if the omission is intentional e.g., due to differences in what is being consented between projects.
- 3.8.32 *Part 2 (12)(1)(b) of schedules 12 and 13* – Furthermore, because of the (iii) being missed off the (i) underneath “(unless otherwise agreed in writing with the MMO)” there are minor consistency errors. The MMO recommend (iii) should be (aa), and then (aa) should be (bb) and (bb) should be (cc). Schedule 12 also appears to be missing (iv) which is in Schedule 13 but this could be because of programme design differences.
- 3.8.33 *Part 2 (12)(1)(c)(i)(bb)* – Schedule 13 appears to be missing the “5” from “exceeds 5 percent”.
- 3.8.34 *Part 2 (12)(1)(d)* - Schedule 12 contains additional wording. “Offshore” has been included in “outline project environmental management plan” (schedules 10,11 and 13 do not contain this, nor does the definition). The MMO recommend that it is removed.
- 3.8.35 *Part 2 (12)(1)(e)* – The wording between schedules 12 and 13 for this provision is different. For schedule 12 it states that “a cable specification, installation and monitoring plan for the installation of cables within the Cromer Shoal Chalk Beds Marine Conservation Zone (in accordance with the outline Cromer Shoal Chalk Beds Marine Conservation Zone cable specification, installation and monitoring plan)”, while schedule 13 states that “a Cromer Shoal Chalk Beds Marine Conservation Zone cable specification, installation and monitoring plan (in accordance with the outline Cromer Shoal Chalk Beds Marine Conservation Zone cable specification, installation and monitoring plan)”. The MMO would like to highlight that it is important that the definitions across the DML’s are consistent and recommend that the DML’s are checked to make sure the wording is the same across the DML’s where there is any repetition.
- 3.8.36
- 3.8.37 *Part 2 (13)(1)(a)(i)* – Schedule 10 says “mast” while in schedule 11 it is “masts” – It is important that the provision reflects the quantity of masts required and the necessary provision should be amended to reflect this.



- 3.8.38 *Part 2 (13)(b)(iii)* – The MMO note that schedule 10 states “in accordance with sub-paragraph (1)(e)” but this is not included within the same conditions in schedules 11-13.
- 3.8.39 *Part 2 (13)(i) of schedules 10 and 11 and part 2 (12)(i) of schedules 12 and 13* – The MMO note that there appears to be a minor punctuation error in schedule 10, the capital letter at the start of the sentence should be lower case.
- 3.8.40 *Part 2 (13)(d)(iv) of schedules 10 and 11 and part 2(12)(d)(iv) of schedules 12 and 13* – The MMO recommend that a definition is provided in Part 1(1) for “fisheries liaison officer”
- 3.8.41 *Part 2 (15)(3)* – Schedule 12 the MMO recommend the inclusion of “in writing” after “submitted”, as recommended in our advice provided with the DML submitted to the MMO for review prior to submission to PINS.
- 3.8.42 *Part 2 (15)(2) of schedules 10 and 11 and part 2 (14)(2) of schedules 12 and 13* – The MMO strongly considers that it is inappropriate to put timeframes on complex technical decisions of this nature. This is considered further in section 3.8.62 – 3.8.67 of this response.
- 3.8.43 *Part 2 (17)(1)(a) of schedules 10 and 11 and part 2 (16)(1)(a) of schedules 12 and 13* - This provision should extend to sub -contractors. Alongside the name and function of agents or contractors the MMO request further details to be submitted. These include the company number (if applicable), registered office address (where they are a limited company) and for all other legal entities their head office address. Having these additional details would ensure that we have the appropriate details to allow the MMO to contact the agents formally should this ever be required.
- 3.8.44 *Part 2 (17)(4)(b) of schedules 10 and 11 and part 2 (16)(4)(b) of schedules 12 and 13* – The MMO note that following initial advice on the DCO this provision has been amended to remove 'S44ed5' but it still contains 'IHO Order 1a'. The MMO recommend that this is word is defined in part 1(1) of the DML's.
- 3.8.45 *Part 2 (17)(4)(c)* – The MMO note that there appears to be additional wording in schedule 12. It appears to be a minor error but the MMO recommend the words “In principle monitoring plan” should be removed.
- 3.8.46 *Part 2 (17)(4)(d)* – It is noted that in schedule 12 the end of the sentence is missing punctuation.
- 3.8.47 *Part 2 (18)(1)* – The MMO note that both schedules 12 and 13 contain different references to places within the respective DML's. For schedule 12 the reference to 12(1)(b)(iii) does not exist. The MMO thinks this should be 12(1)(b) like in schedule 13.



- 3.8.48 *Part 2 (18)(5)* Schedule 13 contains the additional number '19' before the '(4)' which is not included in the other Schedules. The MMO recommend that this is checked for accuracy.
- 3.8.49 *Part 2 (19)* – Schedules 11 and 12 appear to be missing the words “and surveys” from the sentence. The MMO recommends that they are amended to be the same as schedules 10 and 13.
- 3.8.50 *Part 2 (19)(1)* – The MMO note that this seems to be mixed up with part 2 (18)(1) for schedules 12 and 13. The MMO suggest that they have accidentally been swapped around or is the provision to discharge 12(1)(b)(iii) required as surely this would be discharged under 12(1)(b).
- 3.8.51 *Part 2 (19)(1)* – It appears that schedule 12 is missing “in writing” from the wording as this appears within the same provisions in schedules 10,11 and 13.
- 3.8.52 *Part 2 (19)(3)(b)* There is a discrepancy between schedules 12 and 13 - schedule 12 says “a full sea floor coverage...” while schedule 13 says “one full sea floor coverage...”. The MMO recommend schedule 13 is amended to say “a”.
- 3.8.53 *Part 2 (19)(3)(c)* - Schedule 13 references part 12(1)(i) which is the marine mammal mitigation protocol document. The MMO thinks is a minor referencing error and instead should be the same as schedule 12 which is 12(1)(k).
- 3.8.54 *Part 2 (19)(3)(e)* - Schedule 13 references part 2 (13)(2) which is the Site Integrity Plan (“SIP”) condition. The MMO suggest that this should instead be the same as schedule 12 which is part 2 (12)(1)(i).
- 3.8.55 *Part 2 (19)(5)* Schedule 13 references part 2 (13)(1)(f) which does not exist. This appears to be a minor referencing error and the MMO think this should instead be the same as schedule 12 which is part 2 (12)(1)(e).
- 3.8.56 *Part 2 (20)(3)(b) of schedules 10 and 11 and part 2 (19)(3)(b)* – There are slight formatting differences between the DML’s. Schedules 10 has a space between “MGN” and “654” while in respective conditions in schedules 11-13 they are joined together to form one word.
- 3.8.57 *Part 2 (20)(5) of schedules 10 and 11 and part 2 (19)(5) of schedules 12 and 13* – The wording is inconsistent across the DML’s. The MMO note that schedules 10 and 11 are the same but 12 and 13 are both different from all others. The MMO recommend that the wording for this provision is the same across all DML’s.
- 3.8.58 *Part 2 (20)(1) of schedules 10 and 11 and part 2 (19)(1) of schedules 12 and 13* – The MMO note that there are minor formatting discrepancies with this provision across the different schedules. In schedule 12 it is written as “four months” while in schedules 10, 11 and 13 it is down as “4 months”.



3.8.59 *Part 2 (21)(1)* – It is noted that schedule 12 still contains hyphen for coordinates, the MMO note that revision b of the DML has sought to remove these from the DML.

Part 2 (22)(1)(a) - For schedule 11 the MMO recommend that the word 'parameters' should be at the end of (b) rather than (a) - It is correct in Schedule 10.

Collaboration

3.8.60 The DCO contains 4 DMLs consisting of two for the generation assets (Schedules 10 and 11) and two for the transmission assets (Schedules 12 and 13). Splitting the assets into two separate DMLs ensures smooth transitions during the transfer of benefit. If a transfer of benefit were to happen, it is unclear what mechanisms would be in place to ensure two different asset holders working in the same area would collaborate together, especially with regard to in-combination effects. This is considered a potential risk to the project by the MMO. The MMO is therefore considering requesting the inclusion of a collaboration condition to go within the DML. The MMO will confirm this within it's next written response.

Timescales

3.8.61 Throughout the conditions within all DMLs there is a requirement for the Applicant to submit all pre-construction documentation at least four months prior to the commencement of the construction works. The MMO does not agree that a four month timescale provides sufficient time for the post consent documentation to be considered prior to the start of commencement of works. The MMO believes that a four month pre-construction submission date is unrealistic and even counterproductive, as the pre-construction sign-off process is not always straight forward.

3.8.62 The four month timescale was deemed appropriate for round 1 developments, which were smaller, closer to shore and with fewer complex environmental concerns. The documents in question require in depth analysis by both MMO staff and statutory consultees and as such, there needs to be as much time as practically possible to allow this process to take place.



3.8.63 It is very common that documents submitted under these type of conditions require multiple rounds of consultation to address stakeholder concerns. This process alone can be very time consuming and the proposed four month submission time would not account for any additional time that the Applicant may require to update documents throughout the process. The MMO further notes that some documents require additional assessment processes, for example a Southern North Sea (“SNS”) Special Area of Conservation (“SAC”) SIP may require post consent Habitats Regulations Assessment (“HRA”) considerations to be made. The MMO appreciates that the Applicant could be working within tight time schedules post consent, and as such, we advise that a more suitable timescale is provided to reduce risks that could lead to project delays.

3.8.64 For example, the timescale of one in depth plan (such as SNS SIP) could potentially follow this path:

- a) Up to 4 weeks to acknowledge and review the document within the MMO.
- b) Up to 6 weeks for external consultation with stakeholders on this documentation.
- c) Up to 4 weeks once consultation is closed to allow for the MMO to review the responses and possibly ask for additional information from the Applicant. At this stage the MMO and the Applicant could be in discussion to agree on an approach to the responses.
- d) Up to four weeks to allow for the Applicant to undertake any actions resulting from any MMO request for further information. Depending on the level of detail, and Applicant resources, this could represent a further significant time period.
- e) Once actions are completed and information is returned to the MMO, the MMO could need to undertake new consultations.

3.8.65 It is noted from the above that, even if the discharge of documentation were to follow the current estimated timescales, and no further communication was required from the Applicant (which is highly unlikely) the current estimated turnaround equates to 18 weeks, which is longer than the 16 weeks suggested by the Applicant. It should also be noted that the above timescale applies to only one document, when in reality, the number of in-depth discharge requirements could far exceed 30 in total.

3.8.66 The MMO considers it is important to address the practicalities of these types of signoff as well as the specific wording held within the consent. If the works are submitted 4 months prior to the construction start date then there is risk that the Applicant will have already begun preparing for construction. If sign off cannot be achieved within the 4 month window then there is a risk that the Applicant will face cost implications of this, for instance the costs from vessels sitting idle and the potential need to resource storage areas for wind farm infrastructure components that should have been installed. By amending the submission timescale to 6 months there is more time to undertake the required process with less risk of needing an extension or the Applicant facing delays.



MMO Determination

- 3.8.67 The DMLs include a specified determination period within which the MMO must determine whether or not to issue consent under this condition. The MMO strongly considers it inappropriate to put timeframes on decisions of such a nature. The MMO would not willingly seek to constrain our ability to make an appropriate and timely decision on post consent sign-off of plans and documentation.
- 3.8.68 Under such tight restrictions if the evidence obtained does not provide the MMO with confidence that risks have been dealt with robustly, the determination may result in a refusal of the application for discharge. The undertaker would then have to restart the process and provide updated documentation in this instance.
- 3.8.69 The time it takes the MMO to make such determinations depends on the quality of the application made, and the complexity of the issues and the amount of consultation the MMO is required to undertake with other organisations to seek resolutions.
- 3.8.70 The MMO's position remains that it is inappropriate to apply a strict timeframe to the approvals the MMO is required to give under the conditions of the DML given this would create disparity between licences issued under the DCO process and those issued directly by the MMO, as marine licences issued by the MMO are not subject to set determination periods.
- 3.8.71 Whilst the MMO acknowledges that the Applicant may wish to create some certainty around when it can expect the MMO to determine any applications for an approval required under the conditions of a licence, and whilst the MMO acknowledges that delays can be problematic for developers and that they can have financial implications, the MMO stresses that it does not delay determining whether to grant or refuse such approvals unnecessarily.
- 3.8.72 The MMO makes these determinations in as timely manner as it is able to do so. The MMO's view is that it is for the developer to ensure that it applies for any such approval in sufficient time as to allow the MMO to properly determine whether to grant or refuse the approval application. Please note this is applicable to any provision where a timescale of which the MMO is required to approve a document has been applied.
- 3.8.73 Further to this point, the MMO would like to highlight that this issue was also raised during the examination for Sizewell C, the nuclear power plant development. The secretary of state agreed with the MMO on this matter for the DCO for Sizewell C, and no timeframes for response by the MMO were included in the DMLs.



DML Materially

- 3.8.74 The MMO strongly considers that the activities authorised under the dDCO and DML should be limited to those that are assessed within the Environmental Impact Assessment (“EIA”), and so the statement within the DML “Such agreement may only be given where it has been demonstrated to the satisfaction of the MMO that it is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the environmental statement” should be updated to clarify this.
- 3.8.75 The intention behind EIA is to protect the environment by ensuring that in deciding whether to grant a development consent for a project, and in deciding what conditions to attach to that consent, the decision has full knowledge of what the likely significant environmental effects of the project/development will be. That knowledge then guides the consent process and what conditions, if any, to attach to the consent. Additionally, there is considerable public consultation under the EIA process because the process recognises the importance of local knowledge in environmental decision making.
- 3.8.76 The EIA legislation was designed to apply to those plans/projects which could be sufficiently detailed and particularised at the application stage, to allow the consenting decision to be taken in the full knowledge of what the likely significant effects of that plan or project would be. In such circumstances, it would be unnecessary to create a legal obligation under the order which requires the activities to remain within what was assessed under the EIA, because the consent authorises the detailed and well particularised project, assessed in the EIA to be carried out, and therefore, providing the development is constructed as per the consent, those works would, by default, remain within the parameters of the EIA.
- 3.8.77 If the Applicant is wanting to retain some flexibility and is proposing that the works that can be carried out should be restricted to those which “do not give rise to materially new or materially different environmental effects” to those assessed in the EIA. The concern with this is that the inclusion of the word “materially” here would allow the undertaker to carry out works whose effects are outside of the likely significant effects assessed in the EIA, providing they do not do so materially, i.e. in any significant way, greatly, or considerably. This is not what the purpose of the EIA process is, and it runs contrary to the purpose of EIA. The other issue with this is that whilst the undertaker is responsible for producing the environmental information and statement on which the EIA decision is based, the appropriate authority is responsible for the EIA consent decision, the inclusion of the word materially essentially means that the undertaker makes the decision as to what is and what is not material. Under EIA it is for the appropriate authority to determine what the likely significant effects will be and how those should be mitigated.
- 3.8.78 On this basis, the MMO does not consider that it is appropriate to use the word “material” in these circumstances.



4 Environmental Statement (ES)

4.1 Chapter 2 Policy and Legislative Context

- 4.1.1 The MMO welcomes the inclusion of the East Inshore and East Offshore Marine Plans, including reference to the relevant policies to the project. The MMO notes that the chapter states “*Where necessary and appropriate topic chapters consider relevant EIEOMP policies further.*”
- 4.1.2 As noted in section 2.1.5 of this response, the MMO request that consideration of these policies is presented in a single, coherent document instead of a number of separate references throughout the submission. The relevant marine plan policies that should be met can be identified using the Explore Marine Plans tool and policy information on the following website:

<https://www.gov.uk/guidance/explore-marine-plans>

- 4.1.3 The MMO will provide further review of this once a singular assessment has been presented. The MMO can provide an example of a Marine Plan Assessment if requested by the Applicant.

4.2 Benthic Ecology and Sediment Contamination

- 4.2.1 In providing this response the MMO has reviewed the following documents:
- 2.2, C282-EQ-Z-GA-00006 - Location Plan (Offshore), August 2022,
 - 2.7, C282-EQ-Z-GA-00009- Work Plans (Offshore),
 - 6.1.1, C282-RH-Z-GA-00020 - ES Volume 1, Chapter 1 – Introduction,
 - 6.1.3, C282-RH-Z-GA-00023 - ES Volume 1, Chapter 3 - Site Selection & Assessment of Alternatives,
 - 6.1.4, C282-RH-Z-GA-00024 - ES Volume 1, Chapter 4 - Project Description,
 - 6.1.8, C282-RH-Z-GA-00028 – ES Volume 1, Chapter 8 – Benthic Ecology
- 4.2.2 During the Seabed ETG #5 meeting the MMO discussed with the applicant sampling requirements including the need for the applicant to use a validated lab. The applicant confirmed that they have used Fugro, who are not currently validated by the MMO for sediment analysis. The MMO still have outstanding concerns with this which are discussed further in this representation.



- 4.2.3 The level of contaminants in the sediments and the coarseness of the sediments were used to predict the magnitude of effect. Based on the information that has been presented in Table 7-12, no samples exceed Cefas Action Level 1, however please see paragraph 11. The applicant has also compared contaminant levels to other guidelines such as the Canadian Sediment Quality Guidelines (“CSQG”) ‘Threshold Effect Levels’, for which exceedances were observed in six samples for arsenic. The applicant argues that the levels observed do not exceed those observed within the scientific literature for the region. Whilst this argument is logical, the sample values may not be comparable with those in the literature if different methods have been used. Given that no sample for arsenic exceeds the Cefas Action Levels, arsenic does not seem to present a concern, however, my concerns with a non-validated laboratory being used remain salient.
- 4.2.4 The applicant compares selected Polycyclic Aromatic Hydrocarbons (“PAH”) congener concentrations to ‘OSPAR Background Assessment Concentration (“BAC”)’ and ‘United States Environmental Protection Agency’s (“US EPA’s”) Effects Range-Low (“ERL”)’, finding that these were not exceeded. As for the assessment of arsenic levels, the chemical analysis methods underpinning the sample contaminants data may not be suitable for them to be compared to these additional guidelines. Additionally, for the US EPA’s ERL and the CSQG, geology and species for threshold effects will not be the same as the OSPAR region. These factors limit the confidence that can be assigned to the sediment data and the conclusions that they inform.
- 4.2.5 A site characterisation survey was undertaken in the SEP and DEP wind farm sites and offshore cable corridors by Fugro between the 10th and 19th August 2020. It is noted that only seven of ten intended samples were analysed for contaminants, that the sampling conducted greatly underrepresents the volumes proposed to be disturbed based on worst-case scenario design under OSPAR guidelines, but that the 98 seabed samples collected and analysed for particle size showed that the working area is sufficiently coarse (mostly medium sand to fine gravels with less than 10% mud in all samples) to not warrant additional contaminant analysis and that the area is likely low risk.
- 4.2.6 The volumes of disturbed sediment associated with the worst case scenario as presented in Table 7-2 for construction include 729,477 meter cubed (“m³”) for seabed preparation, 24,742m³ for drill arisings, 195,900m³ for displaced sediments during export cable installation, and 774,200m³ for displaced sediment during infield and interlink cable installation, giving a total of 1,724,319m³. Associated sediment depths ranged from 1m for export cable installation to 45m and 60m for drill arisings. The volume of sediment to be disturbed presented in the ES indeed indicates that the seven samples collected for contaminants analyses underrepresent the volumes of sediment to be disturbed according to OSPAR guidelines for volumes of dredged material, where 7-15 samples are requested for 100,000-500,000m³ of material.



4.2.7 From Chapter 6, Table 6-5 indicates 98 grab samples 'and particle size at selected sites'. Table 2.1 from each of the benthic characterisation reports indicate 93 stations included for particle size analysis ("PSA"). Table 7-10 provides a summary of sediment PSA by area, with the 'dominant sediment type' including medium sand, medium to coarse sand (some in this area with high gravel content), sandy gravel, and within the export cable corridor ranging from outcropping chalk, gravelly sand/gravel and sand, gravelly sand or gravel, sand, and offshore medium sand to coarse gravel. Mud content was noted as mostly less than 10% in samples, although three samples were noted as containing higher percentages of mud (13-22%). 'Mud' has been confirmed by the applicant to include particles less than 63 micrometres, as this was raised in consultation in 2021. The results in Figure 7.4 for Sheringham Offshore Windfarm and Dudgeon Offshore Windfarm post-construction also show few sites with higher percentage fine sediments in the wider area sampled.

The information presented suggests, as previously noted by the MMO, that due to the sufficiently coarse nature of the area, the amount of sampling conducted for contaminants is acceptable

4.2.8 The MMO have reviewed the location of the seven samples analysed for contaminants in Figure 7.5 (included in Annex 1). The three stations with failed grab attempts have left gaps in sampling for contaminants in the northwest portion of SEP, the southeast component of the DEP (no samples at all in this area) and part of the offshore cable corridor. However, the applicant indicates that the unsuccessful sampling was due to rocks in the grab jaws and insufficient sediment recovered, which they propose indicates that these areas consist of coarse material.

4.2.9 The seven grab samples taken for chemical analysis during the benthic surveys of SEP and DEP wind farm sites and offshore cable corridors were frozen and transferred to Fugro for analysis of metals, PAHs, total hydrocarbons ("THC"), and organotins. I note that the water quality section 7.5.1 indicates issues with "Polybrominated Diphenyl Ethers ("PBDEs") and Polychlorinated biphenyls ("PCBs"), but these were not included for sediment contaminant analyses. Also elevated inorganic nitrogen from diffuse sources (field runoff from arable land) was indicated in section 7.5.1 for water quality, but there hasn't been indication of whether organochlorine pesticides were considered for contaminants analysis or a reason for their exclusion. Adequate justification for exclusion should be provided, although due to the coarse nature of the sediments, the risk is likely to be low.



4.2.10 The applicant acknowledged that of the PAHs analysed, two required for analysis and assessment to support the MMO decision for licencing disposal of dredge material to sea were not included (perylene and benzo(e)pyrene). However, they indicated that with low concentrations in other PAH parameters, it was not anticipated that these would exhibit a different trend. Each of the metal analytes typically considered by Cefas for dredging/disposal on the MMO's list were included in Table 7-12 for comparison with Cefas Action Levels as were organotins (dibutyltin and tributyltin).

4.2.11 For reporting data to OSPAR, the PSA data should come from the same samples as used for contaminants analyses. Here, PSA samples were collected separately.

4.2.12 The limited confidence of the contaminant data subsequently limits the confidence that can be ascribed to the conclusions.

4.3 Fish and Shellfish Ecology

4.3.1 In providing this response the MMO has reviewed the following documents:

- a) 2.2, C282-EQ-Z-GA-00006 - Location Plan (Offshore), August 2022,
- b) 2.7, C282-EQ-Z-GA-00009- Work Plans (Offshore),
- c) 6.1, C282-RH-Z-GA-00018 Non-Technical Summary,
- d) 6.1.1, C282-RH-Z-GA-00020 - ES Volume 1, Chapter 1 – Introduction,
- e) 6.1.3, C282-RH-Z-GA-00023 - ES Volume 1, Chapter 3 - Site Selection & Assessment of Alternatives,
- f) 6.1.4, C282-RH-Z-GA-00024 - ES Volume 1, Chapter 4 - Project Description,
- g) 6.1.7, C282-RH-Z-GA-00027 - ES Volume 1, Chapter 7 - Marine Water and Sediment Quality,
- h) 6.1.9, C282-RH-Z-GA-00029 - ES Volume 1, Chapter 9 - Fish and Shellfish Ecology, Document Reference:
- i) 6.1.12, C282-RH-Z-GA-00032 – ES Volume 1, Chapter 12 – Commercial Fisheries,
- j) 6.1.23, C282-RH-Z-GA-00061 - ES Volume 1, Chapter 23 - Noise and Vibration,
- k) 6.2.9, C282-RH-Z-GA-00052 - ES Volume 2, Chapter 9 - Fish and Shellfish Ecology,
- l) 6.3.9.1 C282-RH-Z-GA-00069 – ES Volume 3, Appendix 9.1 – Fish and Shellfish Ecology Baseline and Technical Report
- m) 6.3.12.1, C282-PO-Z-GA-00001 - ES Volume 3, Appendix 12.1 - Commercial Fisheries Technical Report,
- n) 6.3.10.2, P272R0306 - ES Volume 3, Appendix 10.2 - Subacoustech Environmental Report Underwater Noise Modelling Report.



4.3.2 For the assessment of impacts of construction on fish, a calculation of total spawning habitat has been used in an effort to quantify the percentage of spawning area affected. The MMO do not support the calculation of total spawning habitat, as this approach can over or underrepresent spawning grounds and is solely based on substrate suitability. The MMO have provided a summary of the reasons below why we do not support the calculation of total spawning habitat:

- 1) Spawning areas can change over time or become recolonised.
- 2) Whilst spawning and nursery ground maps are used to provide the most recent and appropriate information to identify spawning areas, they do not fully define/consider/identify the following:
 - a) All potential areas of spawning
 - b) Any habituation that may occur i.e., identify areas where higher densities of spawning are present
 - c) Specific substrate requirements e.g., substrates which are most suitable within the wider broadscale sediments
 - d) More suitable topography e.g., ridges/edges of sandbanks where sandeel may spawn or furrows where herring may spawn
 - e) Environmental factors that may influence spawning intensity such as temperature, oxygenation, natural disturbance, anthropogenic disturbance etc.
 - f) Calculations of specific spawning areas are based on peak spawning times i.e., the number of days of a spawning period rather than considering the entire spawning season.

4.3.3 The ES acknowledges that the DEP and SEP project area overlaps historic herring spawning ground and that suitable herring spawning substrate (gravel and sandy gravel) are found in the local area and overlapping the SEP and DEP arrays. However, based on the available evidence, it is likely that if herring spawning is occurring in the project area, it may be at low levels. The nearest known 'active' spawning ground for herring (based on recent International Herring Larvae Survey data) is that of the Banks herring population at Flamborough Head. Consequently, there is insufficient evidence on spawning activity at the DEP and SEP sites to justify any mitigation to limit disturbance to herring spawning habitat. The MMO note that impacts of habitat loss/disturbance on herring have been assessed as minor adverse which we generally agree with. However, the MMO have outstanding concerns regarding localised impacts to fish species as a prey source for marine predators.



- 4.3.4 The MMO note that the SEP and DEP arrays also overlap areas of ‘medium’ to ‘high’ sandeel habitat (Figure 9.5 in Document Ref. C282-RH-Z-GA-00052). As sandeel spawn in the areas that they inhabit, loss and disturbance to their habitat arising from construction activities has the potential to cause significant impacts at a population level. The assessment of the impact of habitat loss and disturbance has been concluded as minor adverse for sandeel and, given the wider areas of ‘high’ suitability sandeel habitat to the north and east of the DEP and SEP sites, the MMO are content with the conclusion that significant impacts at a population level are not likely to occur. However, the MMO still have outstanding concerns regarding localised impacts to sandeel as a prey source for marine predators.
- 4.3.5 The MMO consider additional consideration should be given to the potential impacts of localised reductions in prey abundance due to decreased herring and sandeel populations in the vicinity of the DEP and SEP sites during the construction programme. The ES recognises that many marine predators rely on sandeels, and that sandeels and clupeids (herring and sprat) play an important role in the North Sea’s food web as prey for birds, marine mammals and piscivorous fish.
- 4.3.6 The above is important as the DEP and SEP sites are located within the vicinity of the Flamborough and Filey Coast Special Protection Area (SPA) and the North Norfolk Coast SPA and Greater Wash SPA for which kittiwake and Sandwich terns (respectively) are Annex II features. The DEP and SEP sites are also within the Southern North Sea Harbour Porpoise Special Area of Conservation (SAC). It is likely that these Annex II predatory receptors will rely on fish, including sandeel and clupeids, as prey species in the local area and may experience reduced foraging success and/or incur greater energy expenditure travelling to new feeding grounds as a result of localised impacts to fish populations, especially those receptors with relatively small and/or coastal restricted foraging areas.
- 4.3.7 The project will consist mainly of piling, but also result from other activities such as cable installation and clearance of Unexploded Ordnance (“UXO”). Under a worst-case scenario all wind turbine generator foundations would be installed using percussive/impact piling. If monopile foundations are used, the maximum hammer energy used to install the piles would be 5500 kilojoules (“kJ”) and would create the highest noise levels, but installation using this method would likely be the quickest. Installation of foundations using jackets with pin piles would require a lower hammer energy (3000kJ) however more piles would be required, resulting in a total piling duration of 684 hours. Assessment of relevant fish receptors have been grouped by acoustic sensitivity based on criteria set out in Popper et al. (2014). Thresholds and ranges for mortality and mortal injury, recoverable injury, TTS and behavioural disturbances have been modelled for both stationary and fleeing receptors. In addition, modelling of the impacts of sequential and concurrent piling at different locations for SEP and DEP, including the deepest points (those with greatest noise propagation potential) has been carried out.



- 4.3.8 Herring have been identified as being at high risk for behavioural impacts due to their swim bladder, which is involved with hearing, resulting in higher acoustic sensitivity. Additionally, herring may not be able to ‘flee’ piling activities due to their sediment-specific spawning requirements, further increasing their vulnerability. Sandeels are also considered stationary receptors due to their high substrate specificity. However, due to their lack of a swim bladder, sandeels are considered less acoustically sensitive. Other sources of underwater noise such as the detonation of UXO have potential to cause significant impacts to fish. The MMO note that if UXO clearance is required as part of seabed preparation works, a separate marine licence will be required. The MMO are satisfied with a separate licence for UXO clearance activities and would expect an assessment of impacts to fish arising from UXO clearance to be presented as and when the UXO marine licence application is submitted. With the exception of herring, the MMO generally agree with the Applicant’s assessment conclusion that impacts to fisheries and fish ecology arising from noise and vibration will be minor adverse. However, the MMO consider further details need to be provided with respect to the spatial extent of behavioural impacts for herring.
- 4.3.9 Underwater noise modelling outputs have been provided in Figure 9.8 (C282-RH-Z-GA-00052) which show the impact range noise contours for behavioural disturbance, using the 135 decibel (“dB”) threshold, as was recommended in previous advice. However, it is unclear from the information provided if the modelling has been based on a concurrent piling scenario, or if it has been based on a simpler modelling exercise using two individual piling scenarios for the 135dB threshold, (i.e., one at Dudgeon North East and one at Sheringham North) and the outputs/noise contours for each of these scenarios were then overlapped. If the latter has been done, then Figure 9.8 does not provide an accurate representation of the worst-case scenario for the maximum impact range based on concurrent piling. The MMO would like clarification on the outputs shown in Figure 9.8, and, if appropriate, provide additional modelling of concurrent piling using the 135dB threshold.
- 4.3.10 The MMO note that four ‘representative’ locations over SEP and DEP have been chosen to model the effects of underwater noise. Other than choosing two of the deepest locations, no rationale has been given for the selection of these locations. Given the potential sensitivity of the high intensity spawning grounds for herring to the northwest of DEP, the MMO suggest the most north-westerly point of DEP should be chosen as a modelling location.



4.3.11 Under the worst-case scenario, the total amount of suspended sediment expected to be produced during construction of SEP and DEP is 1,544,802m³. Elevated SSCs can affect fish in several ways including disruptions to respiration and heart rate (Redding and Schreck, 1982), and reduction in foraging effort by visual predators (Henley et al., 2000). Feeding may also be further impeded by the smothering of benthic foraging ground by the settlement of sediment (Henley et al., 2000). There is also the potential for contaminants in the sediment to be re-mobilised, however sampling undertaken has showed that contaminant levels in the SEP and DEP development area are low. The seabed at the development site comprises predominantly medium and coarse-grained sand. If disturbed, this is predicted to remain in the area localised to the array site and export cable corridor and fall from suspension rapidly. The sediment at both sites also comprises some finer sand and a small proportion of mud, this is predicted to remain in the water column and result in moderately elevated suspended sediment concentrations (“SSCs”) for up to half a tidal cycle. Due to the relatively high background levels of SSC (10-30 milligrams per liter (“mg/L”) and noting that winter storms can further increase these levels, fish receptors including eggs and larvae are expected to be well-adapted to cope with the estimated small increases in SSC. The MMO note that impacts to fish receptors including eggs and larvae have been assessed as minor adverse. The MMO agree with this assessment.

4.3.12 The worst-case scenario proposed for DEP and SEP would be a total of two High Voltage Alternative Current export cables with a combined length of 102km. The ES recognises that magnetic fields generated as part of the electromagnetic field (“EMF”) can be detected by a number of marine organisms including elasmobranchs, diadromous fish species and other fish species such as cod and plaice. According to the ES, predicted magnetic fields based on Tripp (2021) were found to be greatest at the seabed, reducing rapidly with horizontal and vertical distance from the source. The maximum possible exposure at the cable surface ranged between 1217 and 1653 microtesla (“ μ T”), with this reducing to 26.5 μ T at the seabed surface when the cable was buried to a depth of 1m. Where cable burial in the seabed for the DEP and SEP projects is not possible, loose rock dumps or removable external cable protection systems will be used to cover the cables. The predicted EMF value of 26.5 μ T at the seabed (assuming burial at 1m depth) is expected to be below the background measurements of 50 μ T for the SNS. Therefore, the assessment of the impacts to fish receptors has been concluded to be minor adverse. This is due to the low to medium sensitivity of the relevant fish receptors and the low levels of EMF expected to be produced. The MMO generally agree with this assessment, however, do have outstanding concerns regarding mitigation for cable burial depth.



4.3.13 Regarding commercial fisheries receptors, shellfish dominate the landings by weight and value in both the local and regional area. Smaller quantities of finfish are landed including sole (*Solea solea*) and plaice (*Pleuronectes platessa*) by Dutch registered vessels and whiting (*Merlangius merlangus*) by French registered vessels. The main gear types used are beam trawlers and pulse trawlers targeting plaice and sole, demersal otter trawls targeting whiting, cod and haddock, and pelagic trawling for herring, anchovy, mackerel and sprat.

4.3.14 As noted in section 4.3.8, it does not appear that appropriate underwater noise modelling has been carried out to demonstrate the maximum range of impact for behavioural effects on fish from concurrent piling. The MMO recommend that the cumulative impact assessment is revisited, once the revised modelling has been carried out, in order to determine whether the 135db noise contour from piling at DEP and SEP is likely to overlap with any other projects in the area that may also be carrying out piling in the marine environment.

4.3.15 The MMO note that Applicant has committed to the following 'best-practise' mitigation measures:

- a) Cables will be buried to reduce EMF at depths of between 0.5m and 1.5m and (up to 1m for export cables) excluding in areas of sand waves. Three-core cables will also be used, compacting the circuit phases which reduces and localises EMF.
- b) Construction will take place over a 24-hour period reducing the overall duration of the works and impacts to fish receptors.
- c) Soft-start and ramp-up will take place 20 minutes prior to maximum hammer energy during piling activities. This potentially allows mobile fish receptors to distance themselves from the source of impact, before the greatest hammer energy is reached.

4.3.16 The MMO support the mitigation measures proposed which are typical 'best-practise' for construction activities within the marine environment. However, the MMO have the following minor additional comments to make:

- a) The MMO request that the Applicant aims for a minimum cable burial depth of 1.5m (subject to local geology and obstructions) to minimise the effects of EMF, as recommended in the Department of Energy and Climate Change report (2011).
- b) 24-hour construction will reduce the overall duration of the works and impacts to fish receptors in terms of the number of consecutive spawning seasons that will be affected. Conversely, 24-hour construction will mean that there are no quiet periods of 'downtime' during the project's construction. This is likely to result in localised 'avoidance' impacts by a variety of marine receptors including fishes, and this should be acknowledged in the ES.



- 4.3.17 The MMO would like to caveat that we are unable to determine whether additional mitigation is required (e.g., a seasonal piling restriction during the herring spawning season) until additional clarification and/or underwater noise modelling has been presented.
- 4.3.18 Brown shrimp have been shown to be present and are a commercially important species. However, they are not considered with regard to increased suspended sediment. Literature has suggested that particle size was found to be a major influencing factor on the degree of burial achieved by *C. crangon* (Pinn & Ansell 1993).
- 4.3.19 Cockles have been reported as key commercial species in the area, however cockles have not been taken forward in the assessment (Table 9-16: Summary of the Principal Fish and Shellfish Species in the Local Study Area to be taken forward for Assessment). The MMO would expect cockles to be taken forward for the assessment.
- 4.3.20 The MMO recommend including a map of fishing effort and landings data for shellfisheries and other projects would be beneficial to better visualise the inter-related impacts and effects on the physical and biological environment.
- 4.3.21 The MMO note that the disturbance payments may require fishers to remove gear from the water or store it to ensure that the mitigation measure does not increase the overall potting effort. While the MMO agree with this approach in principle, this might not mitigate against an increase in effort in another area using different gear. However, the MMO defer to the Eastern Inshore Fisheries and Conservation Authority, who are in the best position to provide any information on spatiotemporal shellfisheries fleet dynamics, or provide contact details of fishers.

4.4 **Marine Mammal Ecology**

- 4.4.1 In providing this response the MMO has reviewed the following documents:
- 2.2, C282-EQ-Z-GA-00006 - Location Plan (Offshore), August 2022,
 - 6.1.1 C282-RH-Z-GA-00020 - ES Volume 1, Chapter 1 – Introduction,
 - 6.1.4 C282-RH-Z-GA-00024 - ES Volume 1, Chapter 4 - Project Description,
 - 6.1.10, C282-RH-Z-GA-00030 - ES Volume 1, Chapter 10 – ES Volume 1, Chapter 10 - Marine Mammal Ecology,
 - 6.3.10.2, P272R0306 - ES Volume 3, Appendix 10.2 - Subacoustech Environmental Report Underwater Noise Modelling Report.
- 4.4.2 The MMO note that there appears to be a minor spelling error in paragraph 272. Should be 'harbour seal' not 'harbour se'



- 4.4.3 It is noted that the cumulative impact assessment screening identified that there is the potential for cumulative impacts on marine mammals as a result of disturbance from underwater noise during piling and other construction activities, including vessels at SEP and DEP. Other potential impacts, including Permanent Threshold Shift (“PTS”) from underwater noise and Temporary Threshold Shift (“TTS”) from underwater noise, were screened out of the cumulative impact assessment. All operational impacts have also been screened out of assessment. There does not appear to be a justification for scoping out PTS and TTS from underwater noise or operational impacts.
- 4.4.4 Paragraph 709 of Chapter 10 states that “The approach to the assessment for cumulative disturbance from underwater noise for harbour porpoise has been based on the approach for the assessment of disturbance in Section 10.6.1.2, including the current advice from the Statutory Nature Conservation Bodies (“SNCBs”) (JNCC et al., 2020) on the assessment of impacts on the SNS SAC. The potential disturbance from underwater noise during piling for other marine mammal species has been assessed based on the worst-case maximum area modelled for SEP and DEP for each species, using TTS / fleeing response as a proxy for disturbance, where no further information of potential disturbance impact ranges are available”. The MMO do not consider it appropriate to use the TTS-onset thresholds as a proxy for disturbance. TTS occurs at much higher sound exposures, and so will underestimate the risk of disturbance
- 4.4.5 The MMO would like to highlight that the following points are comments on Volume 3 Appendix 10.2 – Underwater Noise Modelling Report (“the report”).
- 4.4.6 It is noted that the maximum PTS injury ranges in marine mammals of 8.3 km for Low Frequency (“LF”) cetaceans and 4.9 km for Very High Frequency (“VHF”) cetaceans were predicted using the impulsive SELcum (cumulative sound exposure) criteria (Southall et al., 2019) at the South East (“SE”) location of DEP. TTS ranges of 25 km and 19 km were predicted for LF cetaceans and VHF cetaceans, respectively. For fish, a maximum range of 19 km (stationary receptor) was predicted for TTS using the Popper et al. (2014) criteria at the same location. The MMO consider that the predictions look plausible based on the modelling assumptions provided in the report, specifically the source levels, piling profile and marine mammal fleeing speeds.
- 4.4.7 It is important that the predictions made in the ES are verified through construction noise monitoring. To aid comparison of predicted versus measured data, the noise modelling report should include a plot showing the predicted received levels versus range for both monopiles and pin piles, for representative hammer strikes.



4.4.8 The predictions of the simultaneous piling are provided in section 5.3 of the report. Contour plots and summary tables of results are provided for each scenario. This modelling is based on a fleeing receptor for marine mammals (and both a stationary and fleeing receptor for fish). However, apart from the flee speeds, the report does not provide any detail on the fleeing assumptions or receptor movements. The MMO consider that it would be helpful if the report could include an explanation as to how the simultaneous piling assessment was conducted. For example, the model used to simulate fleeing behaviour should be clearly described, including the following parameters, which all affect the amount of noise an animal may be estimated to be exposed to: the time (e.g. onset of activity) or noise level at which animals are assumed to begin responding; the direction in which they flee (especially in the case of scenarios assuming multiple location/simultaneous piling when the assumptions might be less obvious); whether there is a maximum distance or minimum sound level at which animals will cease to respond; whether animals are assumed to continue fleeing, remain stationary, or return toward the noise source/s during temporary cessations in noise-generating activity.

4.4.9 Table 5-75 of the report (included below), for example, summaries the impact areas for Scenario 1. For PTS (highlighted by the blue box on the table below), there is an increase in the total in-combination area from two monopiles being installed simultaneously for LF cetaceans, phocid pinnipeds (seals) and VHF cetaceans (i.e. harbour porpoise). For TTS (orange box), the total in-combination area is smaller than the sum of the worst case monopiles at SEP E and DEP SE for LF and VHF cetaceans. For example, the total in-combination area for LF cetaceans is 1,600 km², although 720 km² (worst case monopile SEP E) + 1100 km² (worst case monopile DEP SE) = 1,820 km². The smaller in-combination area is likely a result of some overlap between the affected areas.

Southall <i>et al.</i> (2019) Weighted SEL _{cum}		Worst case monopile SEP E area	Worst case monopile DEP SE area	In-combination area
PTS (Impulsive)	LF (183 dB)	92 km ²	150 km ²	420 km ²
	HF (185 dB)	< 0.1 km ²	< 0.1 km ²	-
	VHF (155 dB)	43 km ²	61 km ²	260 km ²
	PCW (185 dB)	0.84 km ²	1.4 km ²	33 km ²
TTS (Impulsive)	LF (168 dB)	720 km ²	1100 km ²	1600 km ²
	HF (170 dB)	0.33 km ²	0.44 km ²	-
	VHF (140 dB)	530 km ²	750 km ²	1200 km ²
	PCW (170 dB)	140 km ²	220 km ²	520 km ²

Table 5-75 Summary for the impact areas for installation of monopile foundations using the worst case parameters at the SEP E and DEP SE modelling locations for marine mammals using the Southall *et al.* (2019) impulsive criteria assuming a fleeing receptor



- 4.4.10 Section 6 (“Other noise sources”) and Section 6.1 (“Noise making activities”) state that “The calculation of underwater noise transmission loss for the non-impulsive sources is based on an empirical analysis of the noise measurements taken on transects around these sources by Subacoustech. The predictions use the following principle fitted to the measured data, where R is the range from the source, N is the transmission loss and α is the absorption loss: Source level (“SL”) – $N \log R - \alpha R$ ”. The MMO would like confirmation from Subacoustech that that the equation is $N \log R - \alpha R$ (and not $N \log R + \alpha R$).
- 4.4.11 Table 6-2 of the report provides an appropriate summary of the estimated unweighted source levels and transmission losses for the different construction (continuous) noise sources considered. Figure 6-1 shows the 1/3 octave frequency bands used as a basis for the Southall et al. (2019) weightings used in the simple modelling. The MMO understand that propagation loss is a function of the environment but would welcome an explanation from Subacoustech as to why the propagation loss varies quite significantly between the different sources, particularly when the source spectra (as per Figure 6-1) are not that different.
- 4.4.12 Regarding Figure 4-1 and Figure 4-2 it states that they “present a small selection of measured impact piling noise data plotted against outputs from INSPIRE covering both SPL_{peak} and SEL_{ss} data. The plots show data points from measured data (in blue plotted alongside modelled data (in orange) using INSPIRE version 5.1, matching the pile size, blow energy and range from the measured data”. The MMO thank Subacoustech for providing outputs for the single strike SEL as this was requested during the PEIR consultation in June 2021. It would be helpful if additional information could be provided here for context, such as details of the pile size and hammer energy etc. Without this information, these figures are not overly informative.
- 4.4.13 Please note the following paragraphs are comments on Chapter 10 – Marine Mammal Ecology (C282-RH-Z-GA-00030).
- 4.4.14 Paragraph 287 states that “The maximum predicted impact range for PTS from cumulative exposure (SEL_{cum}) during installation of monopile or pin-pile with maximum hammer energy without any mitigation is up to 4.9km for harbour porpoise and 8.3km for minke whale for the monopile worst-case with a maximum hammer energy of 5,500kJ (Table 10-24). Therefore, there would be no overlap between the two Projects and the assessments for SEP or DEP in isolation are appropriate”. It is the MMO’s understanding that there will be some overlap between the two projects for LF cetaceans (as highlighted in section 5.3 of the underwater noise modelling report).



- 4.4.15 With regard to paragraph 308 it states that “There are currently no agreed thresholds or criteria for the behavioural response and disturbance of marine mammals, therefore it is not possible to conduct underwater noise modelling to predict impact ranges”. While the MMO agree that there are currently no agreed behavioural thresholds for marine mammals one approach is to use species-specific dose-response curves to assess disturbance from piling. Dose response curves should be based on current, appropriate, peer-reviewed literature. Generally, noise contours at 5 dB intervals are generated by noise modelling and overlaid on species density surfaces to predict the number of animals potentially disturbed.
- 4.4.16 Paragraph 309 states that “For marine mammals a fleeing response is assumed to occur at the same noise levels as TTS. Therefore, the potential impact range and areas for TTS presented in Table 10-25, with the estimated number and percentage of reference populations in Section 10.6.1.1.3 providing an indication of possible fleeing response”. Please note that the MMO do not consider it appropriate to use the TTS-onset thresholds as a proxy for disturbance. TTS occurs at much higher sound exposures, and so will underestimate the risk of disturbance.
- 4.4.17 With regard to paragraph 399 (and elsewhere in the chapter) it states that “The results of the underwater noise modelling (Table 10-60) indicate that any marine mammal would have to be less than 100m (precautionary maximum range) from the continuous noise source for 24 hours, to be exposed to noise levels that could induce PTS or TTS, with the exception of harbour porpoise and the predicted impact ranges for TTS of 1km for rock placement and 0.2km for dredging, based on the Southall et al. (2019) non-impulsive thresholds and criteria for SELcum”. Please note that as the noise modelling incorporated a fleeing animal receptor, the results indicate that any marine mammal would be at risk of PTS or TTS if they were less than 100 m from the continuous noise at the start of the activity (and not necessarily at 100 m for 24 hours as the report suggests).

4.5 **Commercial Fisheries**

- 4.5.1 Assessments of impacts on commercial fisheries and Navigation are accurately reflected within the Non-Technical Environmental Assessment and also identifies the potential need for mitigation to alleviate the potential impacts on long fishers.
- 4.5.2 The MMO welcomes the inclusion of the Outline Fisheries Liaison and Co-existence plan. At present we have no comment on this document but maintain a watching brief following comments from navigation authorities.
- 4.5.3 There appears to be a minor error with the text as the end of the sentence reads "Error! Reference source not found"



4.6 Shipping and Navigation

4.6.1 The MMO defers to the Maritime and Coastguard Agency and Trinity House on matters of shipping and navigation. The MMO will continue to be part of the discussions relating to securing any mitigation, monitoring or other conditions.

4.7 Marine Archaeology

4.7.1 The MMO defers to the Historic England on matters of shipping and navigation. The MMO will continue to be part of the discussions relating to securing any mitigation, monitoring or other conditions.

4.8 Seascape, Landscape and Visual Resources

4.8.1 The MMO defers to Natural England as the SNCB on matters of Seascape, Landscape and Visual Resources. The MMO will continue to be part of the discussions relating to securing any mitigation and monitoring or development of any plans/conditions on this matter.

5 Other application documents

5.1 9.8 Outline Fisheries Liaison and Co-existence

5.1.1 The MMO welcomes that a Fisheries Liaison Officer (“FLO”) is already appointed and has ongoing communication with the industry. The FLO should be utilised to maximise effective communication between affected parties especially with any trawlers and any activities in this area, could have significantly increased health and safety risks to the crew and the vessels, due to the snagging of nets if rock armour is deposited within areas historical fishing activity.

5.1.2 At certain times of the year, the removal of fixed fishing gear can take longer due to adverse weather conditions. It is recommended that the FLO notify fishers of the intended works as early as possible to ensure gear can be moved and does not cause an obstruction to the works or loss / damage to the fishing gear.

5.1.3 Advice should be sought via the FLO when the timetable of works is known so that the local industry can provide real-time advice.



5.2 **9.6 In-Principle Site Integrity Plan for the Southern North Sea Special Area of Conservation**

5.2.1 The MMO defers to Natural England on mitigation matters in relation to Habitats regulation assessment, and defers to Natural England at this stage for what should be included within the Outline SIP document.

5.3 **Disposal Site Characterisation Report**

5.3.1 The disposal site will require designation prior to the commencement of works. The code for site disposal will then either need to be included within the DML, or provision of this post consent will need to be secured through the DML.

5.3.2 The MMO will be required to undertake the designation process in consultation with Cefas.

5.3.3 However, the MMO reiterates its above concerns regarding the use of an unvalidated laboratory for contaminants. The Fugro lab is only validated for Particle Size Analysis, and not for the other determinands analysis presented to the MMO. Fugro is not validated for the contaminants analyses to be able to provide confident, robust evidence on which to base a decision (e.g. comparing contaminant levels with the Cefas Action Levels). Methods used could be dissimilar or methods may be potentially comparable with MMO-validated laboratories, but if it is not an MMO-validated laboratory there are also concerns regarding reproducibility and accuracy with respect to the data provided.

5.3.4 Further information on which labs are MMO validated for analysis can be found at the below link:

<https://www.gov.uk/guidance/marine-licensing-sediment-analysis-and-sample-plans#laboratory-validation>

5.3.5 As stated above in section 4.2.9 of this response, adequate justification for exclusion of PBDEs, PCBs, and organochlorine pesticides should be provided, although due to the coarse nature of the sediments, the risk is likely to be low.



6 Summary

- 6.1 We strongly recommend that the Applicant engage with the MMO throughout the process in order to ensure the assessment is as smooth as possible and agreements can be reached through a Statement of Common Ground.

Yours faithfully,

Nicola Wilkinson
Marine Licensing Case Officer



7 References

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