KEEPING BRITAIN TRADING

IMMINGHAM EASTERN RO-RO TERMINAL

Applicant's Response to Natural England's Deadline 7 Submissions
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Contents

1 Executive Summary

1.1 This document provides the Applicant's response to the information submitted by Natural England at Deadline 6. These submissions in turn draw upon information submitted by Natural England prior to that deadline. The Natural England submissions to which responses are now being provided are:

- Appendix 1 – Comments on the HRA related to SPA / Ramsar birds (November 2023) **[REP6-048]**; and
- Deadline 6 Submission – Risk and Issues Log **[REP6-049]**.

2 Introduction

2.1 This document provides the Applicant's response to the information submitted by Natural England at Deadline 6. The Natural England submissions to which responses are being provided in this document are:

- IERRT Appendix 1: Comments on the HRA related to SPA / Ramsar birds (November 2023) **[REP6-048]**
- Deadline 6 Submission – Risk and Issues Log **[REP6-049]**

3 IERRT Appendix 1: Comments on the HRA relating to SPA / Ramsar birds (November 2023) [REP6-048]

3.1 Within Natural England's document entitled 'IERRT Appendix 1: Comments on the HRA relating to SPA / Ramsar birds (November 2023)' it makes observations on the Applicant's HRA **[REP5-020**] relating to key issue 6 (potential changes in waterbird foraging and roosting due to operation (presence of infrastructure)), key issue 7 (potential noise and visual disturbance during construction on qualifying SPA/ Ramsar bird species), and to the conclusion of Appropriate Assessment.

3.2 This document first describes Natural England's comments on each of these points and then provides the Applicant's response to each comment.

3.3 **Key issue 6: Potential changes in waterbird foraging and roosting due to operation (presence of infrastructure) from section 4.3.29.**

3.4 It is noted that Natural England welcomes the further information provided on this point including Figure 3 and Figure 4 of the HRA Report [**REP5-020**] showing the numbers and locations of foraging and roosting birds in the existing enclosed spaces within sector B. Natural England states that this provides some reassurance that birds may well continue to use the area around the new jetty even though it will be more enclosed and potentially has greater disturbance from people than before construction. Natural England recommend that post construction monitoring is conducted to identify whether similar numbers of birds continue to use Sector B once the jetty is in place, which will provide evidence for future port projects.

3.5 The Applicant agrees that post construction monitoring should be undertaken in Sector B to understand the abundance and distribution of birds once the IERRT infrastructure is in place. It is already proposed (as summarised in paragraph 4.10.56 of the HRA [**REP5-020**]) that coastal waterbird monitoring will be undertaken based on the same sectors and approach as the current Immingham Outer Harbour (IOH) surveys for the first two years of operation. The results of these surveys will be summarised as part of an annual report with the data used to help inform the evidence base with respect to both potential operational disturbance effects and as a result of the presence of infrastructure.

3.6 **Key issue 7: Potential noise and visual disturbance during construction on qualifying SPA/ Ramsar bird species in section 4.10**

3.7 **At point 1) Natural England note** that Appendix E of the HRA includes Fig E.1 which shows noise modelling for piling on the outer pier, but does not include Fig 2 which shows noise modelling on the inner pier and approach jetty. It is suggested that this information is required for a thorough assessment. Natural England state that Fig 1 and Fig 2 of the predicted airborne noise (LAmax) during piling indicate that beyond 200m from the noise source noise levels will be below 70 dB and that this is considered to define the area that will result in the majority of bird disturbance. Natural England acknowledges that 200 m is an acceptable disturbance distance for most construction activities within a port environment where birds will show some habituation to human activity. However, Natural England advise that a precautionary approach is taken to noise disturbance distances for piling. We [Natural England] recognise that birds are highly likely to be disturbed where noise levels exceed 70 dB LAmax. However, there may also be effects on birds between 55 and 70 dB, whilst Natural England recognise that this noise level impacts on a large area of mudflat, Natural England consider that 200 m does not represent a precautionary approach and advise that the noise disturbance zone should be larger, such as 300 m from noise source.

3.8 In response to Natural England's comments, the Applicant would firstly like to highlight that it is not clear why an overly precautionary approach is being advocated with respect to bird disturbance during construction, whilst at the same time agreeing that a disturbance distance of 200 m during construction activities is appropriate within a port environment. No evidence has been provided by Natural England to support the view that a disturbance distance of 300 m would be appropriate in a busy working port.

3.9 The Applicant's assessment of noise effects and potential mitigation relating to noise disturbance was specifically developed based on guidance given by Natural England as part of the consultation for the IERRT project (paragraph 4.10.21 of the HRA **[REP5-020]**) which advised that '*peak levels below 55 dBA can be regarded as not significant, while peak noise levels approaching 70 dBA and greater are most likely to cause an adverse effect…birds may habituate to regular noise below 70 dBA, but irregular above 50 dBA should be avoided'* (advice provided as part of Natural England's Discretionary Advice Service in a letter dated 3 October 2023).

3.10 On the basis of this advice, a threshold of 70d BA was applied to the assessment relating to noise. The application of 70 dB is a widely accepted approach used in impact assessments and is also consistent with other literature and evidence on noise disturbance (such a Xodus, 2012; Wright *et al.,* 2013; ABPmer, 2002 and IECS, 2009).

3.11 It is also acknowledged in the Applicant's assessment that in areas with very low background ambient noise levels that noise levels of between 55 and 70 dB could cause disturbance reactions in birds as individuals will not be habituated to noise. Noise levels between 55 and 70 dB is considered to be relatively low-level noise (for context an electric toothbrush produces noise levels of 50-60 dBA, a washing machine 50-75 dBA and hair dryer 69-95 dBA[1]). The assessment of piling effects for the IERRT project was specifically undertaken in the context of background noise levels in the Port

[1] https://noiseawareness.org/info-center/common-noise-levels/

of Immingham area. As stated in paragraph 4.10.22 of the HRA Report [**REP5-020**], background noise levels of between 48 to 84 dB Lmax were recorded during noise monitoring on the foreshore around the Port of Immingham. Noise levels in these ranges regularly occur on a daily basis. Waterbirds are therefore subjected to noise levels of between 55 and 70 dB repeatedly with observations from ongoing ornithology surveys in the area suggesting that birds show limited responses and continue to feed in important numbers on the mudflats, suggesting they are habituated to noise at these levels.

3.12 Construction restrictions based on 200 m zone rather than 300 m is considered proportionate based on the following:

- As stated in the HRA Report (paragraph 4.10.38), the winter marine construction restriction from 1 October to 31 March will minimise disturbance during the colder winter months when waterbirds are considered vulnerable to the effects of disturbance. This proposed mitigation restricts all construction activity including marine piling within a 200 m zone of exposed foreshore. The noise suppression system will be used for piling undertaken outside of the 200 m restriction zone. The noise suppression system is predicted to reduce noise levels to <70 dB LAmax at distances greater than approximately 200 m from the marine piling which will be in the range of existing background noise levels of operational port activities. The 70 dB criterion is considered an appropriate threshold for noise associated with piling specifically in the Port of Immingham area as highlighted above.

- With respect to visual stimuli associated with the piling activity, as specified in the HRA Report (paragraphs 4.10.19 and 4.10.20), evidence from the disturbance monitoring of the IERRT Ground Investigation ("GI") works which used a jack-up barge (which will also be used for the IERRT piling), recorded limited disturbance with Black-tailed Godwit, Shelduck and other SPA species feeding within 60 m and in numbers in the local area comparable to previous years (see Image 1). On this basis, 200 m is also considered appropriate with respect to visual stimuli associated with piling activity.

- Observations from a range of piling specific studies indicate limited responses to piling at distances of more than 200 m (as summarised in Table 1 below).

3.13 It is acknowledged that the potential for some limited responses in more sensitive species such as Shelduck cannot be ruled out at distances of more than 200 m from piling. However, such responses at these distances would be expected to be mild and very infrequent given the evidence on the known habituation to existing port related activity and noise. On this basis and as detailed in the HRA Report, the winter marine construction restriction is considered effective at minimising disturbance and allowing birds to continue to feed in the footprint of the Project during the winter months. Specifically, as highlighted in Table 30 of the HRA Report, disturbance of the magnitude predicted is not considered to compromise any of the conservation objectives the Humber Estuary SPA/Ramsar site.

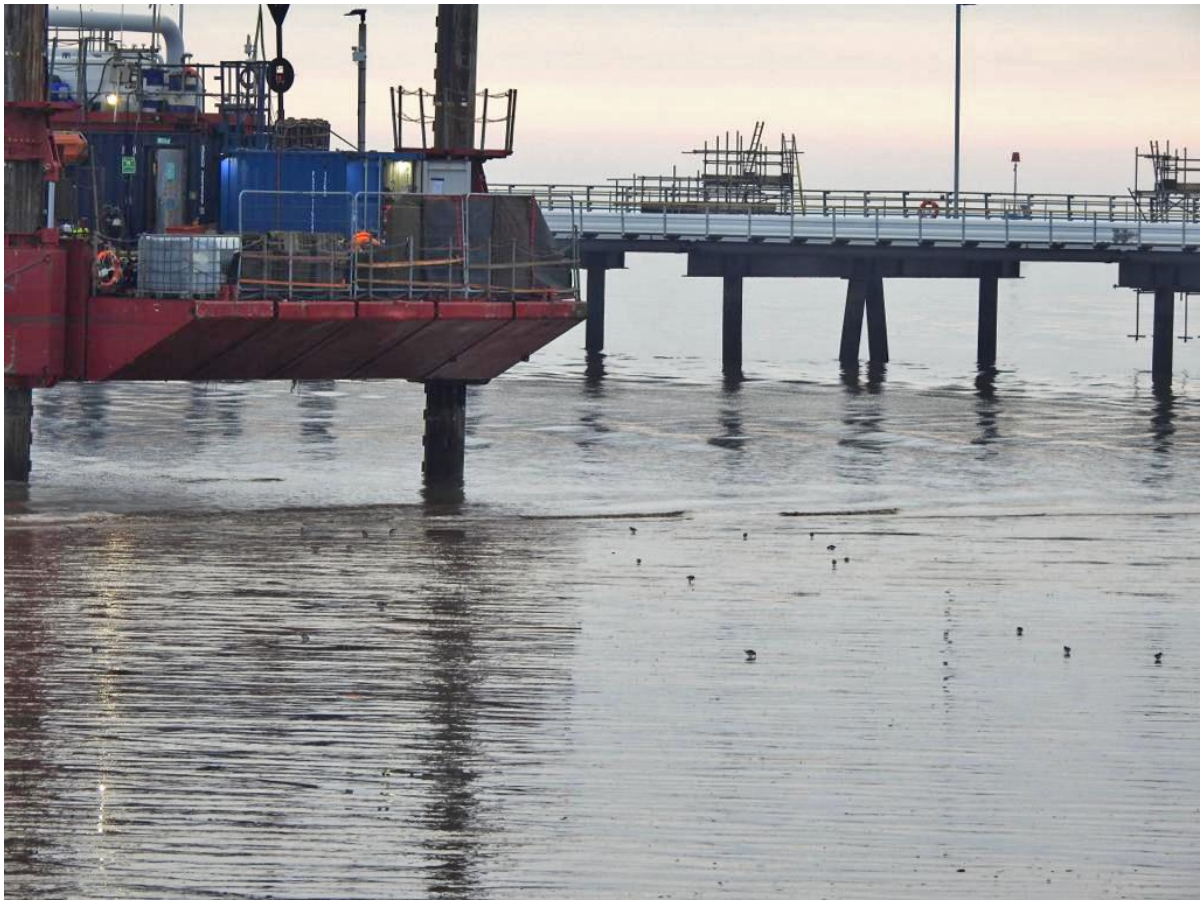

Image 1. Waders feeding in close proximity to the jack-up barge

3.14 On a more minor point, Figure 2 noted in Natural England's comment showed predicted airborne noise (LAmax) during piling at the inner pier and approach jetty with the noise suppression system. This was not included in Appendix E of the HRA Report [**REP5-020**] as Appendix E provides information on the effectiveness of mitigation for waterbird features. The scenario represented in Figure 2 is not a scenario that would occur with the proposed mitigation measures in place. The winter marine construction restriction (from 1 October to 31 March) would prevent piling occurring within 200 m of the exposed foreshore (e.g., on the approach jetty or inner finger pier) during the winter months. On that basis, Figure 2 is considered misleading in the context of explaining the effectiveness of the mitigation measures.

Table 1. Summary of studies monitoring waterbirds during piling activity.

Study	Summary
Institute of Estuarine and Coastal Studies (IECS). (2009a). Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Institute of Estuarine and Coastal Studies Report to Humber INCA.	Disturbance monitoring along a 1.5 km stretch of coastline near Pyewipe, Grimsby of piling works centred on the South Humber Bank Power Station found that birds appeared indifferent to the noise of piling from the landward side of the seawall, and the numbers and distribution of birds on the mudflat at low tides was similar during periods of piling and periods with no piling. Piling on the seaward side of the seawall only resulted in minor disturbance to birds immediately adjacent to the seawall, but feeding flocks appeared tolerant of piling noise at a distance of approximately 200 m (IECS, 2009).

Study	Summary
Scott Wilson. (2009). Estuarine Bird Monitoring (05 Dec 2008-19 Jan 2009) - TERRC Facility. Prepared for Hartlepool Borough Council	Ornithological monitoring at Hartlepool found that birds feeding on mudflats at low tide were largely unaffected by marine piling activity to construct a new quay wall c. 200 m from the nearest mudflat, with only one significant disturbance event (causing a flock of gulls to leave the sector and not return) during the two month winter monitoring period (Scott Wilson, 2009). All marine piling at the Hartlepool site employed a 'soft-start' procedure, where noise levels are gradually increased to minimise the impact of a sudden sharp increase in noise.
ABPmer. (2013). Bury Marsh Bird Monitoring 2012-2014: Interim Report. ABP Marine Environmental Research Ltd, Report No. R.2123.	Bird monitoring as part of the marine licensing consent for a quay wall construction development at the Port of Southampton evaluated the disturbance effects of percussive piling on waterbird species using the mudflat habitat on Bury Marsh opposite the Port of Southampton (approximately 100 to 200 m away) during the overwinter period. No bird disturbance behaviour (such as startling, rapid flight or abruptly stopping foraging) was observed during monitoring periods of percussive piling activity. However, disturbance to waterbirds was observed on several occasions due to vessels and kayaks within 50 m of Bury Marsh (ABPmer, 2013).

3.15 **At point 2) Natural England state** the following: '*With respect to the proposed mitigation measures for impacts of noise on non-breeding birds: Construction activity (including piling) not allowed within 200m of exposed mudflat (2 hours either side of high water when the works should be approximately 200m from mudflats)'. This applies to the approach jetty and inner pier only. With reference to Fig 2 it is unclear how this will be applied when working on the upper shore especially work on the approach jetty. Clarity is needed about the area of mudflat covered by the tide in different tidal states. Please provide more information on tide levels in the port and whether the mudflats will be covered with sufficient depth of water which will deter use by the majority of SPA waterbirds at all high tides.*

3.16 The position of the tide and the area of mudflat covered by the tide in different tidal states (along with corresponding 200 m buffer distances from the tide mark) is provided in Figure 1 and Figure 2 below, for mean spring tides and mean neap tides, respectively.

3.17 Waders and other shorebirds typically forage on exposed intertidal areas or in very shallow water depths (<5-10 cm deep[1]). Water depth is rapidly expected to reach depths unsuitable for most SPA waterbirds to feed within a localised area around the tideline (several metres) based on the analysis of the foreshore profile (i.e., slope gradient).

[1] Schaffer-Smith, D., Swenson, J.J., Reiter, M.E. and Isola, J.E., 2018. Quantifying shorebird habitat in managed wetlands by modelling shallow water depth dynamics. Ecological Applications, 28(6), pp.1534-1545.

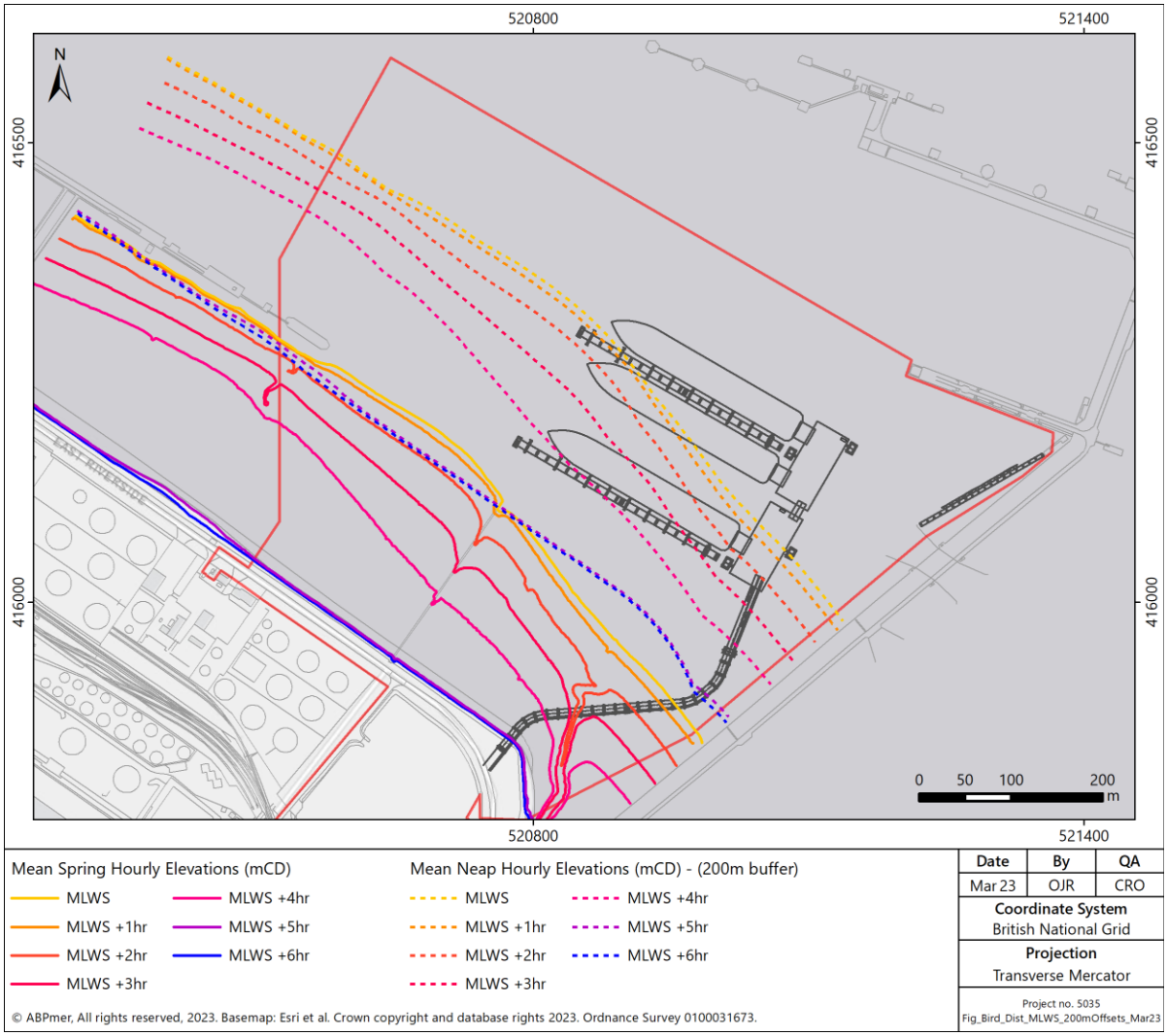

Figure 1. Position of the tide at different tidal states during a spring tidal phase

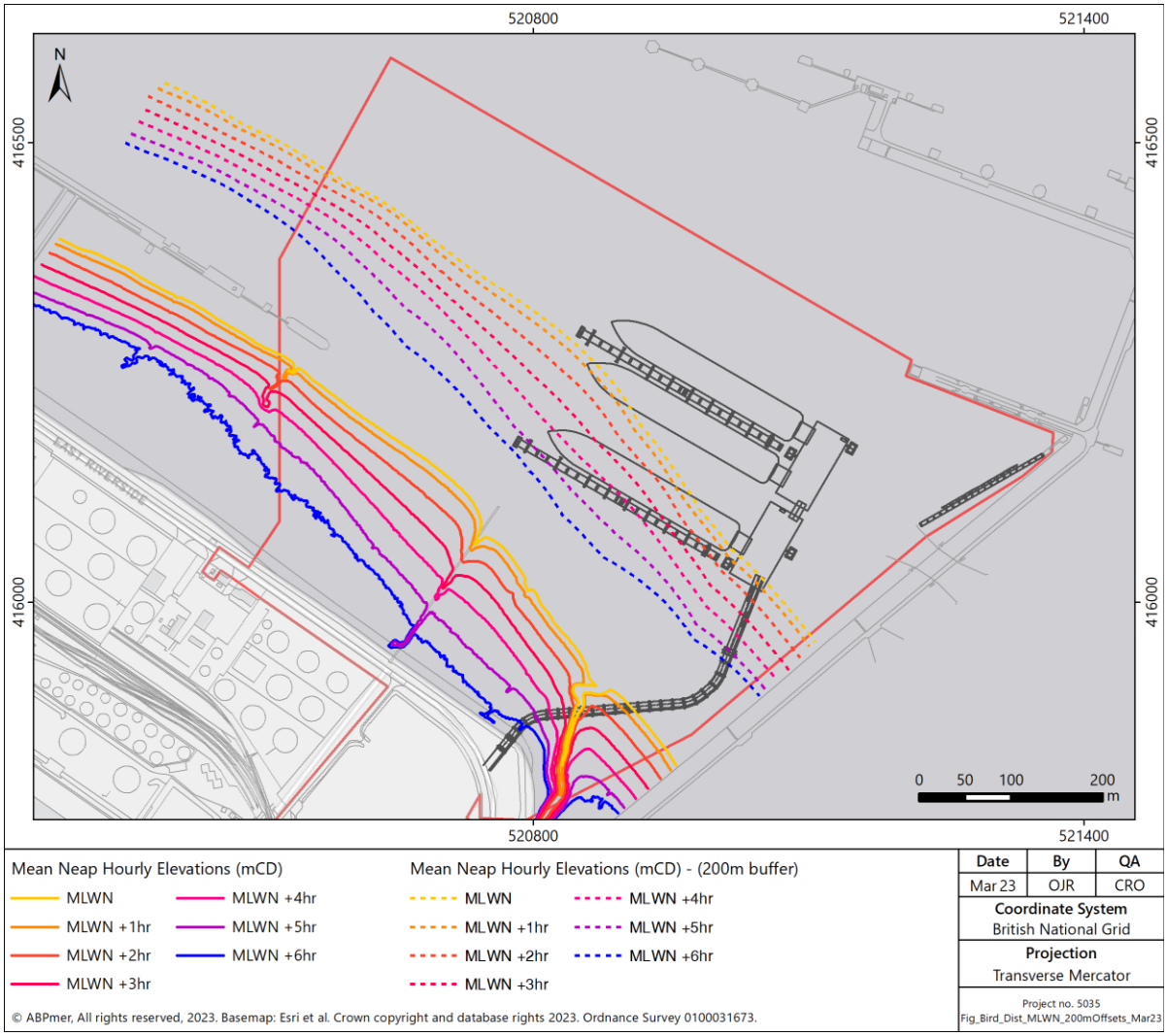

Figure 2. Position of the tide at different tidal states during a neap tidal phase

3.18 **At point 3) on mitigation Natural England state:** *'No restrictions are being proposed for work on outer pier, but this would need to be reviewed should the disturbance distance be increased'.*

3.19 The Applicant would like to reiterate that a detailed assessment of the potential effects of construction of the outer pier is provided in paragraphs 4.10.28 and 4.10.29 of the HRA [**REP5-020**]. Based on that assessment, and the extensive evidence to support that assessment, mitigation was not considered to be required for the outer pier.

3.20 It is not clear to the Applicant what evidence there is to suggest mitigation is required for the outer finger pier with respect to bird disturbance during construction in a port environment, nor what evidence there is to justify the application of an increased disturbance distance.

3.21 **At point 4) on mitigation Natural England state:** *'A precautionary approach should be taken to setting the timing of works to ensure that there is sufficient distance between the piling site and exposed mudflats (being used by SPA birds) when piling starts. The current wording in the HRA 'should be*

approximately 200m from exposed mudflat', does not provide sufficient certainty that mitigation will be effective. It may be possible to add markers on the mudflat to improve certainty about distances. Natural England also recommends the use of a suitably qualified Ecological Clerk of Works during the construction period. An Ecological Clerk of Works will be able to guide the works, ensure that agreed mitigation measures are adhered to and therefore avoid disturbance to very large flocks of SPA birds.

3.22 The Applicant welcomes Natural England's suggestion of the use of markers on the mudflats as a potential option that could be used to improve certainty about distances. The feasibility of this option will be explored further in consultation with Natural England. In principle, a suitably qualified Ecological Clerk of Works (ECoW) is a suggestion that the Applicant will consider for appropriate activities during the construction period. Again, the possibility of using an ECoW during construction will be discussed with Natural England.

3.23 **At point 5) on mitigation Natural England state:** '*NE advise that programming of the marine construction works should be considered so that the most disturbing works (approach jetty and inner pier) are carried out in the summer and early autumn, with works that are less disturbing to the SPA birds taking place during the coldest months (December to February inclusive). This measure is needed to ensure that black tailed godwit, which are at the northern edge of their wintering range on the Humber, can continue to feed across both tides each day during the coldest months, to maintain body condition. We recognise that black tailed godwits do occur on passage and in small numbers over winter on coasts further north, but not in high numbers over the whole winter (references have been provided in previous responses).*

3.24 Natural England's comments have already been addressed by the mitigation measures proposed for the IERRT project which have been explained to Natural England on a number of occasions. The IERRT construction programme has been designed around the proposed mitigation measures. As stated in paragraph 4.10.38 of the HRA [**REP5-020**], the winter marine construction restriction from 1 October to 31 March (for the approach jetty and the inner finger pier) will ensure that the disturbing activities **including piling as well as all other construction activity** on or near the foreshore (within 200 m of exposed intertidal) **will not take place** during the winter months including from December to February. Less disturbing works, such as construction activity behind the acoustic barrier/visual screens installed on the semi-completed approach jetty structure, will instead be potentially undertaken in these months.

3.25 With the winter restriction described above in place, Black-tailed Godwit will be able to continue to feed on the foreshore in the Immingham area across both tides each day during the coldest months, to maintain body condition.

3.26 **At point 6) on in-combination assessments (within the project) Natural England state:** *'The assessment should also consider whether terrestrial construction noise as a result of this proposal will act in combination with the marine construction noise and lead to increased levels of disturbance to SPA birds. In addition, there should be clarity about whether there will be piling at more than one location each day and if this is the case what effect this will have on bird disturbance.*

3.27 A limited amount of terrestrial piling is required; this will be located over 300 m from the foreshore at the location of the proposed bridge over Robinson Road. Therefore, birds utilising intertidal habitats are considered to be outside the potential zone of influence of disturbance effects associated with landside piling. There is also a significant amount of screening in the form of existing buildings and infrastructure. Other landside construction noise is predicted to be in the range of background port operational noise and is not expected to cause disturbance to SPA birds on nearby foreshore. Therefore, terrestrial piling is not anticipated to affect coastal waterbirds using the foreshore.

3.28 Within the assessment it has been assumed that four piling rigs, as a worst case, may be in operation concurrently, but it is not anticipated and indeed is highly unlikely that the piling hammers will strike in unison to create a cumulative effect. That said, it is considered possible (though unlikely) for two of the hammers to strike at the same time and, therefore, the modelled source level has taken account of two piling sources as a reasonable worst case. This has been undertaken when assessing effects on fish from underwater noise, and disturbance to birds during construction.

3.29 In terms of the location of concurrent piling activities, it is important to note that this will be controlled by the proposed seasonal restrictions. For example, during the overwintering construction restriction (between 1 October to 31 March), works (including piling) within 200 m of exposed mudflat would not be allowed. This would prevent works on the inner finger pier and approach jetty during that time for most of the tidal cycle.

3.30 **Section 5: Conclusion of Appropriate Assessment**

3.31 Natural England welcomes the inclusion of Table 40 in the HRA Report [**REP5-020**]. In the final version of the HRA, Natural England advise that the table should be expanded to provide details of the mitigation measures e.g., not just 'cold weather restriction'. Natural England suggest that the table should indicate whether the measure will completely avoid the effect or reduce it to an acceptable level and the level of certainty that this will occur.

3.32 The Applicant has undertaken to provide a further update to the HRA Report at Deadline 7. To accommodate Natural England's request, Table 40 has been expanded to provide further details on the mitigation measures and also includes commentary on the effectiveness of mitigation and the level of certainty.

3.33 Natural England also suggest that it would also be useful to include the *'Schedule of seasonal restrictions on construction activity'* (previously provided in a Signposting Document on bird disturbance mitigation). This has been provided within Appendix E of the updated HRA Report provided at Deadline 7. As per Natural England's request, the table includes differentiation of the measures that apply to piling versus all construction activities. The receptors for which mitigation measures are being proposed, and whether they comprise an interest feature of a European/Ramsar site, are also detailed. Further commentary on the balance of mitigation measures between summer and winter and whether this balance is appropriate given the level of risk to different European site features is provided (as requested by Natural England) in Appendix E of the updated HRA.

4 Comments on Risk and Issues Log

4.1 Natural England's document entitled 'Risk and Issues Log' provides a record of the points raised during Examination that Natural England consider have been addressed or remain outstanding. The vast majority of points are now resolved.

4.2 The following sections of this document first sets out Natural England's comments on each of the outstanding key issues and then provides the Applicant's response to each comment.

4.3 **Key Issue 7 – point 2a**

4.4 Natural England state that it agrees that the HRA uses the recommended approach with respect to considering LSE for bird disturbance during construction, however, it notes that Table 28 of the HRA Report [**REP5-020**] (Summary of evidence) still makes regular reference to the IECS 2013 toolkit.

4.5 As stated in Table 3.1 of the Applicant's response to relevant representations [**REP1-013**], the IECS 'Waterbird disturbance mitigation toolkit' has only been used to provide contextual information for the assessment. Typically, this comprises findings from direct observations and monitoring of bird species in respect of flood defence works (including piling and use of plant/machinery) which is considered analogous to port related construction activity. On this basis, the toolkit is considered to include valuable background evidence to support the assessment. In addition, the toolkit (which was developed by ornithologists considered experts in the field of waterbird disturbance at the University of Hull) is regularly requested by other statutory bodies to be used in assessments and therefore not including relevant information from the toolkit could be considered a potential data gap. However, it is also agreed that caution should be used with respect to the very specific thresholds stated for individual species in the toolkit. For this reason, the IERRT ES and HRA do not apply the toolkit thresholds in the assessment(s) and instead take a broader approach by considering the evidence base as a whole. In addition, a wide range of literature and evidence sources have been taken into account within the assessments to help understand the relative sensitivity of different species and the responses they might have to disturbance stimuli. Taken together, this information represents a robust evidence base to underpin the respective assessments and the conclusions drawn from those assessments.

4.6 The approach described above is considered entirely appropriate, and neglecting to consider the information provided in the IECS toolkit would ignore an important part of the evidence base.

4.7 **Key Issue 7 – point 2b**

4.8 Natural England state that it agrees that the general construction disturbance distance can be 200 m within a busy working port where there will be some habituation by SPA birds. However, a more precautionary approach may be needed in terms of noise levels for piling works.

4.9 The Applicant's response to this point is provided above in Section 3. The assessments have included all marine construction works, including piling. To reiterate, the Applicant is unclear as to why an overly precautionary

approach is being advocated at the same time as agreeing that a disturbance distance of 200 m during construction activities is appropriate within a port environment. No evidence has been provided by Natural England to support the view that a disturbance distance of 300 m would be appropriate in a busy working port.

4.10 **Key Issue 7 – point 5b**

4.11 Natural England state that further information has been provided in Section 1.4 of Appendix A of the HRA [**REP5-020**], but it does not explain why Sector B is important for SPA birds (food availability etc). This therefore remains an ongoing matter.

4.12 Paragraph 1.4.22 of Appendix A of the HRA Report [**REP5-020**] states that '*Waterbirds will use the foreshore in Sector B for a variety of reasons – for example the extent of available mudflat and feeding resources on the mudflat in the area'*. To further expand on this point, the mudflat fronting the Port of Immingham (like other expansive areas of mudflat in the Humber Estuary) will be important for SPA birds as it provides a feeding resource to those species. Lower levels of recreational disturbance pressure compared to areas with public access might also be a contributing factor.

4.13 It is not clear to the Applicant why this remains an ongoing matter as the HRA has been undertaken considering the foreshore's importance within the SPA for feeding and roosting birds (based on bird abundance data) and also acknowledges that the mudflat habitat in the area provides important invertebrate prey for waterbirds.

4.14 **Key Issue 7 – point 7**

4.15 Natural England note that paragraphs 1.2.5 to 1.2.7 of the HRA Report [**REP5-020**] indicate that capital dredge can take place 24 hours a day 7 days a week, but similar detail has not been provided for piling and other construction activities. This therefore remains an ongoing matter.

4.16 This point has been clarified in the update to the HRA Report provided at Deadline 7. To be clear, marine works in general (e.g., capital dredging, piling etc.) may take place 24 hours a day, 7 days a week. However, marine works will also be subject to seasonal restrictions and mitigation in certain months that would control working hours (as summarised in Table 40 of the updated HRA).

4.17 **Key Issue 7 – point 10**

4.18 Natural England states that the additional information provided in Table 29 of the HRA [**REP5-020**] is welcomed, however, it is the view of its ornithologists that Black-tailed Godwits are at their energetic northern limit on the Humber on the east coast in the winter. The species will occur on passage on coastlines further north (and possibly in small numbers over the winter), but in terms of large numbers of overwintering black tailed godwits, the Humber Estuary is the northern limit on the east coast. It is therefore very important that this species can use foraging areas on the Humber at both low tides, particularly during the coldest months. This therefore remains an ongoing matter.

4.19 It is acknowledged that on the east coast of the UK, the Humber Estuary supports the largest wintering population of Black-tailed Godwit north of the Wash. It is also agreed that Black-tailed Godwit, like other waders, have the highest energetic demands in the coldest winter months and are most susceptible to disturbance during these periods (as stated in paragraph 4.10.35 of the HRA Report [**REP5-020**]). However, the proposed mitigation is considered effective at minimising disturbance to this species and will allow Black-tailed Godwit to continue to feed on the Immingham foreshore at both low tides, during the coldest months (as discussed in Table 30 of the HRA Report).

4.20 **Key Issue 7 – point 15**

4.21 In Key Issue 7, point 15, Natural England request a figure which shows noise modelling for the inner pier and the approach jetty and an explanation of how mitigation measures will address impacts for construction disturbance on intertidal areas.

4.22 As noted above, construction disturbance to birds on intertidal areas will be mitigated by the proposed winter marine construction restriction (from 1 October to 31 March). This would prevent any construction activity (including piling) occurring within 200 m of the exposed foreshore (i.e., on the approach jetty or inner finger pier) during the winter months. Therefore, the scenario noted in Natural England's comment is not a scenario that would occur with the proposed mitigation measures in place. On that basis, it not considered appropriate to provide a figure that shows predicted airborne noise (LAmax) during piling at the inner pier and approach jetty.

4.23 **Key Issue 7 – point 21**

4.24 Natural England note the information provided in Appendix E of the HRA Report [**REP5-020**] on soft-start piling, however, the main point is the effectiveness of the overall package of mitigation measures on reducing impacts to wintering SPA birds, rather than the specific use of soft start piling.

4.25 Natural England's comment is noted. The overall package of mitigation for construction related disturbance to coastal waterbirds is considered effective at minimising disturbance to a level which will not cause an AEOI. This is stated throughout the HRA Report, for example, in Table 40 and Appendix E.

4.26 **Key Issue 11, 13, 14, 15, 25, and 31**

4.27 With reference to key issues 11, 13, 14, 15, 25, and 31 Natural England explain that it considers that the impacts of IERRT and IGET should be assessed in-combination within both applications, based on the further details that are available following the acceptance of the IGET application for Examination.

4.28 The Applicant has addressed this point and provided an updated in-combination assessment in the updated HRA Report submitted at Deadline 7. Clarification as to what in-combination effects are considered at the LSE stage is also provided.

4.29 It is not clear what Natural England mean by '*there is no assessment of cumulative effects in the AA, i.e., the additional effect of this development on*

the Humber baseline, for example the additional effect of dredging and shipping movements'. All effects assessed in the HRA are compared against the baseline environment (including the effects of dredging and shipping movements) – this is a basic requirement of any impact assessment. Please also refer to Table 4.7 of the Applicant's response to relevant representations [**REP1-013**] for further information on how 'cumulative' and 'in-combination' effects have been assessed.

4.30 **Key Issue 12**

4.31 Natural England consider that the night-time restrictions that have been applied to percussive piling should be extended to include vibro-piling to mitigate impacts to migratory lamprey.

4.32 The Applicant's position remains that vibro-piling should not require mitigation because of the small and limited effects. However, in light of Natural England's view, the Applicant will agree to extend the night-time restriction to include vibro-piling during the months of August to October (i.e., the key months for the nocturnal movements of river lamprey) in order for this issue to be resolved with Natural England.

4.33 **Key Issue 41**

4.34 In relation to air quality impacts, Natural England continue to advise that the swamp/fen critical load should be used to assess nitrogen deposition impacts on the Hatfield Chase Ditches SSSI.

4.35 The Applicant has undertaken an assessment using the approach suggested by Natural England. A short technical note is provided at Annex A of this document.

Annex A

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Date:
20 November 2023

CC:
Graeme Cowling (AECOM)
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Technical Note

Subject: Hatfield Chase Ditches Sit of Special Scientific Interest Air Quality Impact

Introduction and background

During the Examination of the IERRT Project, Natural England (NE) as part of their Deadline 2 submission material requested the Project consider the air quality impact of the project at the Hatfield Chase Ditches SSSI assuming that the habitat is swamp or fen, not standing open water and canals. This request was included within Item 41 of the document, '*Written Representation summary table*' **[REP2-020]**[1].

Item 41

41	**National designated sites (biodiversity & geodiversity)**	Construction and operational phase traffic impacts on all relevant terrestrial SSSIs	NE consider that information provided by the Applicant in SPD-AQ in relation to Hatfield Chase Ditches SSSI was not sufficient. NE advised that Hatfield Ditches is notified for its ditch vegetation. The critical load levels used must therefore be for the swamp / fen habitat type.	N/a – Further information required (in relation to Hatfield Chase Ditches SSSI only).	**'Amber'**

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The HCD SSSI is a linear feature which is located approximately 27 km to the west of the Project and passes to the north and south of the M180 Motorway at two locations near to Sandtoft Airfield.

NE have informed the applicant that based on the presence of fen vegetation in this habitat (e.g. Carex spp. and Phragmites), they advise that the most appropriate Critical Load (CLo) to use would be for rich fen.

This technical note sets out the results of the assessment of air quality impacts on the HCD SSSI. The annual mean concentration of nitrogen oxides (NO_X) and the annual deposition rate of nitrogen (N-dep) has been quantified following the same method described in the Chapter 13, Air Quality of the Environmental Statement (ES) **[APP-049]**.

The concentrations and deposition rates, and associated impacts have been predicted for a transect of receptors running to the north of the M180 eastbound carriageway. The concentrations and deposition rates, and associated impacts are considered relative to the following air quality standards (AQS):

- NO_X annual mean air quality objective (referred to as the Critical Level (CLe)) of concentration of 30 µg/m^3.
- N-dep rate CLo of 15-25kgN/ha/yr relating to the primary habitat present (rich fen).

[1] TR030007-000672-Natural England - Written Representations (WRs).xlsx Table.pdf (planninginspectorate.gov.uk)

Methods & Results

The predicted results concerning annual mean NO_X concentrations at the HCD SSSI are set out in Table 1. The predicted results concerning the annual rate of N-dep at the HCD SSSI are set out in Table 2.

Table 1: Annual Mean NOx Impacts at HCD SSSI

Receptor Point	Annual Mean NO_X Conc. (µg/m^3)				Impact (µg/m^3 (% (of CLe)))	
	Existing Baseline[1]	Future Baseline 1[2]	Future Baseline 2[3]	Operational[4]	Operational – Future Baseline 1	Operational – Future Baseline 2
Roadside	**41.4**	**34.2**	22.5	**34.4**	+0.2 (0.8)	+11.9 (39.6)
10m back from roadside	**30.9**	25.4	17.8	25.6	+0.2 (0.5)	+7.8 (25.9)
20m back from roadside	26.4	21.6	15.7	21.8	+0.1 (0.4)	+6.0 (20.1)
30m back from roadside	23.8	19.5	14.5	19.6	+0.1 (0.4)	+5.1 (16.9)
40m back from roadside	22.0	18.0	13.7	18.1	+0.1 (0.3)	+4.4 (14.6)
50m back from roadside	20.7	16.9	13.1	16.9	+0.1 (0.3)	+3.8 (12.8)

[1] Existing Baseline represents conditions in 2019.
[2] Future Baseline 1 represents conditions in 2025 and includes traffic flows associated with general traffic growth between the existing baseline year of 2019 and the year of opening, 2025, plus flows associated with committed developments by 2025.
[3] Future Baseline 2 represent conditions in 2025, but assuming no traffic growth and no additional flows associated with committed developments (i.e. 2019 traffic conditions).
[4] Operational represents conditions in 2025 and includes traffic flows associated with general traffic growth between the existing baseline year of 2019 and the year of opening, flows associated with committed developments by 2025, and flows associated with the operation of the Project.

Bold values denote an exceedance of the AQO.

Table 2: Annual Rate of N-dep Impacts at HCD SSSI

Receptor Point	Annual Rate of N-dep (kgN/ha/yr)				Impact (kgN/ha/yr (% (of CLo)))	
	Existing Baseline[1]	Future Baseline 1[2]	Future Baseline 2[3]	Operational[4]	Operational – Future Baseline 1	Operational – Future Baseline 2
Roadside	**17.42**	**17.26**	**16.25**	**17.28**	+0.02 (0.1)	+1.03 (6.9)
10m back from roadside	**16.69**	**16.60**	**15.89**	**16.61**	+0.01 (0.1)	+0.72 (4.8)
20m back from roadside	**16.36**	**16.31**	**15.74**	**16.32**	+0.01 (0.1)	+0.58 (3.9)
30m back from roadside	**16.17**	**16.13**	**15.64**	**16.14**	+0.01 (0.1)	+0.5 (3.3)
40m back from roadside	**16.03**	**16.02**	**15.58**	**16.03**	+0.01 (0.1)	+0.45 (3.0)
50m back from roadside	**15.93**	**15.93**	**15.53**	**15.93**	<+0.01 (<0.1)	+0.4 (2.7)

[1] Existing Baseline represents conditions in 2019.
[2] Future Baseline 1 represents conditions in 2025 and includes traffic flows associated with general traffic growth between the existing baseline year of 2019 and the year of opening, 2025, plus flows associated with committed developments between 2019 and 2025.
[3] Future Baseline 2 represent conditions in 2025, but assuming no traffic growth and no additional flows associated with committed developments (i.e. 2019 traffic conditions).
[4] Operational represents conditions in 2025 and includes traffic flows associated with general traffic growth between the existing baseline year of 2019 and the year of opening, flows associated with committed developments between 2019 and 2025, and flows associated with the operation of the Project.

Bold values denote an exceedance of the lower CLo threshold.

Discussion

Nitrogen Oxides

The results presented in Table 1 demonstrate the CLe for annual mean NO_X concentrations is already exceeded (i.e. concentrations are 30 µg/m^3 or more) in the Existing Baseline, Future Baseline 1 and Operational scenarios, at sections of the HCD SSSI located closest to the M180 eastbound carriageway. Annual mean NO_X concentrations fall below the CLe at just over 10m back from the road in the Existing Baseline, and within 10m from the road in the Future Baseline 1 and Operational scenarios.

The results presented in Table 1 demonstrate that the impact of the operation of the Project has a negligible impact on annual mean concentrations of NO_X at the HCD SSSI. At the location of the SSSI closest to the M180 eastbound carriageway, Project impacts account for 0.8% of the CIe, which is below the 1% screening threshold adopted for ecological impact assessment as set out in the IAQM guidance.

The impact of the Project plus all traffic growth and committed development flows between 2019 and 2025 accounts for 39.6% of the CLe at the closest point of the habitat to the road and 12.8% at the location furthest from the road. Although this exceeds the 1% screening threshold for ecological impact assessments as set out in the IAQM guidance, it does not necessarily mean that there will be adverse effects on habitats but indicates that further assessment may be required.

The HCD SSSI units within the zone of influence of the Project are Unit 10 (North Idle Drain Gatehouse to M180) and Unit 7 (South Engine Drain), which are culverted beneath the M180, and both of which are assessed by Natural England in its most recent SSSI condition assessment to be in '*unfavourable – declining*' condition. The reasons for the condition assessment within these SSSI units are identified as freshwater pollution due to agricultural run-off/ discharge, which will result in nitrogen input to the watercourse. For the Future Baseline 1 and Operational Scenarios modelled, there is exceedance of the CLe for NOx at the roadside receptor locations within the HCD SSSI, but at 10 m from the road, the levels fall below the CLe. As the section of the ditches where the CLe for NOx is exceeded in these scenarios is therefore <10 m, this would not reasonably be considered at a magnitude at which adverse effects on the SSSI as a whole would occur even if there were localised impacts on vegetation species-richness within 10 m of the road. It is far more likely that the nitrogen input from agricultural run-off will be more heavily influencing the vegetation assemblage in the SSSI units given the extensive areas of agricultural land that border the watercourses.

It is therefore reasonable to conclude that the cumulative effects of NOx emissions from the Project, with predicted traffic growth and committed developments, **would not result in significant adverse effects** on the HCD SSSI habitats within the zone of influence.

Nitrogen Deposition

The results presented in Table 2 demonstrate the CLo for annual N-dep rate is already exceeded across the transect modelled, (i.e. concentrations are 15 kgN/ha/yr or more) in the Existing Baseline, Future Baseline 1, Future Baseline 2 and Operational scenarios, due to elevated background conditions that are common across the UK.

The results presented in Table 2 demonstrate that the impact of the operation of the Project has a negligible impact on annual deposition rates of N-dep at the HCD SSSI. At the location of the SSSI closest to the M180 eastbound carriageway, Project impacts under the Future Baseline 1 scenario account for 0.1% of the CLo, which is below the 1% screening threshold adopted for ecological impacts assessment as set out in the IAQM guidance.

The impact of the Project plus all traffic growth and committed development flows between 2019 and 2025 accounts for 6.9% of the CLo at the closest point of the habitat to the road and 2.7% at the modelled location furthest from the road. Although this exceeds the 1% screening threshold for ecological impact assessments as set out in the IAQM guidance at these receptors, it does not necessarily mean that there will be adverse effects on habitats but indicates that further assessment may be required. In all scenarios there is no exceedance of the upper CLo at any of the receptors within HCD SSSI, and as discussed above for N-dep, in general nitrogen input to the SSSI units are reasonably expected to be primarily influenced by the agricultural sources due to run-off entering the watercourses, which has resulted in the units being assessed in an unfavourable – declining condition. The cumulative process contribution from the Project is less than 1 kgN/ha/yr at a distance of 10 m from the road.

It is therefore reasonable to conclude that the very small cumulative increase in N-dep resulting from the Project, and the very localised area over which this increase would occur, **would not result in significant adverse** effects on the HCD SSSI habitats within the zone of influence.