Immingham Eastern Ro-Ro Terminal

Deadline 9 Submissions

Associated Petroleum Terminals (Immingham) Limited and Humber Oil Terminals Trustee Limited

Planning Inspectorate Ref: TR030007

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1 EXECUTIVE SUMMARY

1.1 Associated Petroleum Terminals (Immingham) Limited (**"APT"**) and Humber Oil Terminals Trustee Limited (**"HOTT"**) have expended tremendous cost and effort in participating and engaging on Associated British Ports' ("**ABP**") application for a development consent order ("**DCO**") for a new Roll-on/Roll-off ("**Ro-Ro**") cargo facility at the Port of Immingham, North East Lincolnshire known as the Immingham Eastern Ro-Ro Terminal Development (the "**IERRT Development**").

1.2 HOTT is the licensee (from ABP) of the Immingham Oil Terminal Jetty ("**IOT**") and lessee (from ABP) of the associated oil terminal and tank farm ("**Oil Depot**"). APT operates the IOT and the Oil Depot on behalf of HOTT (HOTT and APT are referred to together in this response as "**the IOT Operators**").

1.3 The below submissions summarise and conclude the position of the IOT Operators in relation to the IERRT Development, with additional responses to Deadline 8 Submissions provided as an appendix (**Appendix 1**). The IOT Operators are also working to reach an agreed Statement of Common Ground with ABP which is intended to be submitted at Deadline 10.

1.4 These submissions should be read together with material submitted to the ExA at earlier stages which reiterate the concerns which the IOT Operators have had from the outset. It is an unfortunate reflection of the approach by ABP that so little real progress has been made at ABP's purported engagement has fallen short of what it should have been, which is of particular concern given:

(a) The national importance of the IOT, Oil Depot and the Refineries they serve and, in particular, to the continued secure and safe supply of energy to the UK, especially Scotland, which has been further affected by the closure of the Grangemouth refinery.

(b) Section 267 of the Energy Act 2023 (below).

(c) The agent change principle, which places the burden squarely on ABP as applicant to justify the impact which it has or may have on the IOT Operators and on energy security. The IOT Operators gain no benefit from the IERRT proposals but have been put to considerable expense and effort as a result of ABP's failure to approach its task responsibly and properly. Given the importance of the IOT and Refineries (see further below) the precautionary principle should be engaged with regard to assessing the level of risk caused and should be proportionate to the potentially major consequences of allision or collision on the operation of the IOT and Refineries.

1.5 The IOT serves the Humber Refinery and the Lindsey Oil Refinery (**"Refineries"**), and its (and their) importance cannot be overstated. The IOT and the Refineries are deemed to be Critical National Infrastructure by the National Protective Security Authority. They are of national significance in terms of energy security given the importance of the facilities for the UK's oil supplies and to the UK's economy.

1.6 From the statutory consultation in February 2022, and throughout the course of the DCO examination the IOT Operators have raised and maintained serious concerns with the proposed IERRT Development. The key concerns relate to several deficiencies in ABP's application:

(a) The failure to adequately consider and assess the considerable risk introduced by the IERRT Development against the background that there are no comparable facilities where a ferry terminal is sited in such close proximity to oil terminal infrastructure and no experience of the special care needed to manage the issue and risks which may arise;

(b) An inadequate and incomplete assessment of the IERRT Development, particularly in relation to Environmental Impact Assessment (**"EIA"**) requirements and the incorrect Design Vessel specifications;

(c) Inadequate and inappropriate mitigations, and the failure to accurately demonstrate these mitigations in Navigational Simulations or through a robust and empirical cost benefit analysis; and

(d) A failure to satisfy widely held concerns regarding the independence and judgements of the Harbour Master Humber.

1.7 ABP has simply failed to assess the parameters of the facilities it states are the proposed development for which a DCO is sought and has not event met the terms of the test set out in its own ES. For the reasons set out below, it seems that the only *lawful* options available to the Secretary of State are:

(a) To refuse to make the DCO; or

(b) To limit the use of the proposed IERRT to those smaller vessels which formed the great part of the NRA simulations and assessments and **even then** only if it is considered that (contrary to the evidence of the IOT Operators) the revised NRA satisfies the ExA and Secretary of State that the assessment has been satisfactorily undertaken and the level of risk to the IOT Operators and oil infrastructure has been minimised to acceptable levels (having regard to the matters set out above).

1.8 The IOT Operators submit that considerable fixed requirements, particularly for impact protection, need to be secured to any DCO which may be granted. Such mechanisms would involve a combination of Requirements on the face of the DCO and appropriate protective provisions for the protection of the IOT Operators. Although ABP has said the cost is excessive this statement has to be treated with considerable scepticism given that no proper costs benefit analysis has been undertaken for the IERRT by ABP to which the costs of mitigation can fairly be related.

1.9 The absence of such requirements in the proposed IERRT Development as applied for makes the development unacceptable in planning terms and the DCO should therefore not be granted.

2 IMPORTANCE OF THE IOT

2.1 The importance of the IOT and maintaining supply from the Refineries has been mentioned by the IOT Operators previously but demands restating to ensure that this importance is given proper consideration.

2.2 The detail on the importance of the IOT was provided in the IOT Operators' Written Representation **[REP2-062]**, including that the IOT imports and exports products and is of critical importance for 'just in time' supply to Scotland and the regions. Approximately 45% of the UK's marine oil is exported via the IOT.

2.3 The IOT is essential to the Refineries' operations as all crude oil for the Lindsey Oil Refinery and some crude oil for the Humber Refinery arrives by tanker at the IOT before being transferred to the refineries by pipeline.

2.4 Together, the Refineries make up approximately 27% of the UK's refining capacity. Approximately 40% of the Humber Refinery's production and 33% of the Lindsey Oil Refinery's production is then exported and the IOT is essential to the export capabilities of the Refineries. Products from the Refineries are pumped via pipeline to the IOT tankage and can be exported via tanker.

2.5 Vessel movements to and from the IOT are critical to the operation of the Refineries and any prejudice to the operations at the IOT would result in prejudice to the continuing operations of the Refineries.

2.6 To clarify, both the Humber Refinery and the Lindsey Oil Refinery are individually nationally significant pieces of infrastructure and crucial to the region and the country's economy. The IOT Operators' Written Representation **[REP2-062]** details the significance of each refinery with helpful context to illustrate this. In summary:

(a) The Humber Refinery:

(i) provides approximately 15% of UK road fuel demand;

(ii) is the UK's only producer of Sustainable Aviation Fuel ("SAF") at scale, providing British Airways with SAF on a multi-year contract;

(iii) is a key business within the Yorkshire and the Humber region, providing significant economic opportunity and spending millions of pounds annually with over 1,000 businesses across the region;

(iv) produces specialty graphite coke, a precursor material to synthetic graphite which is used to produce lithium-ion batteries – crucial for the electric vehicles global supply chain;

(v) produces high grade petroleum coke used to recycle steel and for components in lithium-ion batteries used for smart phones, tablets and electric vehicles; and

(vi) is one of the most complex refineries in Europe with an expansive range of upgrading units that allow the refinery to manufacture a range of products, including materials not manufactured elsewhere in the UK or Europe.

(b) The Lindsey Oil Refinery:

(i) supplies the UK market with fuels, including aviation fuel to Heathrow airport;

(ii) incorporates some of the most advanced refining and conversion processes in Europe;

(iii) has the capacity to process up to 113,000 barrels of oil a day; and

(iv) the greater part of the refinery's output is petrol and diesel for road vehicles, with the remaining proportion being speciality products such as fuel oil, bitumen, kerosene and aviation fuel.

2.7 The Refineries are crucial to the UK's economy given that numerous industries are reliant on the supply of oil and on security of energy supply (as well as the other products supplied by the Refineries). The IOT Operators were recently required to complete the Criticalities Cros-Sector Impacts questionnaire for Critical National infrastructure as part of the DESNZ energy security drive. There is also the recent announcement regarding the closure of Grangemouth Refinery in early 2025, Scotland's only remaining oil refinery, which puts even greater weight on the importance of protecting the facilities here and securing supply of oil to the Refineries.

2.8 The IOT Operators also noted in their Deadline 8 Submissions **[REP8-057]** that Section 267 of the Energy Act 2023 provides that the general objective of the Secretary of State, and their functions under Part 12, must be exercised with a view to:

> *"(a) ensuring that economic activity in the United Kingdom is not adversely affected by disruptions to core fuel sector activities, and*
>
> *(b) reducing the risk of emergencies affecting fuel supplies."*

2.9 Any prejudice to the continuing operation of the Humber Refinery or the Lindsey Oil Refinery would be contrary to the public interest in terms of the impacts on the local and national economy and on the UK's energy security. The essential need for the IOT and Refineries mean that the need for the IERRT Development, and any risks it creates for the safe and efficient operation of the IOT and refineries, should be considered in this context.

3 RISKS

3.1 The IOT Operators highlighted several major concerns and safety risks associated with the construction and operation of the IERRT Development in extremely close proximity to an existing oil terminal in the Principal Areas of Disagreement **[PDA-003]**. These concerns were summarised as:

(a) The risks presented by allision of vessels associated with the IERRT and the IOT, which is critically important national infrastructure;

(b) The risks presented by collision of vessels associated with the IERRT and others within the Port of Immingham, including those accessing the IOT;

(c) The impact of the IERRT and the risks associated with it on the control of major accident hazard (**"COMAH"**) safety case of the existing IOT;

(d) The impacts of the IERRT and vessels associated with it on tanker movements accessing the IOT;

(e) The adequacy of ABP's Navigation Risk Assessment (**"NRA"**) **[APP-089]** associated with the IERRT DCO application;

(f) A lack of navigation information being provided by ABP, despite requests from the IOT Operators to do so; and

(g) The lack of experience given the absence of comparable facilities where a ferry terminal (still less of one for vessels of the size of the Design Vessel) has been located in such close proximity to an oil terminal as is proposed here.

3.2 The IOT Operators' concerns regarding the prospect of a potentially catastrophic allision between vessels associated with the IERRT and the IOT were initially raised with ABP when the IOT Operators were first made aware of and consulted on the proposals in February 2022. Various mitigation measures were then identified as being necessary by the IOT Operators in their Section 42 Consultation Response of 22 February 2022 and in the Supplementary Consultation Response of 25 November 2022 [**REP2-063**], including the delivery of vessel impact protection to reduce the risk of that allision occurring to be as low as reasonably practicable.

3.3 Due to a lack of engagement from ABP prior to submission of its application, the IOT Operators commissioned independent maritime experts to carry out a shadow Navigation Risk Assessment (**"sNRA"**) which was submitted to the examining authority (**"ExA"**) at Deadline 2 **[REP2-064]**. A cost benefit analysis was provided to support the mitigation measures identified as being required at Section 12.4 of the sNRA.

3.4 The IOT Operators summarised in their Written Representation **[REP2-062]** that the sNRA concludes, based on the information and data available, that the IERRT Development poses an unacceptable risk to IOT infrastructure (and consequently the refineries), although with the risk control measures specified by the IOT Operators in place, the navigation risk is mitigated to Tolerable (if ALARP) levels. The sNRA demonstrates that there is a real risk of the IERRT Development having significant adverse safety effects on the IOT during both the construction and operational phases of the IERRT Development, including the risk of:

(a) Allision (contact) of dredgers, construction vessels and Ro-Ro vessels with IOT infrastructure;

(b) Collision between dredgers, construction vessels and Ro-Ro vessels (and other vessels including IOT vessels); and

(c) Impacts to the IOT Operators' COMAH safety case as a result of the IERRT Development leading to unacceptable risk and associated need for mitigation.

3.5 The IOT Operators stated in their Written Representation **[REP2-062]** that the increase in shipping movements in the area and the increased likelihood of allisions, contacts or collisions occurring as a result of the IERRT Development may have an impact on the IOT Operators' COMAH safety case and provided further details on this in Section 5.2 of the sNRA **[REP2-064]**.

3.6 The results of the baseline assessment of risk (which includes the embedded risk controls) are presented in Table 15 of the sNRA **[REP2-064]** which identified a total of 22 hazards regarding the proposed IERRT Development including collisions, contacts and breakaway incidents. Of these 22 hazards, 20 were assessed as Tolerable if ALARP and two of these were scored as "Intolerable". Those scored Intolerable were contacts (allision) by an IERRT Ro-Ro vessel (Passenger) with the IOT Finger Pier and with the IOT Trunkway.

3.7 The Intolerable Hazard Commentary at Section 9.3.1 of the sNRA then explains that such high consequence scores are assigned on the following basis:

(a) **People** - IERRT Ro-Ro vessels are passengers vessel carrying hundreds of passengers, in a worst case scenario the IERRT Ro-Ro vessel could capsize / sink as a result of contact resulting in multiple fatalities. There are no controls proposed by the Applicant ABP on the potential number of passengers which might be using any vessel at any given time.

(b) **Property** – a contact event between the IERRT Ro-Ro vessel and the IOT Trunkway would likely damage the Trunkway beyond repair with the IERRT Ro-Ro vessel also likely to sustain significant damage.

(c) **Environment** – should a contact occur and the Trunkway pipelines be compromised, there would be an oil / product spill resulting in catastrophic long-lasting impact to the environment.

(d) **Business** – such a contact event (involving multiple fatalities, catastrophic damage to property and the environment) would result in widespread international negative publicity and would result in significant loss of revenue to the port, IOT and consequently the refineries.

3.8 It is understood that the assessment of the passenger capacity has been understated as being limited to 100 passengers, as in the Applicant's ES. Stena's description of the T Class vessels details the passenger capacity as 300 passengers (and this does not include crew).

3.9 The IOT Operators also note here that minor damage, with even small repairs taking the IOT out of service for several months, would have considerable economic impact on the energy sector. As already noted, a precautionary approach is required given the importance or the facilities, the Energy Act 2023 and the agent of change principle, and this is absent from ABP's considerations or assessments.

3.10 ABP's response to the issues raised in the sNRA came in the form of its change request which was formally submitted on 29 November 2023 [**AS-045**] and accepted into the examination on 6 December 2023 [**PD-021**]. However, the change request fails to adequately address the IOT Operators' concerns. It provides insufficient impact protection, a lack of detail about what is proposed, and continues to be subject to ABP's primary contention that the impact protection is not required. The IOT Operators have detailed these concerns in their consultation responses, appended to their Deadline 6 Submissions [**REP6-046**].

3.11 The IOT Operators' principal concern regarding the risks of the IERRT Development was stated in their Written Representation **[REP2-062]** in that the safety risks remain despite the risk control measures advanced in ABP's NRA. Indeed, the further risk control measures identified by ABP are either very similar to each other or very similar to embedded risk control measures (i.e. those measures that are already currently in place for the management of navigation risk in the area). The IOT Operators therefore consider that additional risk control measures are necessary.

3.12 This principal concern remains and was reiterated in the IOT Operators' Deadline 7 Submissions **[REP7-069]** that the DCO application, even with the change request incorporated, will continue to present an unacceptably severe risk of a potentially catastrophic event which causes damage to the IOT and presents an unacceptable risk to loss of life.

4 ABP EIA ASSESSMENT

4.1 ABP has failed to adequately assess the IERRT Development, particularly in relation to Environmental Impact Assessment (**"EIA"**) requirements as required by Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (**"EIA Regs"**) and including the use of the incorrect design vessel specifications in those assessments.

4.2 The IOT Operators' concerns with the adequacy of the EIA were summarised in their Deadline 7 Submissions **[REP7-069]**, reiterating the opposition to the use of any vessel other than the design vessel for simulations to assess the development. The use of any other specification of vessel negates the ability of the simulations to accurately model the ship manoeuvring constraints and the flow around the IERRT.

4.3 The IOT Operators detailed the applicable law regarding the EIA Regulations, highlighting that the maximum parameters of the consent sought must be assessed. The ABP NRA simulations (as was accepted in ISH 5) have only been carried out in respect of smaller vessels. The significant differences between the specifications of the vessels were communicated to ABP in a letter dated 16 October 2023 and included as the first Appendix to the IOT Operators' Deadline 5 Submissions **[REP5-036]**.

4.4 The IOT Operators' Deadline 7 Submissions then concluded that the DCO should be refused unless a requirement is imposed limiting the use of the berths only to vessels no larger than the Stena Class T or Jinling ferries modelled in the NRA to reflect the maximum parameters *actually* assessed.

4.5 As set out in **REP7-069** the NRA fails to comply with the requirements of the EIA Regs including for these reasons:

(a) It does not assess the *Rochdale* envelope (see ***Rochdale ex parte Milne*** [2001] Env. L.R. 406) in that the parameters set for the Design Vessel have not been assessed since the NRA (even as revised) does not assess the likely significant effects of using such a large vessel and does not assess the worst case scenario of the use of those vessels (indeed the use of 3 such vessels given the facilities are proposed for 3 ferries of Design Vessel parameters). Indeed, it does not assess the effects of using such a vessel at all. It not only fails to comply with the requirements of the EIA Regs (see regs 5(2) and 14(2)) but does not even comply with the test the ABP ES (**APP-038**) Chapter 2 set itself at §§2.3.4-2.37

(b) It has not done what is stated at §10.8.83 i.e.

> "The assessment first sets out the assessment of the 'worst credible' scenario and the 'most likely' scenario",

since it has not assessed the likely significant effects arising from the maximum parameters as stated to be necessary at §§2.3.4-2.3.7 i.e. the design vessel described in §3.2.5.

(c) This is not a failure which can be corrected at a later stage since the assessment of the maximum parameters has to be made before the project can be consented at the outset. See e.g. ***R. v Cornwall CC Ex p. Hardy*** [2001] Env. L.R. 25 esp. [56] to [62].

(d) These failures are not ones which can be said to be matters of judgment but, extraordinarily, arise from the direct and basic failure to undertake the assessment of the Design Vessel which has infected the whole EIA and NRA process from the outset.

4.6 The consequence of this is that it would be unlawful for a DCO to be made permitted the construction of the IERRT for the use of vessels of the specifications of the Design Vessel which have not been assessed (or consulted upon as required by EIA). For the reasons set out in detail in **REP7-069** to grant a DCO would breach reg. 4(2) of the EIA Regulations 2017 since it is unlawful to grant "*development consent ... unless an EIA has been carried out in respect of that application*".

4.7 The very late and unsuccessful December simulations are not sufficient to remedy the legal inadequacies of the ES since:

(a) They were incomplete and unsuccessful.

(b) They did not compare to the range of simulations carried out for the other vessels and cannot be said to be sufficient.

(c) They have not been included in the ES nor has there been EIA consultation upon them. (If they were now to be included in a revision or addendum to the ES that would have to be the subject of consultation and comment).

4.8 Whilst it might be possible in principle to grant a DCO which limited the vessels which could use the terminal to those assessed and to exclude the Design Vessel (which would then only be possible if the DCO were varied in future) this is not suggested to be a suitable course of action given the significant concerns which exist in any event with the NRA that has been undertaken for those lesser vessels and the inadequacy of protection offered.

5 PROPOSED MITIGATIONS – REQUIREMENTS AND PROTECTIVE PROVISIONS

5.1 The mitigations offered by ABP have not satisfied the concerns raised by the IOT Operators and other Interested Parties. ABP have also failed to properly engage and develop the mitigations to an adequate level, and their reliance on navigational simulations to justify that position is flawed.

5.2 Although ABP never previously pointed to viability as a basis for failing to provide the impact protection measures (amongst others) identified by the IOT Operators as being necessary to ensure the risks of the Proposed Development are as low as reasonably practicable, the IOT Operators provided their own cost benefit analysis for ABP with their sNRA in Deadline 2. The IOT Operators then flagged their considerable concerns regarding ABP's stance that the IOT Operators' requested physical protection measures were too expensive in their Deadline 7 Submissions **[REP7-069]** in response to ABP's statement that:

> *"ABP and its experts do not consider the scheme now required by IOT Operators to be feasible due to navigational, engineering, environmental and scheme viability reasons"*

5.3 This assertion is impossible for the Applicant to justify in the absence of its own cost benefit analysis. It remains the case that no viability evidence has been adduced by the Applicant, compared to the clear costs benefit analysis conducted by the IOT Operators' sNRA **[REP2-064]** which clearly reinforce the justification for the mitigation measures they seek.

5.4 The vessel impact protection being offered by ABP as part of its change request is inadequate to address the IOT Operators' concerns and is not designed to withstand the size and displacement of vessels that will visit the IERRT, when tidal flows are considered, as anticipated by the design vessel specified in the Applicant's ES **[APP-038]**.

5.5 The IOT Operators expressed in their Deadline 7 Submission **[REP7-069]** that the complex aspects of the impacts of the proposed IERRT Development have not been adequately captured in the simulations undertaken by ABP for coastal tankers bound for IOT Finger Pier berths 6 and 8 and have not been captured at all for estuarial barges bound for berth 9.

5.6 The IOT Operators also share concerns regarding poor engagement by the Applicant regarding the lack of opportunity to understand and comment on the November simulations. The IOT Operators in their Deadline 7 Submission **[REP7-069]** point to the failure to assess the likely significant effect of the design vessel which has a materially greater displacement (mass) than those modelled in the simulations to illustrate their point.

5.7 The inadequacy of these mitigations was shown in the late additional December 2023 Navigational Simulations and the IOT Operators detailed the conclusions taken from those simulations in their Deadline 8 Submissions **[REP8-057]**. For completeness, those conclusions are summarised below:

(a) Tugs failed to provide effective control measures for half of the runs of the smaller Class T vessel.

(b) Tugs failed to provide effective control measures for three quarters of the runs of the vessel more closely resembling the dimensions and displacement of the design vessel.

(c) The proposed IERRT infrastructure and associated vessels provides a significant impediment to the operation of the southern berths of the IOT Finger Pier both by the presence of the pontoon infrastructure itself and when a RoRo vessel is berthed on IERRT berth 1. Because the tide sets onto and through IOT 8, it is necessary for tankers to adopt a wide angle of approach to the berth. The presence of IERRT severely restricts the southerly component required in the approach line, resulting in approaching tankers 'skimming' the side of a berthed RoRo by a distance which is too close in a riverine environment.

(d) The simulation failed to address concerns related to IERRT design vessels arriving at IERRT berths 2 and 3.

(e) The simulation failed to address concerns related to control failure by IERRT vessels manoeuvring for the IERRT berths 1, 2 and 3 before, during and after the swing.

(f) The simulations did not address consequences should an allision occur by an IERRT vessel with any infrastructure. Essentially the simulations carried out are incapable of determining what would happen once a vessel makes an initial contact with infrastructure.

5.8 The IOT Operators' case is that these simulations clearly demonstrate the need for the mitigation measures they have consistently identified as being necessary for the safe operation of the IERRT.

5.9 As outlined by Stena's own experienced master at the December Simulations (see Appendix 4 to the IOT Operators' Deadline 8 Submissions **[REP8-058]**), stringent limits on wind force and tidal flow rate should be implemented.

5.10 As expressed in the Deadline 7 Submissions **[REP7-069]**, the IOT Operators' submission to the ExA and the Secretary of State for Transport is that the proposed scheme does not offer adequate mitigation, resulting in the adverse impact of the proposed development outweighing its benefits, and accordingly pursuant to s.104(7) of the Planning Act 2008

the ExA ought to recommend the refusal of the application. It follows that the Secretary of State ought subsequently to refuse development consent.

6 HARBOUR MASTER HUMBER

6.1 The IOT Operators and other Interested Parties have raised serious concerns regarding the independence of the Harbour Master Humber (**"HMH"**).

6.2 The judgements and decision-making of the HMH has also been questioned, particularly regarding the position taken against the need for impact protection and his views on the suitability of tugs to assist ferries which appears to have been misplaced given the latest simulations using larger vessels.

6.3 ABP's current proposal is that the HMH is responsible for deciding whether impact protection is necessary. His position is that no impact protection is necessary. However, concerns regarding this position materialised following the late admission at Issue Specific Hearing 6 that this position has been reached without a written risk assessment having been carried out by the HMH. Moreover, he cannot by subsequent action correct the failures in the EIA which require not only a proper assessment of the likely significant effects of the proposals (which has not been done as submitted) but a description of the mitigation proposed to deal with them. It is a complete distortion of the requirements of EIA to allow the HMH *ex post facto* to determine the implications of the effects in practice and make subsequent decisions and an unlawful abdication of responsibility by ABP as applicant.

6.4 The IOT Operators again raised concerns regarding the judgement of the HMH in their Deadline 8 Submissions **[REP8-057]** when detailing the December 2023 navigational simulations. It was noted that prior to the simulations the HMH's firm view was that a 50-tonne tug would be suitable to arrest IERRT vessels. This view was presumably based on either his judgement or the fact that 70 tonne tugs are not readily available on the Humber or preferred for the IERRT berth due their size and the limited room available. Either way, this view was not supported by the simulations and as such the nuances and complexities of dealing with large high windage and deep drafted vessels in a strong and complex tidal environment should not be left to the judgement of a single individual. His judgement regarding these issues expressed earlier in the examination cannot therefore be considered reliable.

6.5 Further, in **[REP8-051]** the HMH stated that he "*has not claimed to have experience in the area that will be occupied by the IERRT*" and is reliant on simulations to inform his judgement. In light of his lack of experience navigating in the area, as well as the deficiencies identified by IOT Operators in the ABP IERRT NRA, simulations and flow modelling, then the judgement made by the HMH that impact protection is not necessary is at best misguided. Indeed, his apparent confidence in the use of tugs is also shown to be misplaced by the simulations in December. It is suggested therefore that his contention that the proposals were satisfactory, and were so without further mitigation, is simply not credible.

6.6 The IOT Operators' Deadline 8 Submissions **[REP8-057]** also noted that a Stena Master refused to continue with the runs as he stated that he would never operate in greater than 20 knots of wind or 2.5knots of tide - the run in question proved to be a failure. The IOT Operators noted that there appears to be different operational parameters used between ABP as the Applicant and Stena as the proposed users of the IERRT facility which have not been set out to enable the ExA or affected parties to consider them.

6.7 Where reliance is placed on procedural controls they should be understood, tested, developed and committed to as part of the DCO but this has not been done and it is apparent that the views of Stena Masters as users of the IERRT Development have not been considered by the HMH.

7 REQUIREMENT FOR IMPACT PROTECTION

7.1 The IOT Operators have consistently maintained that fixed impact protection is required before an assessment of the application's acceptability can proceed. Without such protections the application cannot be considered acceptable.

7.2 The IOT Operators set out specific additional mitigation measures to ensure that the IERRT Development is acceptable from a safety perspective in their Written Representation **[REP2-062]**, including the provision of appropriate vessel impact protection. Here it detailed that adequate vessel impact protection is considered essential to mitigate against the risk of allision or contact taking place with the IOT trunkway and IOT Finger Pier and provided that the impact protection should be:

(a) Be sufficient to protect the IOT and arrest errant vessels of the size and type proposed for the construction and operational phases of the IERRT Development;

(b) Account for the worst-case impact velocities including peak ebb tidal flow and strong winds;

(c) Be designed to enable continued access to IOT infrastructure for operational maintenance;

7.3 The IOT Operators went on to submit that the detailed design of appropriate impact protection measures will need to be agreed with the IOT Operators and the IERRT Development infrastructure should also be designed to the same specification to ensure that allision with it by IERRT Development vessels does not result in impact with the IOT trunkway. The sNRA concluded that this measure has a benefit of approximately 20 times the cost.

8 IOT OPERATORS' POSITION

8.1 The IOT Operators detailed their conclusions on the acceptability of the proposed IERRT Development in their Deadline 7 Submissions **[REP7-069]**:

(a) The development, both as proposed and with the incorporation of the amendments outlined in the change request (but in relation to vessel impact protection not mandated), remains inadequate. Consequently, it is the IOT Operators' submission that the DCO must be refused.

(b) The DCO must in any event be refused (or limited by requirement) due to the failure to undertake an ES fit to assess the likely significant effects of the Design Vessel described in the ES Chapter 3: see reg. 4(2) and 14(2) of the EIA Regs. To grant the DCO as sought for the Design Vessel would be in breach of the EIA Regs and unlawful.

(c) Should the development be found to be acceptable such that the DCO is granted, and without prejudice to its primary case, the IOT Operators would insist that the scheme be subject to the following:

(i) Protective provisions, requiring the delivery of appropriately designed vessel impact protection offered by ABP in its change request; and

(ii) Additional operational controls, secured together with those other protective provisions sought by the IOT Operators.

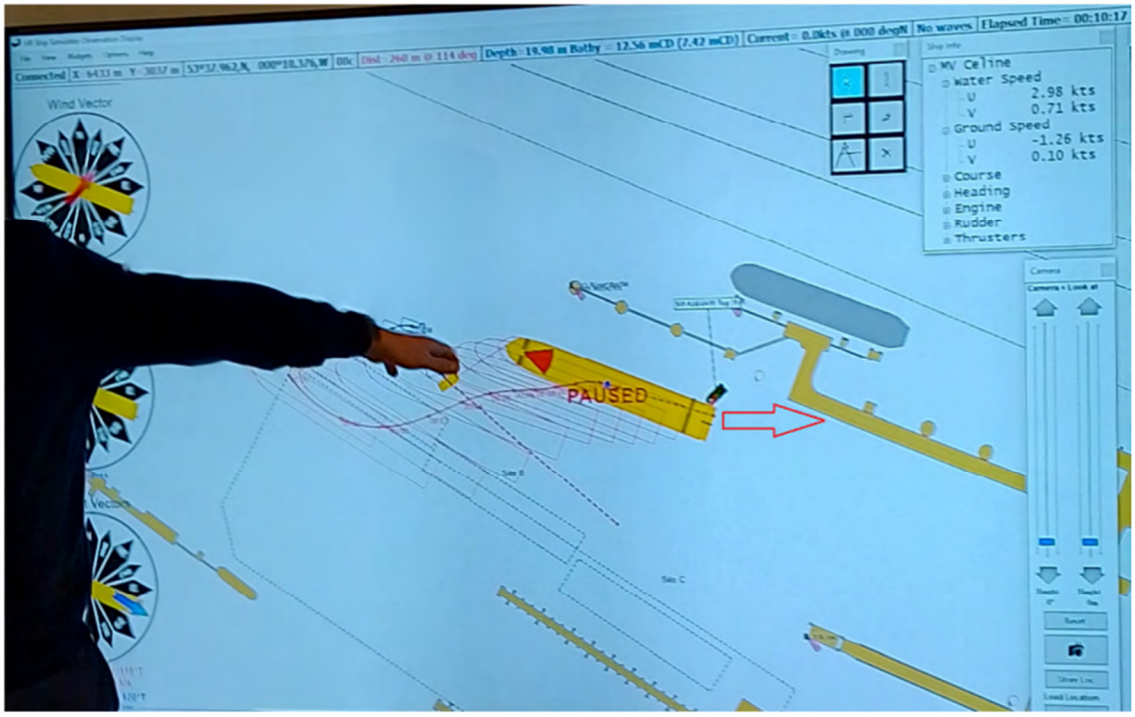
(d) At the very least, and again without prejudice to the IOT Operators' primary case, the scheme should be subject to all protective provisions the Secretary of State considers appropriate as well as a requirement which specifies the operational controls to be imposed.

(e) In all instances, the IOT Operators support the suggestion by DFDS that a requirement be imposed limiting the size and type of vessels able to use the

development to that tested, i.e. the Stena T Class Ro-Ro. This support for a DCO on that limited basis however is dependent on the NRA being otherwise satisfactory - which is not the case.

8.2 The below image is taken from the December Simulations included in the Appendices to the IOT Operators' Deadline 8 Submissions **[REP8-057]** which demonstrates the essence of the IOT Operators' concerns.

Run 11



8.3 As a result of the deficiencies in ABP's application detailed above, the IOT Operators consider that the proposed IERRT Development cannot be considered acceptable and an order granting consent for the development cannot be granted.

Immingham Eastern Ro-Ro Terminal

Deadline 9 Appendix 1

Specific Responses to Deadline 8 Submissions by the IOT Operators

TECHNICAL RESPONSES

The IOT Operators wish to respond to the following Deadline 8 submissions:

Party	Document	Reference
ABP	3D Modelling of Revised Layout	REP8-019
ABP	Applicant's Response to the ExA's Fourth Written Questions	REP8-020
ABP	Navigational Study of Enhanced Control Measures (Dec 23 Sims Report)	REP8-029
ABP	Vessel Impact Protection Structure – Concept Design	REP8-032
HMH	Response to Deadline 7 Submissions from Immingham Oil Terminal Operators	REP8-051

1 REVIEW OF 3D MODELLING OF REVISED LAYOUT HR WALLINGFORD REPORT – [REP8-019]

1.1 **REP8-019** is a report by HR Wallingford on 3D modelling of a revised layout for IERRT Development. The Report provides that the revised layout assessed includes larger Ro-Ro pontoons than that previously modelled and used in navigation simulation. All other parameters of the development, dredged area and depth are unchanged from that previously modelled and assessed.

1.2 The IOT Operators have identified the following changes from the Revision 01 received at Deadline 7 **[REP7-035]**:

(a) New Sections,

(i) 3.2 Comparison with baseline conditions;

(ii) 3.3 Flow conditions between IERRT and IOT;

(iii) 3.4 Sensitivity to moored vessel at IERRT;

(b) New figures 3.7 – 3.14; and

(c) New Appendices,

(i) Appendix B Hourly comparison of currents for revised land original IERRT layouts;

(ii) Appendix C Detailed hourly patterns of currents between IERRT and IOT;

1.3 **Section 2.2: Inclusion of the effect of piled structures**

1.4 The Report states:

> *"A field of piles can alter the flow…due to local turbulence and complex flow structures as the flow interacts with each pile. This effect is increased…if the piles are less than 10 pile diameters apart the effect of each pile can combine to result in a significantly enhanced effect on the passing flow".*

1.5 For existing structures, this effect is modelled by adding extra turbulent drag and later in the report (Section 2.4.2 Validation) the text states "*Interestingly, both model and data show a reduction in ebb tide currents at Point D2 compared to the neighbouring Points at D1 and D3. This shows that the effect of drag due to the piles on the IOT jetty can be seen some distance from the structures and that the modelled approach to representing the piled IOT jetty is reasonable".*

1.6 However, the model does not include any effects on flow for the new structures except that of the floating pontoons themselves. While the pontoons will have a major effect on flows, the effect of the piles to support/restrain the pontoons', the new finger piers and the impact protection piles are not considered within the flow model. This is despite the pile spacing / pile diameter ratio for these structures being close to or less than the 10:1 ratio noted in the report as causing significantly enhanced effect on the passing flow, as evidenced in the summary of the key design parameters in the box below.

1.7 Omitting a representation of these structures from the flow model will lead to an under-representation of the changes to flow conditions brought about by the proposed scheme and thus the impact on navigation in the area. By ignoring these structures in the flow model, the flows used within the navigation simulations are likely to be different to those experienced in the prototype if/when built.

Summary of the key design parameters as provided by ABP

- Illustrative cross sections for the IERRT berths and pontoon restrain dolphins pile arrangements are shown in drawing B2429400-JAC-00-ZZ-DR-ZZ-0722 Rev P02.
- In Section A-A this drawing shows pontoon restraint dolphins and indicates pile diameters of approximately 1.5m and pile spacing of approximately 5-10m (varies with elevation as piles are raked) for the pontoon retaining structures.
- In Section F-F this drawing indicates pile diameter of approximately 1m and pile spacing of approximately 12.5m on the berth piers.
- Document 4021009-JAC-ZZ-01-TN Rev P01 Vessel Impact Protection Structure – Concept Design describes two pontoon retaining dolphins:
    - Type 1 dolphins comprise 1 no 1420mm vertical piles and six 1220mm piles , 5 of which are raking;
    - Type 2 dolphins comprise 1 no 1420mm vertical pile and 4no 1220mm raked piles.
- Illustrative cross sections for the Impact Protection Measures pile arrangements are shown in drawing B2429400-JAC-00-ZZ-DR-ZZ-0723 Rev P02.
- In Section G-G this drawing indicates pile diameters of approximately 1.5m and pile spacing of approximately 7.5m for the impact protection measures.
- Document 4021009-JAC-ZZ-01-TN Rev P01 Vessel Impact Protection Structure – Concept Design describes the:
    - IOT finger pier protection dolphin as comprising 12no 1520mm diameter piles within a 35m x 14m area.
    - IOT Trunkway protection barrier as comprising 20no 1520mm diameter piles connected to a concrete capping beam approximately 154m long.

1.8 **Section 2.4.2: Validation**

1.9 The model was validated against ADCP data, but the tidal range used for the validation (ca. 6.2m) was not matched to the tidal range of the measurements (6.6 to 6.9m). This is recognised in the report with the statement that *"Some additional variance in the model comparison may occur by not modelling the conditions on the day of the ADCP survey".*

1.10 **Section 3.1: Comparison of revised scheme with original scheme**

1.11 Text states *"The area of speed increase greater than 0.05 m/s is confined to with[in] 30m of the edge of the pontoon between the pontoon and the IOT finger jetty*". By this we assume the report means not more than 30m from the pontoon edge towards/in the direction of the IOT finger pier, as there are many examples where there is increased flow (greater than 0.05m/s) more than 30m up and downstream of the pontoons. Furthermore, figures A2, A15 and Figure 3.1 in the Report all show areas of speed increase greater than 0.05 m/s more than 30m from the edge of the pontoon in the direction of the IOT finger pier (see below).

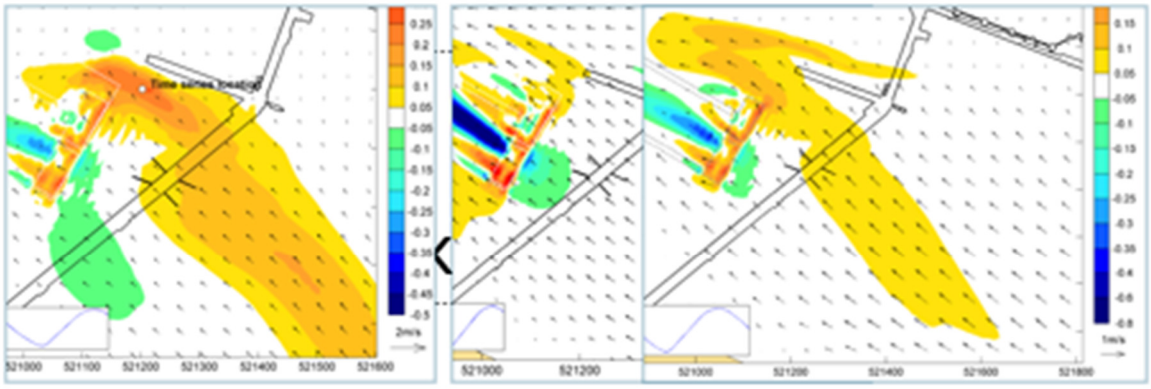


Figure 3.1 (LW+0.5 peak spring) Figure A15 (LW+1 mean spring)

Figure A2 (LW+1 peak spring)

1.12 Figures 3.4 to 3.6 show changes in current speed and direction between the original and revised layout. While figures 3.7 to 3.10 and figures in Appendix B show changes in speed between the baseline (existing) conditions and the revised layout, they plots do not show changes in direction. From a model validation and a navigation perspective it is the change in both speed and direction which is important.

1.13 **Section 3.2: Comparison with baseline conditions**

1.14 Plots presented in this section and Appendix B showing differences between baseline and revised layout are scaled to use a minimum threshold for plotting changes of 0.1m/s, rather than 0.05m/s used in previous plots. However, the Report states that "*A threshold of 0.01m/s (<0.25kn) is a more typical choice to show changes to estuarine flows".* The Report seems therefore to be down playing the impact of current flows and further makes comparison difficult as it reduces the apparent area of impact of the scheme and ignores changes in current speed and direction which may be important for vessels approaching the IOT finger jetty.

1.15 The plots in Appendix B do show significant changes in current speed, including increased current between the pontoons and the IOT finger jetty as illustrated below. The current vectors in these plots appear to show the revised current directions and speeds, but there are no baseline vectors to show the change in direction.

1.16 The reporting presented paints a somewhat rosy picture of the impacts brought about by the IERRT pontoons on flows that will occur - these will materially increase the difficulty of berthing vessels on the IOT Finger pier, particularly on berths 8 and 9 (south side berths).

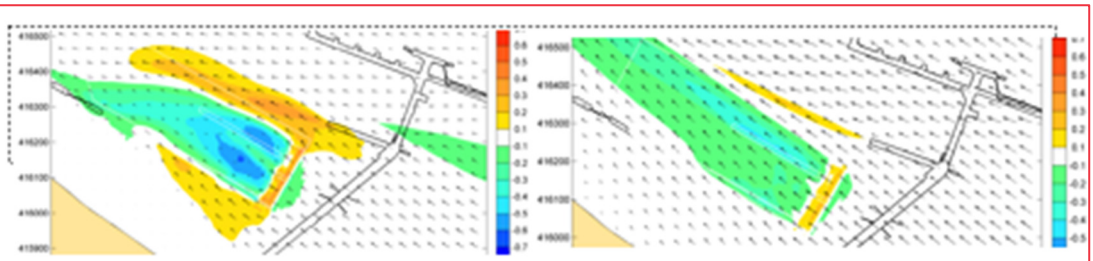
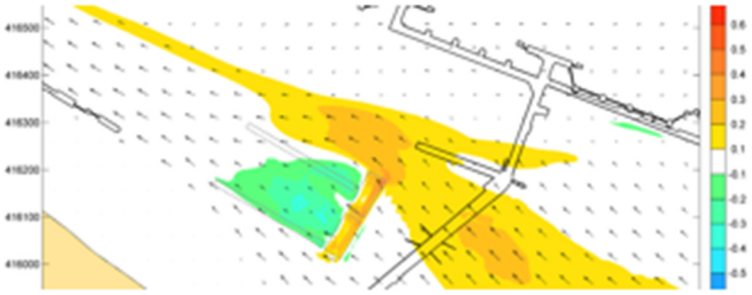


Figure B2 (LW+1 peak spring)

Figure B5 (LW+4 peak spring)

Figure B15 (LW+1 mean spring)



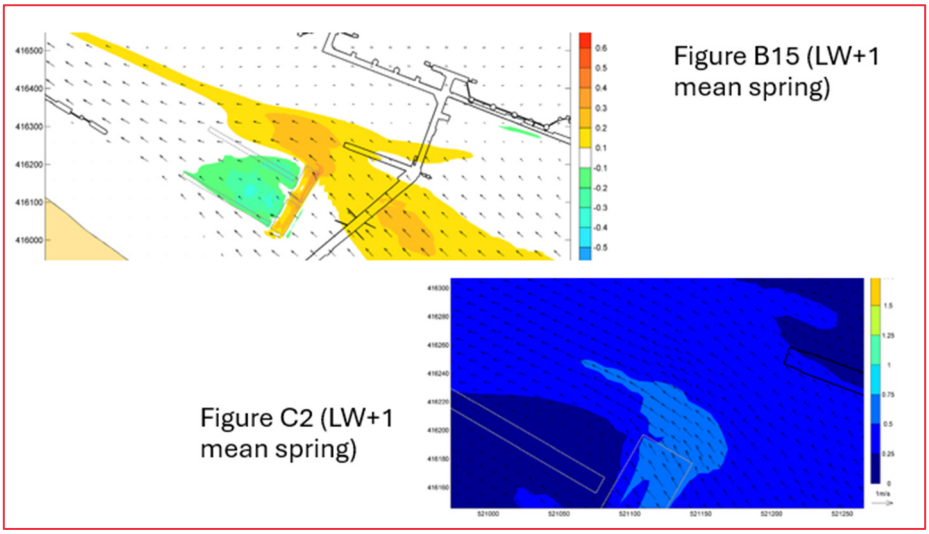
1.17 **Section 3.3: Flow conditions between IERRT and IOT**

1.18 The text states that "*These results confirm that whilst some deflection of the currents around the pontoon does occur, no large scale eddies which might influence vessels are seen*." In discussion with HR Wallingford regarding the modelling, they confirmed that the Telemac model used for this work would not simulate the smaller scale eddies/eddy shedding from the pontoons and piles of the IERRT and this would typically require computational fluid dynamics or physical modelling to assess. Their contention is that the scale of such eddies, if not seen in the Telemac model, would be too small to influence vessel manoeuvring. This does not seem an unreasonable view but it is noted that there may be larger scale eddies present in peak spring tides, for which no figures have been provided.

1.19 The plots in Appendix C are only presented for mean spring tide conditions, and as such would occur for 50% of the time. The scale and likelihood of larger scale eddies is expected to be greater for peak spring tides when the peak velocities will be higher and the changes in water elevation and water depth will be greater. It is difficult to rely on the results of these results without analysis and plots for peak spring tides should be provided.

1.20 Furthermore, the differences in current speed which the figures shown in the Appendix C plots purport to present are much lower than those shown in Appendix B for apparently the same tidal events and times (even noting the difference in use of contour band colours). As shown below, the maximum difference in speed at the northern tip of the pontoon for a mean spring tide at LW+1 is shown as 0.3-0.4m/s (0.6-0.8kn) in Figure B15, but 0.5-0.75 m/s (1-1.5kn) in Figure C2. The figures in Appendix C are unclear as to whether they show actual current speeds not a difference in current speeds.

1.21 It should be noted that the 0.3-0.4m/s increase in speed shown in Figure B15 represents a **40-80%** increase in current speed at LW+1 compared with the present situation. This is clearly a significant change and, combined with the change in current direction (not shown in the figures) will be very relevant to vessel navigation in this area.



1.22 **Summary**

1.23 The updated flow report has addressed a number of the issues raised in IOT Operators' Deadline 8 submission, though the following have not been addressed or addressed only in part:

(a) There has been no further or more appropriate reference to model calibration for navigation simulations provided. While not material to the effectiveness of the model there remains no basis within the reports defining the suitability of the model calibration for its intended purpose.

(b) The absence of terms in the model to represent the impact of piles from the new IERRT structures on flow in the vicinity leaves a potentially significant discrepancy between the modelled flows (and impacts on navigation) and those likely to be experienced in reality.

(c) While some additional plots have been provided to show simulated local flows off the end of the pontoons, no evidence has been provided that this result is similar to that which could be obtained from a more detailed (e.g. CFD) model of the structures.

1.24 As a result, the IOT Operators remain concerned with the quality of flow modelling used to input into the simulations undertaken by the Applicant to date, in particular due to the lack of modelling the IERRT structures and the limited evidence that the model correctly simulated flow around and under the pontoons.

2 APPLICANT'S RESPONSE TO THE EXA'S FOURTH WRITTEN QUESTIONS [REP8-020]

2.1 The IOT Operators note that the number of vessels using the Humber has decreased because the average vessel size has markedly increased meaning that each one takes longer to manoeuvre and potentially presents more risk.

2.2 Regarding vessels transiting to Immingham Lock, these are significantly smaller than the IERRT Design Vessel, are further away from the IERRT Development and undertaking a far less complex manoeuvre in much reduced space. Therefore reference to these vessels does not give a valid comparator.

3 NAVIGATIONAL STUDY OF ENHANCED CONTROL MEASURES (DEC 2023 SIMS REPORT) [REP8-029]

3.1 The IOT Operators question whether HR Wallingford has struggled in the Report to produce an independent account based solely on the results of the simulations. The Report refers to comments by ABP and Stena staff, and personal opinion of the author for which he is neither qualified or experienced, to dismiss the very real the shortfalls and risks which were evident from the simulations.

3.2 Furthermore, in reference to Berth 8, the Report seeks to trivialise the impact of both the amended tidal flow and the close proximity of infrastructure. The Report says on several occasions that the impact of IERRT does not change the ability of vessels to operate, but then immediately contradicts this by stating that 'an adaptation of piloting strategy will be required', the nature of which is not clarified. This immediately poses the question that if the operation is unaffected, why would a change in manoeuvring strategy be required?

3.3 In regard to RoRo vessels, the Report makes statements regarding the likelihood of equipment failure which is not relevant to reporting the outcome of the simulations and assumes that vessel disability is due only to propulsion machinery failure where redundancy exists. However, many more failures are due to electronic or control system failures, or human error in the operation of these. Accident data worldwide proves that incidents with RoRo ferries are anything but 'rare and unusual' as described on p3 of the Report.

3.4 Page 4 states 'It should be noted that, at the time of writing, there is no intention of operating a vessel as large as the CLdN G9 vessel at IERRT'. However, HR Wallingford is not the operator of the terminal, is not commercially aware of the intent of the operator and is not able to justify such comments.

3.5 The Report's comments at paragraph 2.4 on assumptions made on approach are not credible and again are outside the scope of an independent simulation report. Control failures are not predicted or predictable. Any real risk of control failure would indicate that the vessel should not attempt to berth, and no prudent Master will navigate slower than is optimal in the prevailing weather conditions simply in case there is an equipment failure.

3.6 In respect of IOT 8 simulations, the HR Wallingford Report's opinion is that 1 run resulted in a marginal outcome. In the opinion of IOT Operators, as documented and justified in their Deadline 7 Submissions, many more runs were marginal: 2 due to the landing speed and 2 due to the passing distance between moored IRERRT vessel and tanker/tug. Marginal does not mean acceptable. It means that on a good day the outcome might be better than simulated, but conversely it could regularly be worse. In any event, none of the results deemed marginal in the opinion of IOT Operators were acceptable as Standard Operational Practices for the IOT.

3.7 Practical limitations and concerns in respect of operating IOT8 with an extended jetty including standalone VIP were outlined in IOT Deadline 7 Submissions and have not been appreciated or addressed in the Report.

3.8 Omitting a representation of these structures from the flow model will lead to an under-representation of the changes to flow conditions brought about by the proposed scheme and thus the impact on navigation in the area. By ignoring these structures in the flow model, the flows used within the navigation simulations are likely to be different to those experienced in the prototype if/when built.

4 VESSEL IMPACT PROTECTION STRUCTURE – CONCEPT DESIGN [REP8-032]

4.1 Beckett Rankine have, due to available time, undertaken only a preliminary review of the Vessel Impact Protection – Concept design for IOT Operators and have the following comments:

(a) The 5m offset of the impact structures to the IOT structures is small. A predicted deflection allowance of up to 2.5m is quoted but the analyses carried out are linear

elastic soil analyses (i.e. don't capture yielding of soil) and this assumes that the vessel essentially will come to a full and complete stop upon impact. In general, the theory behind impact forces / structural behaviour and knowledge of direction / point of impact etc. is not considered accurate enough to have confidence in a relatively small allowance. Videos of ship impacts often show the ship continuing through the protection for some margin.

(b) The future vessel is a hypothetical upper bound but the assumption of a lower impact speed will introduce operational restrictions and need for specific operational requirements for the future vessel for which there are no details.

(c) The impact scenarios 2 & 3 suggest that fenders should also be provided on the side of the IOT finger pier protection dolphin as well as the front face. This would necessarily reduce the available space between the IOT Finger Pier and the IERRT further constricting the available width and increase likelihood of allision for vessels berthing on IOT Finger Pier berth 8 and 9.

(d) The geotechnical properties for the soils that have been used have not been provided. We note the analysis is linear elastic (as per first comment) and so does not capture any yielding/remoulding effects of the soil. As the displacements are relatively high, we would expect consideration and sensitive studies of the impact of soil stiffness assumptions to be carried out to assess predicted deflections and pile design.

5 HMH RESPONSE TO DEADLINE 7 SUBMISSIONS FROM IMMINGHAM OIL TERMINAL OPERATORS [REP8-051]

5.1 The HMH confirms that he has no experience in the area proposed to be occupied by IERRT and therefore his opinions on what might or might be appropriate for navigation in that area must be taken to have limited credibility.

5.2 Discussions and written submissions regarding future priority for IOT vessels have featured regularly during the application process and IOT Operators have been given assurance that all tidal IOT vessels will be operationally prioritised. However, this submission from the HMH suggests that this arrangement would apply to large vessels only, and presumably not to smaller tidal vessels using the Finger Pier.