

IMMINGHAM EASTERN RO-RO TERMINAL



Document Information

| Document Information | | |
|------------------------|--|-------------------------|
| Project | Immingham Eastern Ro-Ro Terminal | |
| Document Title | Applicant's Response to DFDS' Deadline 7 Submissions | |
| Commissioned by | Associated British Ports | |
| Document ref | 10.2.84 | |
| APFP Reg 2009 | Regulation 5(2)(q) | |
| Prepared by | IERRT Project Team | |
| Date | Version | Revision Details |
| 08/01/2024 | 01 Deadline 8 | Submitted at Deadline 8 |

Contents

| | | |
|----|---|----|
| 1 | Executive Summary | 4 |
| 2 | Introduction | 4 |
| 3 | Navigation Simulations | 5 |
| 4 | Tidal flow | 8 |
| 5 | Design Vessel | 9 |
| 6 | Comparisons between IERRT and IOH | 14 |
| 7 | Operating Limits and Parameters | 15 |
| 8 | Use of the Inner Dock | 15 |
| 9 | Navigational Risk Assessment (including HASB Tolerability Assessment) | 16 |
| 10 | Cost Benefit Analysis | 18 |
| 11 | Engagement with DFDS | 18 |
| 12 | Independence of the Designated Person | 18 |
| 13 | Independence of the Statutory Harbour Authorities | 19 |
| 14 | Impact Protection Measures | 19 |
| 15 | Stemming and Operational Flexibility | 21 |
| 16 | Vessel Engine Difficulties and Tug Availability | 23 |
| 17 | Passage of the Britannia Seaways vessel into Immingham Lock observed during the course of the Accompanied Site Inspection (26 September 2023) | 23 |
| 18 | Transport | 23 |
| 19 | Policy Matters - REP7-059 paragraphs 2.52 to 2.60 | 29 |
| 20 | DCO Matters | 31 |
| 21 | Protective Provisions | 31 |
| 22 | Statement of Common Ground | 31 |
| | Glossary | 34 |

1 **Executive Summary**

1.1 This document provides the Applicant's response to the information submitted by DFDS at Deadline 7. These submissions in turn draw upon information submitted by DFDS prior to that deadline. The DFDS submissions to which responses are now being provided are:–

- Deadline 7 Submission – Cover Letter **[REP7-042]**;
- Comments on Deadline 6 Submissions **[REP7-045]**;
- Comments on the ExA's Recommended Changes to the dDCO **[REP7-046]**;
- Protective Provisions in favour of DFDS **[REP7-053]**;
- Summary of case made at ISH5 by DFDS **[REP7-059]** with appendices:
 - Appendix 1 – Data for passage of Britannia Seaways into Immingham Lock on 26 September 2023 **[REP7-054]**;
 - Appendix 2 – Senior Safety Forum **[REP7-051]**;
 - Appendix 3 – Simulations **[REP7-052]**;
 - Appendix 4 – Commentary on Simulations dated 7 – 8 November 2023 **[REP7-047]**;
 - Appendix 6 – Keadby 3 Recommendation Report **[REP7-049]**; and
 - Appendix 7 – Keadby 3 Decision Letter **[REP7-048]**;
- Summary of case made at ISH6 by DFDS **[REP7-060]**;
- Statement of Common Ground between ABP and DFDS **[REP7-058]**;
- DFDS Response to ISH5 Action Point 5 **[REP7-055]**;
- DFDS Response to ISH5 Action Point 22 **[REP7-056]**; and
- DFDS Response to ISH5 Action Points 28 and 29 **[REP7-057]**.

1.2 Also provided are the Applicant's response to the Comments on the Application Changes 1, 2, 3 and 4 submitted by DFDS at Deadline 7A **[REP7A-001]**.

2 **Introduction**

2.1 This document provides the Applicant's response to the various submissions made by DFDS at Deadline 7. These submissions in turn draw upon information submitted by DFDS prior to that deadline. The DFDS submissions to which responses are now being provided are:–

- Deadline 7 Submission – Cover Letter **[REP7-042]**;

- Comments on Deadline 6 Submissions [REP7-045];
- Comments on the ExA's Recommended Changes to the dDCO [REP7-046];
- Protective Provisions in favour of DFDS [REP7-053];
- Summary of case made at ISH5 by DFDS [REP7-059] with appendices:
 - Appendix 1 – Data for passage of Britannia Seaways into Immingham Lock on 26 September 2023 [REP7-054];
 - Appendix 2 – Senior Safety Forum [REP7-051];
 - Appendix 3 – Simulations [REP7-052];
 - Appendix 4 – Commentary on Simulations dated 7 – 8 November 2023 [REP7-047];
 - Appendix 6 – Keadby 3 Recommendation Report [REP7-049]; and
 - Appendix 7 – Keadby 3 Decision Letter [REP7-048];
- Summary of case made at ISH6 by DFDS [REP7-060];
- Statement of Common Ground between ABP and DFDS [REP7-058];
- DFDS Response to ISH5 Action Point 5 [REP7-055];
- DFDS Response to ISH5 Action Point 22 [REP7-056]; and
- DFDS Response to ISH5 Action Points 28 and 29 [REP7-057].

2.2 This document also provides the Applicant's response to the Comments on the Application Changes 1, 2, 3 and 4 submitted by DFDS at Deadline 7A [REP7A-001].

2.3 The Applicant's responses in this document are grouped by theme to assist the Examining Authority in that many of the DFDS comments lack continuity and are somewhat disparate and scattered. To assist the ExA, the DFDS submissions to which the Applicant is responding are referenced as appropriate.

3 Navigational Simulations

3.1 **November 2023 simulations** - To correct the record, the ExA should note that in response to [REP7-045], point 2 and [REP7-059] point 2.14, the Applicant sent letters [REP 5-026] to all relevant parties on the 20 October 2023, prior to Deadline 5 on the 23 October 2023. The Action Point required the Applicant to submit a detailed brief and timetable for undertaking the additional simulations agreed in ISH3.

3.2 The Applicant received confirmation of the simulator availability on 18 October 2023 and issued a letter to the relevant IPs on 20 October 2023 which

included details of the proposed simulations provided by HR Wallingford (HRW).

- 3.3 The Applicant received confirmation of the simulator availability on 18 October 2023 and issued a letter to the IPs on 20 October 2023 - including details of the proposed simulations from HR Wallingford. The simulator is in fact in high demand and HR Wallingford had had to reschedule other work to which it was already committed in order to accommodate the extensive additional simulations that the Applicant was prepared to commission for the proposed IERRT development. The time in between the action point being issued on the 4 October 2023 and the letter of invitation being sent by the Applicant had been used for securing an appropriate time slot at the simulator, which is in high demand (HRW being an acknowledged industry leader, and the simulator being one of the most advanced of only a few in the UK). During this period the Applicant also sought to develop, with HRW, a simulation proposal which could be sent to the relevant parties for their review and meaningful input. The development of this proposal required the input from HRW's expert team so as to enable the production of an appropriate run plan in respect of which the IPs could provide feedback.
- 3.4 In its letter, the Applicant confirmed the availability of the simulator for 7 and 8 November 2023, thereby providing two weeks' notice. The Applicant also recognised that further engagement with relevant parties would be useful to discuss the approach and to ensure that all parties understood the intent of the simulations.
- 3.5 The Applicant provided a week for the IPs to confirm their availability and invited the IPs to attend a briefing call on 31 October 2023. This provided the IPs with seven working days to provide feedback on the simulation proposals prior to the briefing call.
- 3.6 With specific respect to the points referenced by DFDS at point 3 **[REP7-045]** and point 2.14 **[REP7-059]**, a Teams meeting was held with the IPs on 31 October 2023, prior to the simulations scheduled in early November 2023. At that meeting, DFDS' representative argued for use of a quantitative basis for assessing the forthcoming simulations. HRW explained, not the first time, the reasoning and logic behind the qualitative approach. Draft minutes of the meeting were circulated and the updated minutes together with the PowerPoint presentation are provided at Appendix 1.
- 3.7 Nevertheless, to assist DFDS, parameters provided by DFDS were incorporated within the assessment for the simulations which were undertaken in November 2023.
- 3.8 Following the meeting on the 31 October 2023, HRW considered how the feedback received from the IPs could be incorporated into the simulations. Then, prior to commencing the simulation runs on 7 November 2023, all simulator attendees were briefed by HRW's simulation lead who explained how the feedback received during the teams call referenced above could be addressed within the simulations. This included addressing concerns on tidal diamonds, sheltering, flow modelling, and pass/ marginal/ fail criteria. This briefing is provided in **[REP6-035]** Annex E.

- 3.9 **“Tug barge”** - With regard to Point 21 and Point 45 of [REP7-045] – “tug barge” - the DFDS criticism is unjustified and incorrect. The tug barge with four tugs alongside was included in the simulations conducted in November 2023 [REP6-035]. The Applicant and HRW are confident that previous simulations do not need to be repeated particularly as the fixed structure is outside the dredged berthing box and the position has in any case been consolidated.
- 3.10 The Tug barge, with Tugs alongside double banked, has been shown not to affect the ability of T class vessels to operate at berth 3. Even if it became necessary in challenging environmental conditions to manage the berthing on the tug barge to facilitate larger ship berthing at IERRT, then that would be managed in the normal course of river operations.
- 3.11 **December 2023 simulations - [REP7-059]** - In December 2023 the Applicant completed simulations with the proposed impact protection in place. The simulations showed that the impact protection has no effect on the ability of vessels to operate at IOT.
- 3.12 **DFDS observations** – The Applicant notes that DFDS have at [REP7-047] provided a commentary from Jonathan Bush on the simulations undertaken between 7 and 8 November 2023. Disappointingly, little weight if any can be given to this evidence. Jonathan Bush is an ex-ABP employee and his narrative reflects the personal views of one individual who did not operate the simulator, but rather observed and made limited comments during the de-brief. Furthermore, a number of the comments made are not substantiated and as a consequence, cannot be relied upon (point 16 being a specific example).
- 3.13 Placing this evidence in context, Mr Bush’s evidence should be viewed, in the opinion the Applicant, with considerable caution bearing in mind that it is clearly a personal, subjective account lacking the required evidential objectivity. Certainly, it cannot be construed as being in any way representative of pilotage or PEC views more generally.
- 3.14 As the ExA is aware, there was strong representation during the simulations (and indeed during all of the simulations conducted by the Applicant) from highly experienced mariners, including representation from both SHAs who were viewing the simulations in the context of their duty to the safety of navigation. This included an ABP pilot, the Humber Pilotage Operations Manager, the Harbour Master Humber as well as two Stena Masters (PEC holders) and the Port of Immingham Dock Master who attended virtually. All of these participants have been highly engaged throughout the development of the IERRT proposals and examination and they have extensive combined experience managing the safety of navigation of vessels across the Humber, including the Port of Immingham and the Humber Sea Terminal.
- 3.15 Several statements are made about the validity of the simulations. The Applicant has not, however, relied upon anecdotal evidence as provided in Jonathan Bush’s statement but instead - noting this marine area of the Port is undeveloped and not commonly navigated - combined substantial actual

navigational experience with comprehensive tidal data and the expertise of a world class navigational simulation facility.

- 3.16 Mr Bush concludes his evidence with what he claims are the views of other, albeit unspecified and unidentified, PECs and Pilots. These statements are clearly unsubstantiated and do not reflect the experiences of the Stena pilots nor the Applicant nor, it is understood, the representatives of the two SHAs.
- 3.17 The ExA should note that the comments made by Jonathan Bush at point 5 of the concluding statement are entirely incorrect as regular internal safety of navigation meetings take place which are chaired by SHA representatives. These meetings are attended by marine personnel representing all functions across the SCNA and SHA, including pilots and VTS. In addition, the IERRT proposals and the simulations have been discussed at these meetings and it is very disappointing that such misleading and inaccurate information has been put before the examination.
- 3.18 To avoid repetition, the Applicant has provided a response to DFDS' comments on tidal flows in the section below, which also takes account of Mr Bush's personal comments made in this respect.
- 3.19 **December 2023 simulations - [REP7-059]** - In December 2023 the Applicant completed simulations with the proposed impact protection in place. The simulations showed that the impact protection has no effect on the ability of vessels to operate at IOT.

4 **Tidal flow**

- 4.1 The Applicant and HRW have not "dismissed" DFDS comments on the flows – to the contrary considerable time and effort has been spent reviewing the flows and models see RT 010 **[REP6-033]**. On the contrary, as far as the narrative provided by DFDS in point 44 **[REP7-045]** and **[REP7-047]** is concerned, the Applicant and HRW have in fact taken the need to understand and correctly assess the tidal flows at IERRT very seriously. It has listened to the concerns expressed and undertaken additional work and surveys to ensure the assumptions supporting its assessment are valid.
- 4.2 The full range of measurements, modelling and check surveys undertaken are covered in Report **[REP6-033]**. The principal conclusion from this work is that when considering the average ebb and flood tide directions, when currents are greater than 0.5 knots, the model directions were within 2° of those observed during the ebb tide and within 0.5° during the flood tide. Additional work has been undertaken to correlate the modelled flows with those observed further away from IERRT using archive tidal data. The correlation is good.
- 4.3 Nevertheless, despite this, the Applicant agreed in the November 2023 simulations to create an exaggerated tidal flow in the approaches to Immingham at Appendix 2 of **[REP6-035]**. Even in these extreme conditions, however, it was demonstrated that an approaching Ro-Ro vessel could safely navigate to a stable position prior to making its final approach towards the IERRT berths.

- 4.4 The Applicant notes that DFDS have repeated many of the same points in 2.31 – 2.40 of **[REP7-059]**. To avoid unnecessary repetition, the Applicant highlights that the responses in the paragraphs above address the comments raised by DFDS.
- 4.5 **December 2023 simulations - [REP7-059]** - In December 2023 the Applicant completed simulations with the proposed additional impact protection in place. These simulations demonstrated that the provision of the finger pier impact protection would have no effect on the ability of vessels to operate at IOT.
- 5 **Design Vessel**
- 5.1 DFDS continue to suggest the Applicant has not defined the envelope of the size/tonnage of vessels that are intended to be used at the Proposed Development and has not assessed the impacts associated with the so-called “design vessel”. This is entirely incorrect. For instance, at paragraph 3.25 of Chapter 3 of the ES [APP-039] it is stated that ‘*the berthing facilities have been designed to handle vessels with a length overall (LOA) of 240 m, a breadth of 35 m, and a draught of up to 8 m’*.
- 5.2 DFDS do have to concede that the design vessel is identified at paragraph 4.5.2 of the NRA [APP-089], updated version at **[REP7-011]**, but to counter that concession, fall back on the argument that the NRA, the simulations and the ES do not appropriately assess the risks of operating such a vessel. Again, this is simply not correct.
- 5.3 The Applicant has responded at multiple stages during the course of the Examination to explain that the vessel LOA, beam and draught described in Chapter 3 represent an envelope which has been used to provide the parameters for the design of the IERRT infrastructure and to provide a robust envelope for assessment of impacts in the EIA.
- 5.4 Given the 50 year plus design life of the IERRT infrastructure, this means that the IERRT will be able to safely accommodate a vessel of up to 240m length (which will almost certainly have a lesser beam or draught accordingly) or a vessel of up to 35m draught (likely to have a reduced LOA or draught than specified in the “envelope”) or for example, a vessel of up to 8m draught (with a lower LOA or beam). The Applicant has explained on numerous occasions that the “design vessel” is deliberately not representative of a specific vessel that is intended to use the IERRT infrastructure. It is intended simply to assess the parameters for the assessment.
- 5.5 Further, as described in the Applicant’s submissions at ISH5 at point 30 **[REP7-020]**, the statutory duty and associated controls implemented by the Harbour Master Humber (HMH), which were also explained orally by HMH during ISH5 – see **[REP7-067]**, would apply before any ‘new’ vessel is authorised to berth at the IERRT. This is to ensure the Harbour Master Humber and Dock Master Immingham are satisfied that the infrastructure can be operated safely. This is the same process that is already followed today and, incidentally, was followed for the introduction of the DFDS Jinling vessels at IOH about which DFDS make no complaint and no comment.

- 5.6 ***Simulations generally*** - To avoid repetition, the Applicant now summarises some of the main submissions where further detail is provided namely:
- (a) The Applicant's oral summary of ISH5 (agenda item Navigation and Shipping) **[REP7-020]**;
 - (b) Sections 3.23 to 3.25 of the Supplementary Navigation Information Report **[REP-7-030]** (SNIR);
 - (c) Section 3.2 of the Applicant's Response to IOT Operators' Deadline 6 submissions **[REP7-024]**; and
 - (d) The Applicant's responses to ExQ4 (document reference 10.2.81).
- 5.7 ***HMH's requirements*** - The Applicant would also refer to the submissions made by HMH at ISH5 **[REP7-067]** which clearly explain the stringent considerations and assessments required to be undertaken by the HMH prior to the introduction of any new vessel operating at the facility.
- 5.8 As described in Section 3 of the Applicant's SNIR **[REP7-030]**, numerous simulations have been carried out which have proven that the proposed IERRT infrastructure can be operated safely with a variety of vessel sizes including the T-Class which will initially be operating at the facility and the DFDS Jinling vessel, used as a proxy for the design vessel.
- 5.9 ***Jinling vessel - Point 46ai*** **[REP7-045]** relates to the Jinling model used in the 2022 simulations. As DFDS know, the Jinling ship model has been significantly upgraded to account for improved delivery of power when manoeuvring at low speeds. This means that the ship manoeuvring assumptions applied in the original simulations were conservative in any event. In reality the ship delivers more power for lower engine settings than was previously the case and was previously modelled. It was not necessary to repeat the simulations as the results were conservative, but certainly the ship model used was not as manoeuvrable than is actually the case - contrary to what DFDS appear to be suggesting.
- 5.10 The operator and the Applicant will have the opportunity to influence the choice of design for any future Ro-Ro vessel that may be considered. These choices to be made by the operator will be influenced by the results of the work undertaken to date and as DFDS has done with the Jinling vessel which was introduced for the IOH, it will be the appropriately powered and best manoeuvrable vessel will be chartered or commissioned.
- 5.11 It is nonsense to suggest that an operator would choose to do anything other than ensure the safety and commercial viability of its operations.
- 5.12 ***Vessel manoeuvres*** - In reference to **Point 46aii**, the manoeuvres referred to by DFDS were part of a feasibility assessment conducted in extreme operating conditions (peak tides with winds in excess of 25 knots and gusts up to 30 knots) to demonstrate to the Applicant that the design and location for the IERRT infrastructure is both practicable and feasible. It is unsurprising that in such excessive conditions the full range of power was required at times to assist the vessel.

- 5.13 There was always, at all times, however, adequate additional power available in the form of tug or the vessel's own power to keep the manoeuvre safe. Furthermore, as noted above it has subsequently become apparent that the assumptions used for the controls on the Jinling model were conservative, providing additional confidence in the original assessment.
- 5.14 **Conflation of concept** - DFDS are mistakenly conflating the purpose of the design vessel as specified which is required for the environmental assessment with the requirement to undertake an examination and verification of the actual operations at the IERRT infrastructure. The work undertaken to date has been entirely appropriate and has satisfactorily demonstrated that large Ro-Ro type vessels can operate at the IERRT within a wide range of operating conditions.
- 5.15 In this context, the ExA should note that DFDS are wrong to suggest a ship handling model can simply be created and adjusted to provide a suitable representation in some sort of exercise to establish the acceptability/suitability of the proposed infrastructure. There are relatively few, if any, RoRo type vessels of the size parameters of the design vessel actually in operation and the G9 (Delphine) class ship is an unusual example in that it has bow and stern thrusters and only one shaft and rudder.
- 5.16 It is reasonable to expect a future Ro-Ro vessel operating at IERRT will have more modern engines 2 shafts and 2 rudders as well as large powerful bow thrusters. Had the Applicant and HRW arbitrarily identified these and applied them to the hull of the G9, they would probably have been criticised for selecting and designing a theoretical vessel to meet their requirements.
- 5.17 The approach taken using a conservative ship manoeuvring model in extreme conditions to demonstrate the feasibility of operations is a fundamentally sound and appropriate test.
- 5.18 The points made by DFDS in paragraph 47 are noted but are precisely the parameters that will need to be managed within the design and selection of a future operating vessel.
- 5.19 In respect of Paragraph 2.47 - The time frame to set up a charter is largely irrelevant so long as the HMH will not operate the vessel until they are satisfied it is safe to do so. It would take a maximum of 8 weeks to develop a ship manoeuvring model appropriate to undertake this work in simulation. In the meantime the risk can be managed with other interventions such as requiring tug support or limiting the operating window. It is normal practice for a harbour master to manage operations in this way. Note there is no legal requirement to test a facility using simulation, it is merely efficient and good practice.
- 5.20 **Restriction on size of vessel** - In response to paragraph 2.47 of [REP7-059], and the suggestion of what would be an unnecessary and unjustified restriction to limit to size of the vessel which can use the Proposed Development, the Applicant reiterates that restrictions already exist in the ordinary way by the statutory responsibilities and processes implemented by the SCNA for the Humber and the SHA for the Port of Immingham.

- 5.21 Indeed, this is already inherent in respect of the existing Port, including facilities such as IOH, any of the Eastern and Western Jetties and the IOT Terminal itself where the ability to use these facilities are controlled in practice by the SCNA and SHA rather than vessel size restrictions. DFDS, as the operator of the IOH and a user of the Immingham Inner Dock are actually very aware that this is the case – and to argue otherwise does rather question the credibility and motive underlying their evidence.
- 5.22 Both Statutory Authorities have a duty to ensure that a given vessel and the controls applied to it are appropriate before that vessel can be allowed to safely navigate in the Humber and access the Port of Immingham. This exercise is entirely distinct from the time taken or required to procure a vessel.
- 5.23 The design parameters set for the IERRT infrastructure - which have been mis-characterised by DFDS as being the precise dimensions of a ‘design vessel’ - place a natural limit on the size of the vessel that the infrastructure can physically accommodate.
- 5.24 The assessment within the NRA [APP-089], as updated at [REP7-011], considers a vessel of the size and type set out in at paragraph 4.5.2 of the NRA. All HAZID workshops and consultations carried out to inform the assessment were undertaken on this basis and the worst case and most likely hazard scenarios for each risk were applied to Ro-Ro vessels of this size.
- 5.25 ***Rochdale Envelope approach*** - As a consequence, a worst-case scenario has been assessed in the NRA, which is in line with The Planning Inspectorate’s Advice Note Nine and the ‘*Rochdale Envelope*’ approach.
- 5.26 The findings of the NRA will feed into the formal risk assessment (FRA) for port marine operations in the form of procedures within the Marine Safety Management System (MSMS). These procedures are applied to specific vessels and are kept under constant review.
- 5.27 With respect to other areas of the EIA and ES, not directly related to navigation, a worst-case scenario with respect to vessel size has been assessed. As described in Chapter 2 and 3 of the ES [APP-038] and [APP-039], the marine infrastructure and landside buildings have been assessed on the basis of their maximum parameters. The maximum parameters of the marine infrastructure have been designed to handle vessels of the size specified. This includes, for example, the length and position of the finger piers, the size and number of piles, and the extent and depth of the dredged berth pocket.
- 5.28 These scheme details have been specifically assessed throughout relevant chapters of the ES, including Chapter 7 [APP-043] on physical processes, Chapter 8 [APP-044] on water and sediment quality, Chapter 9 [APP-045] on nature conservation and marine ecology, Chapter 10 [APP-046] on commercial and recreational navigation, Chapter 11 [APP-047] on coastal protection, flood risk and drainage, Chapter 15 [APP-051] on cultural heritage and marine archaeology, and Chapter 19 [APP-055] on climate change.
- 5.29 As a specific example, Chapter 7 of the ES [APP-043] considers the hydrodynamic impacts of three vessels on-berth with a LOA of 240 m, breadth

of 35 m and draught of up to 8.0 m. Chapter 13 [APP-049] on air quality and Chapter 14 [APP-050] on noise and vibration also considered effects relating to the size and position of marine infrastructure and three vessels of the size specified operating from the berths. The other assessment chapters in the ES, namely Chapter 12 [APP-048] on ground conditions including land quality, Chapter 16 [APP-052] on socio-economics, Chapter 17 [APP-053] on traffic and transport and Chapter 18 [APP-054] on land use planning are not affected by the size and location of the marine infrastructure or the dimensions of the vessels that will operate from the proposed IERRT.

- 5.30 The Applicant's evidence and submissions demonstrate that a vessel up to the size of the design parameters specified has been appropriately considered within all relevant and necessary assessments – all of which conclude that the use of vessels up to this size would be appropriate and acceptable.
- 5.31 On this basis, the requirements of the EIA Regulations have been fully satisfied. The assessment undertaken has been in line with The Planning Inspectorate's Advice Note Nine and the 'Rochdale Envelope' approach.
- 5.32 With regard to Paragraphs 2.41 – 2.46 of [REP7-059], the Applicant therefore reiterates that it would be inappropriate, unnecessary and unjustified to suggest that a requirement should be included in the dDCO placing a restriction on the size of vessel that can use the Proposed Development.
- 5.33 As has been stated above and during the course of the examination on a number of occasions, this protection is already provided by the statutory remits and processes which fall to and are implemented by the SCNA for the Humber and the SHA for the Port of Immingham. Both Statutory Authorities have a duty to ensure the vessel and controls are appropriate to allow the vessel to safely navigate in the Humber and the Port of Immingham and it is not for third party users of the Port to interfere with the SHAs' exercise of their respective duties and obligations.
- 5.34 **Keady 3 power station** - DFDS' reference to the Keadby 3 power station is misplaced and misleading in this context. There is no requirement in the Keadby 3 Power Station DCO restricting the output from the station. Rather, the description of Work No. 1 is described as "*a carbon capture enabled electricity generating station located on land at the Keadby Power Station site, west of Scunthorpe, gas fuelled, and with a gross output capacity of up to 910 megawatts (MWe) at ISO standard reference conditions*". This description of the works is unchanged from the application version of the Keadby 3 DCO and the made version of the Keadby 3 DCO. Likewise, requirement 33 in both the application version of the DCO and the made DCO state that the authorised development may not commence until an environmental permit is in place. DFDS' portrayal of Keadby 3 as the applicant there arguing '*it was unnecessary and unworkable to impose a restriction on output from the power station as this would appropriately be controlled through another regulatory regime, namely the Environment Agency's environmental permitting regime*' is incorrect. Moreover, the basic context of the controls in question is fundamentally different.

5.35 The Applicant does not consider, therefore, that Keadby 3 can be relied upon as precedent for establishing a requirement in the IERRT DCO restricting the size of the vessel that may use the IERRT in the way that DFDS is suggesting. Imposing such a requirement is entirely unnecessary and inappropriate for the reasons given above.

6 Comparisons between IERRT and IOH

6.1 Regarding paragraph 7 of **[REP7-045]**, the Applicant does not dispute that IOH and Immingham Dock are different in their design from IERRT but that is not the reason for the comparison and its validity. The fact remains that both approaches to both berths require the operators to swing the vessels within the full force of the Humber flows. It is this comparison that was brought to the attention of the ExA. Moreover, it has already been pointed out above that the introduction and use of different vessels as tested by simulation were also subjected to the controls that already exist and which have been applied successfully by the SCNA and SHA to the IOH as to all parts of the Port.

6.2 The reason why it is pertinent to consider these similarities is because the manoeuvres at IOH in such tidal flows are well established as safe and achievable by large Ro-Ro vessels in the same area of the river where DFDS wrongly assert that the currents will be dangerous for vessel to manoeuvre when approaching IERRT. That, however, is clearly not the case and in the simulation and the controls identified above have already been used to assist the safe navigation, control and use of the IOH and the Port generally. The same will be the case for the IERRT facility.

6.3 At paragraph 19 of **[REP7-045]**, DFDS suggest the principal difference between operations at the Immingham Outer Harbour (IOH) and the proposed IERRT facility is the IERRT's proximity to the Immingham Oil Terminal (IOT) and the increased navigation risk this presents. In making that point, however, DFDS are ignoring the fact that locational difference has been the subject of the thorough assessments and simulations that have taken place.

6.4 Current operations at the Port of Immingham require the vessels using IOH (i.e., DFDS vessels) to navigate past the IOT main berths without any tug assistance. This operation is deemed to be acceptable and this current navigational process will be unaltered with vessels using IERRT.

6.5 If, as suggested by DFDS, an engine failure was likely or the risk was of the nature now suggested, all vessels passing IOT would need a tug today (which they do not). The likelihood of vessel engine failure will not increase as a result of IERRT and current mitigation is, therefore, considered acceptable moving forward.

6.6 As always, however, as part of the MSMS, this will be kept under continuous review. Furthermore, it is worth highlighting that DFDS vessels manoeuvre in very close proximity to the Western Jetty when arriving and departing from the IOH. This facility is a tramp liquid bulk facility which handles and stores a variety of different chemicals, predominantly fuels, but also styrene monomers, benzene etc. It is, therefore, directly comparable to the IOT

infrastructure in terms of consequential risks if allision or collision were to occur.

6.7 It logically follows, as highlighted by the Applicant previously [REP6-029], that operations at IOH carry a similar level of risk to that identified and assessed for the proposed IERRT project [APP-089] and updated at [REP7-011].

6.8 **Construction** – It is noted that DFDS also suggest there has been failures in the process adopted by the Applicant in demonstrating that the IERRT can be constructed and operated without posing material risks to the IOT and Eastern Jetty. That is strongly refuted.

6.9 A response to all of the comments raised by DFDS and IOT during the examination has been provided by the Applicant at each deadline and additional relevant submissions relating to navigation risk are provided in the Applicant's Review of the DFDS and IOT's Navigational Risk Assessment [REP6-030] and [REP6-031] respectively, and the Supplementary Navigation Information Report [REP7-030].

7 **Operating Limits and Parameters**

7.1 With respect to paragraph 8 of [REP7-045], the Applicant has previously explained in the Supplementary Navigation Information Report [REP7-030] and in its submissions at ISH3 and ISH5 [REP7-020] that the navigational simulations were in part undertaken to provide a feasibility assessment to ensure that the size, structure and location of the proposed IERRT infrastructure was sensible and practicable and the orientation was appropriate. The NRA looks at the high level risks associated with operations at the berths which supports the EIA.

7.2 The operational day to day risk assessment (under the duty of the SHA) would take place prior to the commencement of operations, and it is at this point when the SHA would put in place the relevant controls informed by its risk assessment and the requirement of a soft-start approach. This position has also been set out clearly by the HMH at ISH3, ISH5 [REP7-067] and at [REP7-064].

7.3 Notwithstanding this, the Applicant has provided a draft of the potential amendment to the Port of Immingham Marine Operations Manual, which is commensurate with its position on Requirement 18 and 18 A (renumbered Requirement 19) – [APP 10.2.81].

8 **Use of the Inner Dock**

8.1 As the Applicant has made clear in various submissions to the Examination, the site of the existing temporary in-dock Ro-Ro facility at Immingham that is currently used by Stena Line will continue in some form of port use once Stena Line has vacated the site and moved to the IERRT facility. For assessment purposes, the existing level of activity associated with the operation of that part of the Port has been assumed to carry on into the future, i.e. a continuation of the current baseline position, albeit that the future port use of the site is, at this stage, envisaged unlikely to be in connection with the Ro-Ro trade. This approach is considered to result in a robust assessment.

- 8.2 In [REP7-059], at paragraph 2.4, DFDS query whether the Applicant has assumed that the Stena-vacated area in the Inner Dock will be re-occupied in its assessment or if it has accounted for the vessels associated with the Proposed Development together with vessels taking over the inner dock berths vacated by Stena.
- 8.3 As stated in [REP7-020], the Applicant can confirm that the assumption is that those slots vacated by Stena will be filled, as shown within the Applicant's NRA [APP-089] as updated at [REP7-011] at Section 5.3 and Table 13 and elsewhere. On that basis, the worst case has been accounted for in that the IERRT development would give rise to all the additional movements as it was assumed that current movements in the Inner Dock would remain, albeit utilised by another operator.
- 9 **Navigational Risk Assessment (including HASB Tolerability Assessment)**
- 9.1 **ABP HASB** - In [REP7-045], at paragraph 22 and 23, DFDS assert that due to what they contend to be a lack of definition for likelihoods used in the NRA the Harbour and Safety Board (HASB) could have a different perspective of what the likelihood values mean and this could lead to the underestimation of risk from the stakeholders and the overestimation of tolerability from the HASB.
- 9.2 To clarify, Section 6 of the NRA [APP-089], as updated at [REP7-011] very clearly sets out the 'frequency descriptors' to define likelihood. When it was reviewing navigation risk associated with the IERRT and determining tolerability and the acceptability of risk in December 2022 [see Appendix G of REP7-011] and again in November and December 2023 [see Appendix E of REP7-030], the members of the HASB were fully briefed on the assessment methodology (including matrix descriptors) and are fully competent in their understanding of what was being presented. As Duty Holder for the SHA, the HASB would not accept any degree of risk based on the provision of inadequate information or lack of understanding of the degree of risk.
- 9.3 **IGET NRA methodology** - At paragraph 24 to 27, DFDS suggest that the methodology adopted by the Immingham Green Energy Terminal (IGET) NRA is different to the IERRT NRA (e.g., the application of probabilistic definitions for frequency (e.g., 1 in 1 year to 1 in 1,000 years)). This is an incorrect assertion. To be clear, the IGET NRA actually uses precisely the same methodology as used for the IERRT project. This includes the use of identical tolerability thresholds and risk scoring. Whilst a few small differences exist (such as the use of time periods in the frequency descriptors) and indeed the IGET NRA was undertaken by a different author to the IERRT NRA, the overall approach is the same and both are entirely consistent one with the other.
- 9.4 **Solent Gateway** - At paragraph 25, DFDS also note that the Solent Gateway NRA [REP4-024] used an assessment methodology that was agreed with ABP Southampton and used likelihood definitions provided by ABP Southampton to align with the port's own baseline risk assessment (taken

from MarNIS). DFDS may not be aware, but MaRNIS has been updated since the Solent Gateway NRA and the Applicant's NRA for IERRT [APP-089], as updated at [REP7-011], fully aligns with the ABP Group wide marine risk assessment.

- 9.5 **Societal risk** - At paragraph 28, DFDS continue to apply incorrectly the use of societal risk assessment to navigation. The Applicant's NRA is an assessment undertaken to support the Environmental Statement (ES) for the DCO application. As part of the assessment methodology, hazard scenarios were assessed against four receptors, one of which is 'people' (human life/personal injury). In this regard, the potential for passengers to use the IERRT facility and vessels has been assessed and is reflected in the hazard scenarios. However, the NRA is not designed to inform operation societal risk used in Land Use Planning.
- 9.6 **Congestion** - DFDS acknowledge at paragraph 29 [REP7-045] that the additional risk control of berthing criteria will reduce the specific risk assessed for the IERRT development. The Applicant does not agree with DFDS's suggestion that this could cause congestion. The Applicant's position on this matter is described in the 'Stemming and Operational Flexibility' section below.
- 9.7 The updated version of the NRA [REP7-011] addresses the concerns raised by DFDS at paragraphs 2.22 and 2.23. The updated document has been restructured to make clear the outcomes of the risk assessment and controls to be applied.
- 9.8 **Consultation** - At paragraph 2.27 to 2.30, DFDS make assertions that inadequate consultation has been undertaken to inform navigational risk and that their views have not been accounted for when defining acceptability and tolerability. The Applicant rejects this comment. Detailed and comprehensive stakeholder engagement has been undertaken with key stakeholders as part of the NRA for the IERRT project [APP-089] as updated at [REP7-011]. This point is emphasised in the Applicant's Review of the DFDS and IOT Navigational Risk Assessment [REP6-030 and REP6-031, respectively]. The Supplementary Navigation Information Report [REP7-030] also reviews the findings of the Applicant's NRA in light of the views expressed during the IERRT examination, which was reviewed by the HASB. The HASB have confirmed that the risks associated with the IERRT development, taking account of proposed mitigation, are tolerable and ALARP.
- 9.9 **Legal obligations** - DFDS then assert, in paragraph 2.30, that navigational safety is not an issue for the Designated Person or Duty Holder, but rather the ExA. This is wholly incorrect and a deliberately misleading description of the legal position.
- 9.10 The SHA and Duty Holder are solely responsible for the safety of navigation within the jurisdiction limits of their boundary as defined by Act of Parliament and statute. The Designated Person is also appointed for PMSC assurance.

9.11 The UK Government does not have a general power to intervene or influence the management of safety of navigation within areas of an SHA – and indeed would not wish to do so.

10 **Cost Benefit Analysis**

10.1 The Applicant does not agree with DFDS's comments in **[REP7-045]** (paragraph 20) and **[REP7-059]** (paragraphs 2.18 - 2.21). The Applicant has provided a consistent explanation of the approach to the Cost Benefit Analysis undertaken as part of the NRA for the IERRT with its evidence contained in the following submissions:

- (a) The Applicant's NRA **[REP7-011]**;
- (b) A cost benefit analysis workshop summary note (Annex F of **[REP7-011]**);
- (c) The Applicant's responses to the Examining Authority's questions including NS.2.06, NS.3.03 **[REP7-022]**;
- (d) Submissions made at ISH5 **[REP7-020]**; and
- (e) Section 4.35 of the Applicant's Supplementary Navigation Information Report **[REP7-030]**.

10.2 This consistently evidences that each risk identified in the NRA was deemed to be tolerable and ALARP through the embedded and applied controls that had been identified and adopted. As stated by the Applicant in ISH5, the only identified Further Applicable Control that was discounted on the basis of a cost benefit assessment was the relocation of the IOT finger pier, see Annex F of **[REP7-011]**. This is consistent with the Applicant's NRA which states that impact protection would be included as a project specific adaptive procedure and included within the DCO application, see paragraph 9.9.24 of **[APP-089]**.

11 **Engagement with DFDS**

11.1 DFDS have provided further information on the Senior Stakeholder Forum in **[REP7-051]**. The Applicant's response is provided in its response to ISH5 Action Point 17 **[REP7-020]**.

12 **Independence of the Designated Person**

12.1 In response to points 9 and 11 **[REP7-045]**, the Applicant refers to the detailed submissions made by Captain McCartain at ISH3 (points 39 – 49) **[REP4-009]**. These submission explain that the Designated Person (DP) can be an employee of the port owner and that ABP's approach is entirely in compliance with the PMSC Guide to Good Practice. Indeed, ABP is not unique in this respect as many other SHAs have their own employees acting as the DP.

12.2 The governance of ABP as Duty Holder is such that whoever is in the DP role has immediate and unfettered access to the Chief Executive as well as ABP's Audit and Risk Committee. In some smaller SHAs, it may be more appropriate

to appoint an independent DP if the size of the port is very small and it might not be possible or appropriate to secure the necessary resource and expertise in-house. This is not the case for ABP.

- 12.3 As explained by Captain McCartain during ISH3, the Designated Person advises by reviewing the information provided entirely independently once the necessary information has been collected. The DP must act without prejudice or influence and as a consequence, and as explained by Captain McCartain at ISH3 attendance for example at a workshop or simulation would run counter to the ethos of the DPs role. Thus, attendance and subsequent dialogue with parties at Workshops, meetings generally, could potentially prejudice the qualitative conclusions and recommendations and compromise the DP's position at a later stage in the process.

13 **Independence of the Statutory Harbour Authorities**

- 13.1 At Paragraph 10 of **[REP7-045]** DFDS disputes that there is an adequate governance and management reporting structure in place to ensure that the respective duties of the two SHAs can be exercised independently in practical terms.
- 13.2 The Applicant has consistently evidenced the robust governance processes in place including its HAS Board (the Duty Holder under the PMSC) and has submitted material and minutes from the HASB meetings relating to the IERRT project.
- 13.3 Additionally, Captain McCartain (Director of Marine and Compliance and acting Designated Person) has participated fully in the hearings and his submissions are summarised at **[REP4-009]** and **[REP7-020]**.
- 13.4 The Applicant strongly disagrees with DFDS's assertion with regard to inadequate governance by the two SHAs and refers to its joint submission with HMH in response to ISH5 Action Point 5 **[REP7-066]** - Joint Note on the Separation of Functions which is supplementary to **[REP1-014]** which sets out the Management, Control and Regulation of the Port of Immingham and the River Humber.
- 13.5 The position of DFDS is impossible to reconcile with the fact that the existing arrangements currently applied in relation to the IOH itself – which have led to the introduction and change in the use of the IOH, a facility owned by ABP, but operated by DFDS and where the safety of operations – are the same controls that will be applied to the IERRT which will be operated by a different operator. The only difference is that whereas IOT is operated by DFDS, the IERRT facility will be operated by a different operator, Stena, which will be a commercial rival to DFDS - albeit in circumstances where competition in ports is strongly encouraged by national policy).

14 **Impact Protection Measures**

- 14.1 The Applicant agreed to work with the IOT Operators with a view to developing a scheme of marine infrastructure protection for the IOT, without prejudice to the respective positions of the parties as to the need for such measures. As explained during ISH5, the Applicant embarked on a series of

design workshops with the IOT Operators in an effort to develop a viable concept for marine infrastructure impact protection without prejudice to the assessments that such additional measures are not required, in order to try and meet the stated requirements of the IOT Operators. Following the conclusion of these design workshops it was clear that the physical infrastructure that would be required to meet the requirements of the IOT Operators was disproportionate and undeliverable.

- 14.2 The rationale for the inclusion of the proposed physical impact protection measures has been clearly set out at ISH5 and in the Applicant's Changes Request Report **[AS-072]** and the Applicant's Supplementary Navigation Information Report **[REP7-030]**.
- 14.3 The Applicant's position is clear. It is considered that it will only be necessary to install physical impact protection structures if the proposed Enhanced Operational Controls (e.g., the use of tugs during ebb arrivals to Berth 1) which are designed to prevent a vessel collision in the event of an extremely unlikely controls failure were to be removed.
- 14.4 The Applicant has been consistent throughout the examination that the operation of IERRT would be subject to both 'project specific adaptive procedures' and 'specific berthing criteria for each of the three berths'. The operational marine management controls that are proposed to be implemented are clearly set out in the Applicant's Environmental Statement Addendum, Table 3.2 **[AS-070]**.
- 14.5 In response to 2.49.6 of **[REP7-059]**, the Applicant has fully explained the Enhanced Operational Controls in Section 3.3. of **[AS-070]**. The navigational simulation reports referenced at **[AS-071]** and submitted at Deadline 8 (document reference 10.2.90) demonstrate the effectiveness of those controls in preventing an collision to the IOT in the extremely unlikely event of a RoRo vessel controls failure.
- 14.6 The Applicant has also previously commented on the inconsistencies in the narrative put forward by DFDS where it supports enhanced operational controls to manage risk to the Eastern Jetty but disagrees that the measures are appropriate to manage the risk to the IOT jetty.
- 14.7 The evidence submitted by the Applicant demonstrates that the enhanced operational controls are entirely appropriate and as such, the Applicant disagrees with the comments by DFDS in para 2.49.8 of **[REP7-059]**. The Applicant's position is that it is not appropriate to secure these in the DCO itself, taking account of the HMH's submissions at ISH5 **[REP7-067]**, in that the existing statutory regimes provide appropriate the correct means to secure the measures without binding the hands of the HMH or the SHA. The HMH's submission at Deadline 7a **[REP7A-002]** re-confirms this position.
- 14.8 In addition, as the ExA is fully aware, the requirement to construct either or both of the impact protection measures is not at the discretion of the Applicant, as stated by DFDS, but rather would be based on a recommendation from the SCNA or the SHA.

- 14.9 In response to paragraph 2.49.3, in the unlikely event of a vessel allision at highest impact energies, the impact protection structures are designed to deform plastically (this is to say, that they will deform and not return to original position) thus serving their function of protecting the IOT infrastructure. In the unlikely event of significant allision with the infrastructure, the structures would need to be assessed to ensure they remain functional and would be replaced if considered necessary. If replacement was required, then IERRT operations would need to be appropriately risk assessed to ensure continued operation remained safe. The Applicant's Design Report submitted at Deadline 8 (document reference 10.2.92) provides further technical detail in respect of such a scenario.
- 14.10 The Applicant conducted navigational simulations in November 2023, which demonstrate that the finger pier impact protection measures have no impact on navigation to/from the IOT and the IERRT berths. The results were submitted in tandem with the Applicant's change submission at **[AS-071]**. Unfortunately, stakeholders declined to attend the 15 November simulations due to a lack of availability and in light of this, the Applicant carried out further simulations with stakeholders in attendance in December 2023. Briefing material was provided to stakeholders including DFDS in advance and a briefing call was held on 12 December 2023. The December 2023 simulations have again demonstrated that vessel manoeuvres relating to the IOT and the IERRT can be undertaken safely with the potential impact protection measures in place. The Applicant has submitted a report at Deadline 8 (document reference 10.2.90).
- 14.11 The Applicant is not clear where DFDS's reference to a construction stakeholder liaison group in 2.49.10 of **[REP7-059]** has originated, however, the Applicant's outline offshore marine CEMP **[AS-077]** provides details of the stakeholder communications which will be relevant to DFDS as a port stakeholder.

15 **Stemming and Operational Flexibility**

- 15.1 The Applicant refers to the HMH's submission at **[REP2-057]** and the graphics produced at **[REP4-029]** which have already addressed the points that DFDS continue to raise regarding stemming in **[REP7-059]**.
- 15.2 The HMH submission at **[REP4-029]** provides an explanation and graphical representation of the stemming areas that would be used for different vessel arrival and departure scenarios with the IERRT in place. This includes vessels arriving at the IOH, Immingham Dock, IERRT and IOT. Whilst DFDS are correct in the commentary that vessels for the Dock would not be able to stem in the IERRT navigation area, this does not prevent the use of the western stemming area (near the Western Jetty) as shown on the graphics. The explanatory note provided within the 'Potential Traffic Scenario Overview' **[REP4-029]** explains that although there are some geographical overlaps, in practice the planned timings are the main tool that is used to separate vessels and movements would be scheduled to ensure that conflicts do not arise. This is part of the day-to-day management at the Port of Immingham, which Commander Bristowe described in detail at ISH5 **[REP7-020]** (point 40), and which includes 24/7 coverage within VTS managed by personnel who are

- responsible for co-ordinating and monitoring the movement of all vessels in the Humber.
- 15.3 In addition, as set out by both the HMH and the Applicant's submissions, overall vessel movements at the Port of Immingham have shown a declining trend, meaning that there is more than sufficient capacity to accommodate the additional movements generated by the IERRT.
 - 15.4 On that basis, the Applicant disagrees that there is any evidence to suggest that delays and 'inhibited movements' would arise as suggested by DFDS.
 - 15.5 The effects of additional vessel movements on operational flexibility have been assessed in submissions made by the Applicant. See for example Chapter 16 of the ES **[APP-052]**. In this assessment, the potential construction and operational effects on relevant businesses are considered, on a case-by-case basis. The potential to cause delay and scheduling issues for vessels that current already access the Port of Immingham or which use the wider Humber Estuary is also covered in this assessment.
 - 15.6 Additionally, and in responding also to **[REP7-045]** paragraph 29 and **[REP7-047]** point 7, the graphics produced by the Applicant in response to ISH5 Action Point 5 **[REP7-031]** and **[REP7-032]** present a factual representation of real-life vessel movements occurring on a busier than average day at the Port of Immingham. These demonstrate that the IERRT vessels can be accommodated without impacting on operational flexibility.
 - 15.7 ISH5 Action Point 5 Annex II **[REP7-032]** provides a replay of the VTS traffic monitoring system with the IERRT infrastructure and planned vessel movements overlaid.
 - 15.8 The case study day was selected as a factual representation of a busier than average day, on a spring tide, where the high-water Immingham time coincides with the arrival and departure time of the vessels for the proposed IERRT terminal. This makes it a robust representation of the worst-case scenario as tidally restricted vessel movements coincide with the proposed IERRT arrival and departure times.
 - 15.9 **[REP7-032]** evidences that with the proposed IERRT infrastructure in place and operational, minimal deconfliction of vessel movements would be required. The only adjustment that was required was a very minor adjustment (less than 5 minutes) to a vessel's departure time from the proposed IERRT infrastructure to allow a vessel to depart from Immingham lock ahead of the IERRT vessel.
 - 15.10 More generally, the Applicant notes the HMH's submissions at ISH5 **[REP7-067]** which clearly explain that the management of vessel movements is a function provided by the SCNA through Humber Estuary Services and it is within their capability to continue to manage this going forward to prevent congestion to any customer across the Humber. The HMH's oral summary from ISH5 also makes clear that this is not a question of Stena coming in and everyone fitting around Stena and that vessel movements will be planned and carried out safely with proper management.

15.11 In summary, the Applicant's position is that the presence of the IERRT infrastructure, irrespective of whether berthing controls are in place, will not result in congestion and there will be no impact on other waterway users and stakeholders, including DFDS. This has been fully evidenced by the Applicant.

16 **Vessel Engine Difficulties and Tug Availability**

16.1 At paragraph 2.66, DFDS cite an example of a recent Jinling RoRo vessel encountering engine problems but have not provided any evidence of correspondence with the towage providers or the nature of the engine issues experienced. The Applicant is, therefore, unable to comment on the specific reason for the towage providers responses in this instance.

16.2 The Applicant would note, however, that the DFDS example is an abnormal event, the management of which would be different to the management of the planned and scheduled services being proposed at the IERRT.

16.3 The case example provided by DFDS supports the Applicant's position that a vessel would not be permitted to proceed or depart to/from its berth unless the appropriate controls are in place for the manoeuvre to be completed safely and to the satisfaction of the SHA. This example also demonstrates that there is a residual risk today of a vessel experiencing an engine issue and, in the event that it occurs, the use of towage is an entirely appropriate – and safe – control measure to bring the vessel to berth safely.

16.4 The Applicant refers to its response to ExQ4 [10.2.81] regarding the provision of towage in response to market forces.

17 **Passage of the Britannia Seaways vessel into Immingham Lock observed during the course of the Accompanied Site Inspection (26 September 2023)**

17.1 The Applicant notes the information submitted by DFDS in [REP7-054] and also the information submitted by HMH in [REP7-062].

18 **Transport**

18.1 The Terrestrial Transport implications of the proposed development have been subject to significant discussion and further appraisal throughout the examination. The inputs (and outcomes) of the Transport Assessment were agreed with all three Highway Authorities (NELC, NLC and NH) in advance of submission of the DCO. Notwithstanding this, comments raised by Interested Parties (DFDS and CLdN) in particular lead to further appraisal and assessment of the scheme.

18.2 The outcome of those discussions is reported in full in the Addendum TA [REP7-013]. The main updates to the assessment relate to the following issues:

- (a) Transport Policy Position and Mitigation (Annex A of [REP7-013]);
- (b) Updates to junction capacity assessments (as described at Section 6.4 and provided in detail at Annex G of [REP7-013]);

- (c) Provision of Sensitivity Tests on off-site junctions (Annex J of **[REP7-013]**);
 - (d) Updated internal junction assessments (and sensitivity testing) (Annexes I and J of **[REP7-013]**); and
 - (e) Updated assessment of Port Security Gate Capacity (Annex L of **[REP7-013]**).
- 18.3 The updated reported in **[REP7-013]** confirms that the conclusions of the original TA remain unaltered and it is concluded that the development would not result in any severe impact on highway safety or capacity and would meet the relevant national tests as set out in the NPPF and NPSfP.
- 18.4 Arising from Action Point 31 of ISH5 and EXQ4 questions TT4.01, TT4.03 and TT4.04, the ExA have sought the views of the relevant highway authorities on the outcomes of those assessments.
- 18.5 The principal change from the updated assessments is that the local junctions are shown to have less spare capacity than previously presented in the original TA **[AS-008]**. This reduction in capacity is simply as a result of changes to the base input flows and committed development. The impact of the development in terms of changes to junction operation is minimal and that position has not changed.
- 18.6 In addition, notwithstanding the Applicants view on the necessity (as reported at Annex J of **[REP7-013]**), a Sensitivity Test has also been undertaken following conversations with GHD (for DFDS) and RHDHV (for CLdN). This robustly assess the potential of 60% of HGVs accessing the IERRT development via West Gate with 36% of HGVs (related to unaccompanied units) either arriving or departing as solo tractor units.
- 18.7 The updated assessments have been provided during the Examination and in draft to DFDS and CLdN on 30 November 2023 although no response has been agreed.
- 18.8 It is, however, understood that DFDS now agree all of the inputs into the base modelling (via email 22/11/23) but disagree with the conclusions reached by the Applicant and as noted below, are also agreed by the highway authorities.
- 18.9 It is the Applicant's position that DFDS are clearly misinterpreting the Policy requirements in their conclusion that mitigation is required. They propose an approach which requires the IERRT development to deliver a 'nil detriment' rather than the policy position of 'not severe'. This is a wholly improper interpretation of the policy requirements.
- 18.10 These updated and additional (sensitivity) assessments have been provided to National Highways (NH), North Lincolnshire Council (NLC), and North East Lincolnshire Council (NELC) for their comments. All the highway authorities have confirmed that they agree with the conclusions of the revised assessments and agree that no mitigation is required. This is as a result (as would be expected) of their proper interpretation of the Policy Requirements.

- 18.11 NH have asked to be party to the Construction Traffic Management Plan (see the Onshore CEMP at application document 9.2.1) and this has been agreed by the Applicant.
- 18.12 The SoCGs between each highway authority and the Applicant have been updated to reflect this in response to Action Point 31 of ISH5 and EXQ4 questions TT4.01, TT4.03 and TT4.04.
- 18.13 Final versions of the junction capacity assessments have been attached as annexes to the TA Addendum **[REP7-013]**, produced to summarise the updates and changes since the original TA was submitted.
- 18.14 The agreed position on security gate house capacity is that, subject to the improvements at East Gate, either gatehouse could accommodate 100% of traffic generated by the IERRT development without material impact.
- 18.15 Against this background the following gives an overview response to the DFDS Deadline 7 responses as follows:
- 18.16 **[REP7-042]** provides the DFDS response to ISH5 AP27 and reiterates their view on the need for a revised Transport Assessment. This is repeated in **[REP7-059]** Para 3.22 – 3.24. The Applicant's position on this is clearly set out in Point 86 of **[REP7-020]**. A full Addendum TA has been **published [REP7-013]**. The addendum follows the same structure as the submitted TA [AS-008], to make it clear to readers as to what has changed or been added since the original document.
- 18.17 In terms of Terrestrial Transport, there are repetitive submissions in both **[REP7-059]** (Summary of Case Made at ISH5) and **[REP7-045]** (Comments on Deadline 5 submissions) can be split into the following overall issues / topics:
- Wayfinding (REP7-042 Paras 12, 13 and 17 and [REP7-059] Para 3.8)**
- 18.18 In response to discussions at ISH5 and as requested by the ExA, the applicant has submitted an Operational Freight Management Plan **[REP7-036]** which discusses the management of vehicles coming to and from IERRT. This includes provision of information for wayfinding to encourage the use of East Gate.
- 18.19 National Highways (and indeed all of the highways authorities) are fully aware that strategic signage changes on the A180 do not form part of the DCO. Whilst they have expressed willingness to support such a change their views on the application are made in the knowledge that signage changes do not form part of the IERRT proposals.
- 18.20 In summary, the application has been properly considered in terms of management of HGVs as required by the NPSfP Section 5.4 has been appropriately secured.
- Update to the operational junction assessment (REP7-042 Para 5, 48 – 55, 60 and REP7-059 Para 3.10, 3.11-3.12,3.13, 3.18, 3.20)**

- 18.21 These sections are lengthy repetition of points that have previously been made to the Examination. All outstanding technical issues in relation to the model were agreed with DFDS and confirmed by them on 22/11/23 by email to the Applicant. The position that there remains “*non-material errors*” in the modelling (as reported at **[REP7-059]**) is, therefore, not correct.
- 18.22 Contrary to the suggestion running through the text, the updated modelling has been transparently updated and comprehensively discussed at the examination. The reasons for the updated modelling are transparently set out in Sections 6.1.1, 6.3.1 and 6.4.2 of the Addendum TA **[REP7-013]**. The highway authorities have been provided with all the data and have (re)confirmed their position in respect of the Transport Assessment.
- 18.23 At **[REP7-059]** Para 3.10 DFDS repeat a request for assessment of the key junction capacities so that the various scenarios can be compared with those capacities to define the materiality of impact (Traffic SoCG **[REP6-011]**). They ask for that by Deadline 7 (11/12/23). The consideration of junction capacity in the context of the application has been provided as part of the sensitivity analysis and provided to DFDS on 30/11/23. DFDS have yet to respond to the applicant on this point.
- 18.24 **[REP7-042]** paragraph 60 highlights a clear misunderstanding by DFDS of the modelling. It is in the Applicant’s view, obvious from the conclusions that majority of the traffic volume being added to the base volume using the network in the future year is a result of background growth and committed development growth rather than the proposed development. This was also shown in Graph 1 of **[REP5-027]**.

Sensitivity Testing (REP7-042 Para 18, 62 and 63 & REP7-059 Para 3.5-3.7)

- 18.25 In addition, notwithstanding the Applicant’s continued view on the absence of any need for this, (as reported at Annex J of **[REP7-013]**) as noted above, a Sensitivity Test has also been undertaken following conversations with GHD (for DFDS) and RHDHV (for CLdN). This robustly assess the potential of 60% of HGVs accessing the IERRT development via West Gate with 36% of HGVs (related to unaccompanied units) either arriving or departing as solo tractor units.
- 18.26 Contrary to the suggestion at **[REP7-059]** Para 3.15 the Applicant has never agreed to provide “seven sensitivity” tests, but rather to provide a test as described above (and recorded at **[REP7-026]** Para 6.3 and the SOCG Para 12-14).
- 18.27 Whilst the tests provide for a proportionate range of different outcomes to be tested, it assesses what the Applicant already considers to be a wholly unrealistic and therefore unreasonable assumption as to the level of traffic using the A160 corridor. Given the robustness of the test (i.e. 60% via West Gate and 36% solo tractor ratio) and the reasons given in Section 6 of **[REP5-027]** it is not considered appropriate to layer on further levels of sensitivity (i.e. considering the 60/40 split plus the generic AM profile).

- 18.28 The applicant's position with respect to the consideration of mitigation in respect of transport impacts arising from the proposals is set out below. That requires assessment of the development in terms of the acceptability of impacts arising from it rather than consideration of pre-determined thresholds of available capacity (or otherwise) on any particular junction.
- 18.29 The updated assessments (both in the base case and sensitivity tests) submitted as part of the examination confirm that there are junctions in the vicinity of the Port of Immingham which are approaching capacity on the basis of consideration of Ratio of Flow to Capacity.
- 18.30 Development flows up to a 60% split via West Gate result in all junctions operating below an RFC of 1. They also confirm that all junctions affected by the development are operating within capacity at present (in the base case). Future year capacity reduces as a result of growth and committed development. The position in both the year of opening (2025) and future year assessment (2032) with development is that the development traffic itself does not have a material impact on junction operation, queuing or delay.
- 18.31 The range of flows that are tested in this sensitivity test further confirm that the network is resilient in terms of differing flow assumptions, with the net difference between the updated TA base case [REP5-028] and the sensitivity test being marginal in terms of overall impacts.
- 18.32 Consideration of mitigation is not, therefore, warranted in terms of the requirements set out in the National Planning Policy Statement for Ports (see below).

Need for Mitigation as a result of the development (REP7-042 Paras 4, 15, 54-64 and 69-72 and REP7-059 para 3.17)

- 18.33 The Applicant's position in terms of the policy basis for considering mitigation as a result of the Application is clearly set out in Section 2.2 of [REP7-013], with more detail provided at Annex A of [REP7-013]. The tests of that policy are clear that mitigation should only be considered if the development in question leads to 'substantial' impacts (in the context of NPSfP) or 'severe' impacts (in the context of the NPPF). Based on the assessments provided such impacts would clearly not be generated by the IERRT Development. There is, therefore, no need or justification for consideration of highway capacity or safety mitigation.
- 18.34 The test in respect of the A160 / A180 junctions which are part of the Strategic Road Network should also take into account the requirements of DFT Circular 01/22. That sets the need for mitigation to be required (at Para 51 when "*a transport assessment indicates that a development would have an unacceptable safety impact or the residual cumulative impacts on the SRN would be severe [...]*").
- 18.35 There is clearly no unacceptable safety impact nor severe impact arising from the IERRT Development.
- 18.36 In contrast to that clear policy requirement, the approach taken by DFDS in Para 56-64 is flawed and irrelevant to the decision maker. Their references

to adopting RFC as a measure for testing impact of a development is (by their own admission at Para 57) withdrawn advice.

- 18.37 As required by the policy, consideration of capacity, safety and delay is necessary. All these metrics (including RFC) are provided as an output of the assessment and considered in the Transport Assessment and Addendum TA. They collectively form the basis of assessment of any development. In this case, there are no discernible changes in RFC, delay or queuing (which might lead to highway safety issues) on any junction tested.
- 18.38 At **[REP7-042]** Para 69-71 DFDS raise the issue of the IEMA Guidelines. The fact that the IEMA Guidelines recognises that motorists and freight vehicles are affected parties and that receptors that are sensitive to changes in traffic conditions include junctions and highway links at (or over) capacity is not in dispute.
- 18.39 However, the updated junction models still conclude that there are no adverse operational impacts in relation to driver delay as a result of the IERRT development and so the conclusions made in respect of the TA and ES remain correct and appropriate. The assessment shows there is no need for mitigation in the context of the IEMA guidance.
- 18.40 The DFDS Traffic Impact Study **[REP7-057]** gives a further view on mitigation requirements. For the reasons set out above this is based on the wholly flawed interpretation of the policy requirements. To highlight this flaw the document states:
- “mitigation measures should be considered in any location where the IERRT development is either:*
- a) adding additional traffic flows to junctions operating at or over its practical capacity of RFC 0.85; or*
- b) the IERRT development traffic flows push approaches to a junction above its practical capacity of RFC 0.85.”*
- 18.41 To adopt this approach would be flawed and inappropriate and the document should be given no weight by the decision maker.
- 18.42 For the avoidance of doubt a review of each junction considered by DFDS is not given here as the Applicant’s clear assessment of that is IERRT does create any substantial or severe impacts in terms of capacity or unacceptable impacts in terms of safety at any of the junctions tested. This is true in both the base case and for the sensitivity analysis.
- 18.43 Furthermore, the views of the appropriate highway authorities have been obtained as discussed below. All the highway authorities have confirmed that they agree with the conclusions of the revised assessments and agree that no mitigation is required.
- 18.44 Need for Consultation with Relevant Highway Authorities (**[REP7-042]** Para 59, 61, 62 and **[REP7-059]** Para 3.18 – 3.19))

- 18.45 It is noted that the ExA have requested the views of the appropriate highway authorities (EXQ4 questions TT4.03 and 4.04) and their views will be available at Deadline 8. From discussions with all three Authorities to date, they have agreed the conclusions reached by the Applicant in respect of mitigation and that none is specifically required for capacity or safety enhancement on the highway network as a result of the proposed IERRT development.

Terminal Capacity Issues (REP7-042 Paras 15 and 65 and REP7-059 Paras 3.1-3.4)

- 18.46 As referenced at Paragraph 15, DFDS have provided further details of their assessment of terminal Capacity (ISH5 Action Point 22 – [REP7-056]). [REP7-056] provides an update to the GHD assessment of terminal capacity as originally presented at [REP6-038]. The original assessment included a number of incorrect input assumptions and those have subsequently been discussed with GHD.
- 18.47 DFDS are seeking to make a point that –
- (a) the terminal does not have the capacity to accommodate the throughput of the terminal (limited at 1,800 units per day); and that
 - (b) there are some (unidentified) changes in the applicant’s assessment of traffic generation/profile which need to be re-considered as a result of DFDS assessments.

Neither of these points have any validity.

- 18.48 A full response to the updated note is provided in the Terminal Capacity Statement (Application Document reference 10.2.88). This Statement confirms at Section 3 that none of the parameters which might affect terminal capacity directly changes the profile of arrival or departure of HGVs from the terminal as assessed in the TA (and Addendum).
- 18.49 Overall, the capacity of the terminal as assessed by DFDS suggests the need on a peak day (operating at 1,800 units throughput on the public highway) for unaccompanied Ro-Ro imports is 1,709 slots. The equivalent demand for the average day is a peak of 1,411 slots. As set out above in Table 2 of the Terminal Capacity Statement, there are 1,446 slots available in the layout for unaccompanied UK imports. This will, therefore, without any modification or management, accommodate average day demand adopting the GHD approach for the average day. For peak demand day, through management as described above, a total of 1,901 slots could be made available on the terminal. This is well in excess of the 1,709 slots that GHD assess as being required.
- 18.50 There is, therefore, no conflict between the outcomes of the two approaches. The GHD assessment supports the conclusions reached by the Applicant.

19 Policy Matters – REP7-059 paragraphs 2.52 to 2.60

- 19.1 Within these paragraphs DFDS highlight certain aspects of policies contained within Marine Policy Documents.

- 19.2 Having regard to its evidence, the Applicant – in respect of Paragraph 3.4.7 of the UK Marine Policy Statement (2011) - considers that the proposed IERRT development:
- (a) minimises negative impact on shipping activity;
 - (b) will generate significant economic benefits and will not have significant negative economic impacts on existing port operations; and
 - (c) will not, in any significant way, impact on the efficiency and resilience of continuing port operations.
- 19.3 Similarly, in respect of paragraph 248 of the East Inshore and East Offshore Marine Plan, the Applicant's evidence demonstrates that any negative impacts on shipping activity that may occur as a result of the IERRT facility will be minimal and not significant.
- 19.4 Leaving aside the fact that the IERRT facility does not involve the provision of static sea surface infrastructure that encroaches on navigation routes either directly shown in the plan referred to in Policy PS2 or other such routes within the East Marine Plan, the Applicant considers that its evidence demonstrates that the IERRT development is compatible with the need to maintain space for safe navigation and avoids related adverse economic impacts, in addition to accounting for impacts upon navigation in-combination with other existing and proposed activities.
- 19.5 Notwithstanding and without prejudice to the above, the Applicant also notes that Policy PS2 acknowledges that proposals that encroach on important navigation routes can, in any event, be authorised in exceptional circumstances. Paragraph 366 of the Marine Plan goes on to identify that exceptional circumstances may be Nationally Significant Infrastructure Projects.
- 19.6 The Applicant is confident that its evidence demonstrates that the IERRT development will in accordance with paragraph 358 of the East Inshore and East Offshore Marine, whereby its activities will be carried out in such a way as to afford safe and competitive shipping.
- 19.7 Further to paragraph 359 of the Marine Plan, the Applicant considers that the IERRT application has demonstrated that it has been informed by the outcomes of consultation with harbour and other navigation authorities, public authorities and commercial shipping as appropriate.
- 19.8 In respect of Policy PS3 of the Marine Plan, which identifies an order of preference for dealing with existing shipping activity and future operations, the Applicant considers that its evidence demonstrates that the IERRT development will not unacceptably interfere with current activity and has minimised impacts as set out within the Policy.
- 19.9 As identified in paragraph 367 of the Marine Plan, the Applicant's evidence demonstrates that the IERRT development will minimise negative impacts on shipping activity, as well as protecting the efficiency and resilience of continuing port operations.

20 **DCO Matters**

20.1 The Applicant notes DFDS' summary of case made at ISH6 [REP7-060] and has no further comments to make other than to confirm that the Applicant's final version of the dDCO – including any required amendments to Requirement 18 and the introduction of a new Requirement 19 – is as submitted at Deadline 8.

21 **Protective Provisions**

21.1 The Applicant has provided a full response on DFDS' protective provisions, including justification for its amendments, in Table 2 of Appendix 1 to the Applicant's Response to the ExA's Schedule of Proposed Changes to the dDCO submitted at Deadline 7 [REP7-029]. The Applicant has included the text of the PP from [REP7-029] in the version of the dDCO submitted at Deadline 8.

22 **Statement of Common Ground**

22.1 As recorded in the SoCG Tracker document [REP7-016], the Applicant provided a first draft of the SoCG between the Applicant and DFDS on 20 September 2023 and, since then, has continued to engage with DFDS with a view to settling an agreed version of the SoCG. As recorded in the draft SoCG, the Applicant is very disappointed with what it believes are misleading submissions made by DFDS at various times during the examination.

22.2 For example, and further to its position as already stated in the SoCG, the version of the SoCG between DFDS and the Applicant submitted by DFDS at Deadline 7 [REP7-058] is not agreed because the Applicant, as communicated to DFDS prior to DFDS' making its Deadline 7 submissions, does not believe the following statements from DFDS to be an accurate reflection of the Harbour Master's Submissions during ISH5:

“The Harbour Master Humber has now confirmed in oral evidence at ISH5 that the tidal direction north of IOT used in the modelling is wrong, which calls into question the direction used further south.”

and

“At ISH5 the Harbour Master Humber publicly accepted that the tidal flow direction north of IOT is in accordance with the position consistently asserted by DFDS.”

22.3 Reviewing the transcript and recordings of ISH5 (see page 75 of Part 3 of the ISH5 transcript, and the ISH5 Part 3 recording from 54 minutes), HMH is recorded as stating that he shared DFDS's observations about where they would expect the tidal flow to be, but that he is confident that the model at the area of the development is correct and that it does not matter for the purposes of the simulations. A difference of expectation to the measurements undertaken by the Applicant is entirely different from stating that the tidal direction is incorrect and the HMH has been clear in numerous submissions that he has no concerns regarding the simulations – including the tidal direction (see for example [REP2-061]). HMH's ISH5 submissions were

consistent with his position as previously articulated and it is incorrect to state that HMH has made submissions to the effect that the tidal direction north of IOT used in the modelling is wrong.

22.4 In addition, the Applicant does not agree with DFDS's submission in the SoCG that *"the Applicant fails to risk assess Ro-Pax vessels and thereby misses the 100 passengers who could, according to the draft DCO, arrive and depart from the IERRT daily"*.

22.5 The navigational risk for Ro-Pax is covered in the NRA and was discussed at the HAZID workshop, whilst the risk to people has been incorporated into the Descriptor – 'People' as shown in Table 15 of the Applicant's NRA.

23 **Comments on the Applicant's Change Request [REP7A-001]**

Examination timeline

23.1 The Applicant's view remains that the changes are minor and limited in their extent and are all contained within the environs of a busy operational port. This position was set out at paragraph 1.14 in **[AS-072]**.

23.2 The ExA agreed that none of the four changes would be so substantial as to constitute a materially new project **[PD-021]**. The Applicant does not consider that DFDS is right to characterise the Change Request as giving rise to *'the introduction of significant changes to the application'*.

Consultation and stakeholder engagement

23.3 The Applicant retains its position as stated in Appendix L of the Consultation Report Addendum **[AS-060]** that DFDS was notified prior to the commencement of the Proposed Changes Consultation, and, therefore had the full consultation period of 31 days to consider the proposals presented, not merely 5 working days as suggested by DFDS.

23.4 The letter of 10 November 2023 was sent to DFDS (as well as other key stakeholders) as a reminder that no comments had been received from them. DFDS also had the opportunity to attend the two local in-person consultation events held.

Impact Protection

23.5 In response to paragraph 5.2.6, In the unlikely event of a collision at the full velocity and energy referenced in the Vessel Impact Protection Structure – Concept Design (Document Reference 10.2.92), as noted above, the structures are designed to be sacrificial.

23.6 In the extremely unlikely event of a vessel allision with the vessel impact protection infrastructure, the SHA and SCNA will thoroughly review and implement any additional controls that may be required to allow the ongoing safe navigation at the IERRT. Additional measures to enable the safe ongoing navigation may, for example, be in the form of operational limits for the berth or other controls such as tugs. Any allision will be subject to a thorough investigation as described in the Port of Immingham MSMS Manual **[REP3-017]**.

Enhanced Management Controls

- 23.7 In response to paragraph 5.1.3, DFDS have requested the addition of a dedicated standby tug. The Applicant does not agree with this suggestion and has made clear how the Port of Immingham manages marine traffic (see the Applicant's response to ExQ3 BGC.3.02 [REP7-022]) and the tug operators' responses (see the Applicant's response to ISH5 Action Point 8 Appendix 2 [REP7-020]).
- 23.8 The Applicant's Enhancement Management Controls are only applicable to Berth 1 ebb tide [AS-070]. The Applicant's NRA and extensive navigational simulations (as described above) show that the manoeuvres to Berths 2 and 3 can be safely completed and there is no basis for a dedicated tug on these berths. The Applicant refers to Table 3.2 and the accompanying notes within its Environmental Statement Addendum [AS-070] which set out potential towage requirements with the supporting rationale, noting that final towage requirements will be set by the SHA. The approach suggested by DFDS would be highly unusual and would contradict established port operations.

Onshore Issues

- 23.9 In response to paragraph 4.8, the Applicant would like to emphasise that the location of parking and storage shown in the General Arrangement Plans [AS-049] are for illustrative purpose only and do not indicate any minimum or maximum capacity – the presented layout has been used to demonstrate that the terminal can accommodate 1,699 trailer bays.
- 23.10 DFDS' response highlights a clear misunderstanding of the approach taken in the ES and the Transport Assessment. As described in the TA [AS-008] (Paragraph 5.2.3 bullet (b)) the daily throughput capacity from and to the public highway network has been assessed at 1,800 units per day.
- 23.11 The 660,000 was an output of that (i.e. 1,800 x 365) and, therefore, the ES has robustly considered the environmental impacts of the scheme on the basis it is operating at full capacity every day. For the reasons discussed at length at the examination, actual annual throughput is very likely to be lower. As a consequence, no change is required to be made to the ES.

Glossary

| Abbreviation / Acronym | Definition |
|-------------------------------|---|
| ABP | Associated British Ports |
| ALARP | As Low As Reasonably Practicable |
| CHA | Competent Harbour Authority |
| DCO | Development Consent Order |
| DFDS | DFDS Seaways Plc |
| EIA | Environmental Impact Assessment |
| EMS | European Marine Site |
| ES | Environmental Statement |
| Hazid | Hazard Identification |
| Hazlog | Hazard Log |
| HES | Humber Estuary Services |
| HMH | Harbour Master Humber |
| IERRT | Immingham Eastern Ro-Ro Terminal |
| IGET | Immingham Green Energy Terminal |
| Nav Sim | Navigational Simulation |
| NRA | Navigational Risk Assessment |
| NSIP | Nationally Significant Infrastructure Project |
| PA 2008 | Planning Act 2008 |
| PINS | Planning Inspectorate |
| Ro-Ro | Roll-on/roll-off |
| SHA | Statutory Harbour Authority |
| SoCG | Statement of Common Ground |
| SoS | Secretary of State for Transport |
| UK | United Kingdom |

APPENDIX 1

Minutes of Meeting

| | |
|-------------------------|---|
| Meeting | Immingham Eastern Ro-Ro Terminal – ISH3 AP17 (Navigational Stakeholder Simulations) |
| Purpose | Pre-meet ahead of the further IERRT Navigational Simulations to agree the agenda and approach for the simulations scheduled for 7 th and 8 th November. |
| Venue & Date | MS Teams 11.30-12.30hrs, Tuesday 31 st October 2023. |
| Attendees | <p>Joshua Bush – ABP Project Development Manager</p> <p>Sophie Young – ABP Consents Lead</p> <p>Joe Smith – HES Pilot Operations Manager</p> <p>Mike Parr – HR Wallingford Simulation Lead</p> <p>Ian Penistone – Stena Port Manager</p> <p>Marcel van der Vlugt – Stena Senior Manager, Port Development North Sea</p> <p>Laas van der Zee – Stena Master</p> <p>Olly Smith – APT Marine Supervisor</p> <p>Andrew Byrne – DFDS Seaways MD</p> <p>Jesper Hartvig Nielsen – DFDS Head of Fleet Management, Humber</p> <p>Mykola Timofyeyev – DFDS Captain</p> <p>Benjamin Dove-Seymour – CLdN General Counsel</p> <p>Matthew Booth – CLdN Principal Operations Manager</p> |
| Apologies | <p>Andrew Firman – HES Harbour Master Humber</p> <p>Mark Collier – ABP Dock Master</p> <p>Matt Dearnley – APT Terminal Manager</p> |
| Distribution | As above |

Minutes

| Item | | Action by |
|------|---|-----------|
| 1.0 | <p>JB welcomed all attendees to the meeting and requested confirmation that all expected attendees from organisation were present.</p> <p>All attendees confirmed that the meeting could begin and commenced introductions, including name, organisation and role.</p> | |
| 2.0 | <p>Purpose of Meeting</p> <p>JB explained that during ISH3, the examination hearing included a discussion on the opportunity for further navigational simulations in relation to the IERRT project and that the Applicant had written to all attendees in response to ISH3 Action Point 17.</p> <p>JB referenced the Examining Authority’s letter of 27 October 2023 which requested that a report from the further simulations is written up for submission at D6 on 13 November.</p> <p>JB stressed the importance of this being a collaborative process and requested that constructive feedback is provided in the meeting to allow simulations to run as smoothly as possible.</p> <p>JB read the agenda items and reiterated that the purpose was to provide clarity to all parties ahead of the simulations.</p> <p>Agenda:</p> <ol style="list-style-type: none"> 1. Introductions and apologies 2. Context and Purpose of the Simulations (ISH3) 3. Navigation Simulations – Agreement of House rules and etiquette <ol style="list-style-type: none"> a. Simulation run pass criteria 4. Items raised in response to ISH3 AP17 invitation letters <ol style="list-style-type: none"> a. Environmental Conditions (tide states, wind states, shading) b. Modelled Berths (Eastern Jetty) 5. Confirmation of simulation agenda 6. Confirmation of Attendees from Interested Parties 7. AOB 8. Close | |
| 3.0 | <p>Simulator House Rules</p> <p>MP noted that the majority of attendees have been before and are familiar with the set up and that HR Wallingford (HRW) will be enforcing the simulator rules.</p> <p>MP then outlined the process: Before each brief, HRW will confirm the objective, strategy and</p> | |

| | | |
|-------------------|---|--|
| | <p>conditions. Humber Estuary Services (HES) will then provide a brief which will cover what the manoeuvre will look like and provide necessary information to PEC/pilot.</p> <p>JS agreed that HES will attend and will provide a brief at simulations.</p> <p>MP explained the next step is to start execution and conditions to check sims are working. Whilst running, the simulation team will monitor from observation room the progress until completion.</p> <p>MP noted that discussion is inevitable and will be put to one side until the debrief process which will be formally enforced.</p> <p>MP will lead the debrief, followed by the Harbour Master, then PEC/Pilot, then stakeholder comments for each run in this order. The success criteria will be agreed and then the recorded before moving on.</p> <p>JN questioned how the assessment will be based.</p> <p>MP explained this is on the agenda and requested that all attendees raise hands or feedback if not agreed.</p> <p>No hands raised and MP confirmed the above was taken as agreed.</p> <p>Post meeting note – OS disputes that this was agreed and was a resignation.</p> | |
| <p>4.0</p> | <p>Success Criteria</p> <p>MP proceeded to answer JN question, explaining that HRW undertake a qualitative not quantitative assessment – which is the approach strongly advised by HRW and that agreed with ABP.</p> <p>MP shared the criteria for success on screen, noting this is the standard across other simulation studies and requested feedback from attendees that these were reasonable.</p> <p>JN did not agree and explained that DFDS would request hard parameters, for example a definition that using bow thrusters on full power for more than 15 minutes is not safe.</p> <p>MP started to explain that this was an engineering matter and not a simulation parameter.</p> <p>JN interjected that the power reserve was subjective and queried why hard parameters could not be agreed.</p> <p>MP requested time to finish his explanation.</p> <p>MP went on to explain that the parameters described by JN are engineering parameters and dependent on the assessment of the master or pilot, who is trained on the equipment and for the situation.</p> | |

| | | |
|--|---|--|
| | <p>The majority of runs for the feasibility assessment were been done on higher end of limits. This was specifically to understand that the location, design and orientation of berths is feasible for operations.</p> <p>MP explained that HRW have intentionally put more runs into the upcoming simulations based on typical operating conditions and if stakeholders have objective comments during the sessions, which are substantiated with evidence, then HRW will note this in the assessment of each run.</p> <p>JN queried how will this be facilitated and questioned whether there will be a screen where manoeuvres can be seen or presented at the report stage.</p> <p>MP responded that they will be facilitated in the same way as the last simulations, which JN attended, which is consistent with the approach HRW take for all of its clients. MP confirmed that JN and other representatives will be able to make representations at the time.</p> <p>JN raised again that if the bow thruster has to be used 100% of the time, then there is no back up and hard parameters should be set.</p> <p>MP noted that in instances where there is extensive use of bow thrusters at 100% and two tugs, this could be a marginal manoeuvre.</p> <p>JN noted this was done last time, which MP stated was incorrect. JN reinforced that he cannot agree to this and DFDS' view is that hard parameters must be set.</p> <p>MP explained that HRW always run qualitative as opposed to quantitative assessments. The reason for having a simulation team present is to provide the necessary expertise which can be agreed or countered by other marine professionals. MP explained that at the last attendance in November, the marine professionals forming the simulation team agreed with the outcomes documented in the reports.</p> <p>AB added that DFDS are not going to agree or reach consensus on this.</p> <p>JN stated this would be machinery, bow thrusters and tugboats.</p> <p>MP noted the success criteria on screen including that 'the ship remains in full control without resorting to aggressive manoeuvring techniques' but suggested that DFDS set their own parameters.</p> <p>JN confirmed would be provided.</p> <p>MP referred back to success criteria on screen, and requested agreement with other parties that a qualitative assessment for success is that the ship remains under full control at all times without resorting to aggressive manoeuvring techniques.</p> <p>MB agreed, noting that every Captain attending the simulations would</p> | |
|--|---|--|

| | | |
|-------------------|--|--|
| | <p>consider that they will have to undertake this manoeuvre in real life in the future. Given the number of PEC and pilots in the room, he hoped this can be achieved during the simulations. This is fair and in line with what I have seen in my experience. To put hard and fast parameters in place is not in line with his personal experience at simulations before.</p> <p>MP acknowledged agreement with MB observations. MP gave an example using bow thrusters, stating that if there is disagreement in the room, then the ships engineering handbook would be consulted to agree if the equipment has been used in accordance with this.</p> <p>MB again noted that there are plenty of experts who will be in attendance to agree if it's a safe manoeuvre. These are sensible parameters that HRW are suggesting.</p> <p>With the exception of DFDS, all other parties acknowledged agreement with the HRW success criteria.</p> | |
| <p>5.0</p> | <p>Marginal Criteria</p> <p>MP presented criteria for marginal passes and explained this will be discussed in the room and recorded in the report which goes to ExA. JN suggested that a hard parameter should be 3 minutes of bow thruster use.</p> <p>MP explained again that there are two approaches – both quantitative and qualitative. HRW have intentionally taken a qualitative approach and do this with all clients. There are significant problems with quantitative as there would need to be a definition for all operational circumstances for example operating at 95%m or including a tug but applying no force.</p> <p>MP reiterated that the number of mariners in the room means HRW can undertake a very strong qualitative assessment.</p> <p>MP confirmed that HRW are more than happy to consider your points in the room but stressed that applying the suggested parameter would be a false limit and would lead to forced behaviours in the simulator. For example, not making a realistic manoeuvre because you are trying to work to a set criteria.</p> <p>LV noted that the comments raised by JN are a different way of testing and stressed the importance to trust HRW on their approach.</p> <p>LV noted that HRW are a qualified institute for this that as an experienced Master, he would agree with their recommendations.</p> <p>MP, in response to JN, suggested a proposed approach to consider JN's parameters in the room – whereby JN explains if he thinks a run has broken one of DFDS' parameters.</p> <p>MP noted that in his experience working with mariners, where there is</p> | |

| | | |
|--|--|--|
| | <p>a good point made, attendees do tend to reach a consensus.</p> <p>JN said his parameter would be 3 minutes.</p> <p>MP stressed it is important that there is evidence to underpin this. Fine for this to be suggested and for the simulation team to take a view, however, if they are just numbers for suggestion, they must be supported by evidence. At the moment it is not clear what the evidence for 3 minutes is.</p> <p>JN noted that the parameters are what he believes to be correct.</p> <p>OS noted that he agreed with understood the qualitative approach but flagged that he wants to get comfort that the manoeuvre is doable time after time and repeatable with the human factor, noting the proximity to the Oil Terminal.</p> <p>MP noted that HRW can demonstrate that the HES procedures are being followed and the manoeuvre is repeatable.</p> <p>OS noted that feasibility simulations have been conducted and this further simulation is to provide more detail to stakeholders on their given concerns.</p> <p>MP confirmed that the simulation will be transparent and if the consensus is that it is unrepeatable or high risk, then this will be recorded. If APT or DFDS have a concern about one factor and it's outwith the consensus of the room, this will be noted in the record.</p> <p>JB noted that the purpose of his ISH3 Action was not for the Applicant to agree to every parameter set by DFDS but it was to provide additional simulations. If we can't move forward, it feels futile to proceed.</p> <p>JN noted that DFDS will not agree to what is suggested, that DFDS will uphold our view and prepare a disclaimer.</p> <p>MB commented that the final operator of the berth will not put ships on which are beyond safe parameters. In reality, the operator will wait for conditions to settle and improve, such as wait for wind to ease and will not operate unless safe.</p> <p>MB noted that he would agree that if the manoeuvre requires 100% bow thrusters at 15 minutes every time then this would not be safe and repeatable.</p> <p>MP explained that all simulation manoeuvres have been done at peak flood/ebb with 30 knots of wind. All operators on Humber would agree this is not sensible or representative of typical day to day conditions. In these further simulations, HRW have specifically set out some routine operational parameters to allow a comparison against the exceptional conditions tested at feasibility.</p> | |
|--|--|--|

| | | |
|-------------------|---|---|
| | <p>MP stressed the goal is to agree something sensible for the operation of the berths. We are allowing everyone the opportunity to comment but stressed importance of parameters being agreed by the simulation team. If other individuals disagree with the simulation team then we will document this but will need evidence.</p> <p>MB noted OK and understood.</p> <p>JN confirmed he will set out DFDS parameters in writing. [Post meeting note: these were provided by DFDS in its letter to ABP dated 2 November 2023.]</p> | <p>JN to provide DFDS Parameters and evidence base for these parameters.</p> |
| <p>6.0</p> | <p>Environmental Conditions</p> <p>MP showed a figure of the tidal diamond and flows on the screen and responded to a representation made by DFDS in writing whereby DFDS assert that the flow did not align with the tidal diamonds.</p> <p>MP explained that the model is close, but proposed to make an adjustment to the flows so as to follow the tidal diamond in the area north of the IOT if this is preferred.</p> <p>JN asked where this would take us on the IOT as DFDS do not think it should be parallel.</p> <p>MP explained HRW have set out a proposed direction north of A1 buoy.</p> <p>JN noted publications from HES indicating what the current should be.</p> <p>JS commented that HES publications were prior to the additional modelling work in the vicinity of the IERRT, but have no objection to adjust the model in the area north of IOT for the simulations as requested by DFDS.</p> <p>JS explained that HES have confidence in the model used for the purposes of the IERRT simulations.</p> <p>JN queried why the publications had not been updated on the basis of the data collected from the 2022 modelling and stated that publications should be updated.</p> <p>MP explained that the published material shows variation across the flow and the data shows that there is a variance across tidal cycles.</p> <p>MP noted his professional background as a navigator, hydrographic surveyor and modeller.</p> <p>MP accepts that a flow model does not always predict perfectly but stressed there is nothing more that can be done to improve the model</p> | |

| | | |
|--|---|--|
| | <p>as ABP have responded to every suggestion made by HRW to get this as accurate as possible.</p> <p>MP noted that the model can be tweaked to align with conditions experienced by mariners routinely operating in this area, however, it is already extremely close to where the model and publications expect flows to be.</p> <p>MP again offered that the model alignment north of IOT can be adjusted and tweak if it is agreed by all parties.</p> <p>JN queried what this would mean and what the flow direction would be when passing IOT.</p> <p>MP noted this had been set out already. HRW would make a vector change by applying a vector to whole model – which would result in an exaggerated effect. There would be a point in the manoeuvre where the ship finds a balance position, and when in this position, MP will take off the vector and come back to natural model. This would be in the spatial area of the proposed IERRT infrastructure where HRW have very high confidence in the model.</p> <p>JN commented that it would have been better to have collected more data.</p> <p>JS confirmed that HES are happy to adjust tide to reflect the tidal diamond when passing IOT. When manoeuvring in IERRT area, we will use the modelled data.</p> <p>MP stressed that the model closely aligns with tidal data and the observations. However, despite this and to specifically address the concern from DFDS, HRW are able to artificially adjust the model to anecdotally align with the IOT. HRW hopes this would alleviate the concern from DFDS that the alignment north of IOT does not align with operations and experience on the Humber.</p> <p>MP noted it is not practical or appropriate to do any further modelling as it aligns very closely with all observations and collected data.</p> <p>JN stated that he does not believe this is anecdotal and that DFDS disagree with the model.</p> <p>MP noted that DFDS’s response last week referred to tidal diamonds. These correlate closely with model.</p> <p>JN stated that it is north of IOT where the current is wrong.</p> <p>MP reiterated HRW have listened to this and propose to adjust the model to align with DFDS’ observations.</p> <p>JN stated an issue that the model would be corrected back once past IOT.</p> | |
|--|---|--|

| | | |
|--|---|--|
| | <p>MP noted this was correct and the model will be adjusted to respond to the area DFDS are noting. This shifts all of the tides across the entire model. Once the manoeuvre gets into the normal area of operations for IERRT, the model will convert back to natural flow. Otherwise this would have the effect of making the flows by IERRT significantly different to the observed and recorded data.</p> <p>JB stressed need to reach a resolution for the simulations next week.</p> <p>JN noted that DFDS will write a disclaimer that they do not believe it is correct.</p> <p>OS noted that the flows are known to be complex in this area and change throughout the tidal regime. Requested if IGET data has been considered.</p> <p>MP confirmed that both models have been compared and the correlation is high. At the micro-scale, we have to accept there will be effects that can't always be modelled. HRW are trying to incorporate the effects that JN is noting.</p> <p>OS accepted that there are micro-changes in tidal conditions that can never be fully modelled as the simulator can only utilise one tidal current across the entire chart area at a given time.</p> <p>DFDS noted that OS's comment on this point was that tidal flow is very complex and that the simulator is only capable of modelling one tidal current at once.</p> <p>MP reiterated that the effort gone into modelling flows has been substantial.</p> <p>MB noted that there are always going to be minute changes that could generate small-scale effects which are impossible to model – for example, scouring of the sunk dredged channel could cause an effect.</p> <p>MP summarised that the key focus of efforts has been for flow modelling at the IERRT location to be as precise and accurate as possible, noting that it is difficult to get a precise flow model in a complex area. Work has focussed on aligning berths with flows. The challenges raised from DFDS are because the model does not agree with DFDS experience north of IOT, which has resulted in DFDS saying that IERRT has not been properly simulated. We are trying to create a scenario where the flow is more aligned with the DFDS experience until the point where the vessel enters the area to swing into IERRT.</p> <p>JN stated this is a reasonable summary.</p> <p>MB noted that CLdN are also interested in this but can't see how small changes would make a difference to the outcomes and that subtleties could be argued all day.</p> | |
|--|---|--|

| | | |
|-------------------|---|--|
| | <p>AB suggested agenda moves onto logistics as meeting is overrunning.</p> <p>JB noted that feedback on Eastern Jetty has been provided in writing.</p> | |
| <p>7.0</p> | <p>Simulator Logistics</p> <p>JB noted that there are spatial constraints at HRW and that all parties confirm attendees with total numbers to be limited to 15.</p> <p>JB requested arrival at 0900 for an 0930 start as outline</p> <p>JN noted that DFDS will send 3/4 attendees. Cannot confirm names yet but will do tomorrow. JB requested that this was 3.</p> <p>MB noted he will attend for the second day. Will try and reschedule to attend on 7th.</p> <p>MV noted Stena will have 4 attendees - Ian, Marcel, Geert Jan, and Laas. Important that Stena are fully represented as the operator of the facility.</p> <p>OS confirmed APT will be represented by Olly and Nigel Basset from Nash Maritime.</p> <p>JS confirmed HES will be represented by 3 attendees including Joe, Harbour Master Humber & pilot.</p> <p>JB confirmed ABP will send three attendees from project team.</p> <p>MP noted we will have one attendee from towage.</p> <p>MV noted that Stena must be there with four attendees. Understand the space issue but some from the other parties can reduce number of people as they are not operating the facility.</p> | <p>JB to send out attendance list, keeping to 15 if possible.</p> |
| <p>8.0</p> | <p>AOB:</p> <p>JB opened the floor to AOB.</p> <p>OS questioned which commented on the ships were being used in the model.</p> <p>JB confirmed it will be the Transit Ship. In terms of larger vessels - this was to demonstrate feasibility for larger ships in the future. Transit is the ship to be used from day 1 which was included in feedback post ISH3.</p> <p>JN noted that he acknowledged that the Stena class is being used because this is the operational vessel but DFDS also want to see the design vessel modelled on all berths.</p> | |

| | | |
|--|---|--|
| | <p>MP asked for confirmation on design vessel.</p> <p>JN confirmed this was 240m, 35m and 8m.</p> <p>MP remarked this was done by using on the DFDS Jinling class vessel.</p> <p>JN remarked DFDS does not agree and that only one simulation run of berth 3 using the DFDS Jinling class vessel has been shared.</p> <p>MP noted that there is no vessel model for these specific parameters and HRW will model the Transit, which will be operating initially at the Port.</p> | |
|--|---|--|



Immingham Eastern Ro Ro Terminal

ISH3 Action Point 17 (Pre-meet)

31/10/23

- 1. Introductions and apologies**
- 2. Context and Purpose of the Simulations (ISH3)**
- 3. Navigation Simulations – Agreement of House rules and etiquette**
 - a. Simulation run pass criteria**
- 4. Items raised in response to ISH3 AP17 invitation letters**
 - a. Environmental Conditions (tide states, wind states, shading)**
 - b. Modelled Berths (Eastern Jetty)**
- 5. Confirmation of simulation agenda**
- 6. Confirmation of Attendees from Interested Parties**
- 7. AOB**
- 8. Close**

HR Wallingford Supporting Slides

Simulation Rythmn

Brief

- Confirm objective
- Confirm start conditions
- Confirm strategy for tugs,
- Harbour master briefs ideal manoeuvre and HES advice

Execute

- Check Conditions
- Check sims working
- Monitor – report problems

Debrief

- Comment from HR Wallingford facilitator
- Comment from harbour master
- Comments from pilot/pec
- Comments from tug master
- Comments from Stakeholders
- Agree on objective assessment
 - Success
 - Marginal (with reason)
 - Fail (with reason)
- Agree record – HR Wallingford facilitator

Evaluation criteria - Success

Standard manoeuvres:

- The ship remains under full control at all times without resorting to aggressive manoeuvring techniques;
- The ship stays within safe water areas with acceptable clearances to all port and other structures, and other berthed ships;
- Tugs are operating safely and within sustainable limits;
- For berthing manoeuvres, the ship ends the run alongside, or in such a position that lines would be ashore without appreciable difficulty, at zero speed, with an acceptable sway velocity and no appreciable yaw rate;
- For departure manoeuvres the ship exits smoothly, without risk of drifting onto port structures or other ships.

Emergency/failure situations:

- The ship is brought back under full control without encountering significant hazards, with the risk of only minor damage;
- The ship may leave the designated manoeuvring area boundaries, but still has acceptable under keel clearance and maintains acceptable clearances to other ships/structures throughout the recovery;
- Tugs are neither endangered nor asked to operate in an unsafe manner;
- The ship can be moved into safe, deep water or to a position suitable to anchor safely, where the equipment failure can be investigated / resolved.

Evaluation criteria - Marginal

Standard manoeuvres:

- The Pilot considers the ship is at the limit of control during standard manoeuvres;
- The ship stays within the safe water area boundaries, but with unacceptable clearances;
- The ship clears all port structures, and other berthed ships, but with unacceptable clearances;
- Tugs are operating safely, but approaching their sustainable operating limits (e.g. being used at 100% power for more than 15 minutes);
- For approach manoeuvres, the ship ends up alongside, but may have a high approach velocity. The manoeuvre can be concluded, but minor damage may occur;
- On departure, the ship is manoeuvred off the berth but with some difficulty. The manoeuvre is completed with the potential for minor damage only.

Emergency/failure situations:

- The ship is at the limits of control during the recovery from the failure;
- The ship has marginal under keel clearance or marginal clearances to other ships/structures during the recovery;
- Tugs operate at the limits of safety;
- The ship is at the limits of controllability as it is moved into safe, deep water or to a position suitable to anchor safely, where the equipment failure can be investigated/resolved.

Evaluation criteria - Fail

Standard manoeuvres:

- The Pilot loses control of the ship;
- The ship strays outside the safe water area boundaries and/or grounds;
- The ship either contacts, or has a near-miss with port structures and/or other berth ships;
- Tugs are required to operate in an unsafe manner, or exceed sustainable operating limits (e.g. being used at 100% power for more than 30 minutes);
- For approach manoeuvres, the ship cannot get alongside at all, or contacts the berth with sufficient force that severe damage may have occurred;
- On departure, the ship either cannot be manoeuvred off the berth, or encounters significant difficulty in manoeuvring, such that severe damage may have occurred.

Emergency/failure situations:

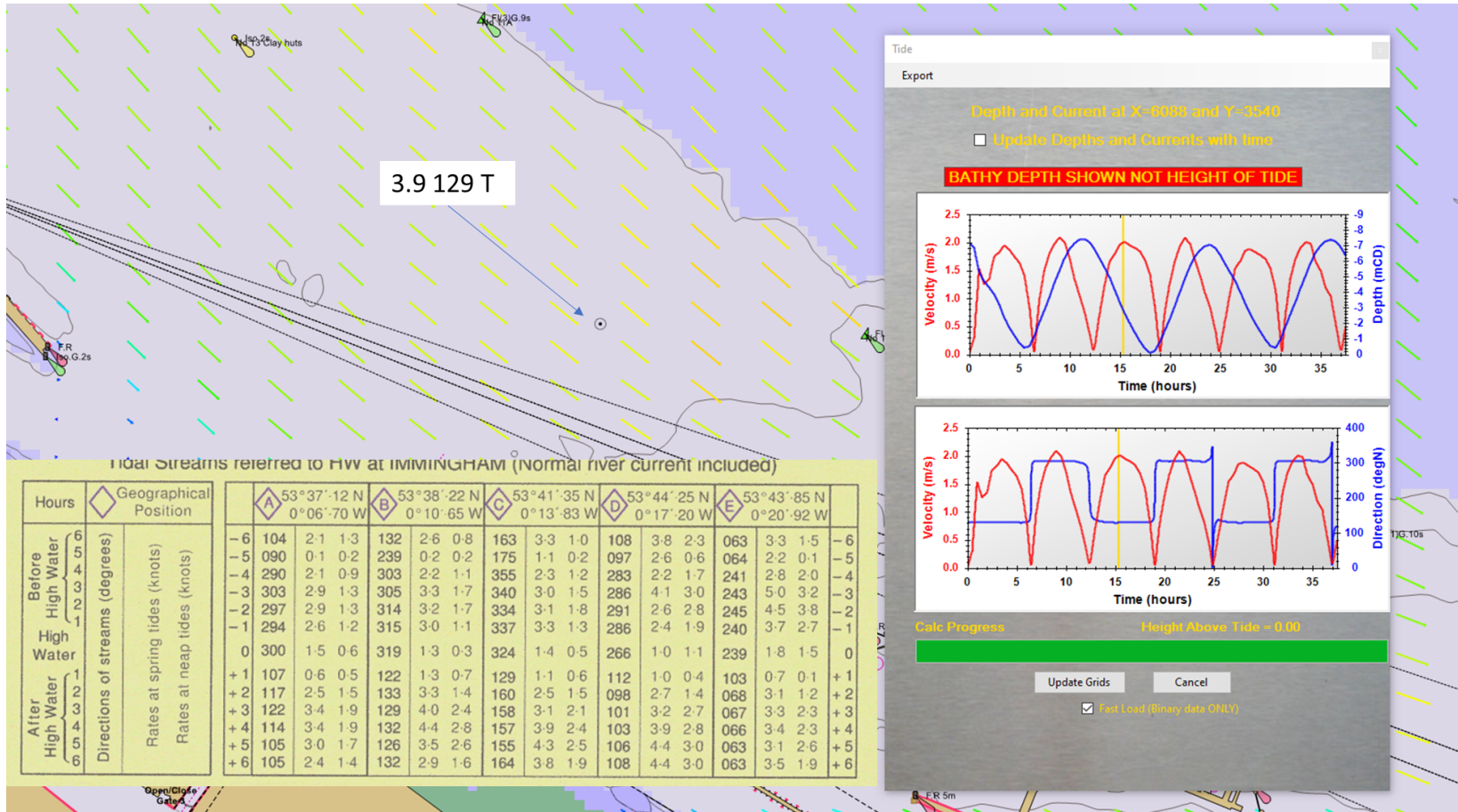
- The Pilot cannot regain control of the ship before the ship is endangered;
- The ship cannot be prevented from entering dangerously shallow water and/or grounds;
- The ship either contacts or has a near-miss with a known hazard, port structures, and/or other berth ships;
- Tugs are endangered or are asked to operate in an unsafe manner;
- The ship cannot be moved into safe, deep water or to a position suitable to anchor safely.

Evaluation criteria - Abort

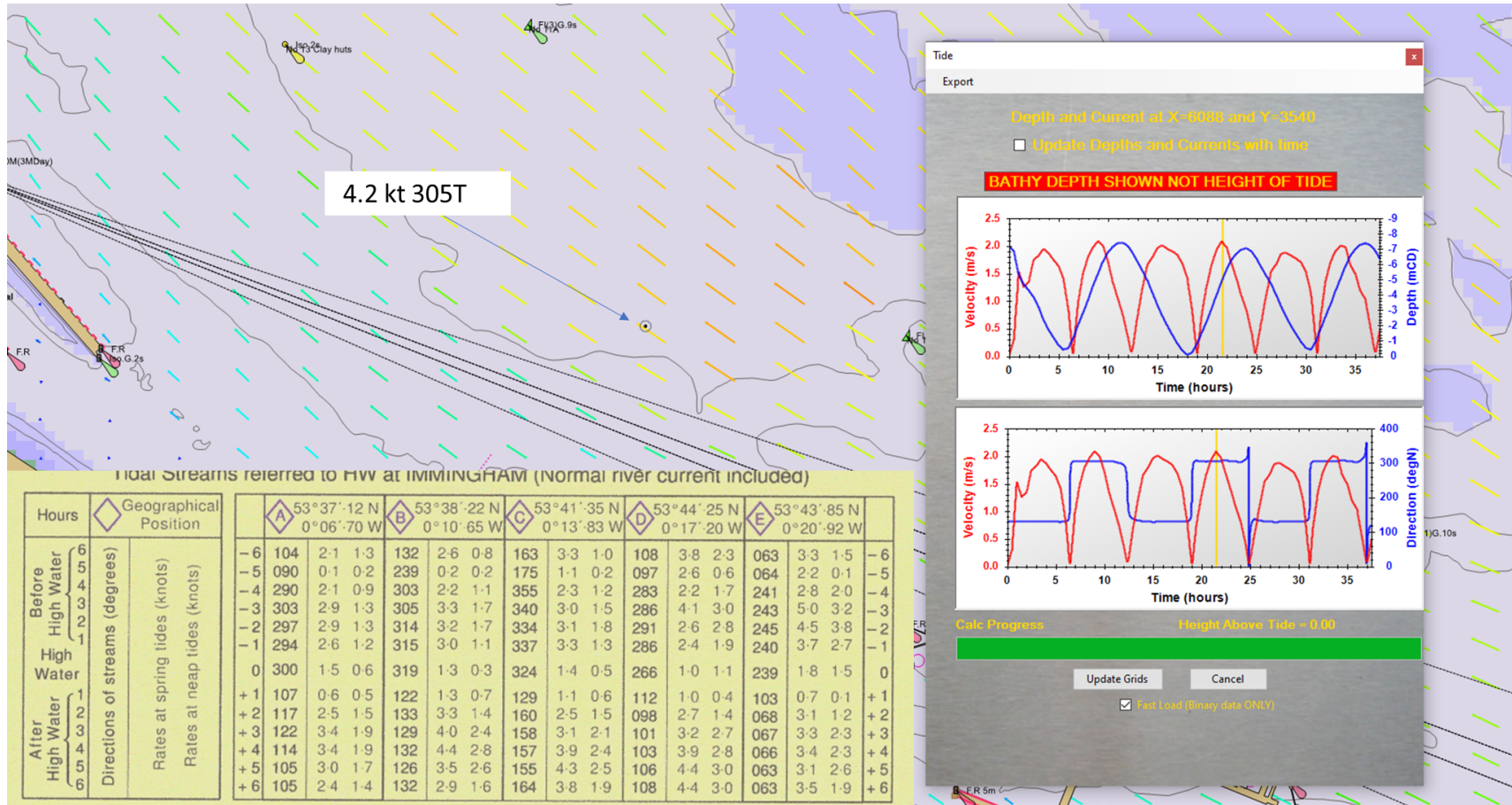
The run was aborted for efficiency reasons, to save wasting any time, due to either:

- The initial manoeuvring strategy or approach/departure manoeuvre was deemed to be inappropriate, so the run would be bound to fail if continued; or,
- Because of the need to test aspects of the ship manoeuvring model.

Ebb Flows



Flood Flows

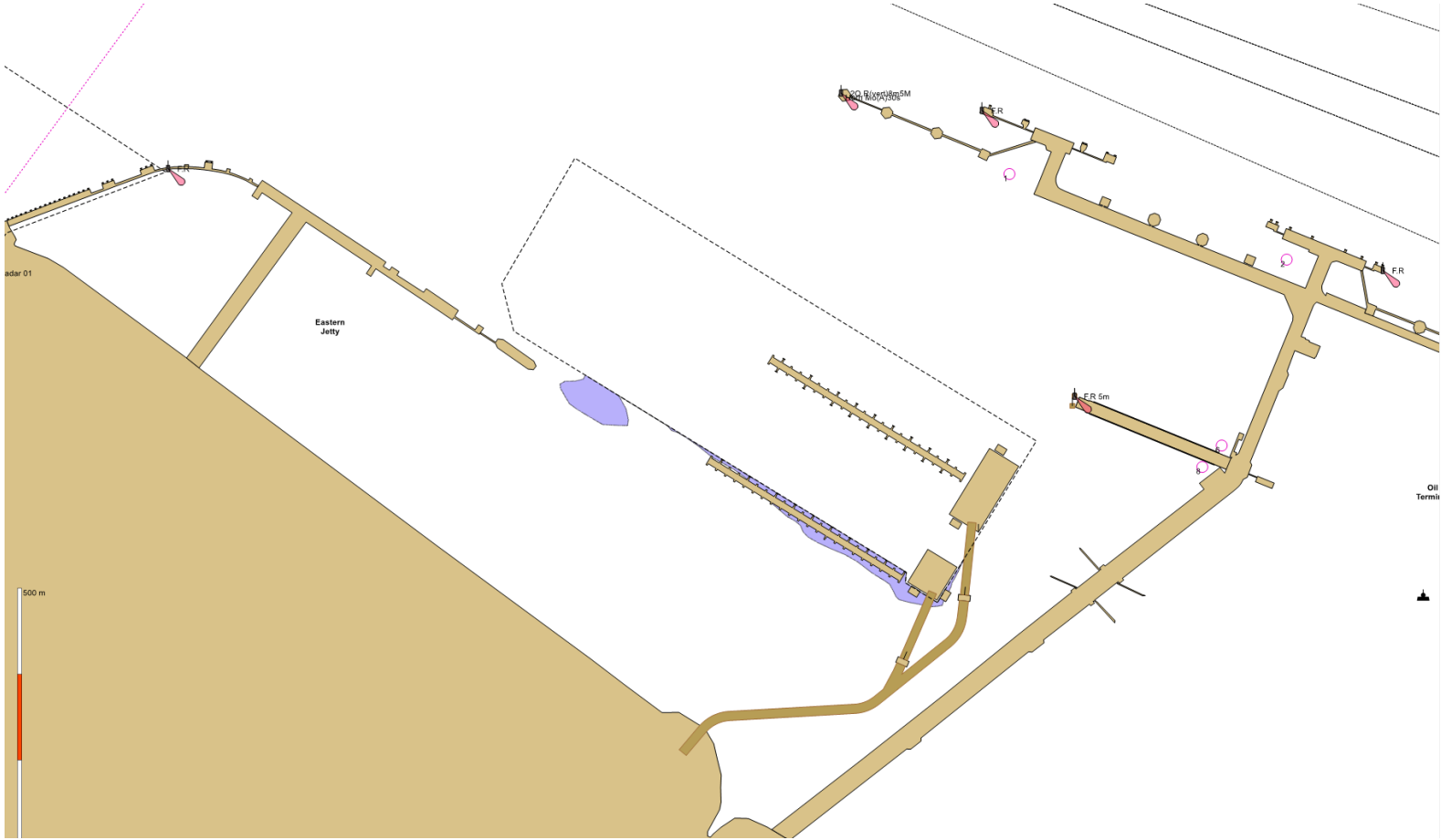


Wind analysis

| Return period (years) | Wind speed (10 minute mean, knots) by sector (°N) | | | | | | | | | | | |
|-----------------------|---|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0 | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 |
| 0.1 | 20 | 17 | 10 | 10 | 8 | 5 | 14 | 17 | 14 | 12 | 13 | 14 |
| 1 | 33 | 26 | 23 | 14 | 12 | 9 | 19 | 26 | 20 | 17 | 21 | 26 |
| 2 | 37 | 28 | 28 | 16 | 14 | 10 | 20 | 29 | 22 | 18 | 23 | 30 |
| 5 | 42 | 31 | 34 | 18 | 16 | 11 | 22 | 32 | 24 | 20 | 26 | 35 |

| Return period (years) | Wind speed (1 minute mean, knots) by sector (°N) | | | | | | | | | | | |
|-----------------------|--|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0 | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 |
| 0.1 | 23 | 20 | 12 | 14 | 12 | 9 | 19 | 20 | 16 | 15 | 15 | 16 |
| 1 | 38 | 29 | 27 | 22 | 20 | 16 | 25 | 30 | 24 | 22 | 24 | 30 |
| 2 | 43 | 32 | 32 | 25 | 22 | 17 | 27 | 33 | 26 | 24 | 27 | 34 |
| 5 | 48 | 35 | 39 | 28 | 25 | 19 | 28 | 37 | 29 | 28 | 31 | 40 |

Layout showing eastern jetty and tug pontoon



Simulation Agenda

| Run ID | Manoeuvre | Wind | Flow |
|--------|---|------------------|------------|
| 1 | Approach to No3 berth in normal conditions | NE 15-20 knots | Peak flood |
| 2 | Departure to No 3 berth in normal conditions | NE 15 - 20 knots | Peak flood |
| 3 | Approach to No3 berth in normal conditions | NE 15-20 knots | Peak ebb |
| 4 | Departure to No 3 berth in normal conditions | NE 15 - 20 knots | Peak ebb |
| 5 | Approach to No3 berth in normal conditions | SW 15-20 knots | Peak flood |
| 6 | Departure to No 3 berth in normal conditions | SW 15 - 20 knots | Peak flood |
| 7 | Approach to No3 berth in normal conditions | SW 15-20 knots | Peak ebb |
| 8 | Departure to No 3 berth in normal conditions | SW 15 - 20 knots | Peak ebb |
| 9 | Approach to No 3 berth in extreme conditions | NE 25-30 knots | Peak flood |
| 10 | Departure to No 3 berth in extreme conditions | NE 25-30 knots | Peak flood |
| 11 | Approach to No3 berth in extreme conditions | NE 25-30 knots | Peak ebb |
| 12 | Departure to No 3 berth in extreme conditions | NE 25-30 knots | Peak ebb |
| 13 | Approach to No3 berth in extreme conditions | SW 25-30 knots | Peak flood |
| 14 | Departure to No 3 berth in extreme conditions | SW 25-30 knots | Peak flood |
| 15 | Approach to No3 berth in extreme conditions | SW 25-30 knots | Peak ebb |
| 16 | Departure to No 3 berth in extreme conditions | SW 25-30 knots | Peak ebb |
| 17 | Option for gusting conditions (1) | TBC | TBC |
| 18 | Option for gusting conditions (2) | TBC | TBC |
| 19 | Option for sheltering conditions (1) | TBC | TBC |
| 20 | Option for sheltering conditions (2) | TBC | TBC |