Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Appendix 8 to Deadline 3: Response to Deadline 2 submissions by Shipping Interested Parties.

Relevant Examination Deadline: 3

Submitted by Vattenfall Wind Power Ltd

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Revision A

Drafted By:	Vattenfall Wind Power Ltd
Approved By:	Daniel Bates
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Contents

1 Introduction

1 As requested in the Rule 8 letter (PINS ref: PD-009) the Applicant has reviewed submissions by Shipping Interested Parties made at Deadline 2 and has provided responses to those. For response to other interested parties these can be found in Appendix 15 to the Deadline 3 submission.

2 Where responses to points made have been picked up through hearings and subsequent oral summaries, or elsewhere in the Applicant's Deadline 3 submission, this is referenced in this document.

2 Comments on addition submissions from PLA and ESL (REP2-049 and REP2-047)

Interested party	Applicant's submission	Interested Party's observations	Applicant's response at Deadline 3
Responses to action points by the Applicant			
2A	"The Applicant has prepared the following schematic plot which provide the detail requested and is included at Annex A of this submission." "Further figures are also included at Annex B providing a localised schematic of the sea room and distances associated with the NE Spit and Tongue Pilot Boarding Station with distance lines added in response to a 2nm buffer around each around the pilot boarding station and the proposed RLB plus a pecked line showing the RLB plus 450m lie of maximum extent of the potential 500m rolling safety zones buffer (as relates to the safety zone area from construction activity).	ESL and the PLA consider that the 2nm is working sea room and an addition buffer should be added to it. ESL would suggest a 1nm additional buffer.- -Annex B appears to include a larger area west of the no anchoring line. This cannot be assumed which they later agree because of anchored vessels but it is included here in a calculation of sea room. -The NE spit diamond is shown as a rigid boarding point. This is not the case and it should be seen as a guide because it requires flexibility in terms of sea room.	The Applicant notes the reference to 2nm of working sea room however does not agree that 1nm additional buffer is appropriate. Both London Pilots Council and the Simon Moore, active Master Mariner representing the Applicant, have stated that 0.5nm is a reasonable prudent mariner buffer. The Applicant notes that the marked NE Spit diamond is not a rigid boarding point as located on the chart and considers that the spatial extent of pilotage operations has been appropriately illustrated by the Applicant in the various submissions, and importantly within the NRA.
5	"The Applicant has not considered any dredging of the Fishermans Gat and has not been made aware of any	The PLA is only at the stage of undertaking route option analysis for dredging proposals in this area. Should	The Applicant notes there are no reasonably foreseeable or proposed plans for the dredging of Fishermans

	formal proposals for dredging of the Fishermans Gat"	the PLA develop formal proposals for future dredging before the end of the examination period for this proposal, it will share these with the Applicant. The dredging of Fisherman's Gat is important in the context of the extension of the wind farm. The dredging may increase the number of vessels using the NE Spit Station instead of the Sunk. They may not necessarily transit the inshore route but would be significantly affected if the NE Spit was to become redundant and there was no longer a sheltered pilot station. The extended wind farm would reduce the viability of the NE Spit over the Sunk in adverse weather conditions.	Gat. The Applicant also notes that any dredging at Fisherman's Gat would be subject to a detailed Habitats Regulations Assessment to facilitate dredging of the designated features of the Margate Sands SAC.
9	3 months of data (1 December 2016 to 28 February 2017) used to support early work on pilotage study and simulation report. Subsequent vessel traffic survey data collected on two vessel traffic surveys (7 to 25 February 2017 and 15 to 29 June 2017) meeting the seasonal requirements of MGN543.	MGN 543 requires the Applicant to "take account of seasonal variations in traffic patterns and fishing operations". Two sets of 14 day traffic surveys do not give enough detail from which to make a reliable assessment of the effects of the extended wind farm on navigation in the area. It is not clear why a different AIS data set was used for the NRA and ES. The ES used 2 months AIS (Dec 16/Jan 17 – 10.4.4, page 10-7 of ES). It is also unclear how the 3 month AIS data set informed the bridge simulator (traffic	The Applicant strongly refutes the suggestion that data has been 'cherry picked' and emphasises that considerable additional data sets have been used to support the data requirements as prescribed in MGN543. For clarity the data used is as follows: • Initial site selection - RLB refinement was based on 1 month AIS, June 2014, and 1 month AIS December 2014.

		survey was carried out Feb/June 17 before the simulator September 2017). The MCA does not prescribe what is required to take account of seasonality, so there is some flexibility. However, the approach should have been discussed with stakeholders, and the PLA and ESL have concerns about the length and variety of data sets and periods cherry picked for the ES and NRA. In particular: 1 month (Dec 2016) AIS data was used in in collision modelling; 2 months AIS (ES/NRA); 3 months AIS (pilotage study/NRA); 28 day traffic survey (30 days AIS) (NRA/ES); 12 months AIS (NRA); 2 (or 3 months, not clear) for NRA gate analysis; and Not clear what time period is represented in Figure 13: Use of Anchorages in Thames Estuary (NRA page 31).	• Initial pilotage study – 3 months AIS Dec 2016-Feb 2017 • Collision Risk Modelling – based on December 2016 and with reference to the subsequent traffic survey data • MGN543 survey (14 day survey (AIS plus radar and visual) in Feb 2017, June 2017 • NRA based on MGN survey data plus 3 months AIS data. In summary therefore the Applicant is in broad agreement with PLA and ESL with regards the number of datasets employed, but would note that this is considered to be a robust and extensive dataset to characterise the receiving environment.
12	"A cooperation plan with the Port of London Authority (PLA) has been proposed to ensure that suitable coordination and notification is given	As per the comments made by the PLA in relation to this "PLA cooperation plan" at Deadline 1, no discussions on this plan have been held with the Applicant. To apply its name to a	The Applicant has since sought input into a Shipping and Navigation Liaison Plan and set out the contents of this document in a meeting on

	to mariners of construction activities, particularly PLA pilots."	cooperation agreement, the PLA would expect to have seen a copy of the document and be involved in its drafting. However, other than a mention of the possibility of drafting the plan in a meeting held in August 2018, the Applicant did not raise the matter further, nor share any of its proposed contents with the PLA.	11th February although no comments were provided by the IPs. The draft liaison plan is submitted at Appendix 40 to Deadline 3 and the Applicant welcomes further liaison and input from the PLA on this plan to ensure it is appropriate
12	"Given the wider concerns raised by a number of stakeholders in relevant representations, the Applicant proposes to submit a draft shipping cooperation plan which will set out the information to be provided (and which will expand on the structure set out in the NRA) that will be submitted at Deadline 2."	The PLA and ESL will review this document once it has been submitted. However, it does not seem appropriate to refer to it as a PLA cooperation plan on the basis that the PLA has had no role in drafting it and no prior consultation has taken place on it.	As above.
13	"the Applicant wishes to note that as concluded in the Pilot Transfer Bridge Simulation Report (PINS Ref APP-/ Application ref 6.4.10.2) all simulation runs were completed successfully, and Pilot transfer operations continue to be feasible at North East Spit Station across the full range of operational conditions even with the reduced navigable sea room caused by the extended wind farm layout."	The PLA and ESL have raised extensive comments on the reliability of the Pilot Transfer Bridge Simulation in their Deadline 1 submissions. However, the Applicant states that all simulation runs were completed successfully. This is not accurate: the Pilot Transfer Bridge Simulation Report states, at paragraph 6, that "13 of the 14 runs were successful and 1 run (no.4) was judged to be marginal". Even if the test	The Applicant set out its position with regard to the Pilot Transfer Bridge Simulation at Appendix 4 to Deadline 2. It should be noted however that the one marginal transfer which the IPs conclude illustrates a significant risk was identified as not being in any way associated with the presence of the array. This marginal run was

		conditions were representative of real life conditions, which the PLA and ESL do not accept, a 1 out of 14 'marginal' result would in practice be a high risk and high stress environment for working pilots. The PLA and ESL disagree with the ultimate conclusions being drawn from the Simulation Report. It cannot be said that pilotage operations continue to be feasible "across the full range of operational conditions" because only very limited, optimal conditions were tested during the simulation. The fact that even in these optimal conditions and without human error being factored in one in 14 of the runs was marginal illustrates that the proposed wind farm extension presents a significant increase in risk.	identified in the report as following completion of a successful pilot transfer and "with the vessel making way with good steerage control and the CPA to the anchored vessels occurred during the turn to the north after completing pilot transfer – a marginal run but perfectly under control". It is also important to note that the pilotage simulation was undertaken in relation to the previous (PEIR) red line boundary which has since been reduced in western extent by 1nm. As such this is not a valid conclusion when considering the current boundary.
15	"It is of note that the PLA passage planning guide (http://www.pla.co.uk/Safety/Passage-Planning-Guide) to the Thames Estuary shows the Tongue pilot station as a Deep Water pilot boarding station, and as such it would be expected that a Deep Draught vessel would utilise the Tongue pilot boarding station if the SUNK station had gone off station due	ESL and the PLA would agree with this point. When the wind direction is between West through to South East the Margate Roads anchorages can become very busy. A s a result of this ESL will tend to operate boarding and landing to the East of the boarding ground toward the existing TOW site. If a deeper draft vessel is to be served (up to 12m draft) it can facilitate it to the East of the inner	This is noted by the Applicant

	to adverse weather. A further issue with NE Spit during adverse weather from the SE is that this coincides with higher utilisation of Margate Roads anchorage, due to vessels seeking shelter, which impinges on the available sea room for NE Spit. Therefore, pushing pilot boarding further to the north closer to Tongue."	boarding ground. The area to the east of the inner boarding ground could be utilised for these larger vessels if the Tongue boarding area is unavailable.	
16	"In general, the acceptable closest safe passing distance for all sizes of vessel is 5 cables which is 0.5nm or 926 metres. The Masters of vessels which operate predominantly in coastal waters and frequently call into ports would, however, be prepared to pass at a closer distance."	ESL and the PLA consider that pilot boarding and landing operations cannot be directly compared to a shipping channel being used for ships on passage. Whilst they acknowledge that vessels can pass 0.5nm from each other, they would not consider this as an acceptable baseline vessel buffer assumption in the context of pilot boarding and landing.	As stated in response to action point 2A, 0.5nm has been proposed by serving master mariners as an appropriate buffer to the WTGs and is also evidenced in analysis of the existing vessel traffic data in relation to the existing wind farm. This distance is also recognised as tolerable within MGN543.
17	"In brief the simulation was undertaken and drafted in consultation with agreed parties, with all parties being given adequate time and opportunity to comment on the suitability of the inception report, the parameters to be considered and employed during the simulation, and the report itself. Feedback was not forthcoming with regards requests for change, for elements to be clarified."	Although ESL did see the inception report before the study, they did not comment on it. It did not indicate that a tug would be used instead of a pilot launch. They did not disagree with it on the basis of what the simulations were intended to demonstrate. The simulation study was only able to look at a range of vessels in isolation, with average conditions. It did not cover a full range of vessel sizes, types and	The Applicant set out its position with regard to the Pilot Transfer Bridge Simulation at Appendix 4 to Deadline 2. It is noted that ESL did not comment on the inception report despite contributing to the material within it at the lead up meetings and the set-up day. As representatives for simulation were provided by the IPs,

		metocean and traffic conditions. The Applicant has placed too much weight on the outcome of these simulations and has not considered these limitations of the study. The attendance of the Bridge Simulation by representatives of ESL and the PLA cannot be taken to imply that both entities accepted that the Simulation was fully compliant with good practice, nor that they agreed with the conclusions being drawn from it. Both organisations sent representatives to provide their expertise as pilots or coxswain launches. The test was therefore carried out by pilots or coxswains with more experience than pilots of vessels using the area in reallife scenarios. The pilots and coxswains expressed their concerns at the meeting about the test conditions.	had there been a significant concern regarding the use of experienced mariners this was within the gift of the IPs to select less experienced or unfamiliar personnel. However, this was not an issue that raised before, during or after the simulation. It is also important to note that the bridge simulator was updated in 2016 and is designed specifically for pilot training and, perhaps more importantly, "for coaching pilotage exemption certificate (PEC) holders and specialist training for senior officers from shipping companies, tug masters and pilots from other port authorities.". It is therefore employed by PLA for training mariners specifically to be exempt from the need for pilotage within the approaches to the Thames Estuary and is considered by PLA to be fit for this purpose.
17	"Furthermore, the Applicant notes that bridge simulation is considered as the second highest tier of evidence within the MCA/DECC 2013 methodology and hierarchy of assessment (second to site specific practical trials) and as such	The PLA and ESL consider that the use of the incorrect vessel as part of the Simulation cannot be used as an indication that pilotage operations using a pilot cutter would be successful. Instead what it illustrates is that the	The Applicant agrees that the tug is not directly representative of the pilot cutter although notes this was reviewed with PLA and ESL during the setup day and agreement reached (and recorded) that this

	this type of study should be relied upon with confidence. This is considered pertinent in light not only of the consensus sought during the development of the simulation itself, but also in light of the conservative nature of the simulation in utilising tug vessels instead of Pilot cutters. This was particularly noted by Richard Jackson of ESL during ISH2 and it is of relevance given that tugs would be considered to slower in service transit speed and of less agile handling characteristics when compared to a pilot cutter. For all simulated pilotage operations to be completed successfully, when using a vessel of comparatively reduced manoeuvrability, is consider to be further evidence that pilot operations will be able to continue with limited if any hindrance."	Bridge Simulation did not accurately reflect the actual conditions that pilotage operations occur in. This fact combined with the many other sterilising factors raised by the PLA and ESL in their Deadline 1 submission all indicate that the Bridge Simulation cannot be relied upon for the conclusion that the Applicant has chosen to draw from it.	was considered a suitable proxy for the purposes of the objectives of this simulation and, specifically, that the specific noted characteristics do not make material change to the rely upon status of the simulation.
19	"A draft NRA was sent to the MCA and Trinity House in March 2018 for review and comment. No substantive issues on the approach or the methodology were raised at this time."	The PLA and ESL were not sent a draft of the NRA and given opportunity for comment prior to the submission of the application for the Order.	Whilst the draft NRA was not sent to PLA or ESL, the PEIR submitted at Section 42 consultation set out the approach to the NRA, including the use of baseline data. The draft NRA was sent to the MCA as the

			statutory authority for marine safety in this area.
Responses by ESL and PLA to action points by Trinity House			
	"The existing Thanet Offshore Wind Farm was referenced as being a good example of how interaction between all stakeholders led to safe operational conditions being established."	Although both the PLA and ESL were able adapt their pre-existing operations in order to accommodate the construction and operation of the current wind farm, those adaptations were at the limit of what the PLA and ESL would consider is possible to continue operating safely in the area. It would not be possible to be able to adapt to a further extension in the same way. ESL's operation has already been limited by the siting of the existing wind farm. If the wind farm was not in its current location, that site would be an ideal area for the boarding of pilots onto larger ships. However, obviously, due to the wind farm, that space cannot be used for that purpose. The searoom for boarding pilots in this area is at its limit and the PLA and ESL would not be able to further adapt their operations to safely accommodate the proposed westwards extension of the wind farm.	The Applicant has not seen evidence to substantiate why the region is at the limits of what the PLA and ESL consider to amount to safe operations in this area, having regard to the NRA. Further the Applicant does not understand that any concerns with activity in this area have prompted a review of operations.

12	"The "PLA Cooperation Plan" mentioned in Action Point 12 was a mitigation measure proposed at an early stage which we could not agree with as this would need to be accepted by all parties and written into legislation for it to be considered	The PLA and ESL would support the comment that such a cooperation plan would need to be accepted by all parties. However, they also reiterate their earlier points regarding a lack of consultation on this proposed document. Finally, it is not clear why the Applicant considers it necessary to place the cooperation plan on a legislative basis.	The reference to the plan being secured on legislative basis relates to the need to secure the plan to the DCO/dML.
Responses by PLA and ESL to actions points by the MCA			
10	"There are no allegations of MGN 543 non-compliance from MCA. However, there are significant improvements that can be made to the completion of the MGN 543 checklist. The Formal Safety Assessment checklist, which is part of MGN 543, was not included in the applicants NRA making it difficult to identify the full implementation of FSA, and leaves it open to misinterpretation and assumption."	ESL and the PLA confirm that they have not seen an FSA for the application.	An updated MGN543 checklist, to include additional signposting and comments and a completed Appendix 2 relating to FSA methodology, was submitted as Appendix 10, Annex E to Deadline 2.
10	"In addition, the MCA does not specify which months of the year the traffic survey should be undertaken in MGN 543 – just that the applicant should represent summer and winter peaks."	The PLA and ESL agree that MGN 543 does not specify when traffic surveys should be undertaken. However, the time periods used by the Applicant (7 to 25 February and 15 to 29 June 2017) do not represent the peak of either the summer of winter period and therefore	MGN543 states the survey should 'take into account seasonal variations in traffic patterns and fishing operations' and the Applicant considers that this has been achieved through the surveys

		this data does not appear to be compliant with the requirements of MGN 543. In addition, the PLA and ESL consider that the presence of the survey vessel outside of the current wind farm area had the effect of encouraging vessels to deviate from their usual routes; again, illustrating why the traffic survey data cannot be relied upon.	undertaken in February and June periods. The survey vessel tracks are provided in response to Action point 6 from ISH6 (Appendix 3 to Deadline 3). There is no suggestion or evidence that the survey vessel would have affected the data captured.
12	"The MCA understands that the co-operation plan was one of the proposed mitigation measures for reducing the risk to ALARP as detailed in the original draft NRA."	The PLA and ESL would reiterate their above comments on this matter.	Refer to previous comments on the Shipping and Navigation Liaison Plan.
18	"there are many cases where HMCG have intervened whilst observing situations in the Sunk VTS area which then do not necessarily get logged as a record because the risk mitigation/control objective of the VTS has been fulfilled."	The PLA and ESL agree with this point. ESL's pilot launches also play a role in the safety of the area around the current wind farm. The lack of data on incidents is not necessarily due to the current situation being entirely safe. It is down to the existing mitigation measures being put in place which could not be stretched to cover a situation in which the searoom was reduced even further.	The Applicant would be interested to know what control measures are currently in place as these have not been put forward by the IPs. Further to this point, whilst incidents may not always be logged as suggested by the MCA, the Applicant is not aware of any evidence by way of concerns be raised at industry forums, incident reports or issues raised to the operational wind farm (as examples). It is noted that in the case of the local fishing industry, the

			operational wind farm is notified of issues if they occur to seek resolution or further mitigation, however the Applicant is unaware of any such concerns being highlighted by ESL during the 8 years of operation.
PLA and ESL Responses to ExQ1			
1.12.1	"It is to be noted that the available sea room and width of navigable water is significantly greater in this area than in the designated approach channels to the Port of London e.g. Fishermans Gat and Princes Channel."	ESL and the PLA do not consider it appropriate to compare sea room within a channel and that within a pilot boarding and landing area in which greater sea room will often be required.	This is noted.
1.12.1	"With regards to the MGN543 Annex 3, the inshore route is not a defined channel."	The PLA and ESL do not agree. They consider that the inshore route should have been given sea lane status, subject to international routing measures for shipping, because it is a sea route transited by all vessel types.	The Applicant notes PLA and ESLs position however it is clear that it has not been given sea lane status and therefore cannot be considered as such.
1.12.1	"90% of the number of transits are shown and these fall outside of the 0.5nm sea room buffer of the proposed extension in line with MGN543 guidance for the operational phase."	ESL and the PLA consider that the graphic on page 12 of Annex M in fact shows that vessels stay further away from the existing wind farm than the 0.5nm value referred to.	This pattern of traffic has nothing to do with the existence of the operational wind farm and relates to the shortest path through the inshore route. This is confirmed through AIS data prior to the construction of Thanet Offshore Wind Farm which shows exactly the

			same pattern of inshore traffic, Annex A to this document.
1.12.1	"Further, the buoyage (Elbow and NE Spit) is conservatively placed relative to the hazards that they are marking with a further circa 0.5nm between the buoys and the hazards that they mark (which is significantly conservative in relation to distances further within the estuary."	The PLA and ESL consider that the buoyage is placed with safety in mind. Safety issues are always site specific and so is buoyage and vessel behaviour so it is unhelpful to compare this area to areas further within the estuary. The Thanet North cardinal buoy has been placed approximately 0.9nm from the wind farm which suggests that 400-500m is not actually an acceptable distance to pass the obstruction.	The Applicant agrees that buoyage is site specific, however there are many instances where buoys are placed much closer to hazards than 0.9nm and the evidence provided by the Applicant demonstrating vessels passing 400-500m from the wind farm does not support the assumption put forward by the interested parties.
1.12.1	Discussion of passing distances	ESL would suggest that the traffic passing close to the NE Spit buoy and the NW corner of the TOW site do not form the majority of traffic in the area. The analysis shown in Gate F would suggest most traffic travels closer to a central point at the NW corner. Furthermore, it is likely that a passage planner would perceive passing close to a buoy as less of a risk than passing an area of wind turbines.	The Applicant agrees with this point, however the gate analysis does clearly demonstrate that vessels do pass at 0.5nm or in some cases closer. It is not suggested that all vessels would be required to pass at this distance, however it serves to illustrate that 0.5nm is a reasonable prudent mariner buffer.
1.12.1 (a)	"In conclusion, the type and reasonable maximum size of vessels currently present (in all metocean conditions) are commercial cargo	The PLA and ESL agree that these values are representative of the traffic survey carried out by the Applicant. However, ESL do serve vessels of a deeper draught	Further discussion and agreement of largest vessel sizes resulted from the navigation workshop on 27 February, the outcomes of which are

	vessels of length 299m and draught 10.1m."	at the NE Spit boarding area and have served up to 12m draft containerships east of the NE Spit boarding ground. The PLA gave the values of 250m length and 12m draught at Deadline 1. These values were based on AIS data provided by the Navigation Systems department of the PLA. This data was broken down into bands of vessel length with the largest bands being 250m and more length and 12m and more draught. It did not identify the maximum within these top bands.	set out in response to Action point 7 to ISH5 (Appendix 3 to Deadline 3).
1.12.1 (b)	Data regarding existing use of inshore route.	This answer is based on the traffic survey completed by the Applicant, which they raised concerns about at Deadline 1. The Applicant's use of extrapolation to make an assumption on vessel numbers per year is not sufficiently accurate.	The Applicant has since acquired an additional year of AIS data and analysis of this will be presented at Deadline 4.
1.12.1 (c)	"an increase in volume of trade does not necessarily correlate to an increase in vessels using the inshore route; and the trend towards larger (deeper draught) container vessels servicing ports such as London Gateway, is likely to, in reality, result in fewer larger vessels using the inshore route and more entering the Thames using the	The PLA and ESL disagree with this statement; the Port of London Authority and ESL service a diverse vessel mix and they are currently seeing an increase in the number of smaller vessels as well as larger ones.	This is noted and growth in vessel numbers has been factored in to the NRA. Specifically at Section 6 of the NRA an understanding of the likely increase in vessel traffic as a result of national and local statistics is provided.

	Sunk via Black Deep in accordance with Pilotage Directions and the existing depth limitations of the Princes Channel and Fisherman's Gat."		
1.12.1 (d)	"The Applicant therefore does not consider the terminology of 'pinch point' as applicable to the NE Spit bank as this is not the narrowest section of water a vessel passes when transiting the inshore areas (which as explained above with regards to depth is the area of Princes Channel/Fishermans Gat).	The PLA and ESL consider that there is a pinch point created by the internationally recognised Cardinal Buoy, particularly for vessels with a draft of 8m or more. Again, It is not appropriate to compare the NE Spit boarding area with the surrounding channels.	The Applicant maintains that it is necessary and appropriate to benchmark areas of searoom and regional areas of vessel transit. A central tenet of the NRA was the need to search regionally and nationally for incident statistics that may be attributable to OWFs. This search was as a direct need to benchmark what is being seen in the Thanet region with the wider understanding. To not compare other regions and areas would have resulted in the risk of incident being zero.
1.12.1 (d)	"This is an effective width restriction of less than 7% between E Margate and the RLP for the temporary condition and equates approximately to the minimum passing distance currently seen between commercial vessels and the existing wind farm"	This does not explore the reasons why vessels pass close to the existing wind farm. It is possibly due to other traffic and the restricted space between the NE Spit buoy and the wind farm.	The Applicant notes this and would confirm that whilst the project has sought to minimise interactions with areas of shipping there would be a need for minor alterations to some transits.
1.12.2	"The Applicant has created an additional Gate Analysis termed F"	ESL and the PLA do not consider that the Traffic Gate F supports the suggestion that a significant amount of traffic	Gate Analysis F was undertaken in line with the ExA's request, employing the same data source and

		passes within 500m of the NW boundary of the existing wind farm. In addition, they would like the Applicant to clarify what time frame and data source have been used to inform Traffic Gate F.	time frame as utilised for the wider NRA. This ensures that the Gate Analysis is comparable with the gate analyses included within the NRA.
1.12.3 (a)	"The Applicant considers that the ExA can rely on and place substantial weight on the pilot simulations"	The PLA and ESL have addressed this matter in their Deadline 1 submissions; the pilot simulations were very limited, do not accurately represent real life conditions and cannot be relied on to determine the effects of the proposed extension of the wind farm.	The Applicant concludes that the simulation forms one facet of the wider NRA, and on the basis that the principles of the simulation were agreed with the participants and PLA more broadly, weight should be placed on it.
1.12.3 (a)	"The simulation study is a qualitative tool in order to support the wider assessment of the overall NRA and followed a methodology which had been accepted and supported by stakeholders during consultation. The study was undertaken with the backing and support of the Port of London Authority, with agreement to utilise their pilot training simulator and senior marine pilots who were involved in the planning and execution of the simulation."	The PLA and ESL agree that the meetings set out at paragraph 9 of Annex N took place. However, the presence of PLA and ESL representatives at these meetings and on the days of the Simulations themselves cannot be taken to suggest agreement in the conclusions drawn from the Simulations, particularly in the light of the issues that the pilots/coxswains expressed at the time of the study. The PLA and ESL did not disagree with the scope and methodology set out at the meeting in August 2017 on the basis of what the simulations were intended to demonstrate. This is because the	The Applicant has provided responses to these points previously however would note that whilst PLA and ESL identify that they do not agree with '*how the results of the survey have then been used by Marico to inform the NRA. They have placed too much weight on the outcome of these simulations'* the Applicant has simply included the report as presented to them, and attributed sufficient weight on the basis that the report was considered to be agreed. There is therefore no suggestion that the results have been overly relied upon in the conclusions of the NRA. It is evident

		Applicant's consultants had explained that traffic capacity in the area and collision risk were to be assessed separately. The simulation study was only able to demonstrate that looking at a range of vessels in isolation, with average conditions, that for the most part there would be enough sea-room to continue to conduct boarding and landing in this area. However, it must be noted that even without the full range of vessel size, type and metocean and traffic conditions, 1 in 14 runs was still marginal. The PLA and ESL do not agree with how the results of the survey have then been used by Marico to inform the NRA. They have placed too much weight on the outcome of these simulations and have not considered the limitations of the study. In order to use the simulations to assess collision risk a much more extensive study would be required.	that all of the simulated runs were completed successfully and as such pilotage operations were considered to remain feasible. This was on the basis of the PEIR RLB which has subsequently been reduced in order to maintain these operations with a greater level of feasibility.
1.12.3 (a)	"the draft pilotage simulation report was issued to ESL and the Port of London Authority who confirmed	The PLA and ESL agree that they were sent a copy of the draft simulation report. However, this was just a record	The Applicant queries why ESL or PLA felt they could not comment on the simulation report and results if,

	receipt and onward circulation although no comments on the report were provided to imply disagreement – despite request."	of the runs that took place on that day and neither PLA nor ESL is aware that comments were requested.	as suggested, they were not directly asked for comments. If the concerns at the time were as significant as have been subsequently raised during this examination, it would be expected that these could and would have been raised regardless.
1.12.3 (b)	"It was noted that ESL explained (in the meeting of 14-Aug2017) usage of a planning diamond tool (enabling information on appropriate ship directions based on metoceean conditions). In the absence of receiving this the metocean conditions were informed by consultation meetings, data analysis and agreed by participants on the set-up day."	ESL do not recall agreeing to provide any planning tools. They do not have set tools for making lees or boarding area decisions.	In the absence of such planning tools, the Applicant suggests that the introduction of these could be considered a reasonable mitigation to enable enhanced planning and structuring of pilot operations in the area and would be keen to discuss this with ESL.
1.12.3 (d)	"Usage of a tug mode (as the Pilot Launch was required due to the PLA Simulator not possessing a pilot launch model). The fundamental limitations of this mode related to transit speed"	ESL consider that speed is not the only difference between a tug and pilot launch. The visibility from a tug is different as well as differing handling. Tugs drive differently, have a different rate of acceleration and differ in responsiveness. The ship to 'launch' interaction is also likely to be different.	Noted and the Applicant maintains that whilst the Tug presented a proxy with some limitations (which were reviewed and discussed at the time with participants) this did not fundamentally impact on the objectives of the simulation in relation to determining sea room for pilotage operations.
1.12.4	"the NE Spit pilot station is not seen to have appreciably moved since	The PLA and ESL agree that the NE Spit pilot station has not been moved and consider that there has been some	This is noted, however it is clear from evidence provided by both the Applicant and PLA/ESL that the

	construction of the existing Thanet Offshore Wind Farm"	confusion on this point. For clarification, the Tongue deep water diamond was created as a resulted of the Thanet Offshore Wind Farm being built. Prior to construction, deeper traffic could have been served on the existing wind farm site.	Tongue deep water diamond is not well used at this time with the vast majority of vessels continuing to be brought down into the NE spit pilot area. The Tongue remains a viable alternative option for ESL.
1.12.4 (a)	Discussion of safety zones.	The PLA and ESL would like to raise that the Applicant's answers to this question do not take into account a buffer zone. The NE Spit pilot station diamond is treated as a rigid centre point allowing little flexibility.	The Applicant acknowledges that pilot transfers occur over a wider spatial area than the pilot diamond itself, however as demonstrated through density plots (Figure 28 and 48 (raw data and density plot respectively) of the NRA) there is a clear concentration of transfer activity around this point.
1.12.4 (a)	"in excess of 90% of through traffic on this inshore route currently navigates further to the west"	ESL and PLA consider that this confirms that the boarding area is very busy and, at times, congested and illustrates the need for flexibility in sea room to the East of the wind farm.	The Applicant does not agree that reference to a percentage of traffic taking the route west of the NE spit buoy demonstrates the quantity of traffic, the congestion in the area or the extrapolation that this illustrates a particular need for flexibility in sea room. What it does illustrate is that the vessels coming out of the inshore route into the Thames Estuary are not constrained by the distance between NE spit buoy and the wind farm.

1.12.4 (a)	"The Applicant also notes that analysis and benchmarking was undertaken with other pilot boarding areas which demonstrates the available sea room post construction of the Thanet Extension Offshore Wind Farm is comparable with other pilot transfer areas around the UK"	The PLA and ESL do not agree with this comparison to other pilot stations. The Pilotage Study referred to only assessed two weeks of AIS data for Liverpool and the Humber and did not include much detail about their operation. In addition the Humber and Southampton have the areas split into two or three zones. The Pilotage Study suggested that ESL have 25 square km which already illustrates that ESL require flexibility in their operation.	The Applicant considers that it is useful to consider other pilot transfer areas for context, whilst accepting no two areas can be directly compared.
1.12.4 (c)	"The wind farm to the east, including a nominal 0.5nm buffer"	The PLA and ESL would suggest that a buffer of 1nm is a more appropriate minimum.	As noted in the response to Action 2A in this document, the 0.5nm buffer has been put forward by active mariners as the distance a prudent mariner would observe from the wind farm.
1.12.4 (d)	"The Applicant has undertaken extensive consultation with ESL from the outset of the study in order to interrogate the concerns raised prior to and during scoping."	ESL would disagree with this statement. Although meetings have been held, these were treated by the Applicant as an opportunity to present the current status of their plans for the extension rather than to invite discussion and comment. ESL's previous concerns have not been addressed and they were not involved with the collision risk modelling.	The approach of presenting updates on project progress and current work to stakeholders is standard across all topics and allows, in a meeting, the opportunity to attendees to ask questions and provide feedback. This does not have to be explicit and has not been an issue for the Applicant with any number of other interested parties

			who have been able to provide comment during such meetings.
1.12.4 (d)	"Following the debrief of the bridge navigation simulation, the report was issued and distributed for comment. No written response/commentary was received on the draft reports and subsequent consultation meetings were held with PLA and ESL (as part of the NRA) at which no specific feedback on the validity of the simulation methodology was provided (minutes of these meetings held on 05 and 06 December 2017 are provided within Annex C Navigation Risk Assessment Application Ref 6.4.10.1)."	After the bridge simulation, the participants did receive draft reports. An email was received from Marico Marine on 12 October 2017 which stated that the bridge simulation "will serve as an important reference as the project proceeds through the navigation risk assessment during which we will be coming back to you for all further consultation on the wider themes". ESL do not consider that this was an invitation for written responses on the report. A further meeting was held in December 2017 at which ESL stated that their concerns were unchanged.	The Applicant does not accept that ESL should have regarded themselves as unable to comment on the draft report.
1.12.6	"The collision risk modelling was undertaken by using 1 month of AIS data from December 2016 – which accounts for a worst case MetOcean conditions"	The PLA and ESL do not consider one month of AIS data as being sufficiently representative. At no point during December 2016 did ESL have any restrictions on their service and therefore assuming that this accounts for worst case conditions is not correct. In addition, fog and reduced visibility is more common in early spring and create	The Applicant has acquired a further year of AIS data and will present analysis of this and consideration of the suitability of the baseline data use in the NRA at Deadline 4.

		a particularly high risk working environment which was not assessed in the collision modelling.	
1.12.7	Explanation of additive effects of Wind Farm Service Vessels on collision risk.	The PLA and ESL would raise that the answer to this questions illustrates that the methodology used is complicated and difficult to understand. The PLA and ESL's main concern us that the Applicant has underestimated the inherent risk.	The Applicant sought to provide as full a response as possible to the question to assist the ExA. The methodology used reflected that adopted by the PLA itself and if the PLA is concerned that the Applicant has underestimated the risk after working through the methodology then it is reasonable to expect that the specific areas of disagreement can be identified for further technical discussion.
1.12.9	Explanation on tolerability of societal concerns.	The PLA and ESL would maintain that the area they operate in is in is a busy shipping and pilotage area managed by existing stakeholders and therefore any increase in risk is not tolerable.	The Applicant disagrees and for the reasons given in the NRA considers that there would not be any unacceptable risks following the construction of the project.
1.12.12	Annex I: Consultation Matrix Annex J: Consultation Minutes and Correspondence	The PLA and ESL would like to reiterate their point previously made about the lack of stakeholder engagement. The Applicant has only demonstrated limited response to their concerns at the Scoping stage with the limited reduction in the red line boundary. The PLA did notify the Applicant that this did not	The change to the red line boundary post-PEIR was made as a direct response to Section 42 consultation. Whilst it is acknowledged that PLA do not consider this to have addressed their concerns, the Applicant considers that this was an appropriate and adequate response to the consultation received.

		address their concerns but received no response.	
1.12.17	"All Baseline existing traffic routes remain viable – specifically, due sufficient sea room being maintained there is no requirement for vessels to be displaced or re-route into other locations or seek alternatives to any of the existing traffic routes."	The PLA and ESL agree that existing sea lanes will remain useable as lanes for passage for some vessels, although they will be affected by the extension of the wind farm. However, the area as a location for pilotage boarding and landing will be heavily impacted.	The Applicant notes that the primary area of concern for PLA and ESL relates to pilot boarding and landing.
1.12.25	The Applicant identifies that the International Maritime Organisation (IMO) Formal Safety Assessment (FSA) risk assessment, as presented in section 3.2 of Circular MSCMEPC.2/Circ.12/Rev.2 (REVISED GUIDELINES FOR FORMAL SAFETY ASSESSMENT (FSA) FOR USE IN THE IMO RULE-MAKING PROCESS) notes that: "The use of expert judgment is considered to be an important element within the FSA methodology. It not only contributes to the proactive nature of the methodology, but is also essential in cases where there is a lack of historical data. Further historical data may be evaluated by the use of expert judgment by which the quality	ESL has previously raised concerns that a lack of historical incidents has led to certain assumptions being made about the safety of the area and when assessing future risk. The PLA and ESL would suggest that such expert judgment should include the opinions of stakeholders with experience of the study area – to include the PLA, ESL, the Marine Pilots, MCA and Trinity House. All of which have raised concerns about vessel safety.	The Applicant notes that consultation meetings undertaken with these stakeholders (contained within the NRA at Annex C and also in Appendix 25, Annex J to Deadline 1) undertaken within the NRA and supporting studies included discussion on incidents and near misses and incorporated into the overall assessment.

	of the historical data may be improved."		
1.12.26	"Consultation is then undertaken to validate the scores."	The PLA and ESL iare not aware of any consultation regarding the hazard logs, scoring and risk assessment.	This includes consultation prior to the scoring as well as after. It was noted, in particular, that consultation was sought with the MCA during the assessment to validate the scores.
1.12.28	Comments regarding radar impact.	ESL made extensive comments in its Deadline 1 submissions on the adverse impact that wind farms have on radar and the likely impacts of the proposed extension.	The Applicant has provided response on radar issues at Deadline 1 and Deadline 2.
1.12.29	"Next steps: inc agreement to share draft NRA prior to submission (done in Mar/Apr)"	Neither the PLA nor ESL received the draft NRA to comment on prior to the application being submitted.	The draft NRA was sent to the MCA as the statutory authority for marine safety in this area.
1.12.31	Explanation on the moveable exclusion zone.	ESL would assume that safety zones would be enforced by a guard vessel. In practice, it is likely that the 500m exclusion would be greater due to the safety zones being enforced by a guard vessel presence, which itself would not be able to enter the 500m zone. That would in turn push traffic further away from the exclusion zone and further constrict the channel.	The consideration of safety zones was set out in Appendix 11 at Deadline 2 in response to the ISH2 Action Point 11. Safety zones were considered as part of the NRA.

3 Comments on additional submissions from MCA (REP2-041)

Reference	Key points raised in submission	Applicant's response
MCA-2	The MCA suggest that the Applicant has implied that as the approach and methodology used in the NRA is approved, this means the results should be accepted. This is not a reason for the MCA to accept the risk presented.	The Applicant notes the MCA's clarification and accepts that whilst the NRA is approved, the results are not accepted as tolerable by the MCA. It is also noted reference by the MCA to their duty to consider feedback provided by stakeholder forums and key stakeholder feedback and it is for these reasons the MCA does not accept the risks as presented. The Applicant does however query the disconnect between undertaking a compliant and approved NRA which concludes the risks to be ALARP, and the views put forward by the MCA which do not appear consider the NRA to be reflective of the risks.
MCA-3	We note that applicant states 'no detailed substantiation of the concerns identified have been provided and concerns will be addressed when evidence is provided'. The MCA's comment is regarding the reliability of the study and that it is likely to be unrepresentative of real-life scenarios that may include overseas Masters, or Masters of Foreign flag vessels, who are unfamiliar with the area, in poor conditions. This is based on the fact that the simulation exercises utilised experienced pilots familiar with the area and therefore is not a true representation of the situation.	The Applicant set out it's position on the NRA in Appendix 5 to Deadline 2.

Reference	Key points raised in submission	Applicant's response
MCA-4	The applicant focuses on the agreement of the NRA and that we therefore should accept the results unless we can evidence otherwise. We note the applicant wants detailed justification and evidence for this view; however, it is very difficult to quantify and predict, as there have not yet been many major incidents. We have a duty not to push risks to the limit; we might not have the evidence through statistics to show the number of incidents in the area – it is currently well managed - but to introduce the extension which significantly constricts the available sea room, cannot and should not be acceptable at this location. The MCA has discussed the justification for these views with the SUNK VTS User Group, which can be seen in the SUNK VTS User Group response to the applicant's comments on their Relevant Representation. This includes:	The Applicant notes that despite the MCAs confirmation that evidence does not exist to support their view of the risks in the area, there is still a conclusion that an extension 'cannot and should not be accepted at this location'.
MCA-4(1)	1) The extension of the windfarm will constrict the number of vessels and constrain their available sea room considerably. Vessels embarking pilots need to steer a particular course or maintain a certain heading appropriate to the prevailing weather conditions (to create lee for the pilot boat) albeit for only a short time, and maintain a minimum speed (usually of 6-8 knots) for effective steerage. Given the proximity of the navigational hazards at present,	The Applicant does not accept that a reduction in sea room automatically dictates that the risks will be intolerable in this area. The Applicant's position on sea room is set out in Appendix 3 to Deadline 2.

Reference	Key points raised in submission	Applicant's response
	with the available sea room this is possible and deemed safe, but will not be possible after the extension.	
MCA-4(2)	2) Medway has seen an increase in the number of LNG vessels (from one a month to one a week) of a minimum 280 metres LOA and 10 metre draft, boarding pilots in the area. LNG due to its inherent hazards, poses a much greater risk in terms of navigation to pilots, crew and surrounding vessels, and the extension will significantly encroach on the pilot's safety parameters.	This is noted by the Applicant, however there is limited evidence of LNG vessels using the inshore route.
MCA-4(3)	3) There are concerns that simulation exercises and discussions had only taken place with experienced pilots with local knowledge. A Master and/or navigation officer of a vessel who have never been to the NE spit (large or small vessel), will be much more concerned and as a result more wary of transiting the area.	The Applicant's response to concerns regarding the pilot simulation are set out in Appendix 4 to Deadline 2.
MCA-4	It is MCA's view that the list of concerns raised in the variety of Representations made by key navigation stakeholders are justification for the applicant to make changes to the current redline boundary on the western extent, in line with MCA's response to the Sectoral Plan submitted for deadline 1. The onus should remain on the applicant to listen to significant concerns/feedback provided by key stakeholders and work to address those concerns. It is our opinion that further mitigation is likely to be	The Applicant has committed to responding by Deadline 4 with regard to amendments to the project.

Reference	Key points raised in submission	Applicant's response
	highly reliant on third parties, and that the consideration of further reducing the redline boundary on the western extent has not yet been demonstrated by applicant.	
ExQ 1.12.12	The applicant's response to this question implies the MCA were specifically consulted before and during the preparation of the Bridge Simulation Study. As far as the current staff at MCA are aware, this is incorrect. However, there were staff changes in October 2018, and this may have been undertaken by the previous OREI Advisor at MCA. We have also been unable to find Annex K in the online documents to confirm whether the MCA were consulted prior to the changes in staff. The MCA has no records on any specific consultation on the Bridge Simulation Study other than that recorded in the minutes of meetings with MCA. The MCA were aware that a pilotage study was being undertaken by the applicant in consultation with the PLA and ESL, as it was mentioned as a high-level acknowledgement of the study during meetings. At the meeting on 10 January 2018 MCA stated that they had not seen the report and questioned how the simulation was conducted and planned. Concerns were raised at that meeting; how the simulation was perhaps limited in scope, somewhat arbitrary, and the limitations of using trained and experienced pilots rather than actual masters.	The approach to consultation is set out in Appendix 5 to Deadline 2.

Reference	Key points raised in submission	Applicant's response
	Further concerns were again raised at the meeting on the 23rd August 2018 (see minutes) that in the bridge navigation simulation, no allowance had been made for masters, and navigators, who do not know the area or who are inexperienced and therefore the results of the simulation could not be used to support the NRA. This has been confirmed by Pilots from Medway area whilst attending the recent SUNK VTS User Group meeting.	
ExQ 1.12.29	At least one representative from MCA has attended every meeting that the applicant has requested throughout 2017 and 2018 up until October 2018 when it was clear discussions were not moving forward, and MCA felt it was best to progress through the Planning Inspectorate process. The Hazard Workshop was raised at the December 2017 meeting, after which the MCA hosted applicant led meetings on 10th Jan 2018 and again on 15th Feb 2018. David Turner (as referenced in applicants' response) attended the meeting on the 10th Jan and made his views clear at that meeting that the increase in risk was unacceptable in this area. David Turner has since left the MCA so we are unable to comment further on the telephone call.	This is noted.
ExQ 1.12.31	The MCA remains concerned regarding the proposed 500m Safety Zone during construction, major maintenance and decommissioning of the development. This will result in a 450m restriction	The consideration of safety zones was set out in Appendix 11 at Deadline 2 in response to the ISH2 Action Point 11. Safety zones were considered as part of the NRA.

Reference	Key points raised in submission	Applicant's response
	outside of the redline boundary which will impact traffic between the extension and the Kent Coastline.	
Comments on the draft DCO	<u>Article 16 Public rights of navigation</u> The MCA has concerns regarding paragraph 2 of Article 16 of the DCO. The MCA would expect the buoyage marking to be in place prior to construction and usually extinguishing and public rights of navigation would not take place until the area has been appropriately marked in accordance with the requirements of Trinity House. The MCA therefore supports Trinity House's view with regards to Public Rights of Navigation. <u>Part 3 Details of licensed marine activities</u> We note that the DCO refers to a gross electrical output capacity of up to 340MW. However, we understand that the Crown Estate's acceptance of this application is based on 300MW. <u>Article 36 Arbitration</u> The MCA supports the Arbitration concerns raised by the Marine Management Organisation for the reasons set out in their submission to The Planning Inspectorate dated 12 September 2018. Navigation Conditions The MCA would like to provide further comments on the draft DCO when the next version is made available after deadline 2.	These points have been responded during ISH7 on the draft DCO and are set out in the Applicant's oral summary (Appendix 13 to Deadline 3).

4 Comments on additional submissions from Sunk User Group (REP2-048)

Reference	Key points raised in submission	Applicant's response
Points 1 -3		The Applicant notes that these points are reflected in the MCA's deadline 2 submission and are responded to at references MCA-4(1) to (3) above.
Point 4	4) If the NE spit pilot station had to be relocated further seaward, this will unfortunately result in extra costs, not just financially, but also in time, to pilots, and pilot launch transiting times. Being exposed further out to sea, may also have the result of more probable likelihood of unfavourable sea and swell conditions.	The Applicant's response on effects on pilotage is set out in Appendix 4 to Deadline 2.
Point 5	5) There still does not appear to be sufficient safety measures in place to ensure the safe movement of vessels in the area with the reduced sea room. The applicant response states that the risk is ALARP, however the forum does not agree this is the case and if the proximation of vessels is to be reduced, an appropriate system of control is essential.	The Applicant would welcome discussions with members of the Sunk User Group and the MCA on where additional controls could be implemented.

5 Comments on additional submissions from Port of Tilbury London Limited and London Gateway Port Limited (REP2-050)

Interested party	Key points raised in submission	Applicant's response
Port of Tilbury and London Gateway Port Limited (REP2-049)	Port growth captured in the NRA does not reflect growth of PoT or DPWLG	As stated in this submission, the NRA (Ref Section 6 Application Ref 6.4.10.1) has considered future traffic profiles including data and trends from 2000 – 2016, localised predictions and forecasts from the PLA Thames Vision Project which forecasts trade growth out to 2035. The Thames Vision forecast encapsulates the ports and terminals within the Thames estuary and provides a range of port growth for which the NRA considered . It should be noted that whilst PoT and DPWLG have identified growth of their trade in excess of the 10% assumed in the NRA, the number of movements with these two ports only account for a proportion of the total traffic in the Thames estuary and it is understood that the information due to be submitted at Deadline 3 will enable review of traffic growth volumes for PoT and DPWLG in context with the traffic within the estuary'
	Mix of vessels visiting PoT and DPWLG	The number and length of vessels visiting the ports have been set out by the Interested Parties. A stated in their submission, these numbers identify the vessels with potential to be affected by the project, however it does not identify actual numbers of vessels

Interested party	Key points raised in submission	Applicant's response
		using the inshore route or the likely effect on those vessels. It is understood that the IPs are preparing further information for Deadline 3 and the Applicant will respond to these points at Deadline 4.

6 Comments on additional submissions from Trinity House (REP2-052)

Interested party	Key points raised in submission	Applicant's response
Trinity House (REP2-052)	Clarification on drill stone buoy	This is noted.
	Concerns regarding effect of safety zones	The consideration of safety zones was set out in Appendix 11 at Deadline 2 in response to the ISH2 Action Point 11. Safety zones were considered as part of the NRA.
	Article 16 of the dDCO – Public Rights of Navigation	The issue of timescales relating to Article 16 and the extinguishment of public rights of navigation were discussed at ISH7 and are responded to at Action point 3 from the hearing (Appendix 13 to Deadline 3)