

Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Appendix 5 to Deadline 4C: Response to Deadline
4 Submissions by Interested Parties

Relevant Examination Deadline: 4C

Submitted by Vattenfall Wind Power Ltd

Date: March 2019

Revision A

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Date of Approval:	April 2019
Revision:	A

Revision A	Original Document submitted to the Examining Authority
N/A	
N/A	
N/A	

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1 Introduction

- 1 As requested in the Rule 8 letter (PINS Ref PD-009) the Applicant has reviewed submissions by Interested Parties (IPs) made at Deadline 4 and has provided responses to all submissions.
- 2 Submissions were received from the following IPs at D4:
 - Marine Management Organisation ([REP4-031](#));
 - Port of Tilbury London Limited and London Gateway Port Limited (PoT/LG) ([REP4-032](#));
 - Natural England ([REP4-033](#));
 - Port of London Authority and Estuary Services Limited (PLA/ESL) ([REP4-034](#)).
- 3 Responses to each of the IP submissions is provided in Section 2.
- 4 In brief the over-riding issues arising are:
 - MMO - Definitions, Arbitration, and dML drafting matters. Requests for further Fish and shellfish noise modelling;
 - PoT/LG - Legal submissions on searoom;
 - Natural England – ornithological monitoring; collision risk modelling and in-combination effects; mitigation, monitoring, and consideration of the Goodwin Sands MCZ;
 - PLA/ESL - working areas of sea room; AIS data; sea lane; pilotage provision; structures exclusion zone.

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2 Comments on additional Submissions from Deadline 4

Interested Party	Key points raised in the Submission	Applicant's response
MMO	<p>The MMO submitted its response at deadline 3 providing further detail on its powers to stop works, and the limitations in regards to the current wording of the condition. The MMO notes that its position aligns with Natural England's comments in section 8.2.3. of their deadline 3 submission 'Response to action points requested by the Examining Authority for ISH 3 and clarification of position in relation to SoCG.' This remains an item under discussion in the Statement of Common Ground (SoCG).</p>	<p>The Applicant notes the MMO and Natural England's position however the Applicant would reiterate that the MMO's existing powers adequately enable the MMO to stop works without making this explicit on the face of the DCO.</p>
MMO	<p>Fish and shellfish matters para 1.2.1 <i>et seq</i> The MMO has reviewed the applicant's position set out in its deadline 3 submission in response to action point 17. This remains an item under discussion in the SoCG. The MMO's position is unchanged from that stated in its relevant representation where the MMO advised that it is not aware of any empirical evidence that fish will flee from the source. It is therefore not appropriate to use an assumed fleeing speed to calculate the impact ranges based on SELcum thresholds, and the noise modelling for SELcum should be undertaken based on a stationary receptor.</p>	<p>The Applicant questions the MMO statement that there is no empirical evidence that fish will flee from a source of noise. There is a body of scientific evidence, some of which has been referenced within the ES Chapter (PINS Ref APP-047) for noise sensitive species such as herring. The flee speed utilised within the modelling is also precautionary, being based at 1.5m/s rather than 2-5 m/s which more accurately reflects the maximum sustainable swim speed for juvenile and adult herring, it is also comparable with a mean swimming speed of 1.44 m/s observed in herring during the spawning season, as is provided in Appendix 7 of this Deadline 4c submission.</p>

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	<p>Hirata K, (1999) which considers swimming speeds of various fish species. This is not empirical evidence that fish will flee from the source. There is some evidence that fish will respond to loud noise and vibration, through observed reactions including; schooling more closely, moving to the bottom of the water column, swimming away, and burying in substrate (Hawkins et al. 2014)². However, this is not the same as fleeing, which would require a fish to flee directly away from the source over the distance shown in the modelling.</p>	<p>The Applicant notes the MMO’s reference to the Hawkins paper but would note that the paper has been previously referred to in OWF projects and identified as not offering a suitable comparator as the environment studied was a loch rather than an open, marine area of heavy shipping. Notwithstanding this the Applicant would note that the paper makes clear reference to a response, which includes swimming away and moving to the seabed. Given the propagation of noise within water is attenuated by the topography and rugosity of the seabed this is likely to offer protection from noise produced by a piling event and propagated in the middle of the water column.</p>
	<p>The fleeing assumption also overlooks the limited mobility of eggs and larvae; and that some animals may have a motivation to remain in a specific area. Herring have a biological need to spawn and require specific substrates to do this (e.g. gravel) and this strong driver to spawn means spawning herring are more likely to remain in situ.</p>	<p>The Applicant notes this however would reiterate that the limited mobility of eggs and larvae have been accounted for through the modelling undertaken. The Applicant also notes that herring have a substrate specific spawning requirement, and has provided consideration of the potential spawning habitat present within the study area as illustrated within PINS Ref App-047 (Figure 6.11).</p>
	<p>Having reviewed the scientific literature related to fish behavioural responses to noise, and justification which has been presented to support the use of a fleeing speed (i.e. a generic fish swimming speed, without supporting evidence to support an active fleeing response), the MMO considers there is presently a lack of scientific evidence to support this</p>	<p>The Applicant notes the MMO’s response to this and would question what evidence has become available to alter the advice provided during the EIA Evidence Plan. The parameters modelled were agreed under the EIA Evidence Plan and no further evidence has been provided to support the change in position from the MMO.</p>

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	<p>assumption, therefore under the precautionary principle, a stationary receptor should be assumed.</p>	
	<p>The applicant also states in action point 17 (88) that “the impact ranges for injurious effect is limited to 350m, and the nearest historic spawning ground is 3km away, noting that there is limited evidence that this is still in use and that the primary grounds are agreed as being at least 20km to the south...” However, when considering the cumulative sound exposure, predicted Temporary Threshold Shift ranges may extend out to such distances. In addition there are also potential behavioural effects to consider, which may occur beyond the predicted impact ranges for non-recoverable injury.</p>	<p>The Applicant would note that a TTS should be differentiated from an injurious effect. There is no evidence to suggest that an injurious effect (modelled at 350m) would extend tens of kilometres.</p>
	<p>Consequently, the MMO is concerned that the current modelling is not sufficient to fully assess the potential impact on herring spawning areas. Figure 6-14 shows an overlay of the 186 dB re 1 µPa2s SELcum (TTS threshold) noise contours along with herring spawning areas. This figure demonstrates that there is partial overlap between the TTS range and herring spawning grounds (to the East of the site, where IHLS survey data indicates herring larval abundance of between 27,700-50,100 per m2), however this area of overlap is small in the context of the wider habitat available (para 6.10.51). The predicted impact ranges for SELcum, if based on a stationary receptor, may be</p>	<p>The Applicant has provided full and detailed modelling in respect of the agreed underwater noise parameters. The Applicant notes the MMO’s reference to Herne Bay however would note that Herne Bay is west of the designated sand banks at Margate, which will act as a significant barrier to noise propagation and the noise will attenuate before reaching Herne Bay. The attenuation is apparent in the shorter impact ranges for all noise levels modelled in the west of the array in shallower waters, with no noise contours extending beyond the shallowing area of Margate Roads. This is evidenced in Appendix 7 of this Deadline 4C submission</p>

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	<p>larger than this, and may extend into the Herne Bay and/or Eastern channel spawning grounds. However without the modelling presented, the MMO cannot fully assess the potential impact is on these spawning grounds.</p>	
	<p>The MMO also raised in its Relevant Representation the potential impacts on Sole spawning grounds in the Greater Thames Estuary. Sole spawning and nursery grounds in the Thames estuary are considered to be of national and international importance to the North Sea stock. The MMO recognises that juvenile and adult sole are classified in the group of fish with no swim bladder and are less susceptible to barotrauma compared to the fish with swim bladder hearing group (which includes herring).</p>	<p>As above, the Applicant has modelled all relevant parameters as agreed within the EIA Evidence Plan. The Applicant can also confirm that as a species that is not a hearing specialist, spawning stocks of sole are highly unlikely to receive noise levels sufficient to cause damage due to the attenuation offered by the shallow water and bathymetric features. The worst case assessment of spawning potential, presented in Annex A to Appendix 7 of this Deadline 4C submission confirms that the worst case effect on sole spawning potential is limited to 0.78% for a stationary receptor, or 0.1% for the more realistic fleeing receptor.</p>
	<p>sole are still susceptible to the effects caused by piling noise including mortality, potential mortality injury, recoverable injury, TTS and masking and behavioural effects. Indeed the criteria thresholds for mortality and potential mortal injury as well as recoverable injury are higher for sole compared to herring. A significant population level impact may occur if noise causes fish to move away from foraging grounds breeding/spawning or, cease reproductive activities, or change their migratory behaviour, for example.</p>	<p>There is no evidence or expectation to suggest a population level impact will occur on spawning sole. For a population level impact to occur eggs and larvae would need to be damaged, which at an impact range of 350m is considered not to be a plausible proposition. The maximum SPL and SELcum impact ranges are also sufficiently low that there can be no suggestion, as non-hearing specialists, that sole would be subjected to a population level disturbance. The Applicant would note further that there is no regional precedent for any OWFs, including projects significantly greater in size, for</p>

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		seasonal restrictions to protect a species that is known to be not highly sensitive to noise.
	Given the potential impacts to and vulnerability of Thames Estuary sole, appropriate modelling is required to determine extent of the potential attenuation of the modelled piling noise (based on a stationary receptor) to and upon sole spawning grounds in the Greater Thames Estuary and whether it extends into known areas of higher spawning intensity. The Applicant’s Environmental Statement (ES) presented an overlay of the 186 dB re 1 µPa _{2s} SEL _{cum} (TTS threshold) noise contours along with only herring spawning areas (ES Figure 6-14). The noise contours have not been overlaid onto identified sole spawning grounds (refer to ES Figure 6-4).	The Applicant notes that this figure has been requested, but to date has provided impact ranges for all species. Furthermore, the Applicant notes that within the guidance for assessing the impacts on fish (Popper <i>et al.</i> , 2014), for species that are deemed to be less susceptible to barotrauma such as sole (as recognised by the MMO in their response), the threshold for TTS onset is “>>186dB SEL _{cum} ”. Therefore, it is recognised that TTS onset for sole would actually be at a higher (although undefined) sound level than for herring and it should not be assumed that the 186dB SEL _{cum} metric provides a true representation of the extent of TTS impacts for less noise susceptible species.
	The MMO would therefore welcome a figure being provided with the maximum impact ranges (modelled based on a stationary receptor) that illustrates the potential impact range for injury to herring and sole overlaid against the known active spawning grounds for consideration before it can agree with the conclusions of the ES.	The Applicant has provided figures within the ES (PINS Ref APP-047) but has also provided Appendix 7 to this Deadline 4C submission which illustrates the impact ranges in relation to herring spawning grounds.
	The MMO further suggested that to address the potential behavioural effects, the Applicant should model the received levels of single pulse Sound Exposure Level at the spawning grounds. The modelled piling location/s should be based on the	As above, the Applicant has modelled all relevant parameters as agreed within the EIA Evidence Plan. It is unclear why the MMO are now asking for the SEL single pulse, understood to mean SEL single strike (SELs), criteria to be modelled, or indeed what level SELs should be modelled for fish, in

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	<p>worst case scenario. This would show the expected noise levels at the spawning ground, which can be used to make an assessment on the potential risk of impact e.g. based on peer reviewed literature available.</p>	<p>particular given the SELcum provides a greater, and therefore more precautionary, range of effect. Furthermore, the Applicant has provided the SPL, again as agreed under the EIA Evidence Plan, and it should be noted as identified in Application Ref 6.4.6.3, that the SPL is a measure of the average level of the broadband noise, and the SEL sums the cumulative broadband noise energy. This means that, for sounds of less than one second, the SEL will be lower than the SPL. For periods greater than one second, the SEL will be numerically greater than the SPL. Given a SELss will be a lesser impact range than the SPL, and that all parameters modelled are as agreed under the EIA Evidence Plan the Applicant is unclear what the merit of further SELss would be, and on what scientific evidence the request is made on.</p>
	<p>The MMO notes that the applicant did not address its position on the long term effects on the benthic environment in its deadline 3 response to action point 17. The MMO has requested further justification to support the conclusions on the long-term effects due to changes of turbid wakes on benthic ecology (i.e. minor adverse to negligible). The applicant has provided some further detail that is currently under review by the MMO and this remains an item under discussion through the SoCG.</p>	<p>In line with the request made by the MMO as part of SoCG discussions, the Applicant has provided an email response directly to the MMO which is understood to be under review with Cefas. In brief the Applicant has provided a full description of the scientific literature used to inform the assessment of benthic habitat sensitivity to the effect, including literature and scientific sources recommended by the relevant EIA guidance (CIEEM guidance 2018) and has noted therefore that there is a robust level of confidence within the assessment that does not merit validation by monitoring. The Applicant has noted that the monitoring required to identify a statistically significant effect would be</p>

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	<p>The MMO notes that some amendments have been made to the arbitration provision in article 36. Whilst these amendments are welcome, the current drafting does not make it explicit that the arbitration provisions do not apply to approvals under the DMLs. This remains under discussion in the SoCG.</p>	<p>so large as to be entirely disproportionate to the scale of effect.</p> <p>The Applicant's view is that the arbitration provision does apply to approvals under the DMLs, as they form part of the Order and Article 36 of the draft DCO states that the arbitration provision applies to "Any difference under any provision of this Order". The DMLs are included as Schedules to the Order and as such should be considered as part of the Order. In addition, the Applicant is clear within the explanatory memorandum that the DMLs are "contained within" the Order.</p>
	<p>The MMO recognises that an arbitration mechanism is included in order to resolve 'disputes' between the applicant and third parties where this is an expectation that an agreement will be reached, but that agreement is not achieved.</p> <p>The MMO does not agree that any disagreement relating its decisions can properly be characterised as a 'dispute' for the purposes of article 36. 'Disputes' between the MMO and the applicant only really arise where the MMO is to give any further approval (for example in the discharging of conditions which require the MMO to approve the documentation). When deciding whether or not to discharge a condition it is not 'agreeing' or 'disagreeing' with the applicant such that a divergence of views can properly be characterised as a 'dispute'. When discharging a</p>	<p>The Applicant would like to highlight that the arbitration process is not solely to be utilised following a decision being made by a stakeholder as part of the DMLs. The arbitration process can be used to resolve disagreements between the parties and to minimise the delay caused by this. This could include, for example, disagreements about the type or production of evidence.</p> <p>In addition, as the Applicant has made clear in previous submissions, there is no intention that arbitration should be the first point of recourse following any issue with the discharge of a requirement or condition. An ongoing dialogue between the MMO and the Applicant is an imperative part of the discharge process and every effort would be made to resolve disagreements through this dialogue.</p>

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	<p>condition, it is making a 'decision' as a public body in response to an application, taking account of the broad sweep of its statutory responsibilities.</p> <p>Parliament has vested the public-law functions regarding discharging marine licence conditions in the MMO. Removing its decision-making functions and placing them into the hands of a private arbitration proceeding is inconsistent with the MMO’s responsibilities. That is a serious matter and there is no indication that Parliament ever thought it was authorising this kind of usurpation of public functions when it passed the 2008 Act.</p>	<p>Furthermore, the Applicant maintains that the assertion that a public body cannot be subject to arbitration is simply incorrect, for the reasons previously provided. There are only a few circumstances in which a dispute will not be possible to arbitrate, limited to criminal matters, insolvency proceedings, and specific employment law matters.</p> <p>There is no recognised general preclusion from arbitration available to statutory bodies.</p> <p>The Applicant additionally notes that other statutory bodies with statutory functions, such as local planning authorities, have their own specific appeal mechanisms and would also be subject to the arbitration provision.</p> <p>The Applicant also retains several key concerns about the use of judicial review as the only appeal mechanism. Firstly, it is clear that in passing the 2008 Act, parliament intended to create a regime designed to ensure the timely delivery of nationally significant infrastructure projects. Having recourse only to judicial review, which is an inherently lengthy process, is completely incompatible with this intention.</p> <p>Secondly and relatedly, the MMO has previously admitted to being under resourced and has accordingly requested an extension of the time available for them to approve the discharge of conditions. It therefore seems that where it is at</p>

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		<p>all possible to avoid the resource-intensive process of judicial review, this would be of substantial benefit to all parties including the MMO.</p> <p>Thirdly, the Applicant notes that the Pre-Action Protocol for Judicial Review is unequivocal in stating that judicial review must be a last resort, and goes as far as to state that:</p> <p><i>The parties should consider whether some form of alternative dispute resolution (‘ADR’) or complaints procedure would be more suitable than litigation, and if so, endeavour to agree which to adopt. Both the claimant and defendant may be required by the court to provide evidence that alternative means of resolving their dispute were considered. Parties are warned that if the protocol is not followed (including this paragraph) then the court must have regard to such conduct when determining costs.</i></p> <p>At present, there are no other applicable appeal mechanisms and so recourse to judicial review would be the only option. The Applicant strongly believes that turning straight to judicial review following any disagreement would leave both parties unable to claim in good conscience that alternative means of resolving their dispute was considered.</p> <p>The Applicant remains committed to finding a practical and fair solution for all parties to enable timely decision making.</p>

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		<p>In this regard, the Applicant remains open to discussing alternative drafting in the DCO, notwithstanding our position that the MMO should be subject the arbitration provision. The Applicant notes that any consideration of any comparative regime would be subject to ensuring that it did not cause untimely delivery of projects and that there was a mechanism in place to ensure that disputes between the parties are properly resolved.</p>
	<p>Furthermore the MMO notes that on 26 February 2019, the ExA for the Hornsea 3 OWF published its schedule of changes to the dDCO amending arbitration in favour of submissions made by the MMO.</p>	<p>The Applicant is aware of the changes proposed to the Hornsea Project Three DCO but does not view this as directly relevant to this Project. There is different evidence before the Panel which should be considered on its merits.</p>
	<p>dML parameters; The MMO notes the applicant's response to action point 20, stating they are in any event restricted to carrying out the development in accordance with the certified ES which also sets out the maximum parameters of the projects, and therefore as they have to comply with the certified ES it is unnecessary to repeat maximum parameters on the face of the DML. Whilst this proposition may work for the main body of the DCO; once granted, the marine licence essentially becomes a standalone document from the rest of the DCO and falls back to the MMO to regulate and amend in accordance with part 4 of MCAA. In Revision C (RevC) of the DCO, there does not currently</p>	<p>The Applicant has provided confirmation that the Project Description audit, as annexed to the DCO explanatory memorandum, captures all project description parameters, in addition to the ES being a certified document. This provides suitable security of the parameters consented for the proposed project.</p>

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	<p>appear to be any conditions limiting the works to the parameters defined in the certified ES, the MMO expects that on the current drafting the maximum parameters should be set out in the body of the DML</p>	
	<p>The MMO will continue to discuss this through the SoCG, however at present does not feel that the applicant has put robust arguments as to why it should depart from the general approach.</p>	<p>The Applicant has based its arguments on these matters to date, on existing deemed Marine Licences, and the experience of requesting amendments to them. As noted above most, if not all, Marine Licences have a requirement to submit a construction method statement that accords with the methods assessed within the ES. This is certainly true of the Thanet Extension dMLs, and as such this should give comfort that when combined with the detailed PD audit will ensure the MMO have the ability to appropriately audit any parameters that may differ from those assessed in the ES.</p>
	<p>Further to discussion at ISH3, the MMO submitted its case for amending the timescales for approval of pre-construction plans and documentation. This remains under discussion through the SoCG</p>	<p>The Applicant has noted the MMO's position on this and welcomes the pragmatic solution to identify documents by exception that require longer periods of discussion, rather than a blanket extension from the 4 months currently provided for. However, at this time the Applicant remains unconvinced as to necessity for any additional time beyond 4 months, noting that this period is already considerably in excess of other dMLs for other infrastructure.</p>
	<p>dML drafting matters commence volumes and figures Hammer energy Fisheries liaison and co-existence plan</p>	<p>The Applicant can confirm that for these drafting matters: The definition of commence has been updated; volumes and figures updated within the PD audit note which accompanies this Deadline 4C submission; the consented Hammer Energy is provided for in the PD audit which accompanies this</p>

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	<p>O&M Plan Biogenic Reef Plan Schedule of Monitoring</p>	<p>Deadline 4C submission; the FLO has been stated within the PEMP Condition of the dMLs; the O&M plan has been updated and submitted with Deadline 4; the biogenic reef plan has been submitted at Deadline 4. With regards the schedule of monitoring it is not considered appropriate or necessary to provide further detail on the proposed monitoring within the MCZ. The proposal is to undertake monitoring in the event that certain activities are carried out in</p>
<p>PoT/LG</p>	<p>It is POTLL and LGPL's position that the inshore route should be considered to be a recognised sea lane essential to international navigation for the purposes of applying EN-3 to the application. Full detail on POTLL and LGPL's reasoning was provided for the Examining Authority in the Planning Policy Position Paper included at Annex 1 to POTLL and LGPL’s Written Submission of Oral Case for ISH 5 (REP3-070). In summary, POTLL and LGPL stated that whilst there is no definition of "recognised sea lanes essential to international navigation" as referred to in paragraph 2.6.1.161 of EN-3, practically, and on a plain reading of the wording, the inshore route would qualify given the traffic volume it experiences. Further, POTLL and LGPL consider that the inshore route is a "major commercial navigation route" as discussed in EN-3 2.6.162.</p>	<p>The Applicant notes Pot/LG’s position regarding designation of the inshore route as a sea lane. It is also noted that other IPs have accepted that the inshore route is not a recognised sea lane based on definitions provided by UNCLOS and the fact that the area is not formally marked or identified. As explained in previous submissions to the examination the Applicant considers that any such sea lane should be designated on a chart, and in the absence of any such designation there is no reason to treat the inshore route as a recognised sea lane for the purposes of UNCLOS. It appears to the Applicant that the volume of traffic has no bearing on the consideration of an area as a ‘recognised sea lane’. Furthermore, to the extent the volume of traffic is relevant for other considerations, the Applicant would note that the inshore route is a comparatively low density area, averaging approximately 11 vessels per day, with annual</p>

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		<p>vessel traffic numbers that would be considered at the lower end of shipping routes as referred to in section GPSR 6.10 of The Shipping Industry and Marine Spatial Planning document (November 2013).</p> <p>Considering the difference in position between IPs the Applicant has sought to apply the pertinent guidance to the area and ensure that adequate sea room exists to allow vessels to utilise the inshore route in a manner that reflects its importance and density of use, immaterial of its designated state. The Applicant does not currently consider it necessary to designate the inshore route as a sea lane but has provided the necessary sea room to facilitate current and future use by a range of vessels and vessel operations (including the ‘dipping down’ and pilotage operations).</p>
<p>Natural England</p>	<p>Natural England advise that the focus should be on a site-specific study. To address the concern about having enough power to detect changes, we advise that a power analysis is carried out to determine what level of survey is required to detect a displacement effect. As mentioned at previous meetings, Natural England accept that the design will not be a standard buffer all around the wind farm. Instead we advise looking up to 10 km from the Array into the Outer Thames Estuary SPA, where greater densities of diver will occur.</p>	<p>The Applicant recognises this preference stated by Natural England and has provided for either site specific or strategic study to be undertaken. Due to the recognised low bird density present at the Thanet Extension project area the Applicant considers a site-specific study to be at risk of having insufficient data points to meaningfully contribute towards the wider understanding of the potential impacts associated with the project. The Applicant has therefore left both options available for discussion, site specific and strategic in order to allow a decision to be made prior to construction and in line with any future streams of research</p>

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	<p>Whilst we would of course encourage and welcome the applicant to contribute to wider studies to increase our collective knowledge of red throated diver and windfarm interactions, we advise that the focus of this OOMP should focus on what can be delivered through the DML.</p>	<p>which may be advocated by Natural England or the industry more broadly.</p>
	<p>Natural England agree, that even with using our recommended CRM parameters, the conclusion that there is no adverse effect on integrity (AEoI) to the gannet or kittiwake features of the Flamborough and Filey Coast SPA in relation to collision risk effects from Thanet Extension alone is correct.</p> <p>We note that the Applicant seeks to agree common ground with Natural England in respect of gannet and kittiwake populations from Flamborough and Filey Coast SPA. Our position is set out in the latest Ornithological Statement of Common Ground between the Applicant and Natural England, which has been submitted at this deadline for your consideration.</p>	<p>The Applicant notes and welcomes confirmation that the CRM parameters would not result in any change in the conclusion that there is no adverse effect on integrity predicted as a result of the Thanet Extension project alone. The Applicant has included the ornithology SoCG at Appendix 6 of this Deadline 4c submission.</p>
	<p>Appendix 32 to Deadline 3: Schedule of Mitigation A number of clarifications made with regards underlying reasons for cable/scour protection, and embedded mitigation measures agreed under the auspices of the EIA evidence plan</p>	<p>The Applicant notes the comments made but does not consider any to require specific updates within the Schedule of Mitigation. Notwithstanding this the Schedule of Mitigation will be updated and resubmitted alongside the Applicant’s final version of the DCO, with relevant updates made where appropriate.</p>

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	<p>Biogenic Reef Mitigation Plan (BRMP) - Within the schedule of monitoring it is clear that the geophysical surveys will be ground truthed to inform the biogenic reef plan and any subsequent micro-siting around areas of core reef. This is welcomed, however this ground truthing needs to be explicitly stated to be for post-construction also, to validate the success of any micro-siting. We understand from the applicant that this is the intention following previous conversations, however this should be explicitly highlighted within the schedule of monitoring and the certified BRMP.</p>	<p>The Applicant can confirm that this has been made explicit within both the dML(s), and the same reference can be made in the final schedule of mitigation.</p>
	<p>Geophysical and Benthic Monitoring Associated with Goodwin Sands pMCZ – Natural England welcomes the addition within revision C of the DCO within Schedule 12, Part 4, Condition 15 highlighting “In the event that cable protection is installed within the Goodwin Sands rMCZ, the undertaker must conduct epifaunal monitoring and carry out groundtruthed geophysical surveys for a total period of three years, which is capable of being undertaken continuously or in one or more stages.”</p> <p>This covers the effects proposed by cable protection, however we are still concerned by any potential impacts caused by sandwave clearance within the pMCZ. Sandwave clearance will not be ubiquitous to areas where cable protection will be, therefore there needs to be a widening of these post-construction,</p>	<p>The Applicant can confirm that this has been made explicit within both the dML(s), and the same reference can be made in the final schedule of mitigation. The Applicant has sought to apply the same logic to Thanet extension as was applied to Walney Extension with regards the use of ground truthed geophysical data to understand any changes in sediment type that may arise from the construction of OWF infrastructure within an MCZ. Any ground truthing will be focussed on the habitats to be potentially affected by sandwave clearance within the pMCZ.</p>

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	<p>ground truthed, geophysical surveys to cover the areas impacted by sandwave clearance within the pMCZ. These surveys should include DDV and grab samples to adequately define the habitat / biotope type. This should be captured within the schedule of monitoring or within the DCO. There is some attempt to capture this in the schedule of monitoring, but we consider this needs expanding and clarifying to be relied upon post consent</p>	
	<p>To effectively determine the impact and recovery of sandwave clearance and cable protection post-construction, there needs to be adequate pre-construction data. We acknowledge and welcome that pre-construction geophysical surveys and DDV surveys will be carried out specifically for biogenic reef within the RLB of the pMCZ. However, there needs to be a widening of any ground truthing surveys to confirm the features and biotope types that could be affected by sandwave clearance and cable protection. This will provide a robust baseline to measure impacts post-construction against, in particular, will areas with rock protection become covered with sediment as stated in the MCZ assessment.</p>	<p>The Applicant can confirm that this has been made explicit within both the dML(s), and the same reference can be made in the final schedule of mitigation. Any ground truthing will be focussed on the habitats to be potentially affected by sandwave clearance within the pMCZ.</p>
	<p>The total Inter-array cable O&M cable works equal 2,985,000 m³ of disturbed sediment. This is more than three times the volume of disturbed sediment from</p>	<p>As per the Applicant’s response in Appendix 3 to the Deadline 4 Submission (PINS Ref REP4-005) and Annex A to Appendix 1 to the Deadline 3 Submission (PINS Ref REP3-003) the</p>

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	<p>inter-array and cable installation (948,000 m³) during construction. Natural England understand this is the worst case scenario and repairs may be unlikely to occur at this scale. However, to gain consent for such a large volume of disturbance without sufficient impact assessment at the time of any O&M works would be worrying. We therefore encourage the applicant to successfully bury any cable sufficiently in the first instance, drawing on the vast array of evidence from the original Thanet cable and the recent NEMO cable installation. Additionally, it would be welcomed if the number of O&M inter-array cables repairs and thus the disturbance volume, could be refined further.</p>	<p>Applicant had considered the assessment of effects of O&M cable works to be based on appropriate assumptions and adequate for the purposes EIA for each of the relevant assessments. The Applicant confirmed that the worst case scenario volume of disturbed sediment, being requested for consent, is 2,985,000 m³ (inclusive of both replacement and reburial of inter array cables) over the lifetime of the project. The Applicant will seek to apply lessons learnt where possible from previous cable installations, including Thanet Offshore Wind Farm, to ensure that the cables are buried sufficiently (where practicably possible). The Applicant has sought to define a maximum worst case for the O&M activities and as such acknowledge that these works are unlikely to occur at this scale in reality.</p>
	<p>Natural England welcome the inclusion of the this figure highlighting the proximity of the Dover Harbour Board (DHB) dredge area and the Applicant’s red line boundary. However, as raised within our response at Deadline 3 the area of impacted habitat from both this application and the DHB dredge area should be considered in combination in the MCZ assessment. We acknowledge that both projects will occur at different times, but within the environmental impact assessment (EIA) for the DHB dredge, it states recovery upon subtidal sand would take 5 years. Therefore, the applicant needs to acknowledge and</p>	<p>The Applicant notes the request raised by Natural England and can confirm that there is no spatial or temporal overlap between the direct impacts predicted as a result of the Dover Harbour Board works, which remove sediment from the MCZ, and the proposed Thanet Extension works which will see a cable installed within the area identified as sands and gravels within the pMCZ. Sands and gravels are demonstrated within the benthic chapter of the ES (PINS Ref APP-046) as having a low sensitivity to the effect of physical disturbance and abrasion. Taking the most sensitive habitat identified (<i>Sabellaria spinulosa</i> on cirralittoral mixed sediment, due to its ability to</p>

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	<p>demonstrate that ‘x’ amount of habitat (and MCZ features) will be in an impacted state, due to both the cable installation for Thanet Extension and the DHB dredge and demonstrate recovery is feasible despite both projects occurring.</p>	<p>host biogenic reefs) Pearce et al. (2007) constructed size-frequency histograms based on wet weight of complete <i>Sabellaria spinulosa</i> collected from the Hastings Shingle Bank. These suggest that <i>Sabellaria spinulosa</i> is capable of rapid growth, approaching maximal adult biomass within months (Pearce et al., 2007), with the assessment assuming a precautionary resilience/recovery of 2 years where reefs are impacted. Taking this precautionary approach it is demonstrably the case that recovery will be feasible for the habitats present within the cable route within a maximum of 2 years. Given the lack of spatial and temporal overlap between the two projects there is no interaction that would result in the recoverability at one area negatively affecting the recoverability of another area. The recovery of the sands and gravels as a result of both projects is therefore not linked.</p> <p>The area potentially affected by the Thanet Extension project is explicitly within the MCZ clarification note submitted at Deadline 4 (REP4-024) and it is anticipated that this addresses Natural England’s residual concerns.</p>
<p>PLA/ESL</p>	<p>The PLA and ESL maintain their position as set out in their Deadline 3 submissions that the buffer of 0.5nm is insufficient when considering an area which is used for boarding and landing in addition to through traffic. A buffer of 0.5nm is not an adequate safety buffer: the distance is neither enough to allow room for manoeuvre during pilot boarding and landing</p>	<p>The Applicant notes this concern and has therefore sought to ensure a further 1nm buffer of searoom is available within the area that is shown to be of greatest importance to ESL pilotage operations. This is presented clearly within both the SEZ note(REP4-018), and the addendum to the NRA (PINS Ref not currently known).</p>

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	<p>operations, nor does it give vessels enough time to execute manoeuvres safely. The PLA and ESL will give the issue of the buffer further consideration once they have had sight of the expected NRA addendum.</p> <p>As described in the PLA’s and ESL’s Deadline 2 and 3 submissions, there are issues with the NRA’s reliance on AIS data that have yet to be resolved, including that the data set is skewed towards only those vessels which carry AIS transponders. Within the AIS data itself, there is a bias towards winter data when traffic is generally lower, and some, such as recreational vessels, is much reduced in comparison to peak summer months.</p> <p>The PLA and ESL remain concerned that the data requirements prescribed by MGN543 are not met by the NRA as submitted with the application for the DCO. However, the PLA and ESL will be attending a workshop with the Applicant the day following Deadline 4 (the ‘NRA Hazard Workshop’) which is understood will involve discussing the scoring of a new navigational risk assessment; the parties will update the ExA at Deadline 4a on any developments in respect of this Action Point.</p>	<p>Applicant addressed this through provision of a data validation report submitted at D4 (REP4-030) which subsequently formed part of the Hazard workshop supporting materials. This confirms that the data used in the NRA is representative of vessel numbers and the spatial extent of vessel traffic. Whilst the Applicant notes ESL/PLA’s observation with regard reliance on AIS the Applicant would reiterate that the Thanet Extension project is underpinned by a number of data sources including primary MGN543 survey, AIS and other available data sources such as Succorfish for commercial fishing, and the RYA cruising routes and yacht density charts.</p> <p>The Applicant would further observe that PLA’s NRA for the NE Spit region is underpinned primarily by AIS data; this NRA has been used to benchmark the more recently produced addendum to the Thanet Extension NRA and is an annex to the NRA addendum.</p> <p>The Applicant would also note that in the hazard workshops the PLA/ESL were content on the basis of all available baseline data information to identify hazard scores relating to fishing and recreational vessels (Hazard ID 4).</p>

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	<p>MGN543 states that a distance of 0.5nm – 3.5nm between the turbine boundary and the shipping route is tolerable provided ALARP is reached and ‘additional risk assessment and proposed mitigation measures [are] required’.</p> <p>The Applicant states that the distance is tolerable, but there is a difference between ALARP and tolerable; a risk may be reduced to a low as it is cost-effective to do so, but that does not mean it is tolerable. In the PLA and ESL’s submissions it has previously been explained that the reduction to ALARP in the case of the TEOWF is based on an NRA which cannot wholly be relied on due to the weaknesses in the underlying data. Even using the applicant’s NRA data – which in the PLA and ESL’s view is unreliable and underestimates the risk – the risk has been shown to have increased from 1 in 6 years to 1 in 4.5. In the PLA and ESL’s view this is neither acceptable nor tolerable. The PLA and ESL look forward to discussing this point with the Applicant at the NRA Hazard Workshop.</p>	<p>The Applicant can confirm that the baseline characterisation data underpinning the project NRA has been validated and a report submitted at Deadline 4 (Appendix 27 (REP4-030)) confirming this to be the case. The data clearly demonstrate the area to be an area of shipping that falls on the cusp between the lower two categories of sea room calculation presented within the IALA guidance on marine spatial planning for shipping. The Applicant has sought to combine this information with requests made by the IPs, and the qualitative narrative data provided by IPs at a sea room workshop held on the 27th February.</p> <p>The Applicant has subsequently undertaken a further Hazard workshop within which a suite of hazards were agreed on the day, and the scores for the hazard analysis for the largest 4 vessel classes were agreed on the day. The outputs of that workshop are provided in the addendum to the NRA submitted at Deadline 4B.</p>
	<p>Given the existing state of the operational wind farm, ESL is not clear what purpose would have been served by approaching the existing operators of the wind farm to raise concerns or incident reports. There is currently just enough sea room for ESL to operate</p>	<p>The Applicant, and operator of the existing OWF maintain consistent dialogue with all IPs, such as the Thanet Fisherman’s Association to ensure relevant lessons are learnt and applied to either ongoing activities or assessments. This is evidenced through the adoption by Thanet OWF (and the proposed Extension) to observing a code of good practice for</p>

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	<p>away from the boundary of the existing TOWF, albeit that the room for manoeuvre is limited.</p>	<p>OWF vessels. Whilst adopted for the O&M phase of the existing Thanet project this has been applied to the construction and O&M phase of the proposed project.</p> <p>The Applicant also notes that within the NE Spit NRA conducted by PLA there is no reference to consideration of the hazards or reduction in space attributed to the existing OWF, or the vessels serving it. Notwithstanding this the Applicant would consider that the vessel code of good practice for OWF vessels may be an appropriate commitment to extend beyond the fisheries liaison plan to the shipping cooperation plan.</p>
	<p>The PLA and ESL accepts the decision of the MCA with regard to official charted sea lane status and fully supports the comment from the MCA in its Deadline 3 submissions: “Whilst the sea area concerned is not strictly a “recognised sea lane” it is argued that the sea area should be treated as a recognised sea lane as it is used by all vessel types every day. It is therefore considered an important route on an international scale.</p>	<p>The Applicant notes Pot/LG’s position regarding designation of the inshore route as a sea lane. Considering the difference in position between IPs the Applicant has sought to apply the pertinent guidance to the area and ensure that adequate sea room exists to allow vessels to utilise the inshore route in a manner that reflects its importance and density of use, immaterial of its designated state. The Applicant does not currently consider it necessary to designate the inshore route as a sea lane but has provided the necessary sea room to facilitate current and future use by a range of vessels and vessel operations (including the ‘dipping down’ and pilotage operations).</p>
	<p>A report commissioned by the Department of Energy and Climate Change (DECC) in 2016 (Influence of UK Offshore Wind Farm Installation on Commercial</p>	<p>The Applicant notes this and has provided graphical evidence previously regarding the level of pre- and post-TOWF traffic (Figure 45 of the application NRA), and the areas of greatest</p>

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	<p>Vessel Navigation: A Review of Evidence (“the DECC Report”) appended to this document at Appendix 1) states at Table 9.1, page 60 that the routes surrounding the existing TOWF have been directly impacted by the wind farm, particularly the increased route density and formalisation of traffic in the area.</p>	<p>vessel density. It is clear that the use of the inshore route, notably the activity termed ‘buoy hopping’, is a characteristic of the vessel use of the area that pre-dates the existing Thanet OWF remains an ongoing activity.</p> <p>It should also be noted that the introduction of more defined routes in the area does not necessarily equate to negative effect as it reduces the potential for crossing traffic.</p>
	<p>ESL and the PLA accept that vessels can and do pass a windfarm at 0.5nm. However, the evidence in the DECC Report is that such close passes are carried out by a very small minority of traffic.</p> <p>Within Section 8 of the DECC Report (Thames Estuary & Kent Coast Area), an analysis of CPA (closest point of approach) vessels after the completion of the existing wind farm demonstrates that approximately 1% of vessels pass within 0.5nm of the wind farm and just over 8% between 0.5nm and 1nm. Given that the gate analysis within the NRA does not give a percentage of the traffic which passes 0.5nm or less from the existing wind farm, the PLA and ESL suggests that this document provides some guidance.</p>	<p>The Applicant notes this and has previously provided density plots of vessels using the area, from which it is possible to see the distribution of vessels passing the OWF in close proximity. Notwithstanding this the Applicant has sought to provide a minimum buffer of 0.5nm where appropriate and in line with IALA and MGN543 guidance, and a greater buffer in areas of greater complexity. This is demonstrated to be the case where an area of 3nm searoom is available in the area of greatest pilotage operation density in proximity to the NE Spit diamond.</p>
	<p>ESL and the PLA will be raising this issue with the Applicant at the NRA Hazard Workshop between the parties following Deadline 4. It is not clear to ESL and the PLA how growth in vessel numbers has been</p>	<p>The Applicant has made this clear within the addendum to the NRA, with suitable references made to existing literature for future traffic profiles provided within it.</p>

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	factored in to the NRA and whether the growth figures are an accurate forecast.	
	If the Applicant considers that use of benchmarking as significant, the PLA and ESL would ask it to consider whether it would be helpful to compare the risk analysis of the extension of the wind farm to other wind farms. It would be helpful if these benchmarks could cover more areas of comparison between developments, e.g. collision baselines, and to have an understanding of how the risk for proposed TEOWF compares to other sites.	The Applicant can confirm that all other OWFs result in some form of increased risk, and is happy to discuss further with PLA/ESL, albeit that the Applicant notes that the PLA consider that pilotage operations should not be benchmarked in the manner that PLA appear to be suggesting for OWF risk more broadly.
	It is not the case that the PLA and ESL felt unable to comment on the simulation report. However, the process of dealing with feedback and consultation has not been clear. Given the feedback provided to the Applicant during the simulation study, ESL and the PLA had expected further engagement from the Applicant.	The Applicant notes this and has provided active opportunity to engage as has been evidenced at numerous deadline submissions.
	The use of the Tongue or NE Goodwin pilot boarding stations in this situation [utilisation of NE Goodwin/Tongue pilot stations] would have a significant impact on the PLA and ESL's provision of pilotage. The Applicant has thus far maintained a position of there being a low impact on the inner boarding position which would suggest an expectation that ESL and the PLA should continue as with pilotage	The Applicant notes this comment regarding the commercial implications for PLA/ESL operations should the use of the Tongue or NE Goodwin increase. The Applicant would also note that the comment to which the PLA refer was only made on the premise (which has not been accepted by the Applicant) that vessels would divert to the east of the proposed OWF and would be able to use the Tongue or Goodwin pilot stations rather than continue to dip

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	<p>operations they do now. However, the suggestion here does not accord with that.</p>	<p>towards the NE spit pilot station in an area which they had already elected to avoid. The Applicant maintains that there is sufficient searoom to facilitate continued safe operations at the NE Spit.</p>
	<p>The PLA and ESL welcome the movement made by the Applicant in proposing the notion of a Structure Exclusion Zone. At this stage, given the lack of information about what structures would be excluded and the duration of any exclusion, the PLA and the ESL are unable to say to what extent the proposed SEZ would alleviate its concerns. It is hoped that prior to the next Deadline the PLA and ESL will receive detail which will enable both parties to form a view on this.</p> <p>In any case, the PLA and ESL note that the agreed vessel lengths discussed at the workshop have not been taken forward into the SEZ document. For the purpose of the SEZ they have used 333m loa as this is the largest vessel in evidence at the inner boarding ground. It was mentioned at the workshop (we believe by Vincent Crockett – LGW consultant) that larger vessels should be considered as there is the potential for larger vessels to transit the inshore route. Given the trends towards larger vessels, a 366m loa vessel with a draft under 11.5m could be something that may occur in the future.</p>	<p>The Applicant notes this response and has provided an SEZ which allows for 4 concurrent 333m vessels to pass. Noting that a single 333m vessel passed the inshore route during 21 months of data, and that the searoom for 4*333m vessels inherently allows for a reduced number of larger vessels (e.g. 2*400m vessels) concurrently the searoom is considered to be adequately precautionary to provide for current and future vessel movements.</p> <p>The Applicant welcomed ESL and PLA’s participation in the workshop and has provided the agreed outputs with the Deadline 4 and Deadline 4B submissions.</p>

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	<p>The PLA and ESL will be participating in the NRA Hazard Workshop with the Applicant and other parties that immediately follows Deadline 4 to discuss this and other points in relation to the revised NRA. The PLA and ESL look forward to progressing these issues at that meeting and updating its submissions on these issues at Deadline 4a.</p> <p>In the PLA and ESL's experience, vessels do respond to the presence of other vessels, including survey vessels. As such, the PLA and ESL would have expected the Applicant to have considered whether the tracks of the survey vessel had an impact on the surrounding traffic, in particular in relation to the summer survey.</p>	<p>The Applicant has provided a data validation report which considers a further 12 months of AIS data, noting the PLA's reliance on AIS data for the NE Spit NRA, in addition to further data provided either by IPs or with the Thanet Extension application. The results of the data validation exercise are that the MGN543 survey is considered, and demonstrated to be, entirely characteristic of the receiving environment for the purposes of EIA and NRA. The Applicant is unaware of any evidence to suggest that survey vessels skew the results of any surveys, and notes that such surveys are specifically required by MGN543.</p>