Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Appendix 4 to Deadline 2 Submission: Applicant's Response to Written Representation - Pilotage

Relevant Examination Deadline: 2

Submitted by Vattenfall Wind Power Ltd

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Revision A

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Appendix 2	Applicant's response to ISH2 Action Point 8 – Proposed amendment to the Red Line Boundary
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Annex A to Appendix 3	Point by Point Responses to Shipping and Navigation Consultee Written Representations

1 Responses to Written Representations

1.1 Introduction

1 Following submission of Written Representations by Interested Parties at Deadline 1, the Applicant has taken the opportunity to review each of the Written Representations received by the Planning Inspectorate.

2 The following sections provide a record of the Applicant's responses to Written Representations (WRs) received on the matter of Pilotage. Each section provides a summary of the representation received, with stakeholders identified, and a point by point response to the themes emerging from the representations.

3 Due to the nature of the WRs made and the fact that many of them make very similar points or contain the same content, the Applicant has set out its comments in sections that address specific themes. Those who have made a representation should find their name and representation number in the table below with a short identification of which specific topics their representation relates to.

Interested Party-s	Document references responded to in this report	Topic summary
Port of London Authority	(REP1-142)	• Safety • Economic • Pilotage Simulation
ESL	(REP1-142)	• Safety • Economic • Pilotage Simulation
POTLL	(REP1-148)	• Economic Pilotage Simulation
LGPL	(REP1-148)	• Economic Pilotage Simulation
London Pilot Council	(REP1-104) (note this was not a WR but contains submission relevant to this theme and thus is addressed by Applicant)	• Safety • Pilotage Simulation
MCA	(REP1-109) (note this was not a WR but contains submission relevant to this theme and thus is addressed by Applicant)	• Safety • Pilotage Simulation

4 This document (Appendix 3) should be read in parallel with Appendices 1, 2, and 4 which address the other dominant shipping and navigation themes:

- Appendix 1 – RLB Changes
- Appendix 2 – Ports and Shipping Routes
- Appendix 4 - NRA and Consultation

1.2 Summary of Sub-Themes

5 Due to the nature of the WRs made and the fact that many of them make very similar points or contain the same content, the Applicant has set out its comments in sections that address specific themes:

- Sea Room for Pilot boarding
  - Safety
  - Pilot station downtime
- Pilotage Simulation

6 A response to the received WRs that refer to Pilotage is documented below and grouped with regards to the concerns as listed above.

7 The Applicant wishes to note that a separate deliverable for Deadline 2 (Appendix 2) has been prepared regarding sea room as relates to usage of the inshore route, dipping vessels and vessels proceeding to/from the Margate Roads Anchorages. Sea room in the context of this document is specific to the requirements of pilot transfer.

1.3 Data and Evidence Base

8 The Applicant notes that further relevant evidence has been provided by the Applicant at Deadline 1, specifically:

- Annex N: In response to ExAQ 1.12.3
- Annex O: In response to ExAQ1.12.4
- Annex B: Plots showing sea room at NE Spit
- Annex L: Pilot Transfer Track Plots – showing track plots of sea room taken by vessels during the navigation simulation
- Annex G: Showing Vessel Traffic survey data analysis three key vessel activities in this area with subplots analysing traffic by vessel draught, vessel length and vessel type. Volumes of traffic are tabulated on a per/24hr, 1 month and annualised basis.
    - i) inshore traffic,
    - ii) dipping traffic
    - iii) anchorage traffic

9 Annex K to Appendix 25, showed that pilotage operations would remain feasible under a representative range of metocean conditions.

2 Sea Room

2.1 Location of Sea Room for Pilot Transfer

10 The Applicant notes that within the WRs issued by ESL and PLA (para 5.7 of REP1-141 and para 5.7 of REP1-142 respectively) a key concern raised is the reduction in sea room around the NE Spit pilot station, specifically that the available space between the closest point of the array and the NE Spit pilot station would be reduced to 1.7 miles: *"5.7 A key concern of ESL is the reduction in sea room. The closest point of the extended wind farm to the NE Spit pilot station would be 1.7 miles (leaving approximately 2.1nm to the most eastern extent of the Margate Roads anchorage). At this point there is a lot of crossover traffic which needs to be taken into account".* This is also noted in the WR from Port of Tilbury and London Gateway (section 4, bullet 2, REP1-148) and LPC who reference this area.

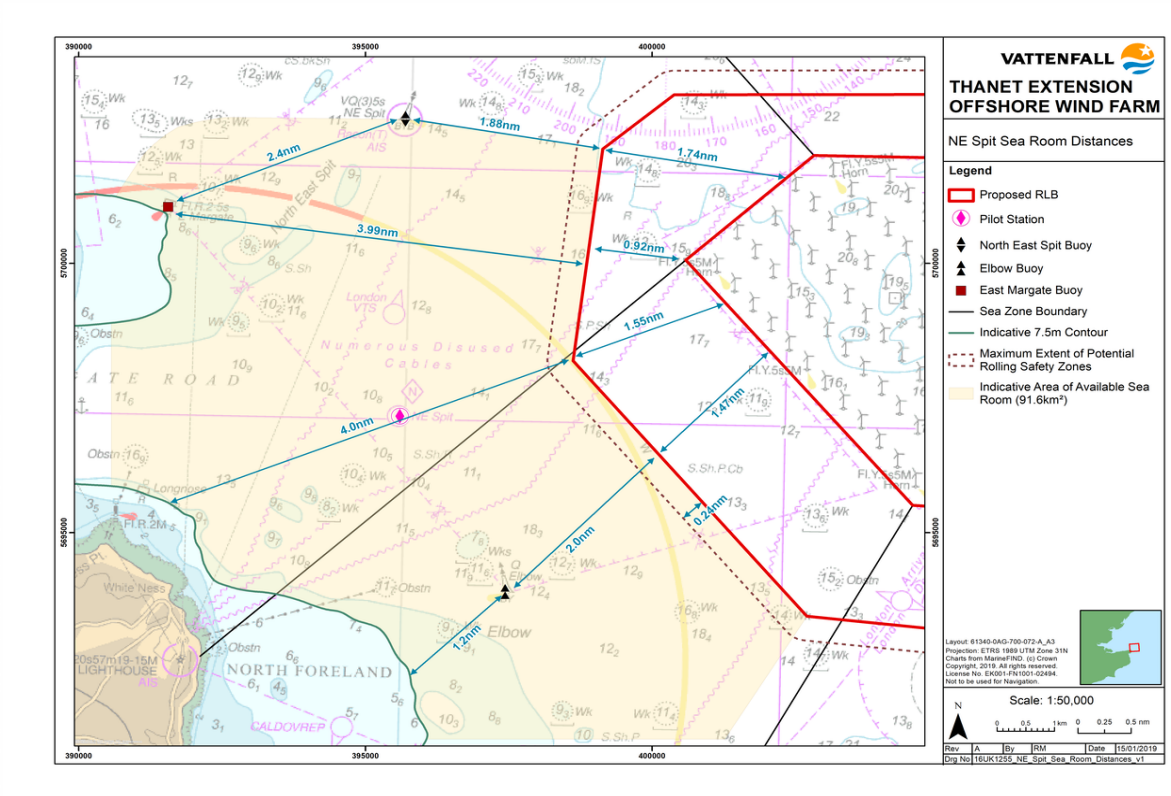

Figure 1: NE Spit Sea Room Distances (Appendix 25 Annex B)

11 The Applicant notes, as per the sea room plot provided at Annex B, that the width at the narrowest point is 1.88nm (between the NE Spit buoy and the red line boundary) and greater area of sea room exists to the south (see Figure 1). The area to the south, in the vicinity of the NE Spit pilot boarding station, is where pilot transfers are undertaken (see Figure 2 taken from Figure 48 of Annex 10-1 Application Ref 6.4.10.1) and as such noting the sea room plot at Annex B, there remains sufficient sea room within the NE Spit pilot boarding area post construction of the TEOW for pilot boarding.

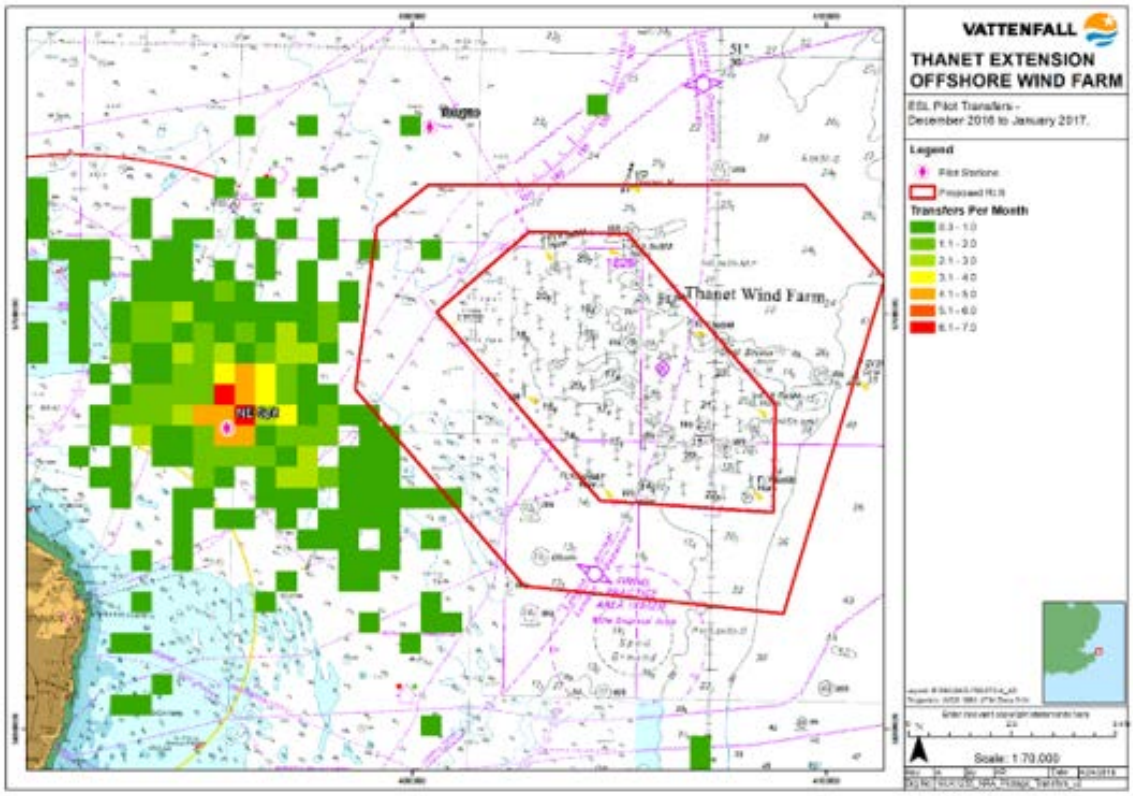

Figure 2: Density Plot of location of Pilot Transfers. (Figure 48 of Annex 10-1 Application Ref 6.4.10.1)

2.2 Sea Room Assessment by the Applicant

12 The Applicant undertook a Pilotage Study as part of the PEIR at the commencement of the Shipping and Navigation assessment, identifying the nature of pilot transfers in the area and, specifically, analysing the area and sea room utilised for pilot transfers currently undertaken at the NE Spit pilot boarding station over a 3 month period AIS vessel tracking over 3 months. This is presented further at Section 2.5.4 of this report. It was necessary to undertake this study as no baseline information on locations of pilot transfers was available from IP.

13 Following the Pilotage Study, and in agreement and collaboration with PLA and ESL as participants, bridge navigation simulation was undertaken in the PLA simulator to examine whether pilot transfer operations would continue to feasible at the North East Spit station with the extended wind farm and over a range of operational scenarios. 14 runs, consisting of 20 individual transfers were undertaken with a range of vessel types and metocean conditions in order to evidence this assessment. This assessment concluded that the available sea room (with the former pre-application RLB and therefore overly conservative) was identified to remain adequate for pilotage operations to remain feasible under a representative range of metocean conditions. Plots of the sea room used in these transfers are provided at Appendix 25, Annex L and show that transfers were all undertaken in the area of sea room near the pilot diamond (consistent with that observed from the vessel traffic data) and that the sea room used by the vessels did not breach the red line boundary (as revised).

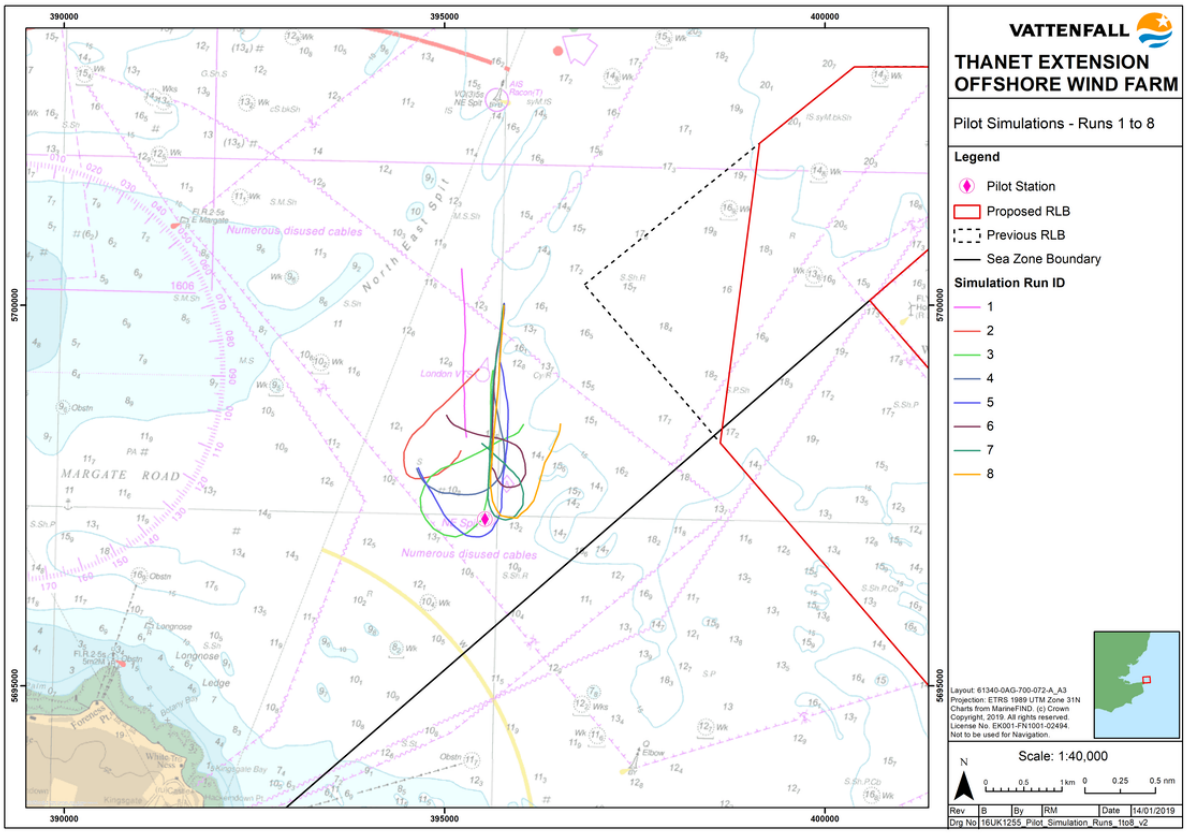

Figure 3: Appendix 25, Annex L – Pilot Simulations Runs 1-8

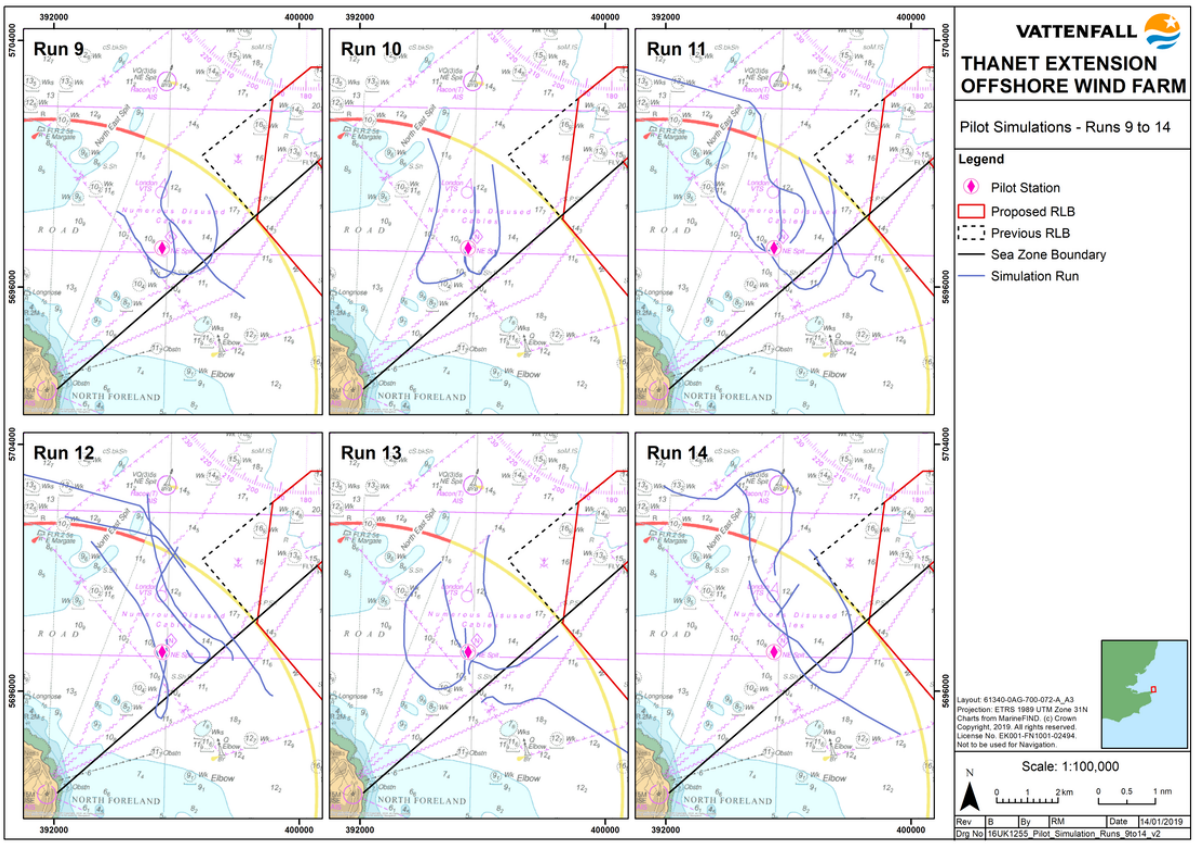

Figure 4: Appendix 25, Annex L – Pilot Simulations Runs 9 - 14

2.3 Sea Room – Safety Concerns Raised by Interested Parties at Deadline 1

14 The PLA / ESL raised the same safety concerns:

> *"5.6 When undertaking pilotage operations, safety is paramount. A vessel is kept underway while the pilot transfer is taking place and must continue to interact with everything else around it. Pilots will need to factor in weather, tide, type and size of vessel, surrounding traffic and other factors before engaging with the ship to create a safe lee. The pilot will then need sufficient time to get on board, get to the bridge and have a handover with the master."*

15 This response from the ESL WRs indicates that it is the pilot, and not the ESL launch Coxswain who determine the course, speed and heading for pilot boarding. The Applicant notes that this procedure is carried out prior to the boarding activities and that with the TEOWF in place sufficient sea room exists and pilot boarding remains feasible according to PLA pilots attending the Pilotage Bridge Simulation Study.

16 The Applicant notes that the London Pilot Council, a body representing serving PLA pilots who board and land vessels at NE Spit pilot boarding station, advise the need for "1 mile to 1.7mile" plus a safety buffer of 0.5 miles.

17 It is noted that the London Pilots Council also identify that "Havens Category vessels arriving and departing at drafts of 9m and less for the London Gateway Port have recently been risk assessed for Pilot operations at the NESP.". To date the Applicant has not received any risk assessments and logs of incidents for the NE Spit area, and so requests this assessment as it notes this represents an important opportunity to compare the assessment with the NRA undertaken for TEOW.

2.4 Safety Concerns – Other Factors

18 *"5.8 In addition, it is the experience of the ESL's coxwains that their launches frequently suffer with interaction between their radar and the Wind Farm. When a pilot launch is operating between the Wind Farm and a ship, with the ship in close proximity, the radar becomes less effective. High sided vessels will often severely impede Very High Frequency (VHF) communication with the shore side operation (including Vessel Traffic Services (VTS)), the ship itself and other vessels on the side of the ship being served. In effect, the pilot boat can be blindsided. The coxswain will have to be confident that little or no deviation will be necessary during an act of pilotage. The reduction in sea room and, therefore, the potential increase in congestion present a significant planning issue for the coxswain with regards to a confident 'clear path' before he engages with the ship. This is an issue that the existing sea room allows ESL to plan for and work with. However, with a reduction in available sea room between the pilotage boarding area and TOW this would become a more significant safety concern."*

19 The Applicant considers that the cause of the radar interaction noted by pilot launch crews is due to the proximity of the pilot launch to the larger vessel when boarding a pilot (likely causing radar reflections) and not the existing windfarm – otherwise it would be expected that the interference would be present at all times whether alongside a "high sided" ship or not. However, it is the case that the interaction seen when a pilot launch is alongside a "high sided" ship will also occur in relation to navigation buoys, other passing vessels or even the Thanet coastline (were the pilot launch close alongside the landward side of a "high sided" ship).

20 Regarding VHF effects, the Applicant would state that the presence of the TEOWF would not increase the severity of any loss of VHF signal, to the shore including to PLA VTS, from a pilot launch whilst it is engaged in boarding a pilot on the seaward side of a "high-sided" ship. If the VHF issue were to continue presenting a problem to pilot boarding operations, and whilst it is not associated with the TEOWF, the Applicant would be willing to make available a suitably positioned wind turbine for the PLA / ESL to place a VHF repeater on to seaward of the pilot boarding station which could help alleviate this issue and reduce baseline risk.

2.5 Sea Room Requirements – Integrating Evidence from Interested Parties

21 When considering the minimum required safe sea room required for pilot transfers, and in addition to the evidence submitted by the Applicant in the NRA and supplemented at Deadline 1 in the material referenced in this document, the Applicant notes the LPC's representation provided at Deadline 1.

22 LPC have supplemented their submission with assessing the required sea room for pilot transfers using some of the guidance from MGN543 (Section 10.3, MGN Compliance at pg 6 of the LPC Action Point document, REP1-104), providing sea room calculations for a range of vessel sizes as provided in the table at Figure 2.

23 LPC have assessed sea room by vessel length selecting vessels ranging in 6 length categories from 120m to 333m. The Applicant (with reference to the data presented at Appendix 25 Annex M and Annex G at Deadline 1) concurs that the 4 categories as stated (120m - PLA Pilot Class 4, 145m - PLA Pilot Class 3, 175m - PLA Pilot Class 2 and 236m – Grande class as used in the Pilotage Bridge simulations) are representative of the majority of vessels using the NE Spit Pilot Boarding station as evidenced in the vessel traffic survey and also through submission by PLA and ESL (in response at ExAQ 1.12.1) where it is stated that '*250m….represents the reasonably maximum size vessel that can be prudently served in moderate metocean conditions on the inshore route'*. The Applicant notes no Class 1 Vessels (320m Length) or "Havens vessels" (333m length) have been observed transiting the inshore route in the vessel traffic survey data and therefore does not consider these representative.The Applicant does however note, that LPC state that Havens vessels have recently been risk assessed for pilot transfers at North East Spit and requests this risk assessment for benchmarking purposes.

24 The maximum length vessel recorded "dipping" and taking a pilot was the AGIOS DIMITRIOS (Container vessel) at 299m length overall and 40m beam. Therefore, for the purposes of assessing sea room a 299m length vessel can be considered as a representative maximum vessel.

25 LPC have noted that the 'required safe room' consists of a turning circle of 6 x LOA (as per MGN543) plus a margin for pilot boarding time of 6 minutes at 6 knots (0.6nm distance), which is consistent with the grading criteria in the bridge navigation simulation undertaken by the Applicant with PLA and ESL as evidenced by comparison of simulated vessel tracks with the LPC calculations (see below).

26 The turning circle for a vessel a 299m LOA vessel is 1.57nm, and for a Grande class vessel with a length of 236m, which was used as a representative vessel in the Pilotage Bridge Simulations it was 1.4nm. In order to provide indicative context of the sea room, the Applicant has transposed these pilot boarding areas of 'required safe room' onto the sea room plot to show that for the vessels identified there is adequate sea room for these transfers (see Figure 5).

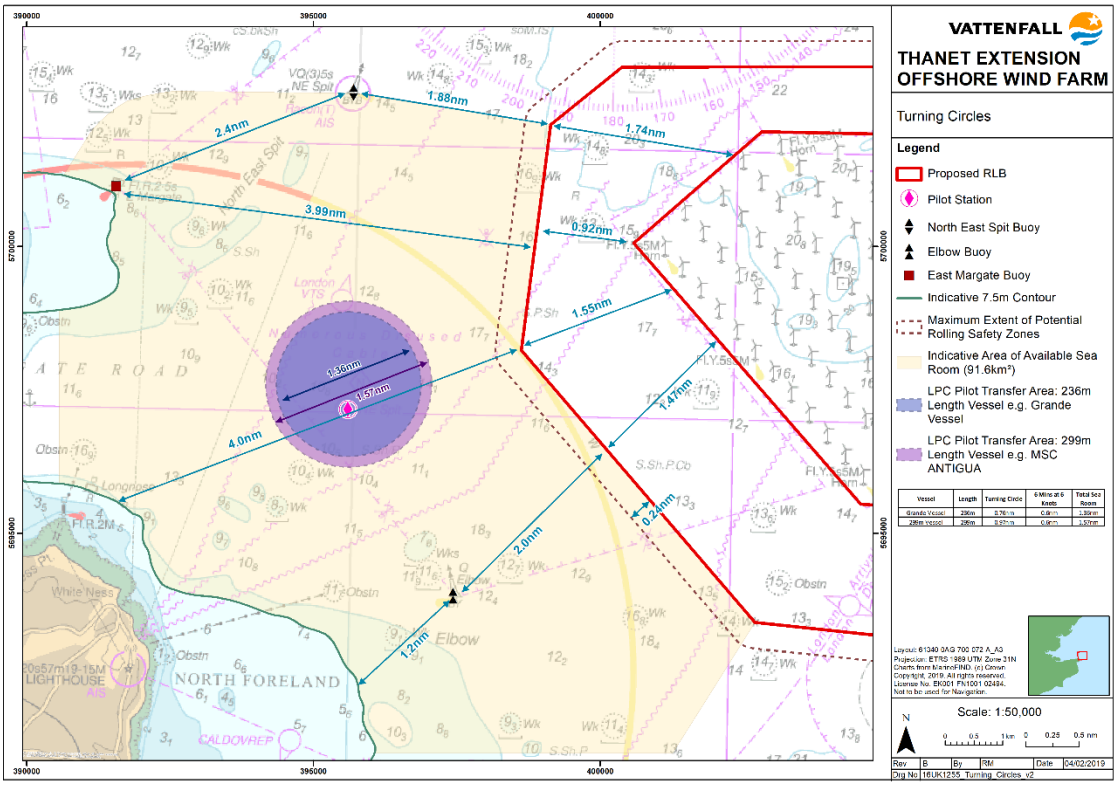

Figure 5 Turning Circles for vessel length 236m and 299m LOA

27 The Applicant has also produced a schematic for areas of required safe sea room for pilot transfers captured in the vessel traffic survey, showing the actual pilot transfer tracks of the largest vessels "dipping" to take a pilot, and the largest vessel transiting the inshore route and taking a pilot, a Grande class vessel "dipping" to take a pilot and runs 1-8 of the pilot bridge simulation study were a 236m LOA Grande Vessel was used. All these tracks demonstrate that these vessels are undertaking the transfers within the stated sea room circles (see Figure 6).

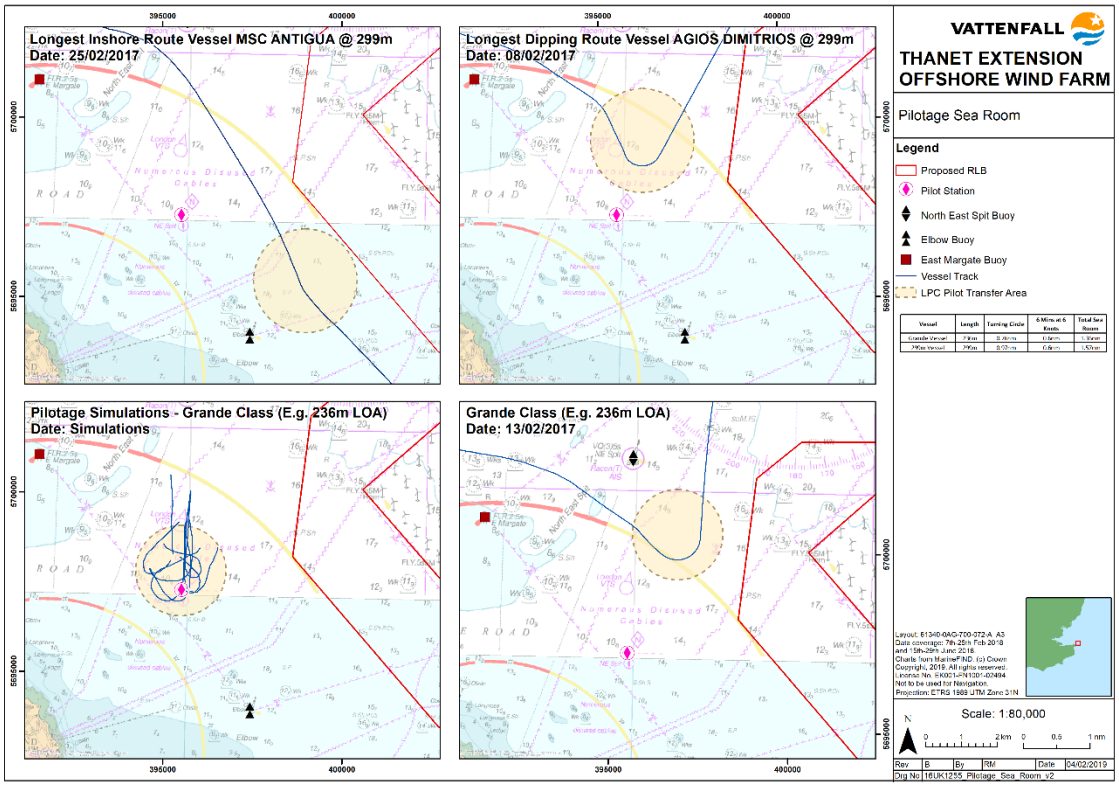

Figure 6 Pilotage Sea Room (top two images from Pilotage Study and bottom showing runs 1-8 of pilot simulation study)

28 The sea room required for pilot boarding has been specified in the LPC Fig 2 table in their WR with reference to MGN543 Annex 3 which is calculated based on vessel length and a pilot boarding time element. The Applicant considers these to be reasonable representation of the sea room required as presented by the practitioners, which are consistent with the Applicant's assessments from the Pilotage Simulation Study, the Pilotage Study and by reference to vessel tracks collected as part of the Vessel Traffic Survey (see Figure 6). As such LDC have specified the need to maintain a course for a period of 6 minutes at an approximate speed of 6 knots, which gives a total track of a pilot launch being alongside a vessel of around 0.6nm, which, as has shown above, is available, with a 0.5nm safety buffer, and further available sea room (the circles do not take up all space for pilot boarding in Figure 5 post construction of the TEOWF.

2.6 Pilot Station Downtime

29 The Applicant maintains, as presented above, and drawing together material from the Application and Deadline 1 (with submissions from Interested Parties and the Applicant), that sufficient sea room is maintained at NE Spit for continued pilotage transfer operations.

30 Notwithstanding this, the Applicant notes and wishes to address the submissions have been made by Interested Parties with regards to downtime across the range of pilot boarding stations and the inter-relationships of pilot station availability.

31 5.10 PLA /ESL would argue that the impact of this is for pilotage operations to be pushed out to either NE Goodwin or the Tongue. In addition, the location of the Tongue will need to be pushed further north, out into less sheltered waters. The NE Spit boarding area has been strategically placed to afford the service maximum shelter, particularly with MetOcean conditions WNW through to SE. This can allow ESL to continue operations when alternative boarding areas are unable to operate. If launch crew and pilots are forced to operate with an increase in passage times and a potential for greater exposure to adverse weather conditions, this increases the likelihood of personnel fatigue."

32 The Applicant has clearly demonstrated that sufficient sea room remains at the NE Spit Station post construction of the TEOWF as detailed above. The use of the Tongue (formerly called the NE Spit Deep Water Pilot Boarding Station), also remains feasible with the extension in place and could, where necessary, provide additional pilot boarding capacity for large vessels as it is currently not frequently used.

33 Details presented in the section 5.18 of the PLA / ESL WR show the number of days that the SUNK and NE Spit Pilot boarding stations were reported as off station between 1/11/2017 to 30/11/2018 – i.e. over a period of 13 months. It is noted that within the WR that it states London Vessel Traffic Services "*manages and oversees the safety of navigation in the area"* which is different to consultee responses during the NRA in which VTS were not stated to manage traffic outside of the Statutory Harbour Authorities waters (port limits), and as such was not considered an embedded risk control measure in the assessment.

34 As this is the first evidence presented to the Applicant on pilot boarding station down time, it wishes to interrogate the underlying data in more detail, to provide more detailed analysis of when and how the pilot stations are "Offline" or "Restricted" – and the interrelationship between the two (i.e. it is not clear from the information provided whether ships were diverted from the SUNK station to the NE Spit station or indeed the Tongue Pilot boarding station, when the SUNK) is off station.

35 It is also not clear from the data presented whether the "Off Station" or "Restricted" conditions were met because of, adverse wind, wave or visibility restrictions, or whether they were for a full day or part of a day. Typically, adverse wind and visibility restrictions on pilot boarding may only apply for relatively short durations.

36 Finally as ESL and the PLA state that they would expect to use the Tongue Pilot Boarding Station more often if the TEOWF were constructed then, as there are no details of the Tongue Pilot Boarding Station downtime, and whilst the Applicant agrees that it may be affected more than the NE Spit Boarding Station in certain conditions, there is no current evidential base for it being more prone to going off station that the NE Spit, or the significance or magnitude of any difference.

37 Fundamentally, the Pilot Bridge Simulations, the sea room distances plots and the response from the LPC show that there is sufficient sea room at the NE Pilot Boarding Station post construction of the TEOWF.

38 A tabulated response to the Written Representations is provided at Annex A to Appendix 3.

Pilot Station Downtime and use of alternative pilot boarding stations

39 As addressed under the 'Safety' section of this submission PLA and ESL have provided information on the number of days that the SUNK and NE Spit Pilot boarding stations were reported as off station for a 13-month period. This is on the basis that when SUNK is off station vessels are more likely to use the NE Spit and incur an increased transit distance and time. Notwithstanding that the Applicant maintains that NE Spit remains a feasible location for transfers, the Applicant requests more detailed information on the downtime at SUNK and NE Spit and also that information is provided on the downtime at NE Goodwin and Tongue Pilot Boarding Station which are also alternatives in event of SUNK being off station.

40 The Applicant, at the Pilotage Study Report undertook analysis of the time, distance and cost involved for launches servicing the various stations and this should be used in understanding the commercial impact.

3 Pilotage Simulation

41 Whilst this issue is raised under comments made on the wider NRA, it is addressed here as it applies to consideration of the representations made on pilotage operations, in particular the simulation undertaken. The Applicant has provided submissions on this aspect of the wider NRA at Deadline 1 and makes further reference to this material in specific relation to the submission from Interested Parties.

42 The stakeholder responses captured within the above thematic responses are as follows:

- Maritime and Coastguard Agency (REP1-109)
- Winckworth Sherwood on behalf of Estuary Services Limited (REP1-141)
- Winckworth Sherwood on behalf of Port of London Authority (REP1-142)
- Port of Tilbury London Limited and London Gateway Port Limited (REP1-148)
- London Pilots Council (through reference to their post hearing submissions for ISH 2 (REP1-104))

43 It is first noted that the Interested Parties have broadly consistent responses albeit some providing greater extent of information and detail for the Applicant to respond to.

44 The Applicant notes, at the outset, the extensive consultation and work that was undertaken in preparing the simulation, together with the participating Interested Parties (PLA and ESL). The PLA Simulator was put forward by the PLA as a key stakeholder and recognising it is suitably established, proven and endorsed by the PLA and its Pilots for use in training and familiarisation/testing of new and updated vessels and infrastructure. The capability of the PLA simulator is considered, by the PLA, to be "*highly advanced*" and "*Pilots can test out and perfect manoeuvres against a background of the highest wind speeds and worst weather*" (Source PLA Handbook 2018). It is therefore considered a fit for purpose and adopted facility. It is important to also note that frequent opportunity for feedback of the nature, now emerging during the Examination phase, was provided (and sought) by the Applicant during the structured process of this work which included preparatory meetings (and the minutes of these meetings), the inception report, setup day, the simulations themselves, debriefs and the simulation report.

45 The Applicant also wishes to clarify that the simulation study is a qualitative tool used as one component to support the wider assessment of the overall NRA. In particular (and with reference to the Simulation Report) it has been used to evidence the feasibility of undertaking pilot transfer operations in the sea room and over a range of defined operational scenarios. The wider NRA draws this together with analytical techniques including geometric and temporal analysis of traffic profiles, collision risk modelling and consultation.

46 ESL, PLA, POTLL, POTLL and DPWLG make reference to environmental and met-ocean conditions utilised in the PLA simulator. As outlined in Section No. 4 and 5 of Appendix 25, Annex N the Applicant notes that the conditions have been benchmarked alongside long-term datasets and are considered '*representative of conditions of challenging operation conditions (ESL Ref 6.8)*'. Comments made by Interested Parties at Deadline 1 on the vessel/wind interactions were not raised at the simulations themselves, although the capability of the simulator to represent effects such as leeway (as stated by LPC) is not considered to be doubted given that the PLA state that "*Pilots can test out and perfect manoeuvres against a background of the highest wind speeds and worst weather*" (Source PLA Handbook 2018). The reported comments on night time condition visibility of the simulator were also not raised at the time by the PLA or ESL participants, or addressed for Pilot training – the primary purpose of the simulator.

47 PLA and ESL make reference to the use of the tug in the simulator in lieu of a pilot launch. This was trialled and agreed prior to the simulation runs, with time allocated to ensure the ESL coxswains were familiar with operation. The primary limitation observed during setup related to the lower transit speed of a tug. Although it was agreed that at the wind speeds being tested of 25kts, the resulting sea state would in reality limit the launch speed to 18kts or less (the tug speed) and therefore this was felt to be precautionary. It is recognised that some of the inter ship handling characteristics will differ, but this is not considered to be critical for the simulation objectives which were not focussed on assessing the complexity of vessel interaction once the vessels are alongside each other for transfer (this was managed through allowing a period of time once alongside for the pilot to transfer to/from ship – as recorded in the grading criteria of each run). Whilst a radar was not available on the tug simulator (noting separately that ESL report issues using radar) – an ECDIS screen provided proximity and positioning information to facilitate the simulations.

48 The number of runs performed are commented on by the Interested Parties, with ESL noting that they requested additional runs to increase complexity. The agreed run plan contained a number of multiple and complex transfers and it was considered by participants at that time that the runs undertaken provided a range and breadth of scenarios sufficient to inform the conclusions. Additional runs were willingly undertaken at the request of ESL with increasing complexity and successful pass criteria.

4 References

- Department of Communities and Local Government (March 2015), 'Planning Act 2008: Guidance on the pre-application process'. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418009/150326_Pre-Application_Guidance.pdf
- The Planning Inspectorate (2017), 'Scoping Opinion. Proposed Thanet Extension Offshore Wind Farm', https://infrastructure.planninginspectorate.gov.uk/projects/south-east/thanet-extension-offshore-wind-farm/
- The Planning Inspectorate (2017), 'Scoping Report. Thanet Extension Offshore Wind Farm Environmental Impact Assessment Report to Inform Scoping.' https://infrastructure.planninginspectorate.gov.uk/projects/south-east/thanet-extension-offshore-wind-farm/