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MMO Reference: DCO/2022/00003
Planning Inspectorate Reference: EN010136
Identification Number: 20048964

10 December 2024

Dear [redacted]

Planning Act 2008, BP Alternative Energy Investments Ltd, Proposed Morgan Offshore Windfarm Generation Assets Order

Deadline 4

On 30 May 2024 the MMO received notice under Section 56 of the Planning Act 2008 (the PA 2008) that the Planning Inspectorate (PINS) had accepted an application made by bp Alternative Energy Investments Ltd, (the Applicant) for determination of a development consent order (DCO) for the construction, maintenance and operation of the proposed Morgan Generation Offshore Windfarm (the DCO Application) (MMO ref: DCO/2022/00003 PINS ref: EN010136).

The DCO Application seeks authorisation for the construction, operation and maintenance of Morgan Offshore Windfarm Generation Assets (MOWF) located approximately 22 kilometres (km) from the Isle of Man Coastline and approximately 37 km from the Northwest coast of England; comprising of up to 96 wind turbine generators, all associated array area infrastructure and all associated development in an area approximately 280 square kilometres (km^2).

Two Deemed Marine Licences (DML) are included in the draft DCO. One in relation to Wind Turbine Generators (WTG) and Associated Infrastructure, and one for Offshore Substation Platforms and Interconnector Cables.

As a marine licence has been deemed within the draft 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 an interest in ensuring that provisions drafted in a deemed marine licence enable the MMO to fulfil these obligations.

This document comprises the MMO's submission for Deadline 4.

This written representation is submitted without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This

representation is also submitted 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.

Yours sincerely

[redacted]

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Contents

1. Comments on responses to Examining Authorities (ExA) Questions (ExQ) 1

1.1. The MMO has reviewed the Applicants response to the ExQ1 (REP3-006) and has provided comments on relevant points in Table 1 below.

Table 1. MMO response to Applicant's response to ExQ1

ExQ1	Question	Applicants' Response	MMO's Deadline 4 Response
Cross Topic and General			
GEN 1.8	**Monitoring 1** Paragraph 2.8.221 of National Policy Statement (NPS) EN-3 requires Applicants to develop an ecological monitoring programme to monitor impacts during the pre-construction, construction and operational phases to identify the actual impacts caused by the project and compare them to what was predicted in the EIA/HRA. Natural England (NE) also raise this issue in their Relevant Representations and further advise in their Written Representation at Deadline 1 [REP1-054] that the In-Principle Monitoring Plan (IPMP) should focus on what the uncertainties and evidence gaps of the EIA and /or HRA are. Can the Applicant: i) Summarise how it has met the NPS EN-3 requirement and whether it will liaise with NE to improve the IPMP, and if not why not?	The Applicant has updated its Offshore In Principle Monitoring Plan (IPMP) (REP2-013) at Deadline 2 in response to comments received from the MMO and Natural England. The Applicant responded to Natural England on the points raised within their written submission (REP1- 054.27 within REP2-005) and an updated version of the Offshore IPMP was submitted at Deadline 2 (REP2-013) which included additional information on the monitoring proposed. The Applicant's initial approach to monitoring had been informed by the MMO (2014) review of post-consent monitoring for offshore wind farms and associated recommendations, whereby monitoring is focused on where there is the potential for a residual significant effect and ensuring the monitoring is appropriate, proportionate and achievable. Following stakeholder feedback on the DCO application, the Applicant expanded from this best practice approach set out by the MMO to include additional monitoring for the following topics (as set out in REP2-005): • Physical processes • Benthic ecology • Fish and shellfish • Marine mammals	The MMO has reviewed the Offshore In-Principle Monitoring Plan and the Mitigation Monitoring Schedule and has provided detailed comments in sections 3 and 4. The MMO notes the Applicant has referred to the standard monitoring requirements informed by MMO (2014). The MMO would highlight to both the Applicant and the ExA that there is an ongoing project on standardising monitoring data. The MMO's is currently working to standardise the collecting and reporting of offshore wind environmental monitoring data in English waters. To do this, the MMO identified receptors and types of monitoring for which an agreed approach to data collection already exists. We are currently validating the standards that we have identified through engagement with industry, SNCBs, and The Crown Estate. We will then work with case teams to implement these standards, so that they become the default approach to data collection.

	Can the MMO and NE: ii) Review and provide comments on the Applicant's revised outline Offshore In-Principle Monitoring Plan at Deadline 2 [REP2-014 Tracked Change Version] and the Mitigation and Monitoring Schedule [REP2-016 Tracked Change Version]?	• Commercial fisheries • Marine archaeology and cultural heritage. The Applicant considers that the updated Offshore IPMP meets the requirements of paragraph 2.8.221 of National Policy Statement EN-3, for the reasons set out below. 2.8.221 Applicants must develop an ecological monitoring programme to monitor impacts during the pre-construction, construction and operational phases to identify the actual impacts caused by the project and compare them to what was predicted in the EIA/HRA. The Applicant has developed an ecological monitoring programme which is presented in the Offshore IPMP (REP2-013), as set out above. The Offshore IPMP presents the objectives of any monitoring measures contained within the deemed Marine Licences (dML) of the draft DCO (REP2-011). Monitoring has been included in the Offshore IPMP (REP2- 013) where the EIA has identified potential significant effects or to reflect industry best practice. The scope of the Morgan Generation Assets EIA is wide, and many of the topics included in the Environmental Statement conclude negligible or minor adverse effects (which are not significant in EIA terms). Therefore, it would be highly disproportionate to monitor all these receptors and potential effects, and there is no precedent to doing so. The MMO (2014) review of environmental data associated with post-consent monitoring of licence conditions of offshore wind farms, highlighted that offshore wind monitoring requirements are driven by consideration of: • uncertainty ('the extent of error or assumptions that were made in calculating the impact. The higher the degree of uncertainty, the greater the need to monitor') and • significance ('the extent to which the identified impact is deemed significant') (MMO, 2014).	Standardisation will only be applied to receptors where agreed standards exist, and standardisation would deliver benefits. Through the project, we will also identify areas where further work needs to be done to agree standards. The project is unlikely to be concluded by the end of this Examination. However, the MMO is currently looking at the potential to include updates within the condition or the plan to ensure all windfarms will abide by the agreed standardised requirements and would welcome any comments from the Applicant.

		This guidance highlights the importance of ensuring any monitoring requirements are based on sound risk assessment principles and is ‘proportionate, consistent and appropriately targeted’ (MMO, 2014). Furthermore, under section 12 of MMO (2014), ‘Recommendations on the guiding principles associated with the spatial and temporal scale of monitoring’, it is recommended that ‘Across all topics monitoring should be receptor driven using EIA and HRA impact statements as a hypothesis for investigation. Monitoring should be used where there is uncertainty in the significance of an impact which could lead to a potentially significant impact on a sensitive receptor’ and ‘Monitoring should not be required for impacts where there is already high certainty’ (MMO, 2014). Commercial wind farms have been constructed and operational in the UK for over two decades, and the Applicant considers that, in many cases, the assessment of impacts is now well understood. The Crown Estate has established the Marine Data Exchange for all offshore wind monitoring which is used to inform impact assessments, including those undertaken for the Morgan Generation Assets. In 2019, The Crown Estate undertook a review of cable installation, protection, mitigation and habitat recoverability (TCE, 2019). The report undertook a desk study to collate information on offshore electrical cable installation techniques and seabed recovery, in support of the Plan Level HRA for Offshore Wind Leasing Round 4. It concluded that ‘a large number of survey reports were reviewed, and the evidence reviewed as part of this project indicated that Environmental Impact Assessment (EIA) predictions largely align with the	

		monitoring data that is available on seabed impacts and recovery and historic industry evidence reviews'. Therefore, offshore wind EIAs have been shown to accurately predict the potential effects of offshore wind projects (or be highly precautionary) and the industry can thus, have confidence in the assessment outputs. Where there is confidence in non-significant assessment conclusions, monitoring is not required (in accordance with MMO (2014)). The Applicant's approach to monitoring for significant effects is therefore in line with offshore wind industry best practice with regard to monitoring and evidence regarding accuracy of offshore wind EIA prediction of effects. The Applicant is continuing to engage with MMO and Natural England on this plan, as appropriate and proportionate to the findings of the Environmental Statement. The approach to monitoring will be fully developed post-consent and secured within the final offshore monitoring plan. The Offshore IPMP will be agreed with the MMO, as required by the conditions of the dMLs within the draft DCO (REP2-011) in consultation with their statutory advisors where necessary.	
GEN 1.9	**Monitoring 2** Is the MMO satisfied with the Applicant's position that its precautionary 'Rochdale Envelope' approach to EIA means that monitoring would not be needed where no LSE has been assessed, having regard to	The Applicant would draw attention to its response to ExA Question GEN 1.8 above, in particular noting that offshore wind monitoring requirements are driven by consideration of uncertainty and significance, and that any monitoring requirements are 'proportionate, consistent and appropriately targeted' (MMO, 2014).	The MMO has requested that an assessment of the prevalence/ abundance of sediment bound paint flakes pre- and post-construction would further our understanding of this potential impact on benthic ecology. However, the MMO notes that no further assessment of this impact has been proposed. Adequate sampling of the pre-construction condition is a pre-

	NPS EN-3 para 2.8.221 as set out in Question GEN 1.10 above.		requisite for robust comparison with post-construction condition and the MMO requests the Applicant to seek opportunities for collaboration between researchers and industry to ensure that the opportunity to investigate this relatively recently identified potential impact to benthic ecology (see Tagg et al. 2024) is not missed. The MMO understands the Applicant is not going to do this. At this stage the MMO would encourage the Applicant to consider this additional monitoring to provide information for the industry as a whole. Furthermore, the MMO welcomes the Applicant's commitment to review suitable imagery acquired during monitoring related to maintenance activities for the presence of Invasive Non-Native Species (INNS) which will allow for an assessment of unambiguous INNS. However, the presence of cryptic INNS will not be adequately assessed through review of this imagery alone. The MMO notes that no significant effect from INNS was predicted within the Environmental Statement because of the Applicants commitment to adopt measures which act to reduce the likelihood of introduction of INNS. However, should INNS be identified during review of the imagery, the MMO requests that the Applicant reconsiders the collection of samples to: 1) confirm species identification and;

			2) understand the fouling assemblage more fully to include cryptic INNS.
GEN 1.14	**Marine Policy Compliance tabulation** Can the MMO confirm satisfaction with the new document [REP2-006] submitted by the Applicant at D2 as Annex 3.1, combining how the North West Marine Plan policies have been considered, topic by topic.	The Applicant notes GEN 1.14 is directed towards the Marine Management Organisation and shall not be responding.	The MMO has reviewed the Applicant's Deadline 2 submission (REP2-006) regarding the North West Marine Plan Policy Assessment and confirms that the assessment is appropriate and has satisfied the MMO's request. The MMO thanks the Applicant for providing the Marine Plan Policy Assessment in a standalone document which has addressed all relevant policies within the North West Marine Plan Policy, and has signposted the relevant documents for further information.
Decommissioning			
GEN 1.21	**Decommissioning Plan** [APP-010] states that a draft of a decommissioning plan "will be submitted prior to construction commencing". i) How is production and approval of a decommissioning plan secured, noting that the draft DCO Requirement 5 only secures submission of a decommissioning programme to the SoS when so required to do so by the SoS? ii) What would be the principal components of the decommissioning plan? iii) Why has an outline plan not been submitted as part of the DCO application? The ExA notes	i) It is not considered necessary for the production and approval of a decommissioning plan to be secured pursuant to the consenting process under the Planning Act 2008, as the decommissioning process for offshore renewable energy installation farms is controlled by the Energy Act 2004. Section 105 of the Energy Act 2004 requires that the Secretary of State may, by notice, require a decommissioning programme for a renewable energy installation, to include the details set out in that section. That is reflected in the wording of requirement 5 of the draft DCO. This approach is consistent with recently made offshore wind farm DCOs, including The East Anglia ONE North Offshore Wind Farm Order 2022, The East Anglia TWO Offshore Wind Farm Order 2022 and The Awel y Môr Offshore Wind Farm Order 2023. It is also consistent with the terms of NPS EN-3 (paragraphs 2.8.88 and 2.8.89).	The MMO notes that decommissioning will not be consented as part of the DCO and a new marine licence will be required. To assist with the holistic review of the project and understanding of the conclusions within the Environmental Statement the MMO believes that an outline plan would be beneficial at this stage. The MMO will provide an update to the Applicant as soon as possible to enable discussions outside of the written process and will provide the ExA with an updated position for Deadline 5.

	that the [PD1-017] response to NE's RR-026.G11 is unsatisfactory and incomplete? iv) Would it include principles of financial security for decommissioning (see also Question GEN 1.21 above)? v) Provide a briefing note on current industry discussions on decommissioning, as referenced in the Statement of Common Ground (SoCG) with the MMO [REP1-035].	ii) 105(8) of the Energy Act 2004 sets out that a decommissioning programme: *"(a) must set out measures to be taken for decommissioning the relevant object;* *(b) must contain an estimate of the expenditure likely to be incurred in carrying out those measures;* *(c) must make provision for the determination of the times at which, or the periods within which, those measures will have to be taken;* *(d) if it proposes that the relevant object will be wholly or partly removed from a place in waters regulated under this Chapter [of the Energy Act 2004], must include provision about restoring that place to the condition that it was in prior to the construction of the object; and* *(e) if it proposes that the relevant object will be left in position at a place in waters regulated under this Chapter [of the Energy Act 2004] or will not be wholly removed from a place in such waters, must include provision about whatever continuing monitoring and maintenance of the object will be necessary."* iii) As noted above, a separate legislative regime is in place under the Energy Act 2004 to control the decommissioning process for offshore renewable energy installation farms. It is not considered necessary or appropriate to duplicate this through consents issued under the Planning Act 2008 and therefore no outline decommissioning plan is considered to be necessary for inclusion with this application.	

		iv) As noted in point ii) above, the decommissioning plan must include details of estimated expenditure. v) In the Statement of Common Ground between the Applicant and the MMO (S_D3_MMO SoCG Marine Management Organisation F02), the MMO has stated that 'the MMO is part of wider industry decommissioning discussions'. The Applicant is aware of early industry discussions on decommissioning taking place as part of the RenewableUK Offshore Consents and Licensing Group (OCLG), which it is part of. This is a developer-led forum which does not include the MMO, however RenewableUK engage with the MMO and other relevant stakeholders regularly on industry priorities. The Applicant understands that recent contact has been made between RenewableUK and the MMO on this topic, however it was agreed to progress these discussions in the new year. The Applicant is therefore not in a position to provide a briefing note that this stage.	
Commercial Fisheries			
CF 1.1	**Medium-term monitoring of effects on commercial fisheries** Please confirm whether you agree with both the IoM Government Territorial Seas Committee (TSC) [RR-015] that medium-term monitoring to validate baseline data and assumptions for Commercial Fisheries impacts is preferable to review only and the National Federation of Fishermens	The Applicant notes CF 1.1 is directed towards the Marine Management Organisation, however, it is worth noting that in addition to the review of VMS and landings data, the Applicant has added a commitment to undertake scallop monitoring within the OFLCP (S_D3_12 Outline Fisheries Liaison Co-existence Plan F03). Specifically, this states the following as part of TM17: "*Development and implementation of a monitoring programme which includes pre- and post-construction monitoring of Queen scallop in and around the Morgan Array Area for up to five years post construction*".	The MMO welcomes the updates to the OFLCP and Offshore In-Principle Monitoring Plan actioned by the Applicant to include scallop monitoring. The MMO understands that this will be secured in the deemed marine licences in schedules 3 and 4 under condition 20(1)(c), which will include submission to the MMO. The MMO will keep a watching brief on if any further updates are requested by interested parties.

	Organisation/ Welsh Fishermen's Association WR [REP2-031] that the outline Fisheries Liaison and Co-Existence Plan (FLCP) [APP-065] needs to clarify commitments to monitoring of fisheries activity and effects on commercial fisheries and should include a timetable for regulator review of monitoring during the operations and maintenance phase	The Offshore in-principle monitoring plan was updated at Deadline 2 (REP2-013) to include scallop monitoring. The final scallop monitoring plan will be detailed in the Monitoring Plan secured in the deemed Marine Licences in Schedules 3 and 4 under Condition 20(1)(c), which includes submission to the MMO. The Applicant can confirm that it will engage with the MMO on the outputs of any monitoring findings and the need for any adaption to the monitoring duration and or scope thereafter in response to these outputs. Following discussions with IoM TSC (08/11/2024) the Applicant can confirm that the proposed scallop monitoring will include consideration of king scallop in developing the monitoring programme post-consent. This has been reflected in the updated OFLCP submitted at Deadline 3 (S_D3_12 Outline Fisheries Liaison Co-existence Plan F03). The Applicant will also seek alignment in methodology with other regional monitoring programmes to ensure maximum value is achieved by the monitoring programme. These points are reflected in the Statement of Common Ground with IoM TSC, submitted at Deadline 3 (S_D3_IoM_TSC SoCG IoM SPC F02).	The MMO is going to discuss this with the IoM TSC to understand the requirements of monitoring and if the information in the current monitoring report provides enough information for all parties to be satisfied of what monitoring will take place. Noting the detailed methodology will be discussed post consent. In addition to this the MMO notes commercial fisheries monitoring has not been standard in many offshore wind projects and is reviewing the requirement and how these would be processed, should the impacts show more impact than what was predicted within the ES. As per the comments in CF1.7 on the OFLCP the MMO will not act as an arbitrator in relation to compensation and welcome this inclusion within the document. The MMO will provide an update in due course.
CF 1.7	**Outline Fisheries Liaison and Co-existence Plan - arbitration** The Applicant is requested to further revise the Outline FLCP and make it clear that the MMO will not act as arbitrator regarding compensation and will not be involved in discussions on any compensation.	The Applicant has not indicated at any stage that it planned to ask the MMO to act as an arbitrator in any matter. However, for clarity, the Applicant has updated the Outline Fisheries Liaison and Coexistence Plan (FLCP) (S_D3_12 Outline Fisheries Liaison Coexistence Plan F03) for Deadline 3 to clearly state that the MMO will not act as an arbitrator regarding compensation matters and will not participate in any discussions related to compensation. The MMO will also be invited to review and	The MMO thanks the Applicant for providing clarification that the MMO will not act an arbitrator or be involved in any commercial negotiations with any association/ organisation, and/ or individual fisheries stakeholders. This comment is found in 1.3.3.2 of the updated FLCP.

		comment on/approve the Final FLCP once it is produced, post-consent.	
DCO Draft Development Consent Order (DCO)			
Parts 1 and 2			
DCO 1.1	**Part 1 Article 2: Interpretation** Further to your response to the MMO [PD-017, RR-020.17 and RR-020.18] and looking more closely at precedent from Norfolk Boreas and Hornsea Four made DCOs, the Applicant is asked to reconsider and respond further on the strong request from the MMO in its [RR-020 section 3.5] and its further comments in [REP2-029] that "*wording should be updated to 'do not give rise to any new or different environmental effects to those assessed in the environmental information'. This also applies to the definition of 'maintain'*". Also review and comment on the Norfolk Boreas made DCO cited as precedent which is worded such that permitted amendments or variations are limited to those that are "*minor or immaterial", and consider whether new wording that conditions "different adverse environmental effects" would provide useful control for the MMO.*	The Applicant has updated the definition of "maintain" within the draft DCO and dMLs as follows: *"maintain" includes inspect, upkeep, repair, adjust or alter the authorised development, and remove, reconstruct or replace any part of the authorised development, ~~provided that such works do not give rise to any materially new or materially different environmental effects to those identified in the environmental statement~~ to the extent assessed in the environmental statement; and any derivative of "maintain" is to be construed accordingly*; This drafting is aligned with the Norfolk Boreas and Hornsea Four made DCOs. Paragraph 9 of each dML within the draft DCO relating to amendments or variations has been agreed with the MMO. No further amendment to that paragraph is considered necessary	The MMO thanks the Applicant for providing the requested changes to the updated draft DCO and notes the required changes made the paragraph 9. The MMO may provide further comments to the Applicant and then the ExA in due course.
DCO 1.2	**Part 2 Article 7: Benefit of the Order**	i) The Applicant notes that Hornsea Project Four, Norfolk Boreas, Norfolk Vanguard and Awel y Mor include the wording - "The undertaker must	The MMO welcomes the update to article 7 and has noted the comments from the Applicant and will review these and

	i) Precedent made DCOs quoted in the Explanatory Memorandum (EM) [REP1-023] include a paragraph in articles regarding benefit of the order: "*The undertaker must consult the Secretary of State before making an application for consent under this article by giving notice in writing of the proposed application*." Explain whether this paragraph has been omitted in error and as appropriate amend the drafting in paragraphs (2) and (3) "*Subject to paragraph (x)...*" or "*Subject to paragraphs (x) and (y)...*" ii) Article 7(4): Precedent made DCOs use the words "*The Secretary of State must consult ..."* not *"…shall consult"* and there is no note in the EM [REP1-023] on this change. Justify which usage is appropriate in this draft DCO. iii) Article 7(11): Consider and attempt to agree with the MMO whether Article 7(11) should incorporate extended wording based on that used in the Hornsea Project Four made order: "…*save that the MMO may amend any deemed marine licence granted under Schedule 3 or Schedule 4 of the Order to correct the name of the*		consult the Secretary of State before making an application for consent under this article by giving notice in writing of the proposed application." However, East Anglia One North and East Anglia Two which are also referenced in the EM with regards to drafting in Article 7, do not include that wording. The Applicant did not include the additional wording as it is not considered to be strictly necessary. The process provided for by the current wording in the draft DCO [S_D3_6 Draft DCO F05] means that whether or not the Secretary of State's consent is required for a transfer to take effect, the undertaker must give prior notice in writing of a proposed transfer under Articles 5(10) and 5(11). ii) The Applicant has no objection to using 'must' instead of 'shall' and has updated the draft DCO [S_D3_6 Draft DCO F05] at Article 7(4) in this regard. It is accepted that this aligns with The Planning Inspectorate's Advice Note Fifteen:Drafting Development Consent Orders and agrees that the term 'must' avoids any ambiguity over what is required. iii) The Applicant has no objection to including this wording in Article 7(11). This wording acknowledges and reflects an administrative practice that happens in practice where a transfer of benefit has taken place. It is usually the case that a variation application will be made to the MMO which includes a request to amend the name of the undertaker on the relevant marine licence(s) for clarity following a transfer to ensure there is a clear record on the MMO's case management system of the person who has the benefit of a licence. The draft DCO [S_D3_6 Draft DCO F05] has been updated in this regard.	provided details comments direct to the Applicant and then to the ExA at Deadline 5. The MMO has added further comments on this article below. As there is potential for the MMO not to be consulted, this will impact our duty as the regulatory authority of the DMLs. Even where the MMO must be consulted, there is no provision for the MMO's comments to be adhered to, therefore there is no power to the MMO to complete its regulatory duty. As a matter of public law, the MMO does not think the Order can contain a provision transfer of Benefit of the DML as is being proposed. PA 2008 Section 120(3) should read against Section 120(4) and Part 1 of Schedule 5, which the MMO thinks limits what the Order can contain to provisions which deem a marine licence to be granted under the order and to the conditions that should be deemed attached to that licence. The MMO does not consider this to be sufficiently wide as to allow the inclusion of provisions which transfer the Benefit of the Order. If the Order cannot contain a DML transfer provision for the reasons set out, then it cannot exclude Section 72 of Marine and Coastal Access Act 2009 (MCAA 2009) in the way proposed as Section 120(5) is limited to applying/modifying/excluding only those statutory provisions which relate to any matter for which a provision may be made in the order.

	undertaker to the name of a transferee or lessee under this article 7 (Benefit of the Order).” iv) If the Applicant considers that the Sheringham and Dudgeon made order recommendation and decision adds or differs from the made order precedent cited in the EM [REP1-023], justify why that may be important and relevant.	iv)	The Applicant does not consider that there are substantive differences to the process for transfer of the benefit set out in the Sheringham and Dudgeon made Order and the precedents cited in the Explanatory Memorandum [S_D3_7 Explanatory Memorandum F04]. The drafting differences between them are: • the Sheringham and Dudgeon made Order only allows for the transfer of the whole of a deemed marine licence. It does not allow for a deemed marine licence to be leased. The Sheringham and Dudgeon recommendation notes that this amendment was included by the Applicant during Examination and it is understood that this was on the basis of a project-specific decision. • The Secretary of State made an amendment to Article 5(7)(b) of the Sheringham and Dudgeon DCO which is described in the decision letter as an ‘amendment to exclude the transfer of deemed marine licence from the provision which states that where the benefit of the DCO is transferred to a transferee or lessee, then the transferred benefit shall not be liable against the undertaker’. The rationale for this addition is not included in the decision letter. The Applicant does not consider it is necessary. In practice, the transferor and transferee will deal with any liabilities and responsibility for them as part of the transfer agreement or lease as part of the commercial terms. • The Article also includes some drafting which is specific to the interaction between National Highways A47 Tuddenham to Easton improvement project and the Sheringham and	Overall, the MMO continues to raise objection to Article 7 and will provide further comments to the Applicant as soon as possible and follow that to the ExA at each deadline.

		Dudgeon extension projects to allow the benefit of some specific works to be transferred to National Highways. This wording is not relevant to or necessary for this draft DCO [S_D3_6 Draft DCO F05]	
Schedule 1 – Authorised Development			
DCO 1.3	**Piling Hammer Energy** An upper limit on hammer pile energy is not referred to in the draft DCO. Should the maximum hammer energy assessed in the ES for single and concurrent piling be specified within the design parameters in the draft DCO and both draft DML's given that this is the best available means to ensure and secure that the sound generated from piling does not exceed that assessed within the ES? If not, why not?	The Applicant has updated the draft DCO (including the dMLs) at Deadline 3 (S_D3_6 Draft DCO F05) to include the maximum hammer pile energy within the parameters tables.	The MMO has reviewed the updated draft DCO (REP3-014) and notes the inclusion of the following wording for maximum pile hammer energies in paragraph 2 of Schedule 2: *5) In the event that driven or part-driven pile foundations are proposed to be used, the hammer energy used to drive or part-drive the pile foundations must not exceed—* *(a) 4,000kJ in respect of pin pile foundations at up to 16 locations; and* *(b) 3,000kJ in respect of any other foundations.* The MMO welcomes this update and considers that the specification of maximum pile hammer energy in Schedule 2 Part 2 secures that sound generated from piling does not exceed that assessed within the ES.
DCO 1.9	**Requirement 3: Aviation Safety** The DIO, MMO and NATS are asked whether they seek conditions controlling lighting of turbines be included within DML conditions as well as in DCO Requirement 3 [REP2-011]	The Applicant notes DCO 1.9 is directed towards Defence Infrastructure Organisation/ Marine Management Organisation/ NATS Safeguarding and shall not be responding.	The MMO understands similar conditions have been included on other offshore wind DCOs either within the DCO or DML or both. As the requirements are already secured within the DCO the MMO questions the benefit of the duplication of including these

	regarding both aviation safety and marine navigational safety.		within the DML but is happy to discuss these requirements with DIO, NATS and the Applicant.
DCO 1.10	**Requirement 7 (and Schedules 3 & 4 paragraph 9): Amendments to approved details** The Applicant quotes the Norfolk Boreas made DCO as precedent [REP1-023], but that DCO has a substantially more comprehensive drafting, including a sub-paragraph (2). The Applicant is asked to add further detail to this draft requirement and attempt to secure MMO agreement, having regard to the MMO's WR [REP1-048].	The Applicant does not consider it necessary to update the wording in requirement 7 of the draft DCO [S_D3_6 Draft DCO F05], but notes that it updated the draft DCO [REP2-011] at Deadline 2 to align paragraph 9 of each deemed marine licence with the wording requested by the MMO. The Applicant considers that it has addressed the MMO's concern on this point. The reason that the Applicant does not consider it necessary to include similar wording to the Norfolk Boreas DCO in requirement 7 is that there are no requirements of the draft DCO [S_D3_6 Draft DCO F05] requiring detailed design or management plans to be submitted for approval post-consent. That is different from the Norfolk Boreas Offshore Wind Farm Order, where various design details and plans were to be submitted to the relevant planning authority for approval.	The MMO has noted the amendments actioned by the Applicant regarding paragraph 9 in Schedules 3 and 4 of the draft DCO (REP2-011) and thanks the Applicant for making the requested amendment. The MMO may provide further comments to the Applicant and then the ExA in due course.
Schedules 3 & 4 – draft Deemed Marine Licences			
DCO 1.13	**Schedules 3 and 4 – Paragraph 6 decommissioning** The Applicant's response to Natural England RR-026.D26 and RR-026.F16 [PD1-017], states that "It is the Applicant's intention to secure decommissioning activities through separate standalone marine licences at the relevant time." The MMO is asked:	The Applicant notes DCO 1.13 is directed towards Marine Management Organisation and shall not be responding.	The MMO will provide an update to the Applicant as soon as possible to enable discussions outside of the written process and will provide the ExA with an updated position for Deadline 5.

	i) If it satisfied with that procedure and with draft DCO Schedules 3 & 4 paragraph 6. ii) If the production of an outline Offshore Decommissioning Plan should be secured by condition in the draft DMLs.		
DCO 1.14	**Schedules 3 and 4, Paragraph 9** i) The Applicant is asked to correct the revised wording in the draft DCO [REP2-011] which has a proofreading error missing out the word "or" before the new words "will not". ii) The MMO is asked to clarify if it would like any further action taken with regard to the drafting of the DMLs Paragraph 9.	The Applicant has corrected this typographical error within the draft DCO [S_D3_6 Draft DCO F05].	The MMO has reviewed the updated draft DCO (REP3-014) and welcome this alongside the comments on transfer of benefit, the MMO is reviewing this paragraph and will provide comments to the Applicant as soon as possible to continue discussions outside the written process and will provide an update to the ExA at Deadline 5.
DCO 1.15	**Schedules 3 and 4 Condition 13 (3) Activities in the Outline Offshore Operations and Maintenance Plan (OOMP)** Is the MMO satisfied with the range of activities identified in the Outline OOMP [APP-079 Table 1.2] and does it accept the qualification presented by [APP-079 paragraph 1.3.1.3]: *"Maintenance due to unexpected occurrences cannot be anticipated and therefore cannot be included within the application*	The Applicant notes DCO 1.15 is directed towards Marine Management Organisation and shall not be responding.	The MMO will review the Applicants response to our DL3 comments to this question.

	for Development Consent or within this plan."		
DCO. 1.16	**Schedules 3 and 4 Condition 13 (3)** Further to the MMO's justification in [REP1-048], reconsider the MMO's request that the word 'substantially' is removed from this condition and justify why the draft DCO should not be so amended; [PD1-017] does not provide sufficient justification.	The Applicant updated the draft DCO [REP2-011] at Deadline 2 to remove the word 'substantially', as requested by the MMO.	The MMO has noted the updated wording and thanks the Applicant for the amendment.
DCO 1.18	**Schedules 3 and 4 Condition 15 (11)** Which does the MMO consider would be the most appropriate Plan to secure "periodic validation surveys of cable burial and protection" post-construction, as proposed by the Applicant in the mitigation and monitoring schedule (item 7.27 [REP2-015]).	The Applicant notes DCO 1.18 is directed towards Marine Management Organisation and shall not be responding.	The MMO will review the Applicants response to our DL3 comments to this question.
DCO 1.20	**Schedules 3 and 4 Condition 20 (1)(d) Construction Method Statement** The Mitigation and Monitoring Schedule [REP2-015] identifies how relevant mitigation measures will be secured through the DCO and it notes that an Offshore Construction Method Statement (CMS) is secured in each Marine Licence in Schedules 3 and 4 (condition	The Applicant did not submit an outline construction method statement with the application, as the measures that it would include are considered standard industry practice and are well understood by the MMO, which would be the discharging authority. The Applicant considered that the draft DCO and application documents contained sufficient detail. However, the Applicant will submit an outline construction method statement at Deadline 4	The MMO looks forward to reviewing the Construction method statement scheduled for Deadline 4.

	20(d)). The Applicant is asked why an outline CMS has not been submitted with the Application, especially as a number of mitigation measures that would feature within the document (for example scour protection management and minimising sandwave clearance) have been included in the modelled scenarios to reduce the significance of effect, and as the wording in the dDCO is as follows: “an offshore construction method statement in accordance with the construction methods assessed in the environmental statement"?		
DCO 1.21	**Schedules 3 & 4 Part 2 Condition 20(1)(d)(i): cable installation plan** Historic England (paragraph 2.7 [REP1-046]) advises that pre-commencement surveys should be analysed to actively inform cable route selection in relation to features of known or potential archaeological interest. Paragraph 7.4 also refers to this. The outline written scheme of investigation (WSI) (paragraph 1.6.2.10 [APP-069] commits to archaeologist input to acquisition of survey data as the project progresses. Paragraph 1.6.3.1] requires archaeologist input to	The Applicant notes DCO 1.21 is directed towards Marine Management Organisation and shall not be responding.	The MMO awaits an update from the Applicant regarding comments raised by the MMO at Deadline 3 regarding Condition 20(1)(f) and/or Condition 20(2) in response to the ExQ.

	preparation of cable route clearance. However, Historic England recommends (paragraphs 10.3 and 10.4 [REP1-046]) that all such post-consent survey and data analysis *"must occur in a timely way to inform any pre-construction finalisation."* The MMO is asked what additional security it would like to see provided by amendment to the outline WSI and the draft DMLs to enable the MMO advised by Historic England to be satisfied before construction commences that layout, cable routing and engineering design finalisation has been adequately informed in a timely way by archaeological survey data and analysis. Condition 20(1)(f) and/or Condition 20(2) and/or Condition 27 are also potentially affected.		
DCO 1.23	**Schedules 3 and 4 Part 2 Condition 20(1)(e): Environmental Management Plan contents** Confirm the expected contents of the proposed Offshore Environmental Management Plan and the Marine Pollution Contingency Plan.	The Applicant will submit an outline Environmental Management Plan at Deadline 4. The Applicant considers that the measures that would be included within an Environmental Management Plan and Marine Pollution Contingency Plan are industry standard measures, which are well understood by the MMO as the discharging authority. The Applicant notes that neither an Environmental Management Plan nor a Marine Pollution Contingency Plan were provided during application or examination by Awel y Mor or Hornsea Four (Secretary of	The MMO will review the Outline Environmental Management Plan at Deadline 4 and will look to provide comments by Deadline 5.

		State awarded the consents in 2023). In addition, a Marine Pollution Contingency Plan was not submitted into Examination by Sheringham and Dudgeon Extensions Projects (consented 2024). These post-consent documents are best drafted once design has been refined and contractors are able to provide specific details to inform the content of the plans.	
DCO 1.24	**Schedules 3 and 4 Part 2 Condition 20(1)(e): Environmental Management Plan** Having regard to the Applicant's explanation in its written hearing summaries (item 41 [REP1-004]), would the MMO confirm the following: i) When it would expect final versions of these plans to be submitted for consultation with the MMO and other stakeholders. ii) Whether these plans should include reporting obligations to the Isle of Man authorities. iii) If a separate EMP for the decommissioning phase should be secured by the DCO if made.	The Applicant notes DCO 1.24 is directed towards Marine Management Organisation and shall not be responding	As per the MMO's response to ExQ DCO 1.24, the MMO will be looking for the Applicant to provide the following: an outline PEMP and an update to Condition 20(1)(e) to read as follows: "*a project environment management plan which accords with the outline project environment management plan, which shall be submitted to the MMO at least six months prior to commencement of the authorised scheme or the relevant part thereof, to include details of"* It would be beneficial to include this as part of the plan so it was clear that the Isle of Man would receive this plan.
DCO 1.25	**Schedules 3 and 4 Part 2 Condition 20(1)(e)(v)** The MMO is asked to clarify: i) Whether it sufficient that the proposed Scallop Mitigation	The Applicant's position is that it would not be appropriate for the scallop mitigation zone (SMZ) to be shown on the Works Plan (APP-082). The Works Plan is a control document, referred to in requirement 2(2) of the draft DCO [S_D3_6 Draft DCO F05]:	As stated in the MMO's response to ExQ DCO 1.25, The MMO always prefers any exclusions zones or additional mitigation to be required to be clear on the face of the DML and not within a plan. However,

	Zone (SMZ) is secured only through the outline FLCP, such that it would only effectively be secured under the condition to develop an offshore EMP. ii) The proposed SMZ is not referenced on the Works Plan [APP-082] whereas the outline fisheries liaison and co-existence plan (FLCP) [REP2-019] illustrates an "indicative SMZ". Should the Works Plan be amended to show the "indicative" SMZ and should co-ordinates for the SMZ be included in the draft DCO/DMLs?	*"2.—(1) The wind turbine generators to be constructed as part of the authorised development must be located within the area shown on the works plan."* The works plan will be a certified document under schedule 5 of the draft DCO. It is not appropriate to include an 'indicative' area on a document that controls how the Proposed Development could be constructed, as until the area is fixed it could be changed. The Applicant considers that the inclusion of the SMZ within the fisheries liaison and co-existence plan (FLCP) is appropriate. That plan will be approved by the MMO in accordance with condition 20(1)(e)(v) of each dML Condition 21(3) of the dML provides: *"The licensed activities must be carried out in accordance with the plans, protocols, statements, schemes and details approved under condition 20, unless otherwise agreed in writing by MMO*." The final SMZ included in the FLCP will therefore require to be adhered to by the Applicant, and the SMZ can be enforced by the MMO.	any plan and its contents **is** enforceable and would be approved by the MMO in consultation with interested parties prior to the start of construction. The MMO has concerns on the SMZ only being indicative at this stage and any outstanding comments from Interested parties. If the SMZ is finalised a standalone outline plan could be beneficial. The MMO notes that the Applicant states that the inclusion of the SMZ within the fisheries liaison and co-existence plan (FLCP) is appropriate. In addition to this the MMO notes a scallop mitigation zone has not been standard in many offshore wind projects and is reviewing the requirement and how this would be processed, should the final area not be agreed at this stage. The MMO believes that the zone should be agreed during the determination process. The MMO will provide an update in due course.
DCO 1.27	**Schedules 3 & 4 Condition 20(h)** i) The ExA notes that Condition 20(h) of the draft DMLs [REP2-011] requires submission of a final Marine Mammal Mitigation Protocol (MMMP) for approval for	i) The Applicant considers that separate conditions are necessary. The intention of having a standalone condition 23 is to allow mitigation measures for UXO clearance to be approved, and that activity to be undertaken, before all of the statements, plans and schemes set out in condition 20(1) have been approved. The Applicant considers it standard industry	i) Without prejudice to the comments on UXO activities, the MMO is content with two separate conditions this is because the MMO understands that the activities do not take place at the same time as the UXO investigations and

	piling operations and Unexploded Ordnance (UXO) clearance. Can the Applicant clarify if Condition 23(b) of the draft DMLs is therefore necessary and if so, why? ii) In the event that there would be more than one final MMMP, can the Applicant comment if there is a need for coordination of their provisions to ensure consistency? iii) Can the Applicant clarify why Condition 20(h) does not contain a requirement for the MMO to consult the relevant statutory conservation nature body. iv) Can the Applicant and the MMO clarify if they would have any objection to including a provision that requires the MMO to consult the Isle of Man Government before approval of any MMMP? v) Can the Applicant clarify if Condition 28(3) of the draft DMLs should be incorporated into Condition 20(h).	practice to have bespoke MMMPs for the separate activities. ii) The Applicant does not consider there needs to be specific provision made within the dML for this purpose. The conditions that refer to the need to submit and have approved a MMMP all state that it must be 'in accordance with the outline marine mammal mitigation protocol'. That wording ensures a degree of consistency from the outset. Furthermore, it is in the Applicant's interest to ensure there is a consistent approach. It is also considered that such consistency, to the extent necessary, can be suitably managed by the MMO. For the avoidance of any doubt the outline MMMP adopts a holistic approach (covering all relevant activity that will require a MMMP). When it comes to developing activity specific MMMPs for approval the information contained within the outline MMMP will be drawn upon, as necessary for the relevant activity in question. The Applicant does not consider it necessary at this stage to have separate outline MMMPs. iii) and iv) The Applicant does not consider this necessary to be included in a condition within the dML. The MMO is an experienced regulator in dealing with conditions of this nature. If the MMO considered it was necessary to consult the statutory nature conservation body or the Isle of Man Government, then they could do so. The Applicant does not consider it necessary to direct them to do so through the terms of the condition. iv) No, the Applicant does not consider that this should be incorporated into condition 20. Condition 28 specifically relates to construction monitoring. It is linked to condition 20(1)(c) which requires certain monitoring to be undertaken and reports submitted to the MMO at various stages of the construction programme.	clearance activities take place prior to the seabed work for any piling. ii) The MMO does not believe that separate documents are required at this stage. As long as all the information requested from the MMO and interested parties is in the final outline MMMP and it is clear which mitigation is for Piling vs UXO activities. iii) The MMO is content for the SNCB to be included as a consultee. iv) The MMO has no objection to including consultation with the IoM government in any condition. v) The MMO is content with the current drafting Condition 28(3) states that the Applicant must adhere to the MMMP (final document post consent) while doing construction monitoring, whereas condition 20(h) is the submission of the MMMP In accordance with the outline MMMP.

Marine Fish & Shellfish Ecology			
MFS 1.2	**Seasonal Exclusion Period for Piling** A seasonal piling restriction has been suggested by Natural England [RR-026] and the MMO [RR-020] to mitigate underwater sound and vibration effects on herring and cod during installation of the offshore substation. The Applicant's Deadline 1 submission in response to Issue Specific Hearing 1 Action Point 14 [REP1-009] states that the application of blanket seasonal restrictions at this stage could be disproportionate to the ecological risk. i) What is the MMO and Natural England's view on the proportionality point? ii) Is any further evidence available to help define an appropriate and informed 'sensitive' exclusion period for the area of the Proposed Development? iii) Could a refined spatial piling exclusion area be defined instead of an exclusion period over the whole array area? iv) Noting that soft-start ramp ups has been explicitly rejected by the MMO, Natural	The Applicant is continuing to engage with the MMO (including a meeting with the MMO and Natural England on 24/10/2024) on measures to mitigate effects of underwater sound on herring and cod and would welcome further clarification on these points so the UWSMS can be refined further during and post examination. In regard to point iv, the Applicant has discussed this with the MMO and Natural England and has agreed wording on this point to be included in the Statement of Common Grounds. The Applicant, Natural England and the MMO have agreed that soft starts and ramp ups will only be of benefit to reduce potential for injury effects on fish species and not for behavioural effects. It should be noted that these will only be effective for some fish species and that this measure is not necessary to rule out significant injury effects on fish, as discussed in the meeting on 24/10/2024. The Applicant looks forward to continued engagement on these matters with the MMO and other relevant statutory nature conservation bodies to develop appropriate mitigation through the UWSMS. The Applicant continues to maintain that no further changes are necessary to the deemed Marine Licences to mitigate potential underwater sound impacts on fish and shellfish receptors	The MMO has previously highlighted that in the Applicant's UWN assessment, the modelled 135 dB noise contour for behavioural responses in herring (as per Hawkins *et al.* 2014), fully overlapped with high intensity herring spawning grounds to the southeast of the Isle of Man, and partially overlapped with high intensity herring spawning grounds to the north and northeast of the Isle of Man. The updated UWN modelling to predict the range of impact for physiological effects in cod provided in Annex 3.1, shows that physiological effects of TTS in cod (as presented in Figure 1.3) extend over much of the high intensity cod spawning ground. At present, the UWSMS strategy only contains a high-level commitment to explore noise abatement options, which does not constitute an explicit and enforceable strategy for reducing the range of noise impacts. Until such time that the Applicant produces an alternative piling noise reduction strategy under the UWSMS (which the Applicant has indicated will be done post-consent), the recommended seasonal piling restrictions represent the only actionable and enforceable mitigation option currently on the table for mitigating the significant impacts to spawning cod and herring which were identified in the ES. The MMO considers that the recommended seasonal piling restrictions are not disproportionate to the ecological risk and represent a necessary, and the only available,

	England and NRW as a primary mitigation measure to reduce the risk of injury/mortality to fish, what type of measures are feasible and specific to fish that could prevent the need for a seasonal piling restriction? v) Are any changes necessary to the draft DCO/DMLs to reflect seasonal piling restrictions as a fallback position in the event that appropriate post consent controls/measures are not able to be agreed in the final Underwater Sound Management Strategy?		safeguard against significant impacts to spawning cod and herring from unmitigated piling associated with this project.
MFS 1.3	**Scoped Out Impacts** In its Scoping Opinion the Planning Inspectorate advised that it was not content to scope out the possible impacts of underwater wind turbine sound and it reserved its position on scoping out underwater sound from vessels. There does not appear to be any information on wind turbine sound impacts on fish and shellfish receptors during the operational phase submitted. The ExA notes the justification provided in Table 3.8 of ES Volume 2, Chapter 3 [APP-021] but is unclear if the	The Applicant refers to Table 3.8 in Volume 2, Chapter 3 [APP-021], which sets out the evidence base for scoping out operational wind turbine sound as an impact on fish and shellfish receptors. Scoping out this impact was agreed in the scoping phase and reaffirmed during the Expert Working Groups [EWG Agreement Log F02, 29/11/2022]. In terms of specific modelling, Volume 3, Annex 3.1 [APP-028] modelled the impact of operational wind turbine sound on sensitive Group 3 and 4 fish receptors, with the conclusions presented in Section 1.9.3, Paragraph 1.9.3.4 and Table 1.55 which demonstrate that the recoverable injury threshold will not be exceeded if a fish were to remain near the turbine for 48 hours of operation, and the TTS threshold was only exceeded within 5 m of the turbine (if a fish remained in the area for 12 hours of operation). The Applicant maintains that these low impact ranges justify scoping out this impact as the	Offshore Wind Farm (OWF) turbines being installed in UK waters today are significantly larger than those installed several years ago. Wind farms generally have a long operational lifespan and may consequently produce a prolonged source of underwater noise, although monitoring and measurement data is limited (Mooney et al., 2020). Hawkins (2022) identified that the operation of wind turbines generate substrate vibration known as “ground roll”. This vibration may travel great distances, creating particle motion and sound pressure in the water, particularly at low frequencies.

	evidence referenced can be applied to turbines of the size and number proposed. i) Can the Applicant provide project specific information on underwater sound from wind turbines during the operational phase? ii) Can the MMO and NE advise of any specific concerns regarding potential underwater sound from turbines and/ or vessels during the operational phase impacting fish and shellfish receptors?	noise levels are too low to have any potential effects on fish and shellfish receptors. As set out above, the approach to scoping of impacts was discussed during the preapplication phase and this has also been agreed with the MMO as set out in the SoCG [REP1-035] in MMO.FSF.3. No objection has been raised on this point by Natural England in their Risk and Issues Log [REP2-033, Tab E Fish and Shellfish Ecology].	The MMO considers that sounds during the operational phase would not be expected to differ significantly from anthropogenic background noise and therefore minimal impact would be inferred. Increases in vibration at the seabed and changes to particle motion or pressure waves could elicit a response in some shellfish and there may be some potential of chronic impacts especially at lower frequencies (Hawkins & Popper, 2016). However, there is currently little documented evidence of direct impact on shellfish receptors from operational noise and limited consensus on how to assess the impacts. Quantifying and understanding the underwater sound scape could give insight to changes that occur at the phases of construction and operation which can feed into analysis of any population monitoring outcomes pre and post project. The MMO considers that the justification given by the Applicant in Table 3.8 of the ES is acceptable for scoping out impacts to fish from continuous UWN from wind turbine operations. Popper *et al*., (2014) provides the most current, empirical sound exposure guidelines for fish for various UWN sources including for impulsive noise generated by pile driving as well as for continuous noises. There is evidence for auditory tissue effects or temporary threshold shift (TTS) caused by continuous sound may occur in species with very high hearing sensitivity (clupeids) however in

			the studies cited, the full replacement of the sensory hair cells which hearing-sensitive fish use to detect sound recovered in a number of days following exposure to the continuous sound. Popper *et al*., goes on to state that in several species of fishes lacking specializations for sound pressure detection (elasmobranchs), studies showed no TTS in response to long term noise exposure. Popper *et al*., also include that continuous noise may change fish behaviour (e.g., induce avoidance, alter swimming speed and direction, and alter schooling behaviour) but that the studies which note these effects lack quantification of the exposure sound levels. More study is needed in this particular area for more definite conclusions to be drawn about the significance of the effect which continuous noise generated by operational turbines has on fish of different hearing abilities. In comparison with impulsive underwater noise generated by pile driving and unexploded ordnance activities, the introduction of continuous noise from turbine operation does not constitute a significant concern to the wellbeing of fish or shellfish species as fatal effects and mortal injuries are not expected, and effects to hearing ability (TTS) are largely temporary. The MMO is content for the impact pathway of continuous underwater sound from wind turbine operation to be scoped out of further assessment.

MFS 1.6	**Recovery Period for Temporary Habitat Loss/Disturbance** Paragraph 3.9.2.18 of ES Volume 2, Chapter 3 [APP-021] states that the recoverability and rate of recovery of an area after large scale seabed disturbance is linked largely to substrate type, but that gravelly and sandy habitats, similar to those found in the Morgan fish and shellfish ecology study area, have been shown to return to baseline species abundance in 5-10 years. Paragraph 3.9.2.61 states that the MDS for the decommissioning phase assumes that all foundations and cables will be removed and that the decommissioning sequence will generally be a reverse of the construction sequence. Assuming that it would take another 5-10 years post decommissioning to return to the baseline species abundance, can the Applicant, the MMO and Natural England advise why the impact of construction and decommissioning on large scale seabed disturbance should not be reconsidered as a long-term habitat loss impact.	The Applicant acknowledges the potential 5-10 year recovery period following large scale seabed disturbance, as detailed in Volume 2, Chapter 3 [APP-021] paragraphs 3.9.2.17-18, although this is only in relation to gravelly and sandy habitats and would be dependent upon local sediment transport processes which would influence recovery rates of sediments and benthic communities. For many fish and shellfish species, recovery will occur over a much shorter time scale as these are mobile species (to varying degrees) and individuals will start to recolonise affected areas quickly following installation of infrastructure. Further, evidence from monitoring programmes at other offshore wind farms (as set out in Volume 2, Chapter 3 [APP-021]) have shown a recovery trend towards pre-construction baseline communities within 3 years for fish and shellfish communities, which is not considered to be a long-term impact. This is corroborated by The Crown Estate Cables Project, which monitored sediment recovery from the monitoring reports of 20 UK offshore wind farms following cable installation [APP-021, paragraph 3.9.2.9], with this review reporting that coarse and mixed sediment habitats that experienced seabed disturbance tended to return to baseline conditions within a few years, with little or no evidence of further disturbance in the years following cessation of construction activity. Therefore, while some sediments have the potential to take up to 5-10 years to fully recover to a baseline condition, in most cases recovery of fish and shellfish will occur much faster and therefore not predicted to be long term. For those areas where full recovery of sediment and associated communities may take a longer period of time (e.g. up to 5-10 years), these will be limited in scale, representing a very small proportion of the total temporary habitat loss footprint (noting that some recovery of mobile species will still occur in these areas). For these reasons,	With regards to Shellfish, the MMO considers that construction activities and decommissioning which result in habitat loss or disturbance would be considered 'long-term' due to the timeframe for seabed and sediment composition to return to original being typically longer than a commercial shellfish lifespan. Impact on more sedentary shellfish species maybe considered higher as they are less nomadic and often related to certain substrate types for most of their life cycle. The monitoring activities planned to pre and post construction will shed more light onto this parameter for the shellfish species within the area and inform future actions. The MMO notes that Natural England agrees with the ExA that more persistent impacts from habitat disturbance, may be considered long term. However, there remains an argument for EIA impacts to still be considered temporary. This is because following cessation of disturbance, there is evidence that fish populations can recover and without further seabed disturbance be maintained over the operational phase of the windfarm and/ or post decommissioning. Therefore, Natural England advised that any further habitat disturbance impacts from decommissioning should be considered as a separate discrete impact. The MMO notes that Natural England has determined that mitigation measures for loss of

		the significance of effect will be, at worst, minor adverse significance and therefore not significant in EIA teams.	supporting habitat for fish and shellfish are not required for this project.
Marine Mammals			
MM 1.2	**Concurrent Piling and Unexploded Ordnance (UXO) Clearance** Can the Applicant: i) Advise if it is feasible that piling and UXO clearance activities may be undertaken concurrently? If so what are the implications for potential injury/disturbance to marine mammals (and fish). Can the IPs: ii) Advise whether there is a necessity to restrict or control the possibility of concurrent piling and UXO clearance activities?	The Applicant notes that concurrent UXO clearance and piling activities are not proposed, as these activities are planned to be managed in separate project phases. UXO clearance will be undertaken in the pre-construction phase, prior to construction activities commencing. Piling activities will take place in the construction phase, once all UXO has been cleared and seabed preparation works completed. Therefore, there is not a realistic scenario whereby these activities take place at the same time. The Applicant considers that there is no requirement for further controls or restrictions to be added to the draft DCO.	The MMO understands that UXO clearance will be undertaken at separate project stages and that there will be no scenario where piling activities are taking place at the same time as UXO clearance. It may be necessary to restrict or control concurrent piling and UXO clearance activities to reduce the risk of potential impact from adverse effects of underwater noise. For example, in the case of the Southern North Sea Special Area of Conservation (SAC), such activities are controlled/managed to ensure that noise thresholds are not breached. The cumulative effects of multiple projects involving piling and UXO clearance may be significant, especially when these activities occur simultaneously. At this stage the MMO does not believe this is required.
MM 1.3	**Marine Mammal Mitigation Protocol (MMMP): Points of Clarification** At Issue Specific Hearing 1 the Applicant explained that a separate Marine Licence will need to be sought prior to construction for pre-construction geophysical and geotechnical surveys.	i) The Applicant has reviewed the marine licencing requirements for surveys, and how mitigation measures proposed through the MMMP (where relevant) would be secured and applied. Geotechnical surveys – these surveys would not produce sound impacts that would require mitigation measures to be in place through the MMMP. For that reason, geotechnical surveys are not referred to in the outline MMMP [APP-072]. Geophysical surveys – geophysical surveys are	The MMO has no comments to add, it is up for the Applicant to be content that all required licensable activities are within the DML.

	The MMMP is intended to reduce or eliminate the risk of injurious effects of underwater sound due to piling, UXO clearance and geophysical surveys on marine mammals, yet if preconstruction geophysical and geotechnical surveys are to be controlled by separate marine licence, the mitigation measures in the MMMP will not be triggered for those operations. This seems at odds with paragraph 1.5.1.2 of the outline MMMP [APP-072] which states that the specific measures to mitigate the injurious effects of UXO clearance, piling and geophysical surveys during the pre-construction and construction phases of the Morgan Generation Assets will be determined post-consent in consultation with the licensing authority (MMO) and SNCBs. i) Can the Applicant therefore confirm for the avoidance of doubt that the MMMP will specifically apply to pre-construction geophysical surveys if they involve sound generating activities such as multibeam echosounders and sub-bottom profilers, and if so which condition(s) in the dDMLs would trigger the submission and approval of a	not a licensable activity under the Marine and Coastal Access Act 2009. Guidance from the MMO requires that the MMO be notified prior to seismic or geophysical surveys being undertaken. Whilst geophysical surveys are not a licensable activity, this would not remove the need for the Applicant to obtain a European protected species (EPS) licence if the surveys may affect a EPS. The conditions of the EPS licence would require necessary mitigation to be put in place, which in this instance would be through a MMMP. • The Applicant has included the proposed mitigation for geophysical surveys within the outline MMMP [APP-072] for completeness and to inform the Environmental Impact Assessment. However, as geophysical surveys are not a licensable activity and the necessary mitigation would be secured through the EPS licensing process, the Applicant does not consider it necessary to include provision in the draft DCO to secure this mitigation. ii) The Applicant does not consider that any amendment to the definition of “commence” is necessary. As noted above, the mitigation measures would be secured through another licensing regime and therefore have not been included in the draft DCO. This is considered to be the standard approach for consenting of offshore wind generating stations.	

	final MMMP before pre-construction geophysical surveys could be conducted? ii) Would the definition of 'commence' (which currently excludes pre-construction surveys) need to be amended? If not, how would pre-construction geophysical surveys currently excluded in the definition of commence be controlled, monitored and mitigated?		
MM 1.5	**Masking** In relation to the assessment of effects from underwater sound on marine mammals the Applicant states at Paragraph 4.9.1.2 of ES Volume 2, Chapter 4 [AS-010] that there is insufficient evidence to properly evaluate masking and no relevant threshold criteria to enable a qualitative assessment. Can the MMO, Natural England and NRW advise if they agree with this statement? If not can they suggest whether the Applicant needs to address the masking scenario?	The Applicant is aware that the question was not posed directly to them, however, confirm they are not aware of any published / accepted threshold criteria relating to masking effects.	The MMO agrees that there is currently no defined threshold criteria for the masking of biological sounds. However, the MMO does not agree that there is insufficient evidence to evaluate masking. In this situation, the MMO requests the Applicant discusses the potential risks of masking and refers to the relevant peer-reviewed literature. For instance, Erbe et al. (2016) and Erbe et al. (2019) to review their understanding of masking in marine mammals, and the effects of ship/vessel noise on marine mammals including masking.
MM 1.8	**UXO High Order Clearance Sound Modelling** Paragraph 4.9.3.2 ES Volume 2, Chapter 4 [AS-010] relating to UXO clearance states that sound	The Applicant is aware that the question was not posed directly to them, however, confirm they are not aware of a more suitable accepted approach to modelling UXO clearance.	The MMO advise that the Soloway and Dahl (2014) is widely accepted with regards to the UXO High Order Clearance Sound Modelling, despite its age.

	modelling for high order detonation, acoustic modelling was undertaken following the methodology described in Soloway and Dahl (2014). Given the 2014 date of the Soloway and Dahl publication, can the MMO and NE advise if this is the most up to date/ best practice method?		
MM 1.12	**Cumulative Underwater Sound: Residual Effects** The cumulative effects assessment in ES Volume 2, Chapter 4 Marine Mammals [AS-010] identifies potentially significant adverse residual effects in terms of cumulative piling sound impacts on Bottlenose Dolphin and cumulative UXO clearance sound on harbour porpoise. The Applicant proposes that mitigation measures will be developed in consultation with the licensing authority and SNCBs post-consent to reduce any potential residual effects for Bottlenose Dolphin and Harbour Porpoise. Can the MMO, Natural England and NRW confirm if they are confident that mitigation options exist to reduce the residual effects.	The Applicant notes MM 1.12 is directed towards MMO/NE/NRW and shall not be responding.	As discussed in the MMO's response to ExQ1, the MMO is aware of multiple mitigation options for both piling (such as bubble curtains) and UXO clearances (low order techniques) and the MMO understands these will be finalised post consent through the MMMP. The MMO is aware that Defra are actively considering updating marine noise policy, and that an announcement is likely to be made in the near future. The policy direction is towards an expectation that all offshore wind developers carrying out pile driving activity in English waters should demonstrate that they have utilised best endeavours to deliver noise reductions through the use of primary and/or secondary noise mitigation methods in the first instance. The MMO will update the ExA on any policy changes.

MM 1.13	**Cumulative Assessment – Injury due to Collision with Vessels** Table 4.57 in ES Volume 2, Chapter 4 [AS-010] relating to the cumulative increased likelihood of injury due to collision with vessels suggests that sound emissions from vessels will likely deter animals from the potential zone of impact. Given that this part of the Irish Sea is well-trafficked with vessels, and given the potential temporal and spatial overlap with other projects, can the Applicant, the MMO, NE and NRW clarify if there a possibility that an animal fleeing the sound of construction/ maintenance vessels (or indeed piling/ UXO clearance) from one project might find themselves within the zone of influence of another project?	To the Applicant's knowledge there is no evidence to suggest that an animal moving away from a vessel within a project array would be at greater risk of collision from vessels associated with a nearby project. The Applicant highlights this question is speculative, and it is important not to draw assumptions based upon lack of evidence. As discussed in detail below, it is considered highly unlikely that marine mammals would be at greater risk of collision from moving from the zone of influence of one project into the zone of influence of another project; marine mammals are highly developed animals that have evolved in an underwater environment with ambient noise, and it is highly unlikely that exposure to a sound source excludes the animal from hearing other sources of sound (see point 3 below). The Applicant has assessed in detail cumulative scenarios of multiple projects constructing at the same time, and has also assessed the potential for inter-related effects (Volume 2, Chapter 15: Inter-related effects) with further information presented in Annex 3.4 to the Applicant's Response to Relevant Representation from Natural England and Natural Resources Wales: Interrelated Effects (PD1-009). However, the Applicant can offer the following additional information to address this question: 1. A conservative maximum range of disturbance was determined to be 7 km from a moving vessel derived from literature, with the modelled range being 3.6 km. Only Mooir Vannin Offshore Wind Farm and Morgan and Morecambe Offshore Wind Farms Transmission Assets lie within this maximum distance from Morgan Generation Assets. Construction at Mooir Vannin Offshore Wind Farm would not overlap with the construction phase at Morgan Generation Asset and therefore only vessels associated with the construction of Morgan and Morecambe Offshore Wind Farms Transmission Assets could coincide. There is no piling at the Transmission Assets and therefore if animals move away from the Morgan Array during piling	The MMO advises that there is a possibility that an animal fleeing the sound of construction/maintenance vessels (or indeed piling/ UXO clearance) from one project might find themselves within the zone of influence of another project. The MMO therefore considers that this should be adequately assessed within the cumulative assessment.

		or UXO clearance, it is only vessel disturbance they may encounter rather than further piling activities (as UXO clearance would be carefully coordinated with other projects for safety reasons). 2. Disturbance from vessels is likely to occur as short term, intermittent events with likely rapid recovery following disturbance (as evidenced in Hao et al., 2024; Lemon et al., 2006; Ribeiro et al., 2005; Wisniewska et al., 2018). Disturbance ranges as a result of sound from vessels are small, and the risk of collision is even smaller. Vessels tend to be large, spaced apart, and vessel sound works antigenically with collision risk (i.e. the presence of vessel sound reduces the likelihood of collision, given marine mammals' high sensitivity to noise). It is highly unlikely a marine mammal with such developed hearing would not hear a construction vessel before being in such proximity for collision. 3. Hearing is the primary sense of marine mammals underwater and therefore an animal can perceive multiple sounds within its environment and respond accordingly, moving away from threats. This is evidenced in Wisniewska et al. (2018) which demonstrated that harbour porpoise dove away from the surface while fluking vigorously in response to vessels and Benhemma-Le Gall et al. (2021) which demonstrated harbour porpoise displacement from pile-driving activities. Marine mammals evolved in a marine environment which contains a vast variety of naturally occurring sounds and have evolved ears that function well under ambient noise, and thus they show a variety of strategies to reduce noise masking and move away from threats. Whilst the Applicant acknowledges anthropogenic noise such as piling and UXO is relatively recent to the environment, there is no suggestion that animals cannot also perceive these sounds also and respond accordingly, with scientific	

		evidence of marine mammals responding to anthropogenic sounds vast. 4. Often a response of an animal to a vessel has been recorded as deep diving (Frankish et al., 2023, Wisniewska et al., 2018) and therefore would not necessarily flee in a horizontal plane (towards another vessel) as a flee response. The Applicant highlights it is not possible to determine how each individual animal will respond to its perceived threat level from different sound sources, and therefore what population level impacts this may have. Furthermore, marine mammals are highly mobile and there is evidence of vast movement across the Irish and Celtic Seas, and therefore it is not possible to determine if an animal will move towards nearby projects or further to the south or west of the region. 5. Applicant highlights they have committed to the development of and adherence to an Offshore EMP, including Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (APP-203). These measures require vessels to not deliberately approach marine mammals as a minimum and avoid abrupt changes in course or speed should marine mammals approach the vessel to bow-ride, where appropriate and possible considering all technical considerations. 6. Vessel movements to and from any port will be incorporated within existing vessel routes and therefore there would be no increased collision risk outside of these vessel routes/array, which animals may already experience levels of tolerance or habituation to vessel sound and have adapted to existing shipping routes, given they are regularly seen in the marine mammal study are. Factors such route predictability (steady vs. erratic paths) or speed may be important drivers of negative reactions (Frankish et al., 2023).	

		Therefore, the Applicant considers a robust cumulative assessment of impacts on marine mammals has been presented and it is considered highly unlikely that marine mammals would be at greater risk of collision from moving from the zone of influence of one project into the zone of influence of another project.	
MM 1.18	**Noise Abatement Systems (NAS)** Both Natural England and the MMO reiterate in their WRs [REP1-048 and REP1-053] the need for the Applicant to commit to NAS and not just consider it. NRW also state that NAS should be given more serious consideration [REP1- 056]. Can the Applicant advise why it is reluctant to commit to the deployment of NAS.	Please see response, RR-020.57 in the Applicant's response to the Relevant Representations (PD1-017). The Applicant has put forward a number of mitigation measure options in the Underwater sound management strategy (UWSMS) and Marine Mammal Mitigation Protocol (MMMP) and therefore the impact assessments are not reliant solely on NAS to conclude no significant effects. The UWSMS (as secured as a condition in the deemed Marine Licences in Schedule 3 and 4 of the draft Development Consent Order (S_D3_6 Draft DCO F05) will be developed in consultation with relevant stakeholders, including Natural England and approved by the MMO prior to construction. The deployment of NAS is not standard industry practice within the UK and at present there is no statutory requirement for NAS to be deployed. The Morgan Array Area is not within an area that is more sensitive for marine mammals in comparison to many previous offshore wind projects (especially the Round 3 projects in the North Sea that were cited within a marine mammal SAC). In addition, the Applicant is not proposing construction techniques that result in significantly higher underwater sound levels than other projects (indeed the maximum hammer energy is lower than many recent consents). The Applicant is aware that there is forthcoming Defra policy regarding the mitigation of underwater sound. The Applicant has been informed that this policy will likely be published prior to Deadline 4 and therefore consider it prudent to wait for the release of the policy to have a full understanding of the requirements for all developers, so that a commitment can be carefully considered. The deployment of NAS has significant cost,	The MMO has noted the Applicant's position and will review the Defra policy alongside the Applicants position once the policy issued by Defra.

		implementation, supply chain and programme implications and therefore the decision cannot be made lightly. The Underwater Sound Management Strategy (UWSMS) includes NAS as one of a number of mitigation options if required, enabling the application of the mitigation hierarchy, and consideration of the latest and most effective technology available and is therefore considered by the Applicant to be the best approach to address the potential impacts (the MMO supports the commitment to develop the UWSMS in principle (see REP2-029)). The final project design and programme will be refined for the Morgan Generation Assets, and programmes for other projects will also be refined, and therefore refinement of the approach to mitigating potential impacts of underwater sound for the Morgan Generation Assets will also be required. The Applicant requires flexibility in the design and construction methods at this stage, due to ongoing design refinement and uncertainties. It would not be considered appropriate to apply a blanket requirement, when the final design parameters and construction programme may not require the implementation of additional mitigation measures. The Applicant notes in the decision letter from the Secretary of State (SoS) for Sheringham Shoal and Dudgeon Extensions Projects the ExA and SoS made a similar judgement agreeing that a commitment specifically to NAS was not required (see paragraphs 4.24-4.26 (DESNZ, 2024)). To ensure proportionate, appropriate and effective mitigation is employed, the Applicant's position is that finalisation of the mitigation required is best decided following this design and programme refinement through the UWSMS and in light of the forthcoming policy, an approach which follows standard industry best practice.	

European Protected Species Licences			
MM 1.24	**European Protected Species (EPS) licences** The MMO is responsible for wildlife licensing of activity in English waters. The Applicant [APP-064] states that any necessary EPS licences would be applied for post grant of DCO. The Applicant does not explain which species this may/would relate to, but it is likely to be marine mammals. Can the MMO confirm if it is satisfied with the Applicant's approach as set out in [APP-064] to submit any necessary EPS licence applications post-consent?	The Applicant notes MM 1.24 is directed towards MMO and shall not be responding.	The MMO is content that the Applicant will submit any necessary EPS licence applications post consent. The approval of the EPS licence requires more detail in relation to the design and any required mitigation. The MMO would highlight that the EPS has different legislative requirements in providing consent and the test for mitigation could be considered higher. Therefore, as per our comments in REP1-053 the MMO strongly advises that NAS is committed to at this stage.
Marine Physical Processes and Benthic Ecology			
MP 1.5	**Secondary Scour** Both the MMO and Natural England have raised concerns that secondary scour has been scoped out of the ES. The Applicant's response [PD1-017] stated that "secondary scour has been assessed within the context of impacts to sediment transport and sediment transport pathways due to presence of infrastructure in section 1.9.5 of Volume 2, Chapter 1: Physical processes (APP-013) for the operations and maintenance phase. Where	The Applicant can confirm that engineering design will ensure that provision of scour protection will minimise the occurrence of scour such that any residual scour would be very localised and of negligible magnitude. The need and potential extent of scour protection measures will be dependent on the foundation type, geometry and location (i.e. seabed and hydrographic conditions). The exact parameters will be site specific and related to both the infrastructure type and scour protection approach, e.g. separate filter and amour layers, provision of a falling apron, or a composite solution. At the detailed design stage the magnitude of potential scour in relation to the proposed measures will be balanced. Where scour protection measures are to be furnished, they will be	Until the information is provided, the MMO is unable to advise with certainty on the likelihood of secondary scour occurring and where it does what the significance will be. The MMO is aware in some wind farm locations this has been higher than others but without further examples in relation to the location of Morgan OWF no further conclusions can be given or confidence in the information provided to date.

	scour protection measures are to be furnished, they will be subject to engineering design to ensure they minimise as much as practical the occurrence of scour. Therefore, any residual/secondary scour would be very localised and of negligible magnitude." i) Can the Applicant advise how it has arrived at the conclusion of negligible magnitude given that final design of scour protection is not yet determined, whether secondary scour will be monitored over time, and what provisions will be in place to deal with scour in the event that the protection measures fail. ii) Can the MMO and Natural England comment on the likelihood of scour occurring if best practice scour protection methods are employed, and provide examples of where secondary scour has occurred on other operational windfarms and what the implications were.	subject to engineering design to ensure they minimise as much as practical the occurrence of scour. The Applicant can confirm that the detail of design and construction will be outlined within the Offshore Construction Method Statement (CMS) developed in consultation with MMO. This will include an assessment of the magnitude of scour in comparison to the volumes of scour protection at the locations where it is proposed and demonstrate that any measures proposed minimise the occurrence of secondary scour. This is secured within the DCO dMLs (REP2-011, S_D2_7) under Schedules 3 and 4, Part 2, condition 20(1)(d)(ii) and construction cannot commence until the CMS is submitted and approved by the MMO. The Offshore In-Principle Monitoring Plan (REP2-013, S_D2_9) outlines that during the operations and maintenance phase of the project both engineering monitoring for asset security and environmental monitoring will be undertaken. As such, routine inspections will be made of cable and scour protection and, if secondary scour is identified, remedial works may be undertaken to both mitigate environmental impacts and to provide asset security. Mitigating measures may be developed in discussions with the regulatory authority and its statutory advisors. The monitoring plan is secured within the DCO dMLs (REP2-011, S_D2_7) under Schedules 3 and 4, Part 2, condition 20(1)(c).	
MP 1.6	**Drilling Arisings** The Planning Inspectorate advised the Applicant at Scoping stage that the ES should identify	The Applicant notes MP 1.6 is directed towards the Marine Management Organisation and shall not be responding.	The MMO has reviewed the Site Characterisation Report and is content with the assessment of the Array disposal site. The MMO is currently designating

	the likely site for disposal of drilling arisings and include an assessment of effects from these activities. Schedule 1, Part 1, 1(f) of the draft DCO [REP2-011] seeks to consent '*the removal of material from the seabed and the disposal of inert material of natural origin within the Order Limits produced during construction drilling…*'. The Morgan Array Area Site Characterisation Report [APP-067] also states that drill arisings may consist of large, granular materials that are too large to be moved by tidal currents and may remain in situ for long periods of time. Can the MMO advise if it is satisfied with the proposed disposal arrangement without knowing the exact scope for this potential impact and without further conditions.		disposal sites and once these references are identified will request these are included within the DML.
MP 1.7	**Monitoring – Invasive Non-Native Species (INNS)** Section 2.9.7 of ES Volume 2, Chapter 2 [APP-020] relating to the increased risk of introduction and spread of INNS states that the removal of encrusted growth from turbines may occur during the operations and maintenance phase and that it may have the potential to introduce INNS. The	The Applicant highlights that as no significant effect was identified for the increased risk of introduction and spread of INNS impact in section 2.9.7 of Volume 2, Chapter 2: Benthic subtidal ecology (APP-020) no monitoring is considered to be required. The Applicant can confirm, however, that in the updated Offshore In-Principle Monitoring Plan submitted at Deadline 2 (REP2-013, S_D2_9, section 1.7.2), there is a commitment to using pre and post construction survey data from drop down video to for the identification of INNS	The MMO is satisfied with the amendments to the in-principle monitoring plan and mitigation and monitoring schedule regarding benthic receptors. In summary, scheduled pre- and post-construction surveys will include ecological monitoring such as review of seabed imagery to assess the presence of Invasive Non-Native Species (INNS) and the diversity of the colonising assemblage around seabed infrastructure. The MMO

	ExA notes the Applicant's intention to submit a Biosecurity Risk Assessment and INNS Management Plan post consent, but what specific INNS monitoring commitments are proposed during operations and maintenance phases? If none, provide justification particularly (but not exclusively) in light of the concerns expressed by the IoM Government in its LIR [REP1-047] and the comments made in relation to sampling by the MMO [REP2-029, RR-020.47].	to establish presence / absence of INNS around seabed infrastructure. The Applicant will commit to considering the feasibility of collecting samples of the communities colonising the seabed infrastructure for further analysis of INNS. The Applicant would note, however, that the feasibility of the collection of such samples would be dependent on the technical specifications of the equipment available at the time to undertake the surveys as well as health and safety considerations.	welcomes this commitment which will enable early detection and monitoring of INNS and colonising fauna.
MP 1.10	**Inter-related Effects: monitoring and surveying** Several ES chapters have referred to the possible biodiversity benefits from the introduction of artificial structures and the potential for increased foraging opportunities for fish and thus increased prey opportunities for marine mammals, as well as potential benefits to the fisheries from colonisation of the structures and reef effects allowing species like crab and lobster for example to expand their habitats. The ExA notes that the evidence presented for such benefits is limited and not conclusive, to the extent that it is not possible for the Applicant to quantity the	The Applicant highlights the updated Offshore In-Principle Monitoring Plan (REP2-013, S_D2_9) which now contains a commitment to monitoring the colonisation of novel hard structures. This monitoring will use drop down video data collected from scheduled pre and post-construction surveys for the identification of colonisation. The Offshore In-Principle Monitoring Plan also states that this commitment to monitoring will be included and secured through relevant conditions in the dMLs within the DCO, the wording for which has been suggested in document S_D2_7 (REP2-011)	The MMO notes the commitment to monitoring the colonisation of novel hard structures contained within the Offshore In-Principle Monitoring Plan with the monitoring approach listed as: *Use of scheduled pre and post construction surveys to include ecological monitoring such as reviewing any suitable DDV data available for the identification of colonisation.*

	biodiversity benefit that artificial structures may have over time and thus also not possible to appraise the future impact of the subsequent loss of that biodiversity benefit during the decommissioning stage when the artificial structures are removed. i) The Applicant is asked to justify as to why it does not intend to undertake any operational phase monitoring to verify and supplement the findings of the ES in this regard. ii) The Applicant is requested to suggest wording for a condition being added to the DMLs requiring that a survey of any species, habitats and reef structures present on the foundation structures is undertaken prior to decommissioning. Natural England and the MMO are invited to respond to the Applicant's suggested wording at the subsequent deadline.		
MP 1.12	**Unexploded Ordnance Clearance Impacts** The ExA notes that UXO clearance has not been considered for impacts on physical processes and benthic habitats. While the ExA acknowledges the Applicant's	The physical processes assessment presented in Volume 2, Chapter 1: Physical processes (APP-013) has been undertaken in line with the impacts agreed through the Scoping, PEIR and EWG processes, as documented in the Consultation Report - Consultation Report Appendices (APP-102, APP-103, APP-104) and Technical engagement plan appendices Part 2 (APP-90). Through	The MMO is currently reviewing the Applicants' response and will provide an update at Deadline 5.

	response on this matter to Natural England [PD1-017] (RR-26.D17 and RR-26.F15), the ExA notes that paragraph 2.9.2.9 of ES Volume 2, Chapter 2 [APP-020] seems to base the impacts of UXO clearance on the most likely (common) UXO clearance of 130kg. However, the absolute maximum UXO clearance could be a 907kg high order explosion. The Applicant is asked to direct the ExA to the details of the worst case (907kg) assessment for physical processes and benthic subtidal ecology receptors. If such an assessment has not been undertaken, one is required to be carried out and Chapters 1 and 2 updated by no later than Deadline 4. The MMO and NE are requested to submit a response to the Applicant's response at Deadline 5.	this process, UXO clearance was not scoped into the physical processes assessment. The Applicant provided further justification for the scoping out of UXO clearance from the physical processes assessment, including the scale and extent of any potential craters and highlighted the recoverability of the seabed in the Applicant's Response to Relevant Representations (PD1- 017, RR-026.D.17). Regarding benthic subtidal ecology, the detonation of UXO was scoped in for temporary habitat disturbance/loss and was therefore assessed in section 2.9.2 of Volume 2, Chapter 2: Benthic subtidal ecology (APP-020). The MDS for temporary habitat loss/disturbance outlined in in Table 2.16 of Volume 2, Chapter 2: Benthic subtidal ecology (APP-020) considers the full range of potential UXO sizes, ranging from 25 kg to 907 kg, highlighting the most likely (common) maximum is 130 kg. Data in the public domain was used to determine likely crater size for the most likely (common) maximum UXO size of 130 kg (a diameter of 12.61 m (Ordtek, 2018)). Further data was also available for larger UXO up to 700 kg which have been found to produce craters with a diameter of 21 m (Equinor, 2022). The temporary habitat loss/disturbance assessment assumes that UXO clearance will occur within the sandwave clearance corridor (80 m for inter-array cables and interconnector cables). Therefore, whilst the crater size associated with a 907 kg UXO would potentially be larger than for a 700 kg UXO, it would still be within the 80 m corridor of disturbance and would therefore be within the MDS assessed for temporary habitat loss/disturbance from sandwave clearance.	

		Data relating to the larger UXO indicates that crater sizes for 700 kg ordinance may be up to 5 m in depth (21 m in diameter), although observations of UXO in areas of sandy gravel, similar to those found in the Morgan array, were typically half of this predicted diameter and less than 1.5 m in depth (Ordtek, 2018). Therefore, for a maximum 907kg UXO in an area characterised by active seabed features would not give rise to significant impacts on physical processes. The Applicant has committed to using low order detonation techniques where possible as a primary mitigation measure (commitment reference number 3.5 in Table 1.3 of the Mitigation and Monitoring Schedule (REP2- 015, S_D2_10), which would result in much smaller areas of disturbance for all UXOs it is applied to. Low order deflagration is a new technique which has been successfully applied at the Moray West Offshore Windfarm, where 81 UXO ranging from 14 kg to 879 kg were all cleared using this technique (Ocean Winds, 2024). This example demonstrates the success of low order detonation techniques such as deflagration and demonstrates that it is highly likely the majority, if not all, of the UXO identified could be cleared using low-order deflagration methods with resulting crater sizes significantly smaller than those assessed for the MDS. The requirement for the implementation of a mitigation hierarchy with regard to UXO clearance will also be included in the Marine Mammal Mitigation Protocol (MMMP) which is secured by the UXO Clearance Condition 23 of the dMLs of the draft DCO (S EP2-011, S_D2_7). The MMMP will be discussed with stakeholders and agreed with the MMO prior to commencement of construction.	

		It is noted that the principle of the EIA Directive is to determine and understand likely significant effects on the environment. The high levels of activity in eastern Irish Sea coupled with the commitment by the Applicant to apply low order/low yield techniques where safe and logistically viable to do so means there is a high level of confidence in the definition of the most likely scenario examined. In addition, the absolute maximum UXO clearance of a 907 kg ordinance with a high order explosion is unlikely and yet has been included in the assessment for benthic ecology and legitimately scoped out for physical processes. The Applicant hopes that the above clarification provides appropriate comfort on this matter, and that it can be agreed that an update to the assessment would not be a proportionate course of action.	

2. Comments on the Update Draft Development Consent Order (REP3-013)

2.1. The MMO has reviewed the latest version of the draft DCO (REP3-013) submitted by the Applicant at Deadline 3 and has provided detailed comments on the remaining issues in table 2 below.

Table 2. MMO comments on the Updated Draft Development Consent Order

Ref	MMO's Response	Applicant's Response	MMO's Deadline 4 Response
REP2-029.19	**Unexploded Ordnance (UXO)** The MMO's general position is that UXO activities are sought within a separate marine licence due to the nature of the impacts. The MMO is currently discussing the inclusion of the UXO clearance within the DML and will provide further comments in due course. The MMO is content for the UXO investigation activities to be included and recommend this is a clearly identifiable activity within the DML. If the Examining Authority (ExA) and Secretary of State (SoS) are minded to include UXO clearances the DML should be updated to ensure these activities are set out as a separate activity taking into account activities 10-13 under section 66(1) (licensable marine activities) of the Marine and Coastal Access Act, 2009 (the 2009 Act). This would also include any lift and shift opportunities. The MMO also requests the number of UXOs to be fully assessed at this stage and the maximum number to be included within the DML. The MMO has reviewed the Underwater Sound Management Strategy (Document reference	The Applicant has included all necessary activities for the construction and operations and maintenance of the Morgan Generation Assets in the application for development consent, in order to ensure a comprehensive application, and all such activities have been subject to a robust assessment process. This includes UXO clearance activities. Conditions attached to the dMLs within the draft DCO ensure that mitigation is finalised and agreed with the MMO in consultation with the relevant SNCB post-consent, through the MMMP and UWSMS. The Applicant has updated the dMLs within the draft DCO to separate out UXO clearance as a specific authorised activity under paragraph 2. The Applicant has also updated the dMLs to specify the maximum number of UXO that the dMLs authorise to be cleared. The Applicant can confirm this is a maximum of 13	The MMO notes that a new sub paragraph has been added to Schedule 3 and Schedule 4, condition 23, sub-paragraph (6) which states: *6) The total number of UXO cleared as part of the authorised scheme in this licence and the authorised scheme in licence 2 taken together must not exceed 13 (whether undertaken under this licence or licence 2).* The MMO welcomes these updates. The MMO understands there is concerns from NE and JNCC in relation to UXO being included within the DML. As set out within The MMO's DL2 response we would prefer UXO to be undertaken under a separate licence. This is to ensure all effect at the time of completion are taken into account. We understand the Applicant's position that the DCO should be a 'one stop shop' for all required licences and UXO clearance should be included. The MMO is currently discussing this with NE and JNCC to understand the

	J13) which indicates a maximum UXO clearance number of 13. The MMO requests clarification on this number.		concerns and will provide an update to the Applicant and then the ExA as soon as possible.
REP2-029.100	**Transfer of the Benefit of the Order** The MMO has provided substantive comments on this within its Deadline 2 response. The MMO will look to see a response from the Applicant in their Deadline 3 response and for updates on this point in future submissions.	The Applicant does not have anything material to add at this stage to its previous response to item RR-020.9 within the Applicant's Response to Relevant Representations [PD1-017]. The Planning Act 2008 is clear that marine licences may be deemed in a DCO in appropriate areas (s149A) and that a DCO may include such further provisions ancillary to the operation of that dML (s122(3)), including transfer along with the benefit. There is no legal barrier to including these provisions in the draft DCO and there is a clear advantage to doing so for the reasons set out in RR-20.9 [PD1-017]. This has been accepted by the Secretary of State in a number of offshore wind farm DCOs and is well precedented. The Applicant notes that it has made a number of changes to Article 7 in the draft DCO, as set out in response to the Examining Authority's question DCO1.2.	The MMO notes that the Applicant has made the following changes to Article 7 in the DCO submitted at Deadline 3: Paragraph (4) has been amended as follows: *(4) The Secretary of State ~~shall~~ must consult the MMO before giving consent to the transfer or grant to another person of the benefit of the provisions of licence 1 or licence 2* Paragraph (11) has been amended as follows: *(11) Section 72(7) and (8) of the 2009 Act do not apply to a transfer or grant of the benefit of the provisions of licence 1 or licence 2 to another person by the undertaker pursuant to an agreement under this article. save that the MMO may amend any deemed marine licence granted under Schedule 3 or Schedule 4 of the Order to correct the name of the undertaker to the name of a transferee or lessee under this article 7 (benefit of the Order).* The MMO still maintains its position regarding Article 7 (Benefit of the Order). As stated in REP2-029, the MMO objects to the provisions relating to the process of transferring and/or granting the deemed

			marine licences set out in the draft DCO at Article 7. Currently, with the inclusion of Article 7, there is power whereby the undertaker can: a. Transfer to another person ("the transferee") any or all of the benefit of the provisions of this Order (including the deemed marine licences); or b. Grant to another person ("the lessee") for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of the Order (including the deemed marine licences). The DCO does state that the Secretary of State's consent to the transfer or grant of a DML is not required and thus there is no requirement for consultation with the MMO prior to the undertaker making that transfer or grant where: a. The transferee or lessee is the holder of a licence under section 6 of the 1989 Act (licences authorising supply etc.); or b. The transferee or lessee is a holding company or subsidiary of the undertaker; or c. The time limits for claims for compensation in respect of the acquisition of land or effects upon land under this Order have elapsed and— i. no such claims have been made,

			ii. any such claim has been made and has been compromised or withdrawn, iii. compensation has been paid in final settlement of any such claim, iv. payment of compensation into court has taken place in lieu of settlement of any such claim, or v. it has been determined by a tribunal or court of competent jurisdiction in respect of any such claim that no compensation is payable. As there is potential for the MMO not to be consulted, this will impact our duty as the regulatory authority of the DMLs. Even where the MMO must be consulted, there is no provision for the MMO's comments to be adhered to, therefore there is no power to the MMO to complete its regulatory duty. As a matter of public law, the MMO does not think the Order can contain a provision transfer of Benefit of the DML as is being proposed. PA 2008 Section 120(3) should read against Section 120(4) and Part 1 of Schedule 5, which the MMO thinks limits what the Order can contain to provisions which deem a marine licence to be granted under the order and to the conditions that should be

			deemed attached to that licence. The MMO does not consider this to be sufficiently wide as to allow the inclusion of provisions which transfer the Benefit of the Order. If the Order cannot contain a DML transfer provision for the reasons set out, then it cannot exclude Section 72 of Marine and Coastal Access Act 2009 (MCAA 2009) in the way proposed as Section 120(5) is limited to applying/modifying/excluding only those statutory provisions which relate to any matter for which a provision may be made in the order. Overall, the MMO continues to raise objection to Article 7 and will provide further comments to the Applicant as soon as possible and follow that to the ExA at each deadline.
REP2-029.22	**Use of 'Maintain' and 'Materially'** The MMO does not agree with the Applicant's response. These changes are necessary to ensure that the power to amend or vary is consistent with the requirements of the EIA regime as explained in the case of R. (Barker) v Bromley LBC [2007] 1 A.C. 470. That case concluded that EIA will be required at stages subsequent to an initial grant of consent where those likely significant effects were not identified at the earlier consenting stage. It follows that a mechanism to permit a variation or amendment will not be lawful until it prevents any possibility of a materially new or different significant	The Applicant confirms that it updated paragraph 9 of each dML at Deadline 2 to reflect the MMO's preferred wording.	The MMO notes that at DL2 the Applicant has amended the wording of Schedule 3 and Schedule 4 paragraph 9 in the DCO to *"9. Any amendments to or variations from the approved details, plans or schemes must be in accordance with the principles and assessments set out in the environmental statements. Such agreement may only be given where it has been demonstrated to the satisfaction of the MMO that it will not give rise to any materially new or materially different environmental effects from those*

	environmental effects arising as a result of the variation or amendment. The MMO notes that the Applicant informed the MMO during a meeting dated 21 October 2024 that Paragraph 9 will be amended as requested. The MMO will review the updated DML once submitted and if updated would consider this point to be resolved.		*assessed in the environmental statement."* At Deadline 3 the MMO advised that this was not sufficient to settle the point. However, the MMO notes that the Applicant has amended the DCO at Deadline 3 to alter the definition of the word materially in Article 2 (interpretation) to the following. *"maintain" includes inspect, upkeep, repair, adjust or alter the authorised development, and remove, reconstruct or replace any part of the authorised development, to the extent assessed in the environmental statement; and any derivative of "maintain" is to be construed accordingly"* The MMO will provide comments to the Applicant as soon as possible on this issue and will provide the ExA with confirmation at Deadline 5.
RR-020.24	**Schedules 3 and 4** Paragraph 7 of Part 1 in schedules 3 and 4 refers to the provisions of section 72 and should be removed in its entirety.	As set out in more detail above, the Applicant is seeking to disapply sections 72(7) and (8) of the Marine and Coastal Access Act 2009. This paragraph provides clarity that the remainder of that section remains applicable to each DML. Therefore, no amendment is proposed.	The MMO notes that Paragraph 7 of part 1 now states: *Section 72(7) and (8) of the 2009 Act do not apply to a transfer or grant of the benefit of the provisions of licence 1 or licence 2 to another person by the undertaker pursuant to an agreement under this article save that the MMO may amend any deemed marine licence granted under Schedule 3 or Schedule 4*

			of the Order to correct the name of the undertaker to the name of a transferee or lessee under this article 7 (benefit of the Order). The MMO does not agree with this and will provide further comments at Deadline 5.
REP2-029.25	**Determination Dates** The MMO acknowledges the Applicant's comments. The MMO believes a timescale to discharge a document is inappropriate. The MMO has internal Key Performance Indicators (KPIs) which work towards a 13-week turn around. The MMO will never unduly delay but cannot be bound by arbitrary deadlines imposed by the Applicant since this would potentially prejudice other licence applications by offering expediency to the Applicant at the expense of other applications. It is also unclear what consequences would result if this deadline was not met, and how that would impact on the MMO's regulatory function. The MMO would highlight that this has been requested by the MMO since the Hornsea Project Three Offshore Wind Farm Examination. Since this examination, there is even more of a concern that more and more time is being spent working to determine documents submitted. There are a number of instances on projects where the submission at the four or six month date does not include everything that is required or within the outline plans and is more of a	The Applicant will continue to engage with the MMO to seek to agree the stated timescales within conditions for review and approval of documents and plans.	The MMO will engage with the Applicant and other interested parties for a without prejudice position on timescales for each document to try and get to an agreement before the end of examination.

	compliance requirement to ensure something is submitted in line with the consent. This leads to requests for additional information and multiple rounds of consultation and updates to ensure enough information is provided for the MMO to make a determination. It is becoming increasingly difficult to review the first submission of a document and therefore delays to the determination could cause significant impact to both the MMO and the Applicant. In relation to precedented timescales within other offshore wind DCOs. The MMO, of course, accept that there is a need for consistency in decision making. However, a decision maker is not bound by previous decisions and can depart from them where there is good reason to do so. The MMO would reiterate that it does not delay approvals unnecessarily and believes more realistic timescales should be included to allow for the Applicant to account for this within their programming. However, without prejudice to this position, the MMO believes that if time scales are included within the DML for plans then these should be six months not four months and is open to discussions on which documents must be six months and which documents could be four months to take into account the concerns that the Applicant may have. The MMO will continue to work with the Applicant to advise on any plans or documents that could have a four-month timescale.		

REP2-029.28	**Notifications and Inspections** 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. The MMO, in addition to being informed of cable damage, destruction and decay further requires a notification of cable repair. The MMO has provided the following wording for condition 15(11): The undertaker must ensure that the MMO, the MMO Local Office, local fishermen's organisations, and the Source Data Receipt Team at the UKHO Taunton, Somerset, TA1 2DN (sdr@ukho.gov.uk) are notified within five days of each instance of cable repair, replacement or protection replenishment activity. The MMO notes that this requested change has not been made in the latest updated version of the Draft DCO submitted by the Applicant at Deadline 2. This issue is still outstanding.	The Applicant will update the condition in the deemed marine licence in the next version of the draft DCO that is submitted during the Examination to reflect this request.	The MMO welcomed the Applicants response at Deadline 2 however noted that this requested change had not been made in the latest updated version of the Draft DCO submitted by the Applicant at Deadline 3. This issue is still outstanding and the MMO will look to see updates on this at Deadline 4.
REP2-029.29	**Adaptive Management** The MMO has noted the Applicant's comments and although the condition was included due to 'the impact of that project on sensitive habitats and species.', if any monitoring shows an impact higher than predicted within the Environmental statement the MMO may require additional	The Applicant notes this response and will await any further comments.	The MMO aims to have an update on this point W/C 16 December 2024. At which point the MMO will inform the Applicant and include in the MMO's formal Deadline 5 Submission.

	monitoring or mitigation at the post consent stage. The MMO will review the monitoring requirements and condition and provide further updates in due course.		
REP2-029.30	**Provisions on Variations and Approvals** 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 approved details, plan or scheme are taken to include any amendments that may subsequently 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 does not give rise to any materially new or materially different environmental effects to those assessed in the environmental information. Once the final condition wording has been updated the MMO will provide confirmation of agreement.	The Applicant considers that this is secured by paragraph 9 of each of deemed marine licence within schedules 3 and 4 of the draft DCO (AS-003) The Applicant notes this response and will await any further comments.	The MMO notes that paragraph 9 in Schedules 3 and 4 of the DCO states: *9) Any amendments to or variations from the approved details, plans or schemes must be in accordance with the principles and assessments set out in the environmental statements. Such agreement may only be given where it has been demonstrated to the satisfaction of the MMO that it is unlikely to or will not give rise to any materially new or materially different environmental effects from those assessed in the environmental statement* The MMO will provide comments to the Applicant as soon as possible on this issue and will provide the ExA with confirmation at Deadline 5.
REP2-029.31	**Conditions to Remove** **Force Majeure** The MMO has previously requested the removal of this clause. That is because it unnecessarily duplicates the effect of s.86 of the 2009 Act.	The Applicant notes this response and will await any further comments.	The MMO is meeting the Applicant on 19 December 2024 and will provide further comments to be discussed and will provide an updated position at Deadline 5.

	The MMO welcomes the applicant's comments regarding Force Majeure in point RR-020.33 of document PD1-017 regarding the Applicant's response to Relevant Representations. The MMO is currently reviewing the Applicant's comment and will provide a response in due course.		

3. Comments on the Offshore In-Principle Monitoring Plan (REP2-013)

3.1. Benthic comments

3.1.1. The MMO is satisfied with the amendments to the Offshore In-Principle Monitoring Plan (IPMP) regarding benthic receptors. The MMO notes that scheduled pre and post construction surveys will include ecological monitoring such as review of seabed imagery to assess the presence of Invasive Non-Native Species (INNS) and the diversity of the colonising assemblage around seabed infrastructure. The MMO welcomes this commitment which will enable early detection monitoring of INNS and colonising fauna.

3.2. Coastal Processes Comments

3.2.1. The MMO is satisfied, based on the physical process information in the Environmental Statement that the plan for monitoring of local bedforms, in Table 1.3 of the Offshore In-Principle Monitoring Plan, is reasonable and proportionate.

3.3. Fisheries Comments

3.3.1. The MMO notes that there are no specific pre- or post-construction monitoring plans for fish ecology receptors detailed in the Offshore In-Principle Monitoring Plan. The MMO is content, based on the classification of habitat suitability for herring and sandeel presented in the ES and subsequent addendums to the ES, that seabed sediments within the Morgan Array area are generally not high value as herring spawning habitat or sandeel supporting habitat. The MMO would therefore not expect to see any dedicated monitoring with respect to fish ecology receptors.

3.3.2. Regarding commercial fisheries, the MMO notes that the Applicant proposes post-construction monitoring of cables and their burial status to identify any areas of cable exposure and reduce snagging risk through periodic monitoring surveys of cable burial and protection. Additionally, the Applicant also proposes to monitor the loss or restriction of access to fishing grounds to identify whether there are any changes to fishing activity within the Morgan Array Area. This would be done through annual reviews of vessel monitoring (VMS) and landings data for first five years of operations and maintenance phase to identify whether there are any changes to fishing activity. The MMO considers that the monitoring commitments are appropriate and recommends continues engagement with the National Federation of Fishermen's Organisation (NFFO) and fishing communities via a fisheries liaison officer.

3.4. Shellfisheries Comments

3.4.1. The MMO is satisfied with the amendments to the In-Principle Monitoring Plan with regards to shellfish. The MMO notes that the in-principle monitoring includes the commitment to monitoring scallop populations pre- and post-construction through dredge survey and a Fisheries Liaison and Coexistence Plan as part of an Offshore Environmental Management Plan secured through the DMLs. The MMO considers

that this would assist in validating predictions made within the Environmental Impact Assessment relating to any impacts of the construction and aim to provide a more comprehensive evidence base.

3.4.2. The MMO notes that in point 1.8.1.1 of the In-Principle Monitoring Plan it states that "*the Applicant has committed to monitoring of queen scallop within and around the Morgan Array Area*". The MMO requests that this is updated to include King Scallop (*Pecten Maximus*) within this area.

3.4.3. Similarly, the MMO requests that point 1.8.2. is amended to include King Scallop (*Pecten Maximus*) within this area alongside Queen scallop (*Aequipecten opercularis)*.

3.5. Underwater Sound Comments

3.5.1. The MMO notes that Table 1.6 in Section 1.9 summarises the in-principle monitoring proposed for marine mammals. Of relevance, the document sets out the following points:

- Monitoring approach: *Measurements of underwater sound generated by the installation of the first four piled foundations of each piled foundation type and associated marine mammal monitoring, to be set out in the marine mammal mitigation protocol (MMMP).*

- Monitoring objective: *To ensure the level of underwater sound generated from percussive piling is not greater than predicted, and if relevant establish the efficacy of any relevant mitigation (such as NAS).*

- Rationale: *To ensure that impacts on marine mammal receptors will not be worse than predicted it is necessary to be confident that the piling noise sound levels are within the levels predicted in the ES. It may (if relevant) also serve to provide information on the efficacy of any mitigation.*

3.5.2. The MMO notes that obtaining measurements of underwater sound generated by the installation of the first four piled foundations of each piled foundation type is standard practice for offshore wind farm developments to date. The MMO is currently reviewing the condition for collection of these results and may request an update in due course. The MMO requests that at least 2 of the first four piles of each foundation are the worst-case scenario piles and this is updated within the plan. The MMO notes that the objective of the noise monitoring is to test the validity of the predictions made in the ES. If the monitoring suggests that the noise levels may exceed those predicted, then the MMO may take remedial action. The MMO requests that an underwater sound monitoring plan or scope of works is to be developed which sets out further details of the proposed monitoring and methodologies.

4. Comments on the Mitigation and monitoring schedule (REP2-015)

4.1. Benthic comments

4.1.1. The MMO is satisfied with the amendments to the Mitigation and Monitoring Schedule regarding benthic receptors. The MMO notes that scheduled pre and post construction surveys will include ecological monitoring such as review of seabed imagery to assess the presence of Invasive Non-Native Species (INNS) and the diversity of the colonising assemblage around seabed infrastructure. The MMO welcomes this commitment which will enable early detection monitoring of INNS and colonising fauna.

4.2. Coastal Processes Comments

4.2.1. The MMO is satisfied, based on the physical process information in the Environmental Statement that the plan for monitoring of local bedforms in Table 1.1 in the Mitigation and Monioring Schedule is reasonable and proportionate.

4.3. Fisheries Comments

4.3.1. The MMO notes that most of the primary mitigation measures detailed in Table 1.3 are taken from the Marine Mammal Mitigation Protocol (MMMP) and so are targeted towards mitigating significant impacts to marine mammals, although the MMO recognises that some of these measures may also provide some protection to fish from significant disturbance.

4.3.2. The MMO is content with primary mitigation measures 3.1 – 3.5 and tertiary mitigation measure 3.8. However, the MMO requests that the Applicant outlines how these measures are will act as mitigation measures for fish.

4.3.3. The MMO notes that for many of the measures outlined in measure 3.8, it is not clear how the mitigation strategies provided (for example, employing Marine Mammal Observers or deploying Acoustic Deterrent Devices and 'soft-start charges') will provide protection to fish. The MMO requests that the Applicant reviews the measures outlined in Table 1.3 and clarifies how each measure specifically provides mitigation to significant disturbances to fish using peer-reviewed literature to illustrate the effectiveness of the measure for fish.

4.3.4. Regarding the use of 'soft-start charges' or 'fish scare charges', the MMO notes that there is little peer-reviewed evidence that these measures effectively clear fish from the works area. Evidence on the use of 'fish scare charges' suggest they likely cause

additional damage to marine life with no evidence of a fleeing response reported in the literature (Koschinski 2011, Keevin 1998). The MMO considers that the assumption that a fish will flee from the source of noise is overly simplistic as it overlooks factors such as fish size and mobility, biological drivers, and philopatric behaviour which may cause an animal to remain/return to the area of impact. The MMO does not support the use of 'fish scare charges' due to the lack of evidence as to their efficacy and the potential for additional harm to fish receptors. The Applicant should also note that the efficacy of Acoustic Deterrent Devices on fish is also uncertain (Putland and Mensinger 2019).

4.3.5. The MMO is content with primary mitigation measures 3.6 and 3.7 which are consistent with measures implemented for similar offshore wind projects. Tertiary mitigation measures 3.9 – 3.11 detail the development of an Offshore Environmental Management Plan (EMP) for managing the release of contaminants and the spread of non-native invasive species. The EMP will also outline protocols for contracted vessel operators to manage the risks to basking sharks from vessel-based operations. The MMO considers that these are acceptable measures and are consistent with measures implemented for similar offshore wind projects.

4.3.6. Regarding the Underwater Sound Management Strategy (UWSMS) listed in measures 3.8 and 3.12 of Table 1.3, the MMO has previously raised concerns in relation to this document at Deadline 3. The UWSMS represents a live document provided within the application with the full strategy to be developed post-consent which the MMO is supportive of. However, the UWSMS does not outline a specific strategy, technology or approach for reducing the range of impact from underwater noise (UWN) on cod and herring and therefore the MMO does not consider that the commitment to develop the UWSMS alone is sufficient to remove the need for seasonal piling restrictions during the cod and herring spawning seasons.

4.3.7. The MMO notes that the UWSMS includes a provision that the Application should consider the use of noise abatement systems (NAS) as mitigation to reduce the range of impact from piling UWN for sensitive receptors. Bubble curtains and other noise abatement technologies are widely used within marine and offshore industries. The procurement of these technologies is typically required years in advance of works commencing and the Applicant should be considering at this stage what NAS will be required to reduce the UWN disturbance to fish species to within acceptable levels. Given that ground-strengthening of multiple locations using piles will still be required if the Applicant chooses gravity base foundations over piled foundations, it is highly likely that the foundation installation stage of construction will require at least some piling activity. The MMO requests that the Applicant develops an appropriate noise abatement strategy now so that where piling is necessary, the appropriate UWN modelling will have been undertaken well in advance and the necessary noise reduction required to reduce noise disturbance to acceptable levels will have been fully assessed and understood. The MMO directs the Applicant to section 4 of the

MMO's Deadline 3 Submission which details the evidence required in order to remove the recommended seasonal piling restrictions for cod and herring.

4.3.8. The MMO notes that tangible evidence has not yet been presented which details the specific measures (including the use of Noise Abatement Systems (NAS)) which will be used to reduce UWN emissions to within acceptable levels relative to the herring spawning ground near the Isle of Man, and relative to the cod spawning grounds which occupy much of the Irish Sea region. At this stage no tangible evidence of specific measures for reducing the range of impact from piling noise relative to sensitive fish receptors (spawning cod and herring) has been presented and therefore The MMO's request for seasonal piling restrictions during the herring (September to October, inclusive), and cod (January – April inclusive) spawning seasons must remain as conditions on the DML until sufficient evidence of noise reduction strategies has been provided by the Applicant.

4.4. Shellfisheries Comments

4.4.1. The MMO is satisfied with the amendments to the Mitigation and Monitoring Schedule regarding shellfisheries however requests that point 3.13 in the Mitigation and Monitoring Schedule is amended to include King Scallop (*Pecten Maximus*) alongside Queen scallop (*Aequipecten opercularis).*

4.4.2. The MMO also requests minor amendments to the Environmental Statement Fish and Shellfish Ecology Chapter Vol 2, Chapter 3, 3.5.5. The MMO requests that the Applicant includes Latin names in the first paragraph for King Scallop (*Pecten Maximus*) and Queen scallop (*Aequipecten opercularis)* for clarity, this is to be repeated for point 3.5.1.2.

4.4.3. In Environmental Statement Fish and Shellfish Ecology Chapter Vol 2, Chapter 3, Table 3.11, King Scallop (*Pecten Maximus*) and Queen scallop (*Aequipecten opercularis)* are not included in the table for spawning grounds, however as noted in Section 5 of our Deadline 3 submission (REP3-037) and in an email to the Applicant dated 31 October 2024 for these species, locations of fished stocks or fishery footprint may serve as a useful proxy for spawning areas for more sedentary shellfish species therefore the potential spawning areas for these shellfish species (See spawning model in Close et al., 2024 and refer to stock assessments within the Irish Sea as previously referenced) *Nephrops norvegicus* should also be included as is a fishery and spawning ground within the wider area.

4.4.4. The MMO agrees with the mitigation measures summarised in the Mitigation and Monitoring Schedule.

4.5. Underwater Noise Comments (See Cefas comments for responses to ExA)

4.5.1. The MMO considers that the Mitigation and Monitoring Schedule summaries the mitigation measures relevant to marine mammals, as per Table 1.4 in Section 1.5 of the document. The MMO agrees that it is appropriate that a Marine Mammal Mitigation Protocol (MMMP) will be developed and adhered to for piling activities, the clearance of Unexploded Ordnance (UXO) and geophysical surveys. This considers this standard practice.

4.5.2. The MMO is also aware that an Underwater Sound Management Strategy (USMS) will also be developed and adhered to, as well as an Offshore Environmental Management Plan (EMP). The MMO will review these documents and provide comments on their suitability.

4.5.3. The Mitigation and Monitoring Schedule also refers to Offshore in Principle Monitoring Plan which sets out that measurements of underwater sound generated by the installation of the first four piled foundations of each piled foundation type and associated marine mammal monitoring, will be undertaken. Comments on the In-Principle Monitoring Plan can be found in section 3.

5. Comments on Annex 3.1 (REP3-005)

5.1. The MMO thanks the Applicant for the submission of Annex 3.1 which contains updated sound modelling, requested by the MMO at Deadline 2, in response to issues surround Underwater Noise.

5.2. The MMO highlights that cod and herring are both Group 3 fish with a swim bladder involved in hearing, and it is unclear what the Applicant is referring to by Group 4 fish. In Popper et al., (2014) fish hearing classifications are not explicitly categorised as numbered groups, there are 3 hearing categories (fish with no swim bladder, fish with a swim bladder not involved in hearing and fish with a swim bladder involved in hearing). In this sense, fish with a swim bladder involved in hearing might be presented as group 3 hearing sensitivity, being the third category listed in Table 7.2 of Popper *et al.* (2014) but there is no 'Group 4 hearing category fish'. Popper *et al.* (2014) discusses the 3 classifications of hearing ability in fish, but also includes the hearing ability of turtles, then eggs and larvae. The MMO recognises that the Applicant is not discussing turtles or eggs and larvae specifically in Annex 3.1 and therefore there is no reason for any mention of 'Group 4 hearing category fish'. The MMO requests that the Applicant stop using this incorrect terminology, as cod and herring are both 'Group 3' fish with a swim bladder involved in hearing.

5.3. The MMO notes that Figures 1.1 and 1.3 in Annex 3.1 show the correct modelled noise contours for mortality (207 SELcum), recoverable injury (203 SELcum), and TTS (186 SELcum) as per Popper et al. (2014) for static group 3 fish in response to single piling with a 4,400 kJ hammer energy (maximum hammer energy for this project). These contours are included alongside the Applicant's original incorrect modelled contours for comparison. The Applicant concludes that "*the changes in threshold contour represent a reduction in overlap with areas of herring, and cod low and high intensity, spawning grounds, but do not represent a meaningful change in the assessment of the impact of underwater sound from piling activities*".

5.4. The MMO remains in disagreement with the Applicant's conclusion for the project alone assessment of underwater sound impacts to cod as being minor adverse and therefore not significant in EIA terms. The updated modelling provided in Figure 1.3 of Annex 1.3 shows that physiological TTS effects in cod extend over much of the cod high intensity spawning ground surrounding the Morgan OWF site. The MMO therefore considers that impacts to cod from UWN are significant for the project alone and for the project cumulatively with other projects.

5.3. The MMO further notes that Figures 1.1 and 1.2 are presented on different scales (Figure 1.1 has a more zoomed in scale of 20km whereas Figure 1.3 has a scale of 30km) which will influence how different the contours seem. The MMO also notes that the range of effect for TTS in cod shown by the modelling in Figure 1.3 extends over a larger portion of the cod spawning grounds remains large enough to continue to be a source of concern with regard to impacts to cod from piling noise. The MMO agrees with the Applicant's conclusion that the updated modelling does not present a significantly different range of impact to that assessed in the ES. The provision of this updated modelling does not change the MMO's position on the Underwater Sound Management Strategy (UWSMS) or the MMO's recommendation that seasonal piling restrictions during the cod and herring spawning seasons should be conditioned onto the DML for this project until such time that noise reduction strategies are provided and reviewed as part of the UWSMS.

6. MMO Response to the Applicant's Response to IP submissions submitted at Deadline 2 (REP3-004)

6.1. The MMO has reviewed the Applicants response to the MMO's comments from Table 2.1 within document ref REP3-004 and has provided a response in the below Table 3.

Table 3. MMO response to the Applicants response to the MMO's Deadline 2 submission

Ref	MMO Comments at Deadline 2	Applicants Response	MMO Response
REP2-029.1	**Comments on Pre-Examination Procedural Deadline Submissions** **PD1-006 Applicant's response to Relevant Representation from Marine Management Organisation: Fish and Shellfish 4.6.5 (Annex 3.1)** The MMO notes that the modelled 207 dB re 1µPa SPLpk contour has been presented, based upon the Popper et al. (2014) threshold for mortality and potential mortal injury to eggs and larvae for a 5.5 metre (m) diameter pin pile and the maximum hammer energy of 4,400 kilojoules (kJ) as requested. The MMO thanks the Applicant for this	The Applicant welcomes MMOs responses and the engagement from MMO. The Applicant notes the MMO's Written Submission regarding the provision of mapped contours for eggs and larval mortality with thanks. No action is required by the Applicant.	Agreed
REP2-029.2	Regarding Figure 1.1 of Annex 3, the MMO notes, from the clarified modelling, the range of impact for mortality and potential mortal injury to cod eggs and larvae from the source of piling is 394m. Although eggs and larval mortality will occur at points where piling takes place across the array, as demonstrated by Figure 1.1, this represents a small area of impact relative to the wider extent of the mapped high intensity cod spawning ground and the MMO is content that the level of impact demonstrated by Figure 1.1 is acceptable and has no further comments to make at this time	The Applicant notes the MMO's Written Submission regarding the acceptability of impact ranges for cod eggs and larvae with thanks. No action is required by the Applicant.	Agreed
REP2-029.3	In relation to Section 1.2.2 of Annex 3.1 which relate to the contour decibel levels presented in Figures 3.8, 3.9, 3.10 and 3.11 of the fish ecology chapter, the MMO	The Applicant notes the MMO's Written Submission and has provided updated contour plots in S_D3_3.1 Annex 3.1 to	The MMO thanks the Applicant for the provision of the information contained within Annex 3.1, which

	does not agree with the approach of deriving the modelled underwater noise (UWN) contours form the SELss metric to provide a visual representation of the relevant SELcum thresholds. Please refer to response RR-020.55 in Table 1 for further details	the Applicant's response to Written Representations from the MMO F01, showing contours for Temporary Threshold Shift (TTS), Recoverable Injury and Mortality for Group 3 and 4 static fish receptors in the SELcum metric. These contour plots are less conservative than those used for the fish and shellfish underwater sound assessment [APP-021] and showed a slight decrease compared to the original assessment, but the areas affected have not significantly changed overall and therefore the assessment conclusions remains the same.	was provided by the Applicant at Deadline 3. The MMO notes that the Applicant has provided corrected modelling of the cumulative sound exposure level (SELcum) thresholds for mortality, recoverable injury, and temporary threshold shift (TTS) for group 3 hearing category fish as described by Popper *et al.* (2014) in relation to herring and cod spawning grounds. The Applicant has also correctly treated fish as a static receptor for the purpose of modelling and assessing underwater sound impacts. The MMO thanks the Applicant for providing this modelling following comments raised in previous deadlines. This response also applies to REP2-029.6, REP2-029.11 and REP2-029.12, where the Applicant directs the MMO to their response to REP2-029.3 to answer these representations.
REP2-029.4	In relation to Section 1.2.3 of Annex 3.1, the MMO thanks the Applicant for clarifying that the UWN contours presented in Figure 3.14 of the fish ecology chapter display single point piling for a hammer energy of 3,000 kJ to demonstrate the behavioural ranges associated with this lower hammer energy which will represent the maximum hammer energy at 75% of piling. The MMO notes that the Applicant also highlights UWN contours for the behavioural range of impact in cod at their spawning grounds associated with the maximum hammer energy (4,400 kJ) are presented in	The Applicant notes the MMO's Written Submission regarding provision of underwater sound contours relating to behavioural ranges for the lower hammer energy of 3,000 kJ, along with those for the maximum hammer energy of 4,400 kJ. No action is required by the Applicant.	Agreed

	Figure 3.5.		
REP2-029.5	For the reasons outlined in response RR-020.56 in Table 1 below, the MMO considers that the studies are not appropriate for the purpose of defining a threshold to model behavioural responses in cod at their spawning grounds. The MMO is not aware of a quantitative threshold which would be suitable for the purpose of modelling behavioural responses in wild Atlantic cod. However, cod are broadcast spawners with pelagic larvae so are not reliant on particular seabed habitats for reproduction in the same way that herring are. This means that cod have the ability to move throughout the spawning ground and undertake spawning, without their ability to spawn being impaired if they cannot reach a specific area or habitat due to excessive noise disturbances. As Figure 1.1 demonstrates, the high and low intensity cod spawning grounds are quite extensive in the region, and, therefore, behavioural responses to UWN in cod are less of a concern than they are for herring, as in theory, cod could move away from the affected area and spawn elsewhere within their spawning ground. In this sense, the physiological risks to cod from UWN are of greater concern.	The Applicant notes the MMO's Written Submission regarding behavioural thresholds for and spawning ecology of cod. A detailed response regarding assessment of behavioural effects to cod is provided in the Applicant's response to REP2-MMO.15. Please refer to the Applicant's response to REP2-029.3 which provides updated injury contour plots for cod in the SELcum metric to allow further interrogation of the potential for physiological effects. These contours are less conservative than the contours used within the fish and shellfish underwater sound assessment, and the areas impacted decreased slightly compared to the original assessment, but did not change significantly overall and therefore the assessment conclusion remains the same. The Applicant considers this issue is now resolved with the information set out in S_D3_3.1, Annex 3.1 to the Applicant's response to Written Representations from the MMO F01, providing the requested clarification from the MMO	Please see MMO comments in section 5 and responses to REP2-029.15 of this deadline submission.
REP2-029.6	The MMO requests that the range of impact from UWN based on the thresholds for Group 3 fish with high hearing sensitivity for mortality and potential mortal injury (207 cumulative sound exposure level (SELcum)), recoverable injury (203 SELcum), and TTS (186 SELcum), as per the pile driving threshold guidelines described by Popper et al. (2014), are presented so that the physiological risks to cod can be assessed.	Please refer to the Applicant's response to REP2-029.3.	Please see MMO response to REP2-029.3
REP2-	In relation to Sections 1.2.4 and 1.2.5 of Annex 3.1, the	The Applicant notes the MMO's Written	Agreed.

029.7	MMO thanks the Applicant for clarifying that a pile diameter of 5.5m has been used in modelling the impacts of underwater sound from piling on fish. The MMO is content with the maximum design scenario (MDS) used and has no further comments to make on this matter at this present time.	Submission regarding confirmation of the pile diameter used for underwater sound modelling with thanks. No action is required by the Applicant.	
REP2-029.8	In relation to Section 1.2.6 of Annex 3.1, as per the MMO comments in response RR020.57 in Table 1, the MMO supports the commitment to develop the underwater sound management strategy (UWSMS). However, the MMO does not consider that this commitment alone is sufficient to remove the need for a seasonal piling restriction during the cod spawning season (January to April inclusive). Given that modelling for the range of impact for physiological effects (mortality and potential mortal injury, recoverable injury, and TTS, as per the pile driving threshold guidelines described by Popper et al. (2014)) with regard to cod has not been provided, the MMO deems that it is not appropriate to remove the recommended restriction. As per the MMO comments in RR-020.55 of Table 1, the MMO requests that the Applicant presents the range of impact from UWN based on the thresholds for Group 3 fish with high hearing sensitivity for mortality and potential mortal injury (207 cumulative sound exposure level (SELcum)), recoverable injury (203 SELcum), and TTS (186 SELcum) so that the risk to adult cod which may be spawning in the vicinity of the array can be appropriately assessed.	The Applicant notes the MMO's Written Submission regarding the Underwater Sound Management Strategy and seasonal restrictions. Please refer to the response to REP2-029.3 for the provision of updated contour plots showing injury ranges from Popper et al. (2014) with respect to cod spawning grounds in the SELcum metric. The Applicant and the MMO are continuing to engage on the need for seasonal restrictions and management of the effects of piling noise during fish spawning periods through the UWSMS. The Applicant welcomes the MMO support regarding the commitment to develop the underwater sound management strategy (UWSMS).	As detailed in the MMO's Deadline 3 submission, there is a possibility to refine decisions of a piling restriction covering the whole of the cod spawning season, provided that the correct evidence is supplied to support refinement. The MMO awaits the provision of the requested modelling of the range of impact for physiological effects (mortality and potential mortal injury, recoverable injury, and temporary threshold shift (TTS), as per the pile driving threshold guidelines described by Popper et al. (2014)) with regard to cod. The MMO further requested a discussion which draws upon suitable peer-reviewed sources and data which provides supporting evidence that cod spawning activity peaks in February and March. The MMO provided a list of relevant papers which could be used to inform this discussion. The MMO will review this information

			when provided by the Applicant during the examination process and will provide a response at the earliest opportunity.
REP2-029.9	The MMO is of the opinion that it is acceptable for the UWSMS to be developed and mitigation options to be explored post-consent, with input from stakeholders, but the requested piling restrictions for cod and herring must be conditioned onto the DML as a minimum and should only be varied or amended once satisfactory evidence that the range of impact from UWN has been reduced is provided for review and deemed acceptable. The MMO is also content to review any new wording on these conditions to allow for flexibility to be built in. See MMO responses RR-020.59 and RR-020.60 for details of why the Applicant's commitment to developing the UWSMS is not sufficient evidence to remove the recommended seasonal piling restrictions for cod and herring at this stage	The Applicant notes the MMO's Written Submission regarding the Underwater Sound Management Strategy and seasonal restrictions. The Applicant maintains that the most appropriate approach to manage the risk of potential underwater sound impacts is through development and implementation of the UWSMS, in collaboration with the MMO, as per the response to REP2-029.8 above. Notwithstanding this, the Applicant recognises and welcomes the ongoing engagement with the MMO on this matter, with the updated modelling presented in S_D3_3.1 Annex 3.1 to the Applicant's response to Written Representations from the MMO F01 expected to facilitate progression on this matter	The MMO supports the commitment to develop the UWSMS and is content for this to be developed post-consent, however, a specific strategy, technology or approach for reducing the range of impact from UWN on cod and herring has not been outlined, and therefore the MMO does not consider that the commitment to develop the UWSMS alone is sufficient to remove the need for seasonal piling restrictions during the cod and herring spawning seasons. At this stage, no tangible evidence of specific measures for reducing the range of impact from piling noise relative to sensitive fish receptors (spawning cod and herring) has been presented and therefore The MMO's recommendations of seasonal piling restrictions during the herring (September to October, inclusive), and cod (January – April inclusive) spawning seasons must remain as conditions on the DCO and DML until sufficient evidence of noise reduction strategies has been provided by the Applicant. The MMO is content for the

			UWSMS to be finalised post-consent but until such time that mitigation strategies are put forward under the UWSMS and the efficacy of these measures has been assessed, The MMO's recommended seasonal piling restrictions must be conditioned within the DML. These restrictions may be revised post-consent upon the provision of acceptable evidence. Following the submission of the requested information the MMO may be able to work with the Applicant to be able to refine the seasonal piling restriction for cod and herring.
REP2-029.11	**PD1-008 Applicant's response to Relevant Representation from Marine Management Organisation: Fish and Shellfish 4.6.12 (Annex 3.3)** The MMO does not consider the approach, as detailed in Annex 3.3, to modelling UWN impact ranges for mortality and potential mortal injury, recoverable injury, and TTS is acceptable based on their justification that the contours currently presented "are derived from the contours generated for the single strike sound exposure level (SELss) metric to provide a representation of the relevant cumulative sound exposure level (SELcum) thresholds". This approach is unnecessary as Popper et al. (2014) clearly defines evidence-based thresholds for mortality and potential mortal injury, recoverable injury, and TTS effects in fish, based on the SELcum metric so there is no need for the inference of new thresholds from the SELss metric.	Please refer to the Applicant's response to REP2-029.3.	The MMO thanks the Applicant for the provision of the information contained within Annex 3.1, which was provided by the Applicant at Deadline 3. The MMO is content with the Applicant's response and has no further comments to make.
REP2-029.12	It is important that Figures are provided which present the correct thresholds for the range of impact from UWN based on the thresholds for Group 3 fish with high	Please refer to the Applicant's response to REP2-029.3.	Please see MMO response to REP2-029.3

	hearing sensitivity for mortality and potential mortal injury (207 cumulative sound exposure level (SELcum)), recoverable injury (203 SELcum), and TTS (186 SELcum) based on the pile driving threshold guidelines described by Popper et al. (2014). This key evidence is needed in order to assess the risk of physiological injuries to adult spawning cod from UWN appropriately.		
REP2-029.13	The MMO is content that nursery grounds for cod and herring are not shown within Figures 3.8, 3.9 and 3.10 and 3.11 given how widespread these areas are. The MMO is also content with the Applicant's justification that temporary avoidance of affected nursery ground areas is poses less of a risk to the reproductive success of herring and cod than avoidance of spawning grounds	The Applicant notes the MMO's Written Submission regarding cod and herring nursery grounds with thanks. No action is required by the Applicant.	Agreed.
REP2-029.14	In relation to Section 1.2.2 and 1.2.3 of Annex 3.3 regarding herring; the MMO thanks the Applicant for restating that the assessment of behavioural effects to herring in response to UWN from piling is underpinned by the use of a sound level of 135 dB re 1µPa2 .s SELss, as per Hawkins et al., (2014). The MMO notes the Applicant's objections to using the 135 dB threshold of Hawkins et al., (2014), but given an absence of other peer-reviewed empirical evidence of behavioural responses in clupeid fishes to support an alternative threshold for impulsive noise, Hawkins et al., (2014) is still considered the best available scientific evidence by the MMO. Please see MMO response RR-020.56 in Table 1 as to why the studies by Doksæter et al., (2012) and McCauley et al., (2000) are not suitable for the purpose of defining a threshold for modelling behavioural responses in Atlantic herring at their spawning grounds. The MMO further thanks the Applicant for recognising that the 135 dB threshold of Hawkins et al., (2014) is the more precautionary of the two proposed thresholds. The MMO notes clarified UWN modelling maps for behavioural responses in herring	The Applicant notes the MMO's Written Submission regarding herring behavioural criteria and clarification regarding the modelling of single piling for 4,400 kJ and 3,000 kJ with thanks. No action is required by the Applicant	Agreed.

	relative to the Isle of Man herring spawning ground, for single piling with a 4,400 kJ hammer energy and with a 3,000 kJ hammer energy.		
REP2-029.15	In relation to Section 1.2.2 and 1.2.3 of Annex 3.3 regarding cod; the MMO notes the assessed range of behavioural impact for cod using a sound level of 160 dB re 1µPa SPLpk as the response threshold. Clarified UWN modelling maps for behavioural responses in cod relative to their spawning ground, based on a 160 dB re 1µPa SPLpk response threshold have also been presented. Please see MMO response RR-020.56 in Table 1 as to why the studies by Doksæter et al., (2012) and McCauley et al., (2000) are not suitable for the purpose of defining a threshold for modelling behavioural responses in cod at their spawning grounds. The limitations of these studies are also relevant to cod. The MMO requests that appropriate modelling using the Popper et al. (2014) criteria should be presented.	The Applicant notes the MMO's Written Submission regarding defining behavioural criteria for cod. Doksæter et al. (2012) and McCauley et al. (2000) are two of a range of studies referenced to provide an indication of suitable criteria for assessing cod behaviour, with other studies also begin factored into this. The sound level of 160dB re 1µPa SPLpk was first presented to stakeholders, with rationale for using this noise level, at Expert Working Group 02 in November 2022 (APP-090), with no objections raised in applying these criteria for the assessment of behavioural effects to cod. This was also presented in the Preliminary Environmental Information Report (Morgan Offshore Wind Limited, 2023) with no objections raised in Section 42 consultation responses (APP-088). The Applicant notes the MMO comments regarding the application of Popper et al. (2014) criteria to assess behavioural effects to cod. Popper et al. (2014) does not provide quantitative criteria to support behavioural assessment for fish, only qualitative criteria. The Applicant has sought to take a more precautionary approach than adopting the TTS threshold as a proxy for behavioural effects and as set out above the noise level used to inform the assessment (i.e. 160dB re 1µPa SPLpk criteria) was	The MMO highlights that, contrary the Applicant's response to REP2-029.15, comments on the acceptability of applying a sound level of 160dB re 1µPa SPLpk for modelling behavioural responses in fish have been raised by the MMO. The MMO is also aware that the behavioural response thresholds described by Popper *et al*. (2014) are qualitative and therefore cannot be numerically modelled. The MMO notes that the Applicant is correct that physiological effects to cod from UWN from piling are of greater concern to the MMO than behavioural effects. The MMO has detailed that high and low intensity cod spawning grounds are extensive in the region. Cod are also broadcast spawners with pelagic larvae which means they have the ability to move throughout their spawning grounds and undertake spawning without their ability to spawn being impaired if they cannot reach a specific spawning area or habitat due to excessive noise disturbances. The MMO partly agrees with the Applicant's conclusion that there is a risk of an effect of moderate significance to cod from piling within the Morgan OWF array, but the MMO highlights to the Applicant that the

		drawn from a range of literature sources to provide a precautionary indication of potential for behavioural effects to cod. It is the Applicant's understanding that the points of difference in relation to cod behavioural responses (and noise levels associated with them) would not make a material difference to the conclusions of the impact assessment. Volume 2, Chapter 3: Fish and shellfish ecology (APP-021), which concluded that there is a risk of an effect of moderate significance, which is significant in EIA terms, on cod spawning when the Morgan Generation Assets is considered cumulatively with other projects in the Irish Sea. As such, the Applicant has included cod as a key species in the UWSMS and has acknowledged that mitigation will be required to reduce the magnitude of the impact of underwater noise from piling on cod during their spawning season. These measures are set out in section 1.8 of the UWSMS. The MMO acknowledge that it is acceptable for the UWSMS to be developed and mitigation options to be explored post-consent, although discussions are continuing with respect to the mitigation measures to be included in the UWSMS during Examination.	range of effect for physiological effects of TTS in cod, (shown in Figure 1.3 of Annex 3.1) extends over 20km from the noise source and covers much of the high intensity cod spawning ground. For this reason, the risk of an effect to cod from piling within the Morgan OWF array is significant for both the project alone and cumulative with other projects in the Irish Sea. The MMO supports that cod is included in the UWSMS as a key species of concern.
REP2-029.16-31			Please see Table 1 of this submission for the MMO's current position regarding the DCO and DML's

REP2-029.34	**Coastal Processes** The Applicant's response to the request for extent estimations is reasonable: the scour protection will depend on the foundation type that has not been agreed on yet. The MMO requests that the Applicant explicitly states that the comment RR-020.36 will be addressed or please refer to a relevant document that already addresses it.	The Applicant can confirm that the detail of design and construction will be outlined within the Offshore Construction Method Statement (CMS) developed in consultation with MMO. This will include an assessment of the magnitude of scour in comparison to the volumes of scour protection at the locations where it is proposed. This is secured within the DCO dMLs (REP2-011, S_D2_7) under Schedules 3 and 4, Part 2, condition 20(1)(d)(ii). The Applicant considers that this provides clarity that comment RR-020.36 will be addressed in the Offshore CMS and that this matter is now closed.	The MMO is reviewing the Applicant's response and will provide a response as soon as possible.
REP2-029.35	The Applicant cites another report (ABPmer, 2023) saying that there is limited amount of sediment to be scoured, hereby limiting the maximal scour depth. Furthermore, and similarly to RR-020.36, the final design has not been agreed, so they cannot calculate potential scour. The MMO is content that the Applicant will submit an Offshore Construction Method Statement (CMS) developed in consultation with MMO and construction cannot commence until the CMS is submitted and approved by the MMO. The MMO will look to include this as a condition on the DML.	The Applicant welcome this Written Submission from MMO and notes that development and agreement of an Offshore CMS is secured within the DCO dML (S_D3_6 Draft DCO F05) under Schedules 3 and 4, Part 2, condition 20(1)(d).	The MMO welcomes this update and has no further comments at this stage.
REP2-029.37	**Dredge and Disposal** The MMO notes that the Applicant will provide a draft decommissioning plan for the Morgan Generation Assets to be submitted with the decommissioning programme prior to construction commencing. The MMO is content with this provided that the decommissioning programme is updated during the Morgan Generation Assets lifespan to take account of changing good practice and new technologies and that	The Applicant welcomes the MMO's Written Submission that the draft decommissioning plan should be submitted prior to commencing construction, and can confirm that the decommissioning programme will be updated during the Morgan Generation Assets lifespan to take account of changing good practice and new	The MMO notes that decommissioning will not be consented as part of the DCO and a new marine licence will be required but to assist with the holistic review of the project and understanding of the conclusions within the Environmental Statement believe that an outline plan would be beneficial at this stage. The

	the scope of the decommissioning works are determined by the relevant legislation and guidance at the time of decommissioning	technologies and that the scope of the decommissioning works are determined by the relevant legislation and guidance at the time of decommissioning.	MMO is hoping to have an update for Deadline 5 and will liaise with the Applicant on this requirement in between deadlines.
REP2-029.39	The MMO notes the Applicant's response and further states that, in line with OSPAR guidance, properties of the chemicals paints and coatings used should be notified to the MMO for approval prior to use. This request was incorporated into the MMOs Relevant Representation RR-020.41 regarding the Mitigation and Monitoring Schedule	Schedules 3 and 4, Part 2, Condition 18(2) of the dMLs within the draft DCO (REP2-011) require that any coatings and treatments are suitable for use in the marine environment and are used in accordance with guidelines approved by the Health and Safety Executive and the Environment Agency Pollution Prevention Control Guidelines. Condition 20(1)(e)(ii) further requires the offshore Environmental Management Plan to include details of a chemical risk assessment, including information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance.	The MMO welcomes the confirmation. The MMO is currently reviewing Condition 18(2) to ensure it aligns with the current chemical assessment approach and will provide an update for Deadline 5 and will liaise with the Applicant on any updates between deadlines.
REP2-029.41	The MMO welcomes the confirmation of the collection storage and methodology to be undertaken for the analysis of samples by relevant validated laboratories. In addition, The MMO notes a good description of the analysis for trace heavy metals analysis showed the results would be appropriate for use with comparison to England's agreed action levels for dredged material. The MMO is continuing to discuss the disposal site designation with the Applicant so this can be stipulated within the DML and will provide the ExA an update in due course.	The Applicant welcomes the MMO's confirmation that the information provided by the Applicant (PD1-017) has demonstrated that the methods of analysis for trace heavy metals are appropriate for use with comparison to England's agreed action levels for dredged material. The Applicant therefore considers that matter to now be closed.	The MMO has passed the disposal site information on to Cefas who will designate the site. The MMO will inform the Applicant when this has been actioned and request any amendments to the DML conditions required to ensure disposal site compliance.
REP2-029.44	**Benthic Ecology** An assessment of the prevalence / abundance of sediment bound paint flakes pre- and post-construction would further our understanding of this potential impact	The Applicant welcomes the MMO's confirmation that they are in agreement with the scoping of impacts in Volume 2, Chapter 2: Benthic subtidal ecology	The MMO notes that this request has not been standard on other offshore wind development. As projects are getting larger and studies are taking

	on benthic ecology. However, the MMO notes that no further assessment of this impact has been proposed. This is in line with other similar developments where Applicants have not been required to undertake additional monitoring or research. Adequate sampling of the pre-construction condition is a pre-requisite for robust comparison with post-construction condition and the MMO requests the Applicant to seek opportunities for collaboration between researchers and industry to ensure that the opportunity to investigate this relatively recently identified potential impact to benthic ecology (see Tagg et al. 2024) is not missed. The MMO have advised the Applicant that MMO.BE.5 in the Statement of Common Ground (SoCG) can be changed to 'agreed' as there is an agreement to the scoping of impacts for the EIA for Benthic Subtidal and Intertidal Ecology.	(APP-020) and the Applicant has submitted an updated Statement of Common Ground between the Applicant and the MMO at Deadline 3 (S_D3_MMO SoCG_Marine Management Organisation F02) which includes this update. With regards to the assessment and monitoring of paint flakes pre- and post-construction, the Applicant notes the MMO's comments that an assessment and monitoring of this impact has not been required for other similar developments. The Applicant therefore maintains that no further monitoring beyond that already outlined in the Offshore in-principle monitoring plan (REP2-013) is required for the Morgan Generation Assets. The Applicant notes that this matter is now resolved and will be reflected in the SoCG	place further impacts have been identified and it would be welcomed if these were taken into account. The MMO suggests that as a developer these are taken forward with industry as a whole to ensure the polluter pays principle is applied.
REP2-029.45	The MMO welcomes the Applicant's commitment to review suitable imagery acquired during monitoring related to maintenance activities for the presence of Invasive Non-Native Species (INNS) which will allow for an assessment of unambiguous INNS. However, the presence of cryptic INNS will not be adequately assessed through review of this imagery alone. The MMO notes that no significant effect from INNS was predicted within the Environmental Statement because of the Applicants commitment to adopt measures which act to reduce the likelihood of introduction of INNS. However, should INNS be identified during review of the imagery, the MMO requests that the Applicant reconsiders the collection of samples to: 1) confirm species identification and; 2) understand the fouling	The Applicant notes the MMO's comments with regards to cryptic invasive non-native species (INNS). The Applicant can confirm that, should the monitoring related to INNS as outlined in the Offshore in-principle monitoring plan (REP2-013) detect the presence of INNS, the Applicant will commit to considering the feasibility of collecting samples of the communities colonising the seabed infrastructure for further analysis of INNS. The Applicant would note, however, that the feasibility of the collection of such samples would be dependent on the technical specifications of the equipment available	The MMO is satisfied with the amendments to the Offshore In-Principle Monitoring Plan (IPMP) regarding benthic receptors. The MMO notes that scheduled pre and post construction surveys will include ecological monitoring such as review of seabed imagery to assess the presence of Invasive Non-Native Species (INNS) and the diversity of the colonising assemblage around seabed infrastructure. The MMO welcomes this commitment which will enable early detection monitoring of INNS and colonising fauna

	assemblage more fully to include cryptic INNS	at the time to undertake the surveys as well as health and safety considerations. The Applicant will however commit to exploring this as an adaptive management measure which would be discussed with the MMO as part of the development of the monitoring plan post-consent, secured within the DCO dMLs (S_D3_6 Draft DCO F05) under Schedules 3 and 4, Part 2, condition 20(1)(c)	
REP2-029.46	**Fish ecology** The Applicant has noted the observations made and provided clarification that the parameters used to define the Maximum Deign Scenarios (MDS) for each impact assessment carried out in the ES are selected from the project design envelope to represent the with the maximum effect for a particular impact and receptor topic. This is acceptable and the MMO thanks the Applicant for clarifying this.	The Applicant notes the MMO's Written Submission regarding clarification of the Maximum Design Scenarios (MDS) with thanks. No action is required by the Applicant, and this matter is considered closed	Agreed.
REP2-029.49	The MMO is content that the MDS for impacts to fish receptors from UWN as a result of piling is appropriate	The Applicant notes the MMO's Written Submission confirming that the MMO is content with the MDS for underwater sound impacts from piling with thanks. This matter is considered closed.	Agreed.
REP2-029.50	The Applicant has clarified that they have two scenarios which cover OSP foundation installation. The first is that four OSPs with four-legged jacket foundations, requiring three piles per leg would be deployed (leading to a total of 48 piles installed), the second scenario is that a single OSP with a six-legged jacket foundation requiring three piles per leg would be installed (resulting in a total of 18 piles installed). The MMO is therefore content that the MDS for the piling of OSPs is appropriate and thanks the Applicant for providing clarification.	The Applicant notes the MMO's Written Submission regarding clarification of the MDS with thanks. No action is required by the Applicant, and this matter is considered closed	Agreed.
REP2-	The Applicants response has not resolved the issue. In	Please refer to the Applicant's response	The MMO thanks the Applicant for

029.53	Figures 3.8, 3.9, 3.10 and 3.11 of the fish ecology chapter of the ES, thresholds for mortality and potential mortal injury, recoverable injury, and TTS are presented which were not consistent with the pile driving threshold guidelines described by Popper et al. (2014). The Applicant justifies this by outlining that the contours modelled "are derived from the contours generated for the single strike sound exposure level (SELss) metric to provide a representation of the relevant cumulative sound exposure level (SELcum) thresholds". However, this approach is unnecessary and departs from normal practice. Popper et al. (2014) clearly defines evidencebased thresholds for mortality and potential mortal injury, recoverable injury, and TTS effects in fish, based on the SELcum metric so there is no need for the Applicant to infer new thresholds from the SELss metric. Further, it appears that different thresholds for the same effect have been inferred in the different figures; for example, Figure 3.10 displays a TTS contour of 145 dB for a static receptor whereas Figure 3.11 displays noise contours of 142 dB for TTS for a static receptor. The MMO requests that the modelling outputs presented in Figures 3.8, 3.9, 3.10 and 3.11 of the fish ecology chapter be amended. The MMO requests that the Applicant presents the range of impact from UWN based on the thresholds for Group 3 fish with high hearing sensitivity for mortality and potential mortal injury (207 cumulative sound exposure level (SELcum)), recoverable injury (203 SELcum), and TTS (186 SELcum) as per the pile driving threshold guidelines described by Popper et al. (2014).	to REP2-029.3	the provision of the information contained within Annex 3.1, which was provided by the Applicant at Deadline 3. Annex 3.1 is currently being reviewed by the MMO. An update will be provided to the Applicant and the ExA by Deadline 5.
REP2-029.54	The MMO acknowledges the clarification that the assessment of behavioural effects in herring at their spawning ground in response to piling noise, is based on the maximum range of behavioural effect modelled which uses the appropriately precautionary 135 dB re 1µPa2.s, as per Hawkins et al. (2014). The MMO notes	The Applicant notes the MMO's Written Submission regarding application of the 135 dB re 1µPa2.s behavioural threshold for herring and acknowledging the errata regarding the conversion between sound metrics with thanks, and acknowledges	The MMO is content with the Applicants response and agrees that no further action is required.

	that it is still not entirely clear how the threshold of 160dB re 1µPa SPL peak has been derived. The MMO further notes that the studies which the Applicant has used to determine this threshold are not wholly appropriate for this purpose. For example, the study by Doksæter et al., (2012) is based on the behavioural responses of captive herring exposed to naval sonar transmissions, however it is important to note that no comparison between noise emissions from naval sonar and impulsive piling has been made in this study, and that animals in tanks or large enclosures show very different responses to behavioural stimuli than wild animals (Popper et al., 2014). Further, the Applicant claims that the study by McCauley et al., (2000) examined behavioural reactions by the clupeid Perth herring, Nematalosa vlaminghi (Munro 1957) in response to impulsive air guns, but does not acknowledge that 'Perth herring' is a colloquial term for an Australian species of anadromous (migratory) shad (Smith et al., 2024) which is unlikely to share the same specific reproductive ecology as Atlantic herring (Clupea harengus). These studies are therefore not suitable for the purpose of defining a threshold for use in modelling behavioural responses in Atlantic herring at their spawning grounds. The limitations of these studies are also relevant to cod. The MMO thanks the Applicant for recognising that references to 135 dB re 1µPa2.s SELss and 160 dB re 1µPa SPLpk being roughly equivalent are included in error within the ES and should be disregarded. It is not appropriate to make conversions between UWN metrics as relations between metrics is highly contextual and any "conversion" is subject to various uncertainties. Doing so also removes defined noise thresholds from their biological context.	the MMO's feedback regarding the additional studies referenced. No further action is required by the Applicant.	
REP2-029.55	The MMO supports the commitment to develop an Underwater Sound Management Strategy (UWSMS) to manage the effects of underwater sound to	The Applicant notes and welcomes the MMO's Written Submission regarding the Underwater Sound Management	See MMO response to REP2-029.8

	nonsignificant levels to ensure no residual significant effect. This commitment alone is not sufficient to remove the need for a seasonal piling restriction during the herring spawning season (September to October, inclusive) which was recommended in MMO-RR-020 in order to protect spawning herring, and their eggs and larvae, from UWN disturbances during the spawning season. Both Figures 3.4 and 3.6 from the fish ecology chapter show that the UWN contours for the 135 dB behavioural response threshold as per Hawkins et al. (2014), fully overlap with the high intensity herring spawning grounds in the southeast of the Isle of Man, and partially overlap with the high intensity herring spawning grounds in the north and northeast of the Isle of Man. Given that no tangible mitigation strategies (using noise abatement technologies or otherwise) for reducing the range of behavioural effects in herring at their spawning ground from UWN, appear to have been outlined in detail at this point in the process, the MMO considers that it is not appropriate to remove the requested restriction. Given the availability of effective alternatives to unmitigated piling – i.e. noise abatement measures to reduce noise at source - unmitigated pile driving cannot be justified on the basis that there are no realistic alternatives. Noise abatement measures would reduce the range of potential impact from UWN on sensitive species and habitats, an issue which is especially pressing given the wider context of the current expansion of offshore wind developments in the Irish Sea. To ensure adequate preparations are made and potential delays avoided, The MMO states that it is in the Applicant's interest to plan for and to incorporate noise abatement measures at the earliest opportunity. The MMO is content for the UWSMS to be finalised post-consent, however, removing the recommended restriction on piling during the herring spawning season would be premature as the Applicant has yet to present	Strategy (UWSMS) and seasonal restrictions. The Applicant and the MMO held a meeting regarding underwater sound impacts on 24/10/2024, and further discussions are ongoing in relation to the potential requirement of seasonal restrictions or noise abatement systems to reduce effects on spawning herring during the period indicated. The Applicant awaits the forthcoming Defra marine noise policy and will provide a detailed response	

	any evidence of the specific measures (including the use of Noise Abatement Systems (NAS)) which will be used to reduce UWN emissions to within acceptable levels relative to the herring spawning ground. Until such evidence is presented, the MMO's strongly believes and requests that a seasonal piling restriction is necessary in order to protect spawning herring, and their eggs and larvae, during the spawning season (September to October, inclusive) and that the restriction remains on the face of the DML. The implementation of adequate noise abatement strategies may remove the need for seasonal piling restrictions, however the Applicant must demonstrate that the range of impact from UWN in relation to spawning herring is adequately reduced. In relation to the Site Integrity Plan (SIP) (North Sea) the MMO would highlight that this process was set out for a specific reason for in-combination impacts only, any concerns to the project alone were discussed and agreed/concluded at the consenting stage. At this stage the impacts on fish for Morgan OWF is for the project alone and therefore it is not the same and the need for a restriction still stands without the evidence requested. The Principle of the UWSMS was agreed during the Evidence Plan Process, however this did not include all the required information and the MMO requires further information to be confident that a conclusion of no impact can be agreed without specific details. The MMO welcomes further discussion on the seasonal restriction wording to include flexibility within the condition, including that of the UWSMS.		
REP2-029.60	It has been clarified that all references to the Morgan Generation Assets in the CEA UWN assessment are based upon installation of 454 pin piles with a maximum hammer energy of up to 4,400 kJ. The MMO is content that the Applicant's response appropriately addresses	The Applicant notes the MMO's Written Submission regarding confirmation of the piling scenario assessed within the underwater sound Cumulative Effects Assessment (CEA) for Morgan Generation Assets with thanks. No	Agreed.

	MMO concerns	action is required by the Applicant, and this matter is considered closed.	
REP2-029.61	It has been clarified that all references to the Morgan Generation Assets in the CEA UWN assessment are based upon installation of 454 pin piles with a maximum hammer energy of up to 4,400 kJ. The MMO is content that the Applicant's response appropriately addresses MMO concerns.	The Applicant notes the MMO's Written Submission regarding confirmation of the piling scenario assessed within the underwater sound Cumulative Effects Assessment (CEA) for Morgan Generation Assets with thanks. No action is required by the Applicant, and this matter is considered closed.	Agreed.
REP2-029.62	The MMO is generally content that the Applicant's CEA is sufficiently precautionarily and supports their conclusion of a predicted moderate adverse effect for sound-sensitive species, cod and herring, which is significant in EIA terms and requiring mitigation. The MMO therefore determines that the following points within the Applicant's SoCG can be amended from 'ongoing point of discussion' to 'agreed': MMO.FSF.9 MMO.FSF.10 MM.FSF.11	The Applicant notes the MMO's Written Submission regarding confirmation that the CEA for underwater sound from piling is sufficiently precautionary and welcomes the updated status to points MMO.FSF.9 to 11 of the Statement of Common Ground (REP1-035) as agreed	No further action required.
REP2-029.64	The MMO is content with the Applicant's conclusion that seabed sediments within the Morgan Array area are generally not high-value as herring spawning habitat, and that the area to the north of the Morgan boundary has been appropriately recognised by the Applicant as a herring spawning ground. The MMO does not consider that further action is necessary	The Applicant notes the MMO's Written Submission confirming agreement that seabed sediments within the Morgan Array Area are generally not high value as herring spawning habitat with thanks, and considers this matter closed.	Agreed.
REP2-029.65	The MMO agrees that the characterisation of sandeel potential habitat is sufficient to inform the EIA. Effects of temporary habitat loss and physical disturbance to sandeel habitat may occur during construction of the wind farm, although this will likely be limited to the area where suitable sediments are located. Although the evidence presented thus far shows that the Morgan Array area overlies a matrix of preferred, marginal, as well as some unsuitable sediment types for sandeel, given the wider availability of seabed substrates that are	The Applicant notes the MMO's Written Submission confirming agreement that the characterisation of sandeel potential habitat is sufficient to inform the EIA with thanks, and considers this matter closed.	Agreed.

	suitable as sandeel habitat outside the array area, the MMO is content that the magnitude of temporary habitat loss and physical disturbance during construction of the wind farm is unlikely to result in significant adverse effects on sandeels in the area. The MMO is of the opinion that the evidence presented is sufficient to amend points MMO.FSF.2, FSF.6 and MMO.FSF.7 of the Applicant's SoCG from 'ongoing point of discussion' to 'agreed'. The Applicant's broad approach to characterisation of the baseline environment for fish and shellfish is appropriate.		
REP2-029.67	The MMO recognises that the Applicant defined an appropriately large study area and provided a full characterisation of fish ecology receptors in the fish and shellfish ecology technical report. Nonetheless, it would be helpful in, in future applications, tables similar to Table 3.11 included all key sensitive fish receptors within the vicinity of the project works which were being carried forwards for further assessment rather than those which immediately overlap the project array. This will provide a neat presentation for reviewers which makes clear the key sensitive fish receptors which the Applicant has highlighted as being of particular interest within their application.	The Applicant notes the MMO's Written Submission confirming agreement with the fish and shellfish ecology study and baseline characterisation area presented within Volume 4, Annex 3.1: Fish and shellfish ecology technical report (APP-051) and acknowledges the advice provided for future applications with thanks. The Applicant considers this matter closed.	Agreed.
REP2-029.68	The MMO's original comment related to the mischaracterisation of impacts to fish from permanent habitat loss as 'long term' habitat loss which implies temporary loss or change to habitats over an undefined but 'long-term' period of time. Where scour protection, turbine foundations or other project infrastructure is not removed following the end of the project's lifetime, this would represent a permanent alteration to the habitat. The Applicant's response is that "long term habitat loss is considered to represent permanent habitat loss", in which case the MMO requests that the term permanent habitat loss is more representative of what the Applicant	The Applicant notes the MMO's Written Submission and agrees that permanent habitat loss from scour and cable protection left in situ during the decommissioning phase has been assessed as set out within section 3.9.5 of Volume 2, Chapter 3: Fish and shellfish ecology (APP-021). The Applicant is content to use this term to describe these impacts as recommended by the MMO. Impacts related to turbine foundations have been	With regards to Shellfish, the MMO considers that construction activities and decommissioning which result in habitat loss or disturbance would be considered 'long-term' due to the timeframe for seabed and sediment composition to return to original being typically longer than a commercial shellfish lifespan. Impact on more sedentary shellfish species maybe considered higher as they are less nomadic and often related to certain

	means and is assessing.	categorised as long term as these will be removed during the decommissioning phase of the project and are therefore excluded from the permanent habitat loss total presented in paragraph 3.9.5.31 of Volume 2, Chapter 3: Fish and shellfish ecology (APP-021).	substrate types for most of their life cycle. The monitoring activities planned to pre and post construction will shed more light onto this parameter for the shellfish species within the area and inform future actions. The MMO notes that Natural England agrees with the ExA that more persistent impacts from habitat disturbance, may be considered long term. However, there remains an argument for EIA impacts to still be considered temporary. This is because following cessation of disturbance, there is evidence that fish populations can recover and without further seabed disturbance be maintained over the operational phase of the windfarm and/ or post decommissioning. Therefore, Natural England advised that any further habitat disturbance impacts from decommissioning should be considered as a separate discrete impact. The MMO notes that Natural England has determined that mitigation measures for loss of supporting habitat for fish and shellfish are not required for this project.
REP2-029.82	**Underwater Noise** The MMO has reviewed the following document: Annex 3.2_Morgan Gen Response to RR020_MMO_UWS_4.9.5 TO 4.9.9 regarding the	The Applicant notes and welcomes the MMO's Written Submission.	No further comment.

	assessment of simultaneous piling, and the MMO thanks the Applicant for this information. This additional evidence is welcomed for transparency and completeness, as it was not clear in the original underwater noise assessment why various assumptions and choices had been made. The MMO advises that it would be helpful for future reporting if such information is included within the main underwater noise assessment.		
REP2-029.90	**Outline Marine Mammal Mitigation Protocol (MMMP)** The MMO notes that the UWSMS is a live document which will be updated through discussions with stakeholders, and, if NAS is required, will include this detail clearly in the final MMMP and UWSMS. As per MMO's original comment, the MMO requests that NAS (bubble curtain) is required for ALL high order clearance, and it is in the interest of the Applicant to plan for this at the earliest opportunity. The MMO would also highlight that this is consistent with the standard requirements within the conditions for all 2024 and 2025 UXO marine licences.	The Applicant notes the MMO's Written Submission. The Applicant re-iterates that the Applicant will follow any published guidelines on noise abatement at the time the UWSMS (APP-068) is finalised. As highlighted by the MMO, the UWSMS (APP-068) is a live document which will be updated through discussions with stakeholders, and if there is a requirement to use NAS, the Applicant will include this detail clearly in the final UWSMS (and the final MMMP), which will be discussed with stakeholders and agreed with MMO prior to commencement of construction. The Applicant highlights the discussion held with the Applicant, the MMO, Cefas and Natural England (24/10/2024) in which REP2-029.90 was raised. Following this discussion it is the Applicant's understanding that the MMO consider that the development and finalisation of the MMMP and UWSMS (APP-068) are considered sufficient to manage appropriate mitigation for UXO clearance, and that the development and finalisation of these documents, in consultation with relevant stakeholders	The MMO notes the Applicants response. The MMO is content that the discussions will continue in the development of the UWSMS & MMMP. However, at this stage the MMO notes that some of the mitigation is known. As per the Defra interim position statement low order should be standard mitigation on UXO. It is the MMO's position that for high order UXO clearances bubble curtains must be used regardless of the size and this should be reflected within the plans at this stage. The MMO also notes that JNCC and NE have concerns on UXO being included in the DML. The MMO is discussing this with the interested parties to understand these concerns and will provide an update in due course.

		should be sufficient to allow this point to be closed.	

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