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(Email only)

MMO Reference: DCO/2022/00012
Planning Inspectorate Reference:TR030008

13 March 2024

Dear Sir or Madam,

Planning Act 2008 - Immingham Green Energy Terminal Development Consent Order Deadline 1 Submission

On 25 October 2023, the Marine Management Organisation (the "MMO") received notice under section 55 of the Planning Act 2008 (the "PA 2008") that the Planning Inspectorate ("PINS") had accepted an application made by Associated British Ports (the "Applicant") for determination of a development consent order for the construction, maintenance and operation of the proposed Immingham Green Energy Terminal (the "DCO Application") (MMO ref: DCO/2022/00012; PINS ref: TR030008).

The DCO application seeks authorisation for the construction, operation, and maintenance of a multi-user liquid bulk terminal which would be located on the eastern side of the Port of Immingham ("the Port"), as well as associated development (collectively termed "the Project"). The associated development would comprise the construction and operation of a green hydrogen facility and landside works for the production of green hydrogen from imported green ammonia on site.

This document comprises the MMO comments in respect of the DCO Application submitted in response to Deadline 1.

The MMO submits the following:

1. **Comments on Relevant Representations from other interested parties**
2. **Responses to ExAs First Written Questions**
3. **MMO Comments on updated DCO**
4. **Comments on Applicant's response to MMO Relevant Representation**

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,

Phillipa Koomson

Marine Licensing Case Officer

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Contents

1. Comments on Relevant Representations from other interested parties

The MMO has reviewed the Relevant Representation of the following interested parties:

- Environment Agency
- Maritime and Coastguard Agency
- Historic England
- Natural England

The MMO offers the following comments in respect of these submissions:

1.1. Environment Agency (EA)

1.1.1 The MMO notes that the EA has no objections to the principle of the proposed development and that they consider it likely that all outstanding issues will be capable of resolution. The MMO welcomes this assertion.

1.1.2 The MMO notes that the EA has requested that amendments and additions to some parts of the DCO Articles and Schedule 2 Requirements are needed. Draft Protective Provisions for the Environment Agency included in Schedule 14, Part 2 are not in a format that is agreed with.

1.1.3 The MMO notes the assessment of flood risk is not currently adequate and additional information is requested to alleviate concerns with respect to the project's impact on: tidal and fluvial flood defences; fluvial flood flows; landraising on flood flows/risk from non-main river sources; and, uncontrolled discharges.

1.1.4 The MMO notes that the EA has requested clarification regarding the terminology used in the Water Framework Directive ("WFD") assessment. The MMO ultimately defers to the EA on these matters but will review these clarifications once submitted into Examination by the Applicant.

1.2. Maritime & Coastguard Agency (MCA)

1.2.1. The MMO welcomes MCA's confirmation that the project falls entirely within the statutory harbour area managed by ABP Port of Immingham. They are therefore responsible for maintaining the safety of navigation within their area of jurisdiction during the construction and operation phases. The MMO has no additional points to raise regarding this representation.

1.3. Historic England (HE)

1.3.1. The MMO notes HE's recommendation that necessary further assessment to inform avoidance / mitigation of impacts upon potentially sensitive peat deposits (which may span the current shore line) and interaction with unknown wrecks in the marine environment, should be secured under staged DCO requirements such that the results of investigations (carried out to approved methods including; reporting, archive and dissemination) inform subsequent phases of work whose methods and outputs are likewise subject to approval. The MMO will maintain a watching brief on any discussions relating to this, in particular if any mitigation should be secured within the DML.

1.4. Natural England (NE)

PART I: Summary and Conclusions of Natural England's advice.

1.4.1. The MMO notes that NE's view that insufficient information has been submitted by the applicants to sufficiently close out the following areas of discussion:

- Internationally designated sites
- Nationally designated sites
- Soils and agricultural land

1.4.2. The MMO ultimately defers to NE on these matters as the Statutory Nature Conservation Body (SNCB) and hopes that the Applicant and NE can resolve these matters prior to the close of Examination. The MMO welcomes inclusion in discussions if resolutions require change or input to the DML, additionally, should it be considered that a Wildlife Licence is required due to certain species being protected by the Wildlife and Countryside Act 1981, the MMO will need to be involved in such discussions.

1.4.3. The MMO notes NE's decision to use the 'Red Amber Green' ('RAG') system to denote the level of risk associated with a topic related to this development. The MMO welcomes NE's use of this system and considers it a clear and concise way to present the severity of an outstanding concern linked to this application.

1.4.4. The MMO also notes NE's closing point stating that it would be unlawful to permit the undertaking of this project should some of the issues outlined in their response not be addressed, this is largely in respect of potential impacts to Special Areas of Conservation (SAC's), Special Protected Areas (SPA's), RAMSAR and Sites of Specific Scientific Interest (SSSI's). The MMO notes the seriousness of NE's concerns and hopes the Applicant and NE can resolve all outstanding issues before the close of Examination.

PART II: Natural England's detailed advice

1.4.5. The MMO notes that there is disagreement between the Applicant and NE as to the conclusions of the Habitats Regulations Assessment (HRA). The MMO further notes that these issues centre around the following designated sites: Humber Estuary SAC, Humber Estuary SPA and Humber Estuary Ramsar. It appears to the be the case that there are several concerns regarding these sites and their compliance with the

Habitats Regulations. The MMO acknowledges these concerns but ultimately defers to NE on all matters related to HRA.

1.4.6. The MMO is also aware that there are issues between NE and the Applicant regarding the potential impacts of Airborne Noise and Visual Disturbance to birds during construction contained in Section 4.10.16 of the shadow HRA.

1.4.7. The MMO is also aware that there remain unresolved issues regarding potential Cumulative and In-Combination impacts as it relates to these proposed works. The MMO has no comment to offer on this matter and defers entirely to NE.

1.4.8. The MMO notes NE's point that they would welcome further information from the Applicant on the nature of combined impacts from IGET (piling, dredging and dredge disposal combined) plus the 7 (or more) projects which may cause disturbance through underwater noise and vibration. The MMO advocates this sentiment and would welcome any further information, if the Applicant has it, to be entered into this Examination.

1.4.9. The MMO notes that NE has concerns regarding the 'Screening Out' of potential air quality impact of emissions from marine vessels used during construction due to a 3km distance between vessels and sensitive receptors of the Humber Estuary SAC. It is recommended that a modelled grid over 10km is modelled with discrete receptors to represent the nearest sensitive ecological receptors and to understand the extent of impacts from construction vessels. The MMO advocates this sentiment and would welcome any further information, if the Applicant has it, to be entered into this Examination.

1.4.10. The MMO is aware that there remain unresolved issues that centre around Sites of Specific Scientific Interest (SSSI). We note that this includes the following sites:

- Humber Estuary SSSI
- North Killingholme SSSI
- Hatfield Chase Ditches SSSI

1.4.14. The MMO does not conduct its own SSSI assessment, as such, the MMO defers to NE on all matters related to SSSI.

2. Responses to ExA's First Written Questions

ExQ1	Question	MMO Response
Q1.5.2.2	Clarification of proposed piling times MMO provides [RR-016, Paragraph 4.4.11] a proposed condition that "No marine piling of any kind is to be carried out between the hours of 07.00 and 19.00 during winter months and from sunrise to sunset during summer months" a) MMO, correct these times in line with the body of your representation b) Applicant - Provide an update of the Table shared at ISH3 [EV5-006] [EV5-007] showing the proposed temporal and seasonal restrictions. c) Applicant – From this Table, signpost where the ">200m" information is provided within the ES. d) Applicant – With this Table, include a pictorial description of the limits of the "Jetty Head" and "Approach Jetty". e) Applicant and MMO – confirm whether the limits shown on this table have been agreed.	The MMO requested in our Relevant Representation that the timings of sunrise and sunset should be defined by the Applicant. However, we recommend that the time of sunrise and sunset should be in accordance with office data, for example from HM Nautical Almanac Office. The MMO and the Applicant had a meeting on Friday 23 February 2024, where the approach to mitigation was discussed. Following the meeting, we have further reviewed the proposed measures and have provided further comments regarding this in Section 4 below.
Q1.5.2.3	Use of bubble curtain MMO recommends [RR-016, paragraph 4.4.19] that the Applicant investigates the implementation of noise abatement measures such as a bubble curtain. a) MMO, provide the coverage referred to (relating to the South Shields Regeneration Project) to the Applicant and ExA.	The company responsible for the deployment of bubble curtains for the South Shields Regeneration Project is Frog Environmental. Their website provides a case study page on the project: South Shields Regeneration - Bubble Curtains I Frog Environmental The MMO suggests that the Applicant contact Frog Environmental to request their noise monitoring data, and to discuss the feasibility of using bubble curtains for the IGET project. If bubble curtains were suitable for use at the IGET site, and providing existing data demonstrated that noise levels could be adequately reduced to a level that would not cause significant

		harm to marine receptors, then it is possible that piling work at IGET could be carried out without the need for temporal piling restrictions.
Q1.5.2.6	**Mitigation** Confirm that you are satisfied with the proposed mitigation measures in respect to Marine Ecology that are set out in [APP-223].	The MMO notes that APP-223 relates to the Outline Construction Traffic Management Plan. The MMO has reviewed this document and notes that there is very little with regards to marine elements and therefore the majority of the report is outside of our jurisdiction. Regarding marine considerations, such as marine construction working hours, the MMO is currently discussing mitigation measures with respect to marine ecology with the Applicant. Once agreed, these measures will then be put into the DML.
Q1.5.2.8	**Assumptions and limitations** The assumptions and limitations in ES [APP-051, Paragraph 9.4.31] relate to baseline surveys and assessment scenarios and states that the surveys used to inform the fish assessment do not overlap specifically with the site but are considered representative of the fish assemblage that could be present within the dredge footprint and surrounding local area. Are you satisfied that the fish survey data used to inform the baseline conditions for the fish assessment are representative of the fish assemblage present in the area?	The MMO considers that the data and resources used by the Applicant are adequate to provide a realistic characterisation of the fish species and assemblages present in the Humber. The Applicant has identified the marine fish species which are present in the estuary, as well as the migratory species that transit up/downstream past the IGET site during various life stages. Whilst some of the data are more than 10 years old, collectively, the data and publications used are suitable to provide a general picture of the species present throughout the year.
Q1.6.3.1	Assessment Methodology [APP-238, Paragraph 4.14.3] states that proposed plans or projects in the Humber Estuary which have the potential to cause potential cumulative/ in-combination effects with the Proposed Development are described in detail in the ES [APP-067]. [APP-238, Tables 3, 4 and 5] state that there is no potential for LSE for a number of impact pathways from the Proposed Development alone. Also, there is no evidence of any consideration in the screening assessment of the potential for LSE arising from the Proposed Development in combination with other plans and projects.	The MMO defers to Natural England as SNCB on matters relating to the HRA and their expert judgement on in-combination projects. The MMO will keep a watching brief on discussions surrounding the HRA for the project to ensure that matters are agreed where possible and that any mitigation or conditions are secured in the DML.

	c) MMO – Are you satisfied with the projects and plans that have been included within the incombination assessment in Stage 2: Appropriate Assessment of the shadow HRA report, noting in particular the issue raised by NE relating to the scope of the in-combination underwater noise assessment (see NE Issue 37 in RR [RR-019])?	
Q1.18.3.16	**Article 46** j) MMO, identify specifically the parts of the Article that could restrict your operations?	The MMO has reviewed the updated draft DCO provided by the Applicant and has included further comments below in Section 3 regarding Article 46.
Q1.18.4.1	**Justification for Proposed Drafting Changes** It will benefit the ExA to understand the justification for the proposed drafting changes in the dDML. You may provide this information in a table format, which can be updated in collaboration with the Applicant at relevant Deadlines in the Examination.	The MMO has reviewed the updated draft DCO provided by the Applicant and notes that the majority of our requested changes have been made. Therefore, the MMO considers that full justification for each proposed drafting change in our Relevant Representation is not necessary at this stage. The MMO has provided further comments regarding the updated DCO in Section 3 below for further consideration.

3. MMO Comments on Updated DCO

The MMO has reviewed the Applicant's updated draft DCO provided under PDA-004 and thanks the Applicant for amending several parts of the DCO and DML in line with our Relevant Representation. However, please see below further comments from the MMO with regards to the updated DCO. This has been reviewed alongside the Applicant's response to our Relevant Representation where justifications for amendments have been made.

Part 5: Miscellaneous and General: Benefit of Order

3.1. The MMO does not accept article 46 as proposed by the applicant. The MMO should be excluded from these provisions in their entirety.

3.2. Article 46 (12) should be removed, and an additional sentence provided at the end of the article as follows: "*For the avoidance of doubt article 46 does not apply to the MMO and sections 72(7) and (8) of the 2009 Act shall continue to apply to all parts of the deemed marine licence."*

"Previous use of such provisions in DCOs"

3.3. The MMO does not recognise that such provisions are 'well established' as described by the applicant. Previous DCOs have included a range of provisions which, on occasion, have involved paragraphs to allow for the transfer of marine deemed licences of the kind proposed by the applicant. However, neither the MMO nor any other party are bound to follow previous drafting, especially where there are material reasons for departure. The MMO does not therefore consider differences in previously drafted DCOs material to the decision on whether such provisions should be included here, especially when the MMO has significant objections to such an approach (see below). It is the MMOs established and current position not to accept benefit transfer provisions and it would be inappropriate to accept such provisions incompatible with this.

"Imperative for limiting the number of duplicated regimes engaged in the context of nationally significant infrastructure projects"

3.4. The applicant makes reference to the need to avoid duplicate regimes, which the MMO supports. However, as the MMO has previously made clear (and the applicant itself identifies) the provisions in article 46 do not operate to replace the 2009 Act, but represent a hybrid regime intended to run alongside it. If the aim is simplification, the approach proposed does the opposite: it duplicates and confuses and potentially lengthens the process.

3.5. It is the MMO's stated position that any DML granted under a DCO should be regulated solely by the provisions of the 2009 Act, and specifically by all provisions of section 72 and only by these. Any attempt to use the DCO to circumnavigate or alter this procedure represents an inappropriate departure from the intention of both the 2009 Act and the Planning Act 2008.

3.6. It is also noted that there is no statutory power for the licence holder or the Secretary of State to vary any terms of a marine licence, and such powers have not been created by the wording in article 46. It would therefore still fall to the MMO to take steps to vary a marine licence to reflect that it has been transferred to another entity. This creates an unnecessary duplication. In the process of undertaking such a variation, the MMO would still be required to undertake all associated checks and assessments associated with the variation process and would be unable to approve a variation until the full process is satisfied. The approval to vary from a third party would not automatically grant the approval to vary under the 2009 Act.

"It appears to the applicant that there is no scope for appealing an MMO decision not to issue a notice under section 72(7) of the Marine and Coastal Access Act 2009 to transfer a marine licence (as no notice will have been issued to appeal to the First-tier Tribunal, and in any event the Secretary of State is the more appropriate arbiter of such matters having determined the original application for development consent)."

3.7. Parliament has determined the operation of the notice system under s.72 of the 2009 Act, and it is not for the applicant to attempt to use the DCO as a tool to circumnavigate or supersede this legislation.

3.8. Furthermore, the MMO does not recognise that the Secretary of State is a more appropriate arbiter than the MMO for this decision. As the regulatory authority for marine licences, including DMLs, the MMO should be the body considering the merits of any application for a transfer in all cases. Once the DCO is granted, the DML falls under the jurisdiction of the MMO to enforce and manage. This includes the variation process for the approval.

3.9. In addition, it is also unclear what criteria the Secretary of State would be taking in determining whether to approve any transfer, and how this would differ from a consent granted by the MMO under the existing 2009 Act regime. Furthermore, a hybrid system whereby the Secretary of State authorises but the MMO actions the transfer unworkable.

3.10. Finally, since there is no obligation for the Secretary of State to follow the MMO's response, this does not provide the MMO with the necessary controls provided by the 2009 Act regime, and is not considered an acceptable alternative.

"the deemed marine licence may also, as an alternative, be transferred pursuant to a variation notice under section 72(7) of the Marine and Coastal Access Act 2009."

3.11. The MMO does not require drafting to include reference to existing powers under the 2009 Act, since these powers already exist. However, attempting to put in place a dual system, whereby the applicant can use the existing legislation or an alternative hybrid system is not acceptable to the MMO for the reasons set out above.

Summary

3.12. In attempting to include this drafting, the applicant appears to misunderstand the relationship between the DCO and the DML. Although the DML is granted as a part of the DCO process, it remains a stand-alone licence regulated by the MMO and

subject to 2009 Act. For example, under the DCO regime, it remains possible for developers to seek consent for a marine licence directly with the MMO (rather than having a DML integrated into the DCO).

3.13. The DCO process operates to integrate the existing mechanism for granting a marine licence into the DCO. It is inappropriate to seek to utilise it as a vehicle to alter or distort established process and procedures, such as those for the transfer of a marine licence.

3.14. Such changes also potentially undermine the MMO's enforcement responsibilities. The MMO is responsible for enforcing all marine licences, including DMLs. This is best achieved by ensuring that the MMO has full responsibility for the marine licence process, rather than involving a third party and a hybrid process, and that this is consistent across developments.

3.15. The MMO also notes that the proposed drafting is inconsistent with the PINS Guidance on how DMLs should operate within a DCO. *Advice Note Eleven, Annex B – Marine Management Organisation* | *National Infrastructure Planning* provides that where the undertaker choses to have a marine licence deemed by a DCO, the MMO, "will seek to ensure wherever possible that any deemed licence is generally consistent with those issued independently by the MMO."

Other concerns with the drafting in paragraph 12

3.16. In addition to the concerns set out above, s.12(a) (transfer), the mechanism for transferring the benefits of a marine licence is set out in 2009 Act regime should not be duplicated (for the reasons set out above). With regard to the fixed period transfers (leasing) in 12(b) a marine licence cannot be 'leased', since there are no provisions (either in the DCO or in the 2009 Act) for the licence to 'revert' to the licence holder after the agreed lease period. There is no function to 'lease' an approval, as a full variation would be required to change the licence holder details, and the responsibilities which come with this under the licence conditions.

Schedule 17

3.17. The MMO does not accept Schedule 17 being applied to the MMO, and requests the following amendment to the Interpretations:

"relevant authority" means any person, authority or body named in any of the provisions of this Order (excluding the MMO) and whose consent, agreement or approval is sought;"

Applications (para. 2)

3.18. It is the MMO position that it is inappropriate to put timeframes on complex technical decisions of this nature. The time it takes the MMO to make such determinations depends on the quality of the application made, the complexity of the issues and the amount of consultation the MMO is required to undertake with other organisations to seek resolutions. The MMO considers it inappropriate to apply a strict timeframe to the approvals required under the conditions of the DML, given this would create disparity between licences issued under the DCO process and those issued directly

by the MMO (as marine licences issued by the MMO are not subject to set determination periods).

3.19. Whilst the MMO acknowledges that the Applicant may wish to create some certainty around when it can expect the MMO to determine any applications for an approval required under the conditions of a licence, and whilst the MMO acknowledges that delays can be problematic for developers and that they can have financial implications, the MMO stresses that it does not delay determining whether to grant or refuse such approvals unnecessarily. The MMO makes these determinations in as timely manner as possible. The MMO's view is that it is for the developer to ensure that it applies for any such approval in sufficient time as to allow the MMO to properly determine whether to grant or refuse the approval application. The MMO would not include these timeframes in the drafting of a standard marine licence, and as stated above, do not think they are appropriate to be included within the DML.

Appeals (para. 4)

3.20. Likewise, paragraph 4 proposes a new, enhanced appeals procedure for the applicant, should the MMO refuse an application for approval under a condition, or fail to determine the application for approval by certain 'determination dates'. This novel appeals procedure is not available for other marine licence holders and therefore creates an unfair situation whereby some marine licences are determined differently from others, despite their substantive similarity. The MMO strongly requests that the Appeals procedure for the MMO is removed from the DCO.

3.21. It is also incorrect to indicate that no appeal is available to the applicant. If the applicant is unhappy with the MMO's decision, an escalated internal procedure and judicial review are both available to the applicant. Including any additional appeal mechanism within the DCO is unnecessary. The Marine Licensing (Licence Application Appeals) Regulations 2011 apply a statutory appeal process to the decisions that the MMO makes regarding whether to grant or refuse a licence or conditions which are to be applied to the licence.

However, they do not include an appeal process to any decisions the MMO is required to give in response to an application to discharge any conditions of a marine licence issued directly by us. Therefore, if the DCO were to be granted with the proposed appeal process included, this would not be consistent with the existing statutory processes. This amendment would be introducing and making available to this specific applicant, a new and enhanced appeal process which is not available to other marine licence holders, creating an unlevel playing field across the regulated community. These proposals go against the statutory functions laid out by parliament. Furthermore, the private nature of the appeal process does not align with the public functions and duties of the MMO, or the MMO legal function, powers and responsibilities (which was never intended by Parliament in enacting the Planning Act 2008 or 2009 Act).

3.22. The MMO also considers that this would be inconsistent with p.4 of Annex B of the PINS Guidance Note 11, which states that "the MMO will seek to ensure wherever possible that any deemed licence is generally consistent with those issued independently by the MMO". Inclusion of a different mechanism for determination

appeals in respect of DMLs would not be consistent with Marine Licences issued independently by the MMO.

Schedule 17, paragraph 5: Anticipatory steps towards compliance with any requirement

3.23. It is unclear to the MMO why this paragraph is necessary, especially drafted so broadly. The applicant is asked to clarify exactly which anticipatory steps it is necessary to take before the DCO comes into force. Subject to the applicant's response to this issue, and this being acceptable to the MMO, the MMO will require the applicant to make these steps explicit in any drafting, in order to avoid any confusion and ambiguity which may undermine the MMO's regulatory role.

4. Comments on Applicant's response to MMO Relevant Representation

Following submission of the MMO's Relevant Representation, the Applicant has provided their responses to each point raised. The MMO has reviewed this document with regards to the remaining outstanding issues related to the following topics:

- Fisheries and Fish Ecology
- Underwater noise

The MMO has outlined its position as it relates to these matters below for the ExA's awareness:

4.4. Fisheries and Fish Ecology

4.4.1. The MMO, in consultation with Centre for Environment, Fisheries and Aquaculture Science (Cefas) Fisheries team, is satisfied that previous concerns have now been addressed in relation to fisheries and fish ecology. However, some points raised below relating to licensing and piling protocol wording require clarification.

4.4.2. The MMO is satisfied that no piling of any kind will be conducted between sunset and sunrise in the months of June and August. The time of sunrise and sunset should be in accordance with official data (e.g. from HM Nautical Almanac Office). For the months of March, September and October, no piling of any kind will be conducted between 19:00 and 07:00 each day. The nighttime piling restrictions will provide adequate mitigation for the movement and migration of fish, particularly those with nocturnal habits or migrations (e.g. European eel).

4.4.3. During April and May percussive piling will not be permitted below the waterline at any time, however vibro-piling will still be permitted during any hours.

4.4.4. In June, August and September percussive and vibro-piling will be permitted between the hours of 07:00 and 19:00 each day. The Applicant expects to undertake a maximum of 60 minutes of vibro-piling and 270 minutes of percussive piling per day based on a maximum of three piles being installed per day using two rigs.

4.4.5. The Applicant has proposed a licence condition which limits the duration of the percussive piling permitted within any 4-week period to a maximum total of 196 hours where any percussive pile drivers for either the IGET or IERRT or both projects are in operation. Where percussive piling is occurring simultaneously across these two projects, these respective time periods will not be double counted as the temporal exposure to this effect is not increased. The restriction will apply from 1 June to 30 June and 1 August to 31 October inclusive in any year to minimise the impacts on fish migrating through the Humber Estuary during this period. The measurement of time during each 196-hour work-block must begin at the start of each timeframe, roll throughout it, then cease at the end, where measurement will begin again at the start of the next timeframe, such process to be repeated until the end of piling works.

4.4.6. The Applicant's worst-case scenario of 270 minutes of percussive piling per day equates to 126 hours of piling over a 4-week period. As previously highlighted, the requirement for a cap on percussive piling of 196 hours is considerably higher than the Applicant's worse-case scenario of 126 hours of piling. However, the Applicant has highlighted that additional time may be required as a 'contingency' period to account for abnormal or exceptional circumstances (e.g. a marine mammal sighting) that would result in the need for further 20-minute soft-start procedures being implemented, meaning that the percussive piling period would exceed the anticipated 270 minutes per day. The contingency period for IGET has not been stated in the document reviewed, however, I have assumed it to be 40 minutes, based on a 20-minute soft-start for each of the two rigs being used in the project.

4.4.7. To address concerns raised regarding the 196-hour cap on percussive pling, the Applicant is proposing to develop a piling reporting protocol as has been done for the IERRT project. Whilst details of the protocol are not provided in the document reviewed, the MMO believes that the piling reporting protocol will be similar to that which has already been agreed for IERRT:

Percussive piling reporting protocol for IGRRT

(1) The undertaker must submit weekly reports to the MMO of the duration of percussive piling that is undertaken on any given day on which piling takes place during the construction of the authorised development.

(2) The reports submitted to the MMO pursuant to sub–paragraph 1 must include a log of the number and approximate location of piling rigs which are in operation on any given day, along with the number of piles driven.

(3) The undertaker will hold fortnightly meetings with the MMO to discuss the weekly reports submitted under sub-paragraph (1) and agree any corrective action if required.

(4) Subject to sub–paragraph (5), where percussive piling is paused, the recommencement of the percussive piling shall be subject to the provisions of sub–paragraph (1)(a) of paragraph 12 ("the contingency period").

(5) The contingency period must not exceed a total of 80 minutes in any given day on which percussive piling takes place.

4.4.8. In respect of no. (5) of the protocol, the MMO would expect this to be updated to reflect the number of minutes required for contingency measures (assumed to be 40 minutes).

4.4.9. Noting MMO's comment in para 4.1.8, assuming this protocol will be applied to the IGET project, we are content that reporting on the durations of percussive piling on a weekly basis to the MMO will enable necessary reactive measures to be taken, if it is found that the Applicant exceeds their expected 270 minutes of percussive piling and 40 minutes contingency periods. The MMO will engage in consultation with Cefas in the event that the expected 270 minutes of percussive piling and 40 minutes contingency periods are exceeded.

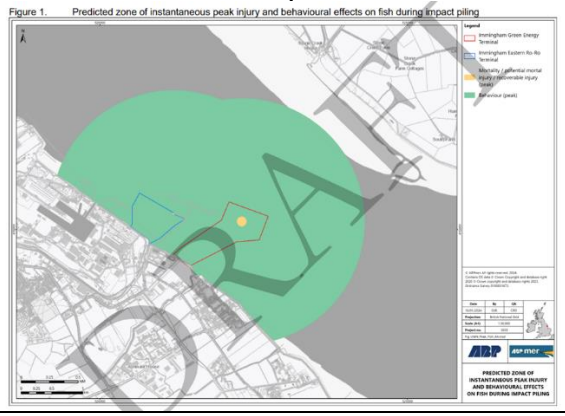
4.4.10. Figures 1 and 2 presented the predicted range of effect from percussive piling for mortality and potential mortal injury, recoverable injury, temporary threshold shift (TTS) and behavioural effects in fish in the river Humber. Figure 1 indicates that the range of effect for mortality and potential mortal injury, recoverable injury will be fairly localised. However, noise from piling is expected to attenuate across the whole width of the river, at a level which can cause behavioural responses in fish. The responses will vary according to the hearing capabilities of the affected species, but at worst, the noise may cause an acoustic 'barrier' to fish movement and migration. Figure 2 indicates that the range of cumulative Sound Exposure Level (SEL) effect for mortality and potential mortal injury, and recoverable injury for IGET (and IERRT) will also be fairly localised. Figure 2 also indicates that piling noise will reach a level that can cause TTS in fish.

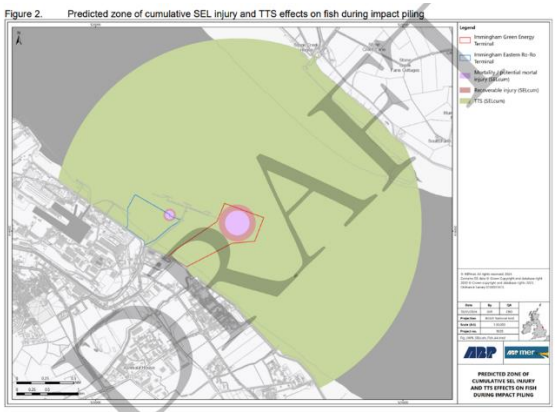
4.4.11. Whilst it would be preferable for no percussive piling to be carried out during the sensitive migratory periods of fish in the Humber, the MMO recognises that the Applicant has proposed a series of mitigation measures to limit the number of hours that fish will be exposed to noise. The standard mitigation measure of incorporating a 20-minute soft-start procedure on commencement of piling will provide a gradual ramping up of hammer energy which is assumed will allow fish to move away from the source of noise and avoid auditory injury. As the number of hours of vibro and percussive piling will be limited each day, with caps on each project, there will be windows during sensitive migratory periods when fish are expected to be able to pass the IGET and IERRT sites relatively undisturbed. For these reasons, the MMO is content that with the mitigation measures and the percussive piling reporting protocol in place, significant adverse effects to migratory fishes are unlikely to occur at a population level.

4.5. Underwater noise

MMO commentary and advice on the further information required to enable assessment	IGET Project Response ***Please note that MMO comments in response to IGET are provided in blue font (below the IGET responses).***
Environmental Assessment – Underwater noise	
4.7.2: Underwater noise arising from vessel operations, maintenance dredge and dredge disposal (during the operational phase) has been scoped out however, for all marine receptors (Table 9.21 in Chapter 9). The justification put forward is that the outcomes of the assessment of underwater noise disturbance from capital dredging activities during construction will be the same for maintenance dredging activities during operation. Provided that the worst-case dredging assumptions have been considered, then the MMO has no major objections to the scoping out (of a more detailed assessment) of maintenance dredging during the operational phase. Nevertheless, it will still be important to consider any overlap of maintenance dredging operations with key migratory or spawning periods.	As explained in the ES, during operation of the Project, maintenance dredging will potentially be required in the same way as currently occurs at the Port of Immingham with the same dredging techniques used. The modelling of the Project (as reported in ES Chapter 16: Physical Processes [APP-058]) indicates that the berth pocket, once dredged, will remain swept clear of deposited material by the flood and ebb tidal flows (in much the same way the existing Immingham Oil Terminal berths are). Consequently, the need for future maintenance dredging within the new berth pocket is expected to be very limited (if required at all). Should maintenance dredging be required, it is proposed to be incorporated within the maintenance dredge licence for Immingham (L/2014/00429/1) as part of the renewal of the licence at the end of 2025. Consideration has been given to the timing of the proposed activities in relation to key fish migratory or spawning periods. It is not, however, possible to confirm the exact timing and programme for the maintenance dredging, and the assessment has, therefore, been undertaken on the basis that this activity could be undertaken at any time of year. If maintenance dredging for the Project is required periodically, this will be carried out in line with the existing regime. The frequency and volume of material deposited at the disposal site from each load (for maintenance dredging across the port) will not change compared with current maintenance dredging activities, as the same plant and methods are proposed to be used. Furthermore, the volume of material that will need to be maintenance dredged from the berth pocket will be lower than the volumes of capital dredge material. Overall, the changes brought about as a result of the maintenance dredge and disposal of maintenance dredge

	material during operation will be comparable to that which already arises from the ongoing maintenance of the existing Port of Immingham berths. Therefore, it is considered that the likely impacts on marine receptors as a result of maintenance dredging will be comparable to the existing licensed maintenance dredge regime. MMO comment: The MMO thanks the Applicant for this response. Please see further comments below (points 4.7.16 – 4.7.22) which discuss dredging in more detail.
4.7.3 and 4.7.4: The MMO provide confirmation that scoping out of vessel noise during operation is appropriate and an appropriate evidence base has been used in the underwater noise assessment.	The MMO's position is noted, and, on that basis, no further response is required. MMO comment: Agree, no further action required.
Underwater Noise appendix	
4.7.8: While the MMO has no major concerns/objections with the source levels presented as such, it would be helpful if the Applicant could please provide more context on how these levels are relevant to the IGET development. For instance, it is not just the pile size (diameter) which is a factor. Other important considerations are the hammer energy, strike rate (piling profile) and water depth.	As noted ES Appendix 9.B: Underwater Noise Assessment [APP-187], factors that influence the source levels include the size (diameter), shape, length and material of the pile; the weight and drop height of the hammer; and the seabed material and depth. The highest peak noise levels are generally associated with larger-sized piles, given the larger surface area of the pile in contact with the water and the larger hammer energy and/or pile driving time involved in driving them. The Project will take place in very shallow water (maximum water depths at the location of the jetty are approximately 15 to 20m, reducing from around 15m to 0m along the approach jetty back to the foreshore). The published nearsource sound pressure measurements that have been used to estimate source levels for the Project are from similar shallow water estuarine environments in the San Francisco Bay area (water depths ranging from around 5m to 10m). MMO comment: We raised this query because the assessment source levels for a 1.5 m diameter pile are a lot lower than the assessment source levels for a 2.3 m diameter pile: 2.3 m pile: SL of 213 dB re 1 µPa2 s (SEL metric) and 238 dB re 1 µPa m (peak SPL metric) and 223 dB re 1 µPa m (RMS metric).

	1.5 m pile: SL of 203 dB re 1 µPa2 s (SEL metric) and 228 dB re 1 µPa m (peak SPL metric) and 213 dB re 1 µPa m (RMS metric). The Applicant has provided some information on the water depths, and this seems to be the main factor (along with the pile diameter) for choosing the assessment source levels (SLs). However, as advised previously, there are many other factors that need to be considered, including the size (length) of the pile, and the hammer energy required to drive the piles. For example, the source levels will be linked to the hammer strike energies used during the piling, which will be dictated not only by the pile diameter, but also by the length of the pile and the piling depth (and other factors such the soil conditions), which in turn will be linked to water depths. Thus, simply choosing SLs based on the pile dimeter might not be representative for other context, especially if the local environment is different (e.g., deeper water, longer piles, which might require higher strike energies.) We would also highlight that water depths of 15 to 20 m (at the location of the jetty) are not very shallow, especially for a coastal environment.
4.7.9: For the concurrent piling scenarios, it would be helpful if the Applicant could please provide more detail e.g., in the form of a figure, showing the locations of the piling at both the jetty approach and jetty head platform, taking into consideration the minimum and maximum separation distances between the piling vessels. This would help illustrate that the chosen scenarios / modelling strategy, and the inherent idealisations / simplifications are indeed appropriate and precautionary.	Figure 3 and Figure 4 at the end of this document present the minimum and maximum separation distances between the piling rigs at the jetty approach and jetty. These are illustrative only and based on the current understanding of the construction operations.  Figure 1. Predicted zone of instantaneous peak injury and behavioural effects on fish during impact piling

	 MMO comment: The results presented in SEL for the cumulative SEL effects zones for fish (Fig 2 above) seem to be the result of overlapping of circular effect zones centred at the location of the two piling rigs, with the radii of these zones calculated for each of the two piling locations. As noted in section 1.6.11 of Appendix 9B (the original noise assessment), in order to determine the resultant total sound pressure level (SPL) of multiple sources, the SPLs need to be added logarithmically, according to the formula given in 1.6.11. Thus, in principle, the effect zones need to be determined by calculating the field SEL from each of the two rigs, adding them up at each field location, and then drawing the effect zone contours for the relevant thresholds on the resulting SEL map. The resulting effect zones will be larger than the simple overlap of the effect zones that could be calculated separately for each of the two locations, due to the summation effect of SELs. In practice, for the scenario illustrated in Figure 2, the effect of this SEL summation is probably minimal, since the mortality and recoverably injury zones are quite small compared to the distance between the two rigs, while for the TTS, the overall effect zone is likely dictated by the largest of the two effect zones.

4.7.11: Para 1.6.9 and para 1.6.10 – The MMO previously queried why the RMS source level is 10 dB higher than the SEL source level. The Applicant has responded (see Table 1) with: "*The peak, SEL and RMS levels are those that were measured directly in the field and published in the literature that is referenced in Section 1.6. The SEL that is reported is effectively the SELss. The RMS metric has not been used in the modelling of impacts of impact piling on fish but is included as a specific variable in the NOAA user spreadsheet tool that has been used to assess the effects of impact piling on marine mammals (Section 1.9)".* Nevertheless, the MMO reiterates that the relevant metrics for assessing the impacts of impulsive activities are the SELcum (calculated by the aggregation of SELss) and SPLpeak.	Agreed. The relevant SELcum and SPLpeak metrics have indeed been used to assess the impacts of percussive piling noise in ES Appendix 9.B: Underwater Noise Assessment [APP-187]. MMO comment: No further action required – this point was more to note for future assessments.
4.7.12: The assessment largely refers to appropriate peer-reviewed criteria for fish and marine mammal species. For behaviour and fish, the assessment refers to thresholds derived from Hawkins et al. (2014). Hawkins at el. exposed wild sprat and mackerel to short sequences of repeated impulsive playback sounds at different sound pressure levels, simulating the strikes from a percussive pile driver. The sound pressure levels to which the fish schools responded on 50% of the presentations were 163.2 and 163 dB re 1 µPa (peak-to-peak) (and estimated single strike sound exposure levels (SELss) were 135 dB and 142 dB re 1 µPa2 ·s for sprat and mackerel respectively). Whilst recognising that the application of simplistic sound level thresholds for behaviour should generally be avoided, these thresholds can be considered to be a	The Sound Exposure Level Single Strike ("SELss") behavioural threshold that the MMO has suggested (135dB SELss) as an alternative to what was applied in the ES (157dB Sound Pressure Level Peak ("SPLpeak")) is considered to be overly conservative and precautionary for Atlantic salmon as it is based on sound levels to which schools of sprat, which are a much more sensitive fish species to noise than salmon, responded on 50% of observations. The use of an intermediate behavioural threshold (139dB SELss) commensurate with the lower hearing ability of salmon is considered more appropriate and results in a very similar range of effects as the peak behavioural threshold that was used in ES Appendix 9.B: Underwater Noise Assessment [APP-187]. MMO comment: Please note for future assessments that thresholds are fixed, and it is not wholly appropriate to 'convert' these into alternative metrics.

conservative indicator for the risk of behavioural responses and potential displacement. As advised for the PEIR consultation, it is not entirely appropriate to convert the peak-to-peak threshold to a zero-to-peak threshold (of 157 dB by subtracting 6 dB) as the Applicant has done here. The MMO recommends that future assessments also adopt the threshold of 135 dB SELss.	We agree that the 135 dB SELss threshold is likely to be overly conservative and precautionary for Atlantic Salmon (which are less sensitive to sound pressure than sprat and other clupeid species). This is why we specifically caveat this recommendation and state that the 135 dB SELss threshold is considered to be a conservative indicator for the risk of behavioural responses and potential displacement. Nevertheless, the MMO, in consultation with Cefas, is willing to consider alternative (and perhaps more appropriate/suitable) thresholds proposed by the Applicant, provided that such thresholds are supported by appropriate and relevant, peer-reviewed literature.
4.7.14: The MMO has no major concerns with the predictions for marine mammals for percussive (and vibro) piling. In general, the ranges appear to be relatively conservative in most cases.	The MMO's position is noted, and, on that basis, no further response is required. MMO comment: Agree, no further action required.
4.7.15: The SPLrms is the most appropriate metric to apply for continuous sources. The SPLrms is additive when there are two or more continuous sources. If the piling rigs are relatively close together (within the estuary), then it is reasonable to add 3 dB as the Applicant has done here.	The MMO's position is noted, and, on that basis, no further response is required. MMO comment: Agree, no further action required.
4.7.16 – 4.7.22: For marine mammals, the predictions in Table 20 (below for reference) for dredging and vessel movements look smaller than expected. This same point was raised during the PEIR consultation. The Applicant has responded stating that "the assumptions and input values to this spreadsheet are clearly set out in Table 19. These have been revisited and checked and the outputs remain unchanged in the appendix, apart from the rounding of distances to the nearest order of magnitude". Based on our experience of assessing such sources, and even if we assume a fleeing receptor, we expect larger Temporary	A capital dredge of approximately 4,000m^3 would be required for the Project. The capital dredge is anticipated to be undertaken using a backhoe. Dredging by backhoe involves loading the dredged material onto an attendant split hopper barge which subsequently disposes the dredge material at a licensed disposal site. Capital dredge operations would be continuous (24/7), but very short term and temporary (around 12 days' duration). The backhoe will be largely stationary during the dredging process, only being repositioned as necessary as the dredging of an area is completed. A stational source model is, therefore, considered most appropriate to apply for dredging by backhoe. Backhoe dredgers generate RMS SLs (Root Mean

Threshold Shift (TTS) effect ranges (over part of the estuary) for harbour porpoise and 24-hour exposure. In the first instance, these values do not make much sense considering that earlier on in section 1.9.24, the report predicts that there is a risk of TTS occurring within 700 m for all fish species. In fact, it is possible to construct some simple exposure calculation tests that indicate much larger effect ranges than those indicated in Table 20. For example, if we start from a SL value of 188 dB rms for dredging, in order to calculate 24h SEL, we need to estimate three distinct terms or quantities: the 24h exposure add-on (a positive term), the propagation loss (negative) and the auditory weighting term (also negative). The first quantity, namely the 24 h exposure add-on term is straightforward to calculate as 49 dB. The calculation of the propagation loss term is in general more complex, but nevertheless it is possible to estimate that it will balance out the exposure add-on term within a kilometre or so from the source (i.e., a propagation loss of ~50 dB for 1 km range). The last term, the effect of harbour porpoise auditory weightings, can be quite variable, according to the chosen spectrum (note that, ideally, the weighting should be performed on the received spectrum not on the source one, as the propagation loss is frequency dependent and thus will modify the spectrum). If one uses, for example, the dredging spectrum from Robinson et al. (2012), then the result of applying the harbour porpoise auditory weightings is a negative term of approximately 15 dB. Thus, starting from the 188 dB rms SL, we subtract 15 dB to get 173 dB, while the 24h exposure term and	Square Source Levels) in the range of 154 to 179dB re 1µPa m (Reine et al., 2012; Nedwell et al., 2008). This type of dredging is generally considered to be quieter compared to other types of dredging, with recorded sound levels just above the background sound at approximately 1km from the source (CEDA, 2011). The National Oceanic and Atmospheric Administration's ("NOAA's") user spreadsheet tool (NOAA, 2021) has been used to predict the range at which the weighted SELcum acoustic thresholds (NOAA, 2018) for PTS and TTS are reached during the proposed capital dredging by backhoe for the Project. In accordance with the guidance provided in NOAA's user manual and the instructions included within the user spreadsheet, 'Tab A: Stationary source, non-impulsive, continuous' was selected as the most appropriate method to apply for capital dredging activity. The model input values and associated assumptions are included in Table 2.

propagation loss to 1 km term cancel each other out. Since the 173 dB is precisely the value of the Permanent Threshold Shift (PTS) threshold for harbour porpoise, this example indicates that the PTS range is approximately 1 km.

Alternatively, we can construct an even simpler counter-argument. Namely, if we focus solely on the source level at 1 m, not including propagation, then the weighted SL value of 173 dB indicates that the animal exposure reaches 173 dB SEL after 1 second (by definition). Since this is the PTS threshold, and it is reached in 1 second rather than 24 h, the PTS range for 24 h exposure is implausible to be <1m as indicated in Table 20.

Thus, the PTS range is very unlikely to be < 1m. However, the MMO acknowledges that marine mammals are not expected to remain stationary for extended periods of time in close vicinity to the source.

Table 20: Approximate distances (metres) marine mammal response criteria are reached during dredging and vessel movements

Marine Mammal Hearing Group	PTS	TTS
High-frequency (HF) cetacean (harbour porpoise)	<1	40
Phocid pinniped (PW) (grey seal and common seal)	<1	10

NOAA user spreadsheet tool input values for 'Tab A: Stationary source, non-impulsive, continuous'

Model Inputs	Value	Assumptions
Weighting factor adjustment (kHz)	2.5	The maximum recommended default value provided in the user spreadsheet (NOAA, 2021) that leads to the greatest predicted ranges for PTS and TTS and is, therefore, considered a worst case.
Source Level (L_{rms})	179	The maximum estimated RMS SL for backhoe dredging that will be involved in capital dredging.
Duration of Sound Production (hours) within 24-hour period	24	Value is based on backhoe dredging involving continuous working 24 hours a day, 7 days a week.
Propagation loss coefficient	17.91	Derived from 11 observations of transmission loss coefficient collected from a number of construction projects undertaken in shallow water estuarine and coastal locations (see **Section 1.4** of **ES Appendix 9.B: Underwater Noise Assessment** [APP-187]).

The distances at which PTS and TTS in marine mammals are predicted to occur during the proposed capital dredging works are included in Table 3.

: Approximate distances (metres) marine mammal response criteria are reached during capital dredging

Marine Mammal Hearing Group	PTS	TTS
High-frequency ("HF") cetacean (harbour porpoise)	60	800
Phocid pinniped in water ("PW") (grey seal and common seal)	30	400

During operation of the Project, maintenance dredging will potentially be required in the same way as currently occurs at the Port. The modelling of the Project (as reported in ES Chapter 16: Physical Processes [APP-058]) indicates that the need for future maintenance dredging within the new berth pocket is expected to be very limited (if required at all). Any such maintenance dredging would be undertaken alongside existing licensed maintenance dredge operations undertaken at the Port by the Applicant. Maintenance dredging is largely undertaken by trailing suction hopper dredger ("TSHD"), which involves the periodic movement of the dredger between the dredge area and the licensed disposal site. Given the dredger is continually moving, a mobile source model is considered more appropriate for dredging by TSHD. RMS SLs of TSHDs are variable but generally range from 160 to above 180dB re 1µPa m for large TSHDs (Robinson et al., 2011). The TSHD sucks the soil from the seabed at a sailing speed of 1 to 1.5m/s (2 to 3 knots) (Vlasblom, 2005). The existing outputs presented within Table 20 in ES Appendix 9.B: Underwater Noise Assessment [APP-187] are therefore considered to be worst case assumptions for the proposed maintenance dredging activities. It should be noted that the MMO's comment, "earlier on in section 1.9.24, the report

	predicts that there is a risk of TTS occurring within 700 m for all fish species", is not considered comparable to the outputs presented in Table 20 as the TTS for fish was derived using a stationary model. Marine mammals are not expected to remain stationary for extended periods of time in close vicinity to the source of dredging, and therefore there is not considered to be any risk of injury or significant disturbance to marine mammals from the proposed capital and maintenance dredge activities. References – see document. MMO comments: Capital dredging: "*Capital dredge operations would be continuous (24/7), but very short term and temporary (around 12 days' duration)".* The MMO is not sure it is appropriate to state that dredging operations will only be 'very short term' if dredging will be undertaken 24/7, for 12 days. The MMO notes that NOAA's user spreadsheet tool does not contain a tab for dredging (nor is dredging mentioned specifically within this tool). New results have been presented (see above) for capital dredging. Worst case predictions of 60 m (PTS) and 800 m (TTS) are presented for harbour porpoise. Again, these values look smaller than expected given the assumed source level, 24/7 dredging, and a stationary receptor. However, we are aware that the choice of source spectra (and marine mammal auditory weightings) will have an impact on the predicted results. For example, the dredging spectrum from Robinson et al. (2012) has a relatively "flat" shape, with considerable energy content in the high-frequency bands, and thus the effect of the auditory weightings can be more modest than for other spectra where the spectral energy is more concentred in the lower energy bands. In the case of VHF (harbour porpoise) auditory weighting, the effect on the Robinson et al. (2012) spectrum is a reduction of SL by about 15 dB, while for other spectra this reduction can be much larger (e.g., 40 dB) and thus result in smaller predictions.

	Maintenance dredging: The MMO maintains that the results presented in Table 20 for maintenance dredging are lower than expected (notwithstanding our comments above regarding the source spectra). We are aware that the NOAA user spreadsheet tool input values for 'Tab C: Mobile source, non-impulsive, continuous ("safe distance" methodology)' have been used on the basis that maintenance dredging is a mobile source. "*Maintenance dredging is largely undertaken by trailing suction hopper dredger (TSHD), which involves the periodic movement of the dredger between the dredge area and the licensed disposal site. Given the dredger is continually moving, a mobile source model is considered more appropriate for dredging by TSHD*". In response to this statement, the MMO would argue that although the dredger will be moving, this is very different to a source moving through and away from the area, e.g., a transiting vessel, as assumed by the NOAA calculator for a mobile source. Even with a relatively modest speed of 1.5 m/s, a transiting vessel will move about 5 km away from the dredge area in one hour, while dredging activity is (plausibly) expected to last for longer durations (within a 24 h interval) within a much more localised area than the typical transit distances of a moving vessel. However, while the source is not expected to be mobile in the true fashion of a transiting vessel, it is reasonable to expect that the animal receptor will not be stationary either during the dredging activities, and thus they could limit their noise exposure within the area.
4.7.24: Nevertheless, the report attempts (at various times throughout the document) to compare the received noise levels in Table 5 against the existing background noise levels – see paras 1.8.2, 1.8.3, 1.8.4, 1.9.10 and 1.9.39, 1.9.20, 1.9.49 and 1.9.27. The MMO has some points and queries to make with respect to these statements:	As explained in Paragraph 1.5.15 of ES Appendix 9.B: Underwater Noise Assessment [APP-187], the measured background noise levels showed a repeating pattern of peaks and troughs, ranging from 107 to 154dB re 1µPa (see Figure 5 at the end of this response). Flow speed and broadband SPL were shown to be significantly positively correlated, which suggests that noise levels at the measurement location are highly dependent on tidal flow speed, with levels increasing with higher flow speeds (Xodus, 2015). In other words, these ranges in background noise are occurring on a twice-

• "*The RMS SPLs showed a repeating pattern of peaks and troughs, ranging from 107 to 154 dB re 1 µPa".* This is quite a large range and a background noise level of 154 dB rms is very high. How often does the background noise reach these high levels? The MMO presumes that such levels would likely be caused by passing vessel traffic, but it would be helpful if further context was provided here. Para 1.8.4, for example, states: "*The levels of underwater noise generated by impact piling are predicted to reach existing background levels previously measured in the Humber Estuary within around 2 to 3km from the source. The SEL received levels of underwater noise generated during impact piling for the proposed development are predicted to reduce to around 147 to 154 dB 1 µPa2s within 1km of the source of piling which is equivalent to peak SPL of 166 dB re 1 µPa using Equation 2 and comparable to the SL generated by a tug and barge. The peak levels of underwater noise that reach the opposite shore of the estuary are predicted to range from approximately 125 to 141 dB 1 µPa2s (equivalent to 135 to 157 dB re 1 µPa) depending on the tidal state. These levels are comparable to the SLs generated by recreational boats*". The comparisons made are misleading. Firstly, one cannot compare to the source level of a boat (i.e., tug or barge). Source levels are a theoretical concept (the assumption of a point source and measured from 1 m distance). Furthermore – even if we accept that source level values bear a close correspondence to the sound levels present in the immediate vicinity of a boat – then it would be difficult to argue that a receiver (animal) located at barely 1 m from the source	daily basis with the tide. Passing vessel movements in the estuary are also likely to be contributing to the background noise, but the monitoring data indicate that any intermittent and short-lived peaks from vessel traffic do not appear to be as dominant in characterising the peaks and troughs in ambient noise as tidal flows. The comparisons between the maximum predicted unweighted received levels generated by various construction activities from the Project and other existing background sources of noise in the Humber Estuary in Section 1.8 of ES Appendix 9.B: Underwater Noise Assessment [APP-187] have been made to help describe how these levels attenuate with distance from the source and how they also compare to other sources that already exist in the estuary for descriptive or context purposes only, rather than to determine whether they are likely to cause harm or not to animals. The potential effects associated with the various activities on fish and marine mammals are assessed in Section 1.9 of ES Appendix 9.B: Underwater Noise Assessment [APP-187]. This includes considering the spatial and temporal nature of underwater noise effects associated with construction (e.g., continuous 24/7 dredging). MMO comment: Please note that flow noise is not representative of ambient conditions, and it is not a true acoustic signal – see Good Practice Guide (2014). Background noise measurements during low tidal flow speeds / periods will likely be more representative (as there will be less contamination of flow noise). No further action is required at this stage; however, we hope that the Applicant takes on board these comments for future assessments.

(including a recreational vessel) would not be disturbed. In other words, this does not hold as an argument that such noise levels are harmless and not concerning. If the argument was comparing the piling noise levels with those that a boat generates at a great distance (e.g., a boat transiting at several km away) then this could be reassuring evidence, but the noise levels being in fact as high as the source levels of boats is quite contrary to that. Another important point to consider is that vessels come and go in the estuary, thus contributing/causing the reported transitory peak values of the ambient noise levels, whereas dredging will be continuous (24/7) and the vessel will remain in the vicinity for extended periods of time. Thus, even if – allegedly – the noise levels introduced by dredging would not exceed the observed maxima of the ambient noise levels, they would be expected to remain at these high levels for extensive periods, unlike the brief and rather infrequent peaks of the ambient noise.	
4.7.27: The MMO advises that there will need to be a coordinated / joined up approach to ensure that the various developments taking place within the Humber estuary, especially between IGET and IEERT, are appropriately managed to minimise the risk of potential impact on sensitive receptors, particularly migratory species. We note that the same mitigation measures (i.e., timing restrictions) are proposed for both projects	See response to Paragraph 4.4.14 above. MMO comment: No comments at this stage.
4.7.28: The MMO note that it may be wise to have a tracker of some sort for the Humber estuary (if there is not one already). This tracker could show when and where the various developments will be taking place,	As noted above in response to Paragraph 4.4.14, the same mitigation measures are proposed for both IERRT and the Project to help minimise potential cumulative adverse effects, given their proximity to each other and the potential for piling activity to overlap. This will include a piling reporting protocol, which has been agreed for IERRT and is being developed in

and what mitigation will be in place, to try and help manage cumulative effects.	consultation with the MMO for the Project. This reporting protocol will have associated actions to be taken in the event of an abnormal occurrence (e.g. equipment breakdown or if a marine mammal enters the mitigation zone). Reports are to be submitted to the MMO (reporting frequency to be agreed), and the Applicant will hold fortnightly meetings with the MMO. The proposed mitigation measures for both projects will limit the risk of exposure and manage the potential cumulative underwater noise effects. The in-combination underwater noise effects of other projects together with the Project have been assessed individually and across all projects in the ES and Shadow Habitats Regulations Assessment [APP-238]. Piling noise has the potential to cause injury effects in marine mammals and fish within close proximity to the piling activity and strong behavioural responses over a wider area across all projects. Other projects involving piling (i.e., IERRT, Humber International Terminal Berth 2, AMEP, and North Killingholme Power Project) will require similar mitigation to the Project to help minimise potential adverse effects (such as soft-start procedures, timing restrictions to avoid sensitive periods for migratory fish and the use of marine mammal observers). There are considered to be no significant cumulative effects as a result of the Project with all the proposed mitigation measures in place. MMO comment: The MMO recommends that a tracker may still be a useful tool to help determine what activities are happening and when on the Humber (although this would need to be actively managed and kept up to date). We appreciate the response from the Applicant and think this highlights the importance of each Project having appropriate mitigation in place to reduce the risk of potential impact.
4.7.31: The MMO note that paragraph 9.4.31 of Chapter 9 states that "*the underwater noise assessment assumes that the dredging and vessel activity will take place continuously (24/7) during construction and as such, provides a precautionary assessment (noting that capital dredging is programmed for 12 days*)". The MMO would argue that	The MMO's position is noted, and, on that basis, no further response is required. MMO comment: Agree, no further action required.

this is more realistic rather than precautionary, given that dredge operations will be continuous (24/7). NOAA intends for the weighted SELcum metric to account for the accumulated exposure, i.e., over the duration of the activity within a 24- hour period.	
4.7.32: Para 9.8.140 in Chapter 9 – please note that Atlantic mackerel does not have a swim bladder (and therefore falls in the third category comprising fish lacking swim bladders)	Agreed and noted. This does not change the outcomes of the underwater noise modelling or assessment. MMO comment: Agree, no further action required – this point was more to note for future assessments.

Yours faithfully

[redacted]

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References

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