Final comments on the Ornithology Addendum

for the

Royal Society for the Protection of Birds

Submitted for Deadline 4

13 November 2021

Planning Act 2008 (as amended)

In the matter of:

Application by Alternative Use Boston Projects Limited for an Order Granting Development Consent for the Boston Alternative Energy Facility

Planning Inspectorate Ref: EN010095

Registration Identification Ref: 20028367

Contents

1. Introduction

1.1 The RSPB has reviewed the Ornithology Addendum ("the addendum"), including the Habitats Regulations Assessment (HRA) conducted by Atlantic Ecology. The following contains our initial comments, so these should not be considered a complete or exhaustive list. We are continuing to review the document and will need to consider its content alongside further submissions made at Deadline 2, in particular, the draft in-principle derogation case that the Applicant has stated would be provided.

1.2 We welcome the inclusion of data from the Wetland Bird Surveys (WeBS). The key WeBS sector data that we have previously requested has been collated to provide a useful context of the importance of this area of The Wash Special Protection Area (SPA), The Wash Ramsar, or The Wash Site of Special Scientific Interest (SSSI). It appears the Applicant has not included data for the Witham 21 sector, as identified in our Written Representation (paragraph 4.29, p.43).

1.3 Whilst we welcome the addition of the WeBS data, there is no new evidence presented in the addendum. The available data have simply been further analysed. This analysis does not address the significant data gaps that exist within the application and which there is insufficient time available for the Applicant to address during the Examination. The further analyses presented in the addendum general restate the Applicant's position on many of the concerns that we and other interest parties have raised prior to submission of the DCO Application ("the Application"), without any substantial new evidence to support their position. Consequently, none of our concerns are allayed by the addendum. All our comments set out within our Written Representations remain to be addressed by the Applicant.

1.4 Below we set out our comments on the addendum. These focus on the following key areas:

- The gap in survey coverage of The Haven and its approaches.
- The inability of surveyors to record vessel disturbance to the lower reaches of The Haven due to limited visibility from the Tabs Head hide.
- The lack of evidence to assess impact from the facility and increased vessel movements at night on qualifying features of The Wash SPA/Ramsar.
- The lack of evidence to demonstrate that there are alternative roost sites available along the whole of The Haven and navigation channel out to the Port of Boston anchorage area.
- The inadequate consideration of worst-case scenarios due to, for example, maximum noise and vessel movements on qualifying features of The Wash SPA/Ramsar.
- The need for the latest Wetland Bird Survey (WeBS) data (2014/1515-2019/2020) to be used in the assessments.
- A failure to recognise that whilst WeBS data provides a useful overview of the trend in numbers using areas of The Wash over time, they do not capture the detail of specific sites that are required to inform Habitats Regulations Assessments. They provide only a snapshot of how The Haven area is used by waterbirds and are not a substitute for detailed, site-specific data being gathered to inform conclusions about the disturbance and displacement that could arise from all aspects of the application on qualifying features of The Wash SPA/Ramsar.
- The lack of clarity on how qualifying features of The Wash Ramsar have been considered within the HRA.
- The assumption that displacement of features of The Wash SPA/Ramsar is not currently a problem and that further disturbance would not compromise the conservation objectives for qualifying features of The Wash SPA/Ramsar, including the waterbird assemblage.

- The inadequate conclusions drawn on the qualifying species of The Wash SPA/Ramsar that could be adversely affected by the Application due to a lack of detailed, site-specific data to understand their abundance and distribution along the whole of The Haven and the navigation channel out to the Port of Boston anchorage area. This includes specific concerns such as:
    - The inappropriate conclusion that lapwing and golden plover should be given less weight in the assessment of impacts on The Wash SPA/Ramsar when golden plover is a qualifying feature of The Wash SPA, and both golden plover and lapwing are named features of the waterbird assemblage, as clearly stated in the UK SPA Review 2001 site account[1].
    - The failure to account for at least 50% of The Wash SPA population of common terns breeding at Freiston Shore and Frampton Marsh. Thus, the closest breeding colonies are no more than c.3.5km from the mouth of The Haven, not 20-30km as stated in the addendum.
- The overall uncertainty conveyed in the HRA conclusions by the language used, the limited data in which to assess impacts and the failure to clearly state conclusions in line with the key tests of the Habitats Regulations. A likely significant effect must be concluded for all waterbird species that are qualifying features of The Wash SPA/Ramsar have the potential to be impacted by construction and operation of the facility and they all must be considered in the appropriate assessment, unless there is appropriate evidence that any features are not present along The Haven and the navigation channel out to The Haven. Further assessment is then required to determine if suitable mitigation measures can be implemented to avoid an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt. Given that no suitable mitigation measures have been presented by the Applicant then a full derogation case is required to demonstrate that all alternatives have been considered, there is a case for Imperative Reasons of Overriding Public Interest and that effective compensation measures can be secured and delivered. None of this is set out in the current HRA.

1.5 Our detailed comments on the issues we have identified are set out below. These are our initial comments and we will expand on the points raised below in future submissions where that would be helpful to the examination. We will continue to review the addendum alongside new information, such as an in-principle derogation case once it is made available.

2. Detailed comments on the addendum

a) Introduction

2.1 The Applicant's ornithology addendum is comprised of information that has already been provided to interested parties. The main survey documents which are referenced were provided on 5 August 2021. Consequently, all our comments made in our Written Representations are based on the data contained in all the reports commissioned by the Applicant to date to consider waterbird numbers at the application site and the mouth of The Haven, including the behavioural responses of birds to vessel movements.

2.2 The only additional information that the Applicant has provided is a more detailed analysis of the WeBS data for key sectors that could be affected by vessel disturbance at the mouth of The Haven. Whilst welcome, these data are only helpful in showing the trend in bird numbers over time and identifying the relative importance of this area of The Wash for waterbirds. It is not a substitute to the collection of site-specific evidence.

[1] See assemblage text at p216 out of 397 in the Sites volume: https://data.jncc.gov.uk/data/3634580a-cabc-4218-872f-8660a1760ad8/uk-spa-vol3-web.pdf

2.3 We set out our detailed comments on the information provided in the addendum below.

b) Defining the area of concern for assessing impacts on qualifying features of The Wash SPA/Ramsar

2.4 The Applicant has adopted an assessment approach that only considers the area around the application site and the area around the mouth of The Haven only. A limited number of surveys have been completed to record waterbird abundance around the application site and three vessel disturbance surveys in this area between May and July 2021. Vessel disturbance surveys have also been conducted at the mouth of The Haven, but no detailed abundance surveys have been collected. WeBS data has been used as a way to fill the gap in data in the lower reaches of The Haven. whilst WeBS data provides a useful overview of the trend in numbers using areas of The Wash over time, they do not capture the detail of specific sites that are required to inform Habitats Regulations Assessments. They provide only a snapshot of how The Haven area is used by waterbirds and are not a substitute for detailed, site-specific data being gathered to inform conclusions about the disturbance and displacement that could arise from all aspects of the application on qualifying features of The Wash SPA/Ramsar.

2.5 The Applicant's approach is one that suggests no disturbance could occur at any other point along The Haven or along the navigation channel out to the Port of Boston anchorage area. This is clearly an unrealistic scenario. Vessels have been shown to create disturbance to waterbirds as they approach The Haven from the anchorage area and along the navigation channel, as demonstrated by the Applicant's surveys. This disturbance will continue along the whole of The Haven as the vessels travel to the application site. However, no data has been collected by the Applicant to inform the actual abundance of these features along the navigation channel from the anchorage area to The Haven, their distribution, whether there are particularly important feeding and roosting locations, or any data on the effect of vessel movements along the navigation channel from the anchorage area to The Haven.

2.6 The Applicant's own data has shown disturbance from vessels as they approach the application site, with even small vessels having a greater impact than observed at the wider approaches to The Haven. The Applicant's own surveys have also recorded qualifying features of The Wash SPA/Ramsar that includes ringed plovers, dunlins, lapwings, turnstones, redshanks, oystercatchers, black-tailed godwits, bar-tailed godwits, curlews, grey plovers, cormorants, mallards, shelducks, black-headed gulls, herring gulls, lesser black-backed gulls and great black-backed gulls. This all provides evidence that these features are using The Haven. However, no data has been collected by the Applicant to inform the actual abundance of these features using The Haven, their distribution, whether there are particularly important feeding and roosting locations, or any data on the effect of vessel movements along The Haven.

2.7 Consequently, the potential area affected by the application is much greater than currently stated within the addendum and its appendix. Figure 1 shows the anchorage area and the navigation channel, with an 800m buffer. The Applicant's surveys have shown that birds may be displaced even further, with observations of up to 1000m on The Haven and 3300m from the mouth of The Haven. Whilst displacement distances inland from the navigation channel may be less, there is no data available to confirm this to be the case at this time. We consider such an area is needed to be considered in the HRA to ensure the full impacts of the application qualifying features of The Wash SPA/Ramsar are assessed.

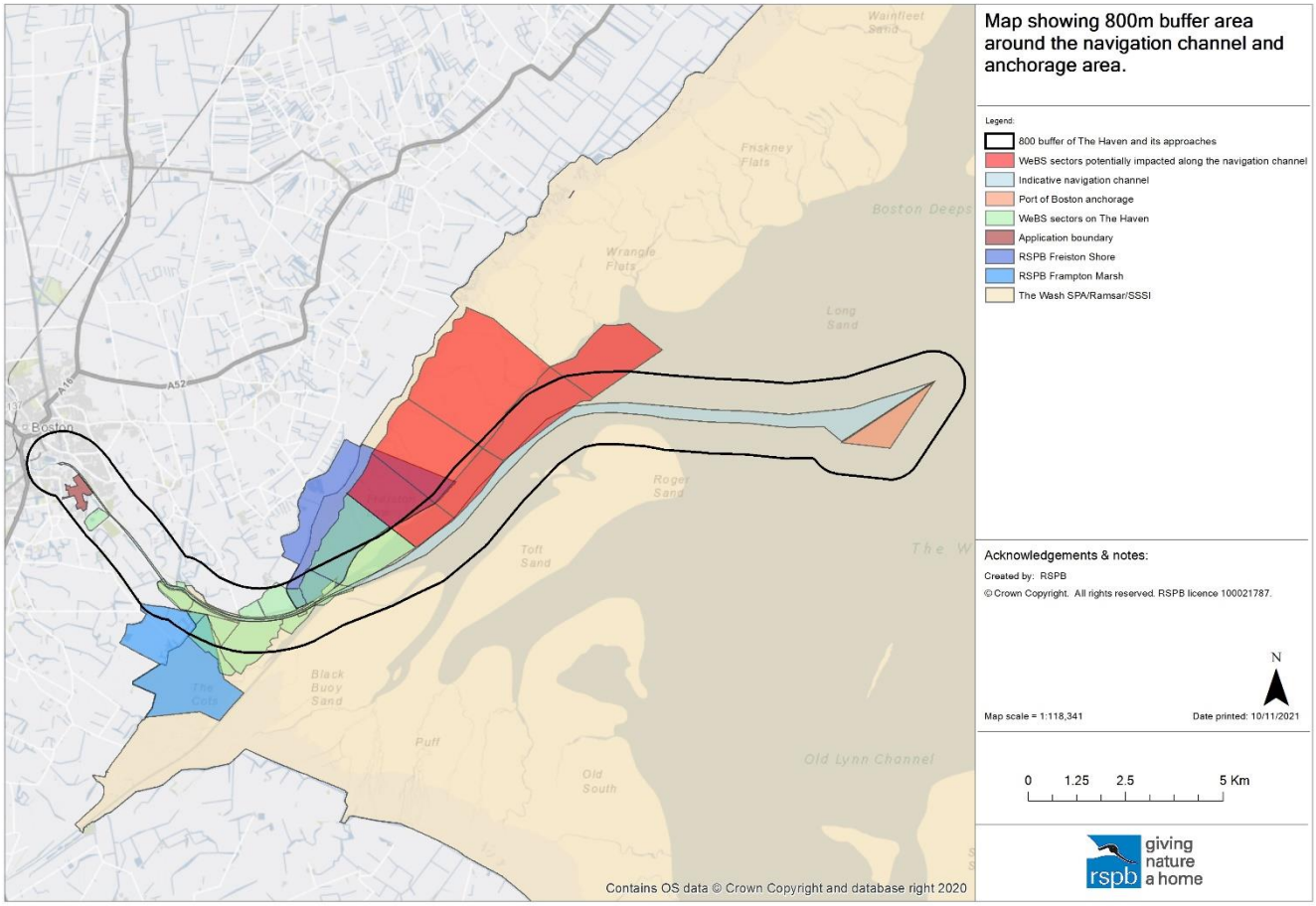

Figure 1: Map showing the navigation channel from the application site to the Port of Boston anchorage area. Note the locations are indicative only. An 800m buffer has been applied to indicate the potential area of impact from vessels using the navigation channel. In some areas a greater buffer area may be appropriate, and a smaller buffer area may be appropriate in some area, but this will need to be confirmed by suitable evidence.

c) Significant gap in survey coverage

2.8 The Applicant has undertaken some limited ornithological surveys around the Application site and the mouth of The Haven. Whilst the Applicant has limited data for the area around the Application site, the mouth of The Haven, and now has WeBS data for the lower reaches of The Haven from Hobhole, there are no data available for a c.2.1km section of The Haven (Figure 2). Such data are needed to understand the full importance of The Haven for qualifying features of The Wash SPA/Ramsar/SSSI that will be foraging or roosting either within the channel or on adjacent banks. Disturbance from vessel movements will not just be confined to the areas for which data are available but continue along the whole of The Haven.

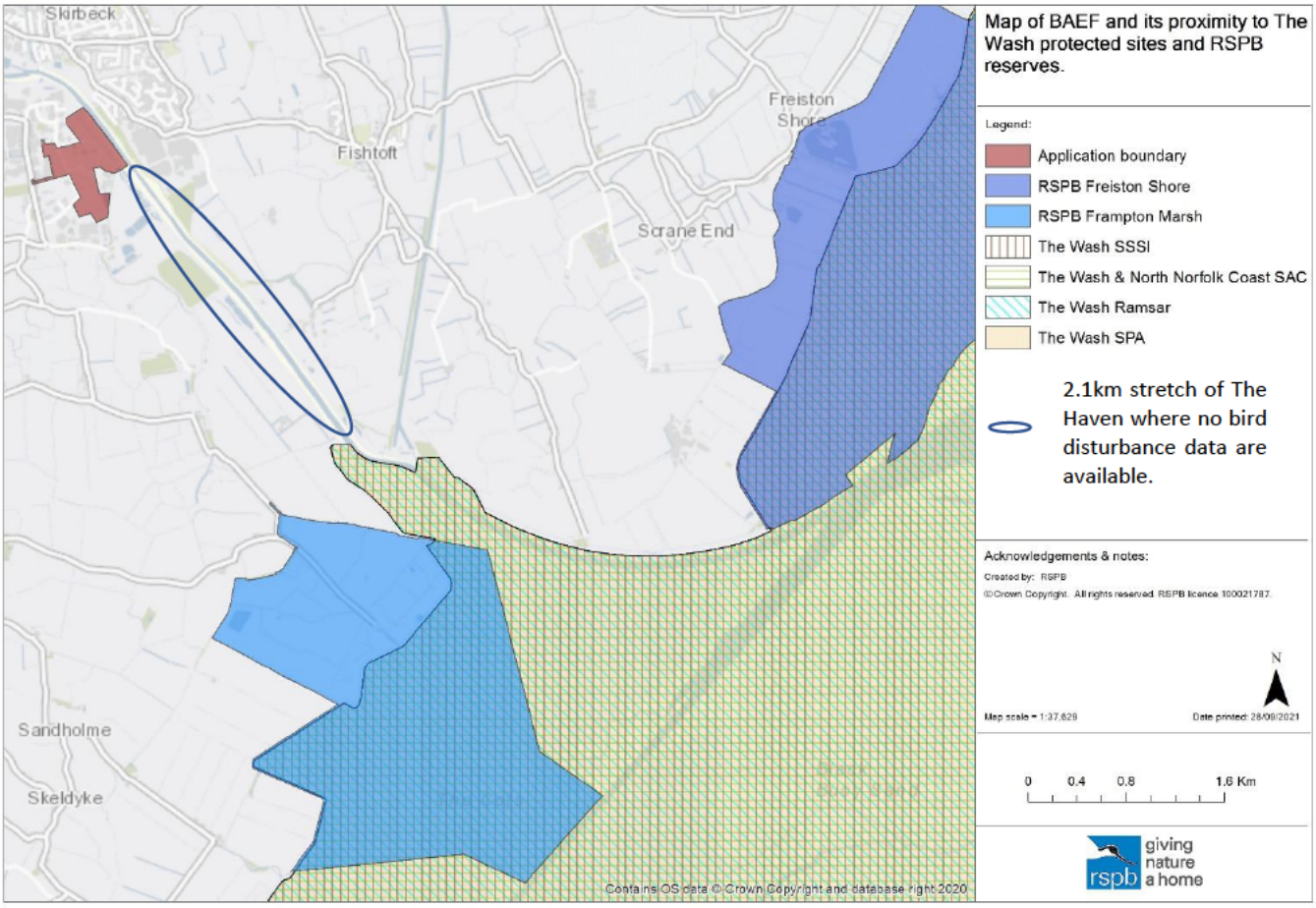

Figure 2: Map showing the area along The Haven where no existing data is known to exist on abundance and distribution of qualifying features of The Wash SPA/Ramsar. No data have been collected by the Applicant to determine waterbird abundance and distribution within this area.

2.9 In addition, any surveys have focussed solely on the vessel movements along The Haven. There have been no assessments of recreational pressure or other activities that could be causing disturbance along The Haven. This is important to enable a full understanding of the cumulative and in combination pressure occurring as part of the baseline evidence. This additional information would help to identify:

- Whether there is already a significant level of disturbance along The Haven.
- The full impact of additional disturbance from the Application on qualifying features of The Wash SPA/Ramsar.
- The suitability of areas along The Haven to be developed as compensation.

2.10 These additional data are fundamental to understand the ecological consequences of the Application and drawing conclusions on qualifying features of The Wash SPA/Ramsar. However, to collect such data would require at least 12-24 months of further survey effort. We are therefore not aware that any appropriate data exists that would address the data. We do not consider these data gaps can be addressed during the Examination period as currently timetabled.

d) Inadequate viewshed from the mouth of The Haven to assess disturbance on part of The Wash SPA/Ramsar/SSSI

2.11 The surveys conducted at the mouth of The Haven have provided a helpful insight into the species that are present and their behaviour around the vessels using the channel. They demonstrate that the area is important for qualifying features of The Wash SPA/Ramsar and that disturbance occurs from the current vessel movements. However, we do not consider that they provide a full data set for assessing the impact of disturbance.

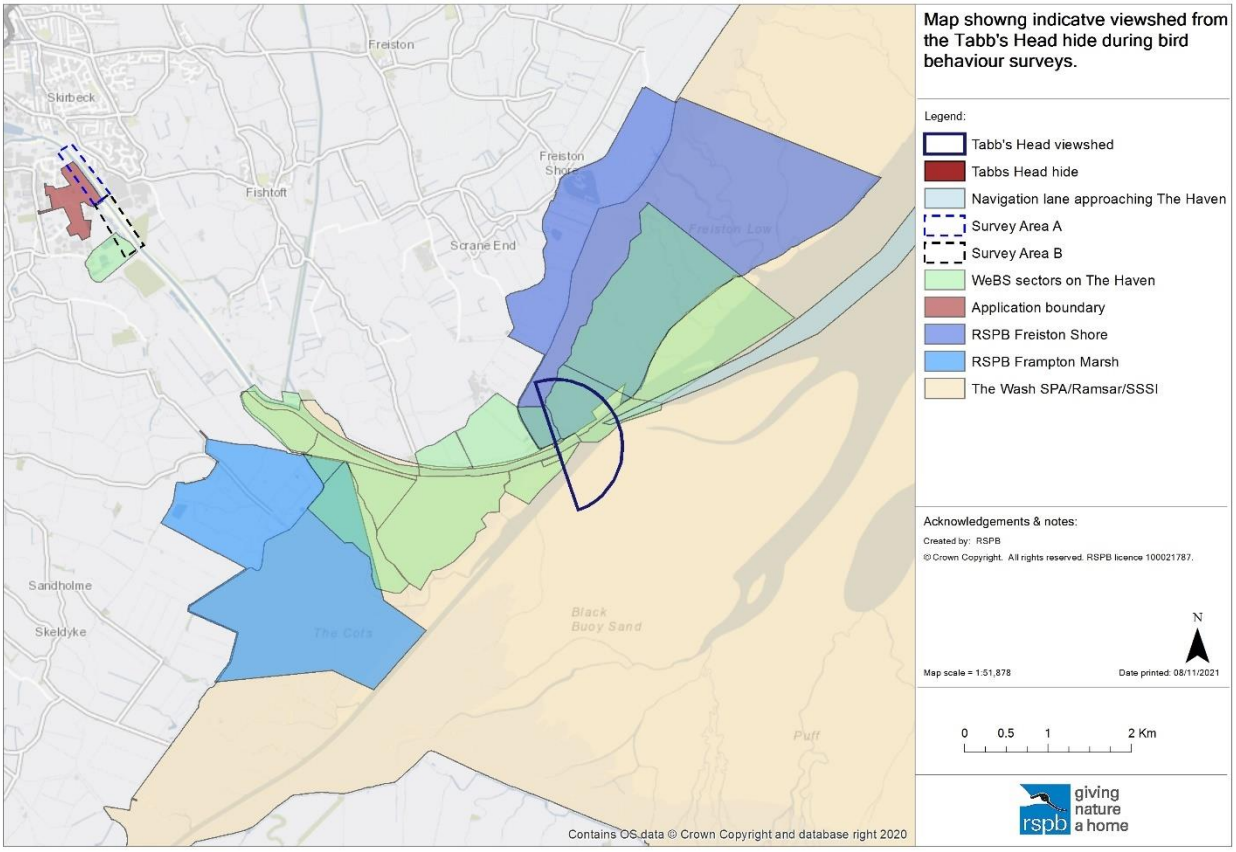

Figure 3: Map showing the location of behaviour surveys undertaken at Tabs Head looking out onto The Wash. The viewshed for surveyor is provided to show the limited area of the lower reaches of The Haven and the navigation channel that they will have been able to observe during the surveys.

2.12 A specific limitation is that the surveys were conducted looking out onto The Wash from the hide at Tabs Head (Figure 3). This gives a 180° view onto The Wash. However, this does not allow for observations of vessel movements to be observed along The Haven. This is compounded by having only one surveyor carrying out the observations, as additional surveyors would be required to make observations in front and behind the hide. This means that the area of The Wash SPA/Ramsar up to Hobhole could not be observed during these surveys.

2.13 These are fundamental concerns with the survey approach given the number of sectors that support significant numbers of qualifying features of The Wash SPA/Ramsar, yet no data have been collected to understand the disturbance effect from vessels using the navigation channel through and past these sectors (Figure 4). Whilst the surveys provide useful information, they cannot provide a complete understanding of the effect of vessel movements on qualifying features of The Wash SPA/Ramsar. This is essential to ensure that all areas that could support qualifying features of The Wash SPA/Ramsar are fully understood to know where features roost and forage, the pressures that

they face along The Haven and out into The Wash, and how they respond to vessels and other disturbance pressures. It will not be possible to draw robust conclusions in the HRA where such evidence does not exist.

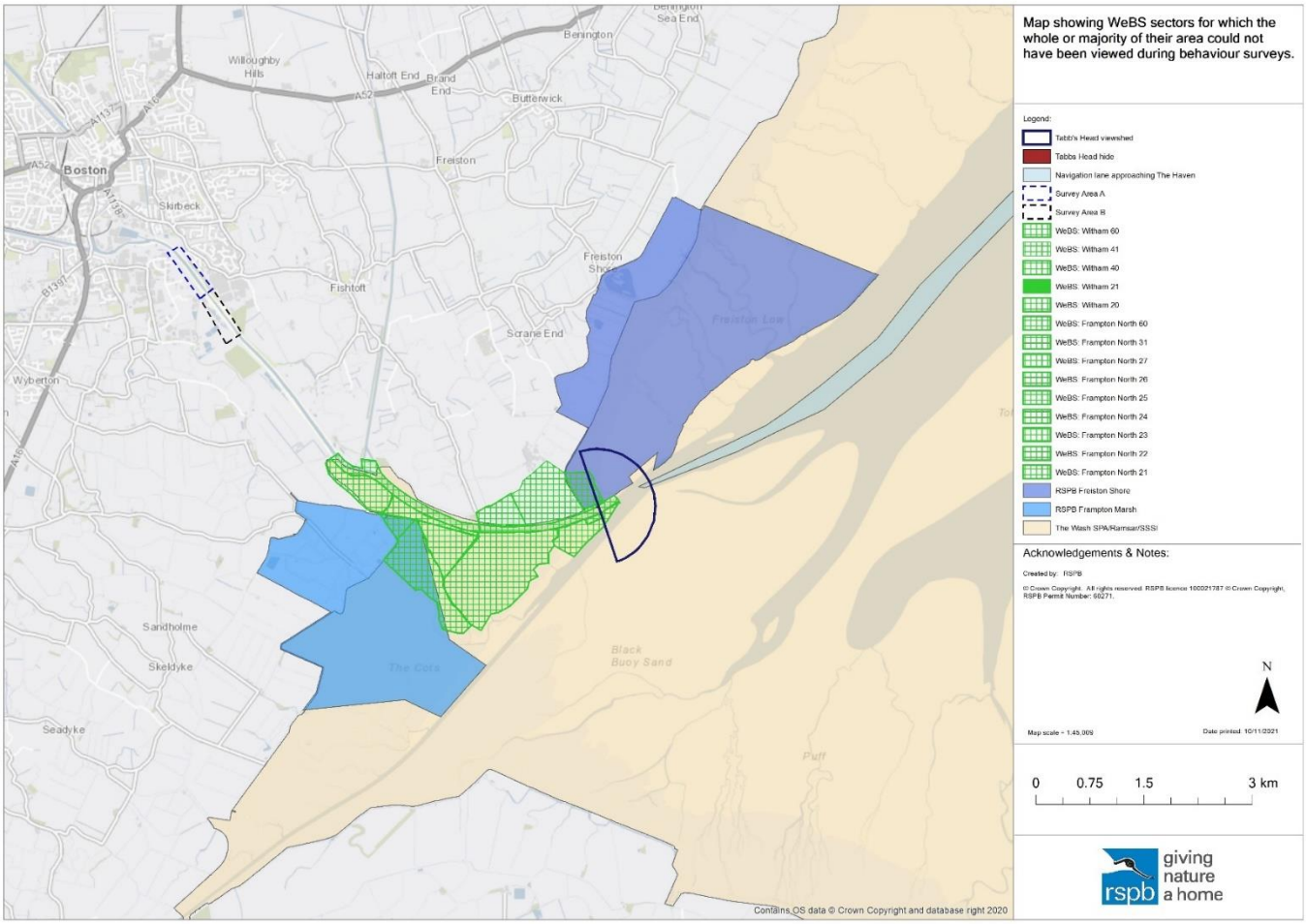

Figure 4: Map showing the key WeBS sectors for which the whole or majority of their areas would not be possible to view from the hide at Tabs Head. These areas have supported significant proportions of dark-bellied brent geese, black-tailed godwits, oystercatchers, redshanks, turnstones, lapwings, and golden plovers (as shown on Figure 4-2 in the addendum, p.39). Other qualifying species of The Wash SPA/Ramsar will also occur in these WeBS sectors, but no data have been presented.

e) Lack of assessment of the approaches to The Haven

2.14 In our Written Representations, we have identified that there is a lack of data to identify the baseline disturbance levels to qualifying features of The Wash SPA/Ramsar around the Port of Boston anchorage area and the approaches to The Haven. The surveys conducted to date have only observed behaviour changes in waterbirds a relatively small area close to the mouth of The Haven. Figure 5 shows the indicative area of the anchorage area and the navigation channel used by vessels accessing or leaving The Haven. We have buffered it by 800m to be consistent with the observed displacement of birds at the mouth of The Haven to show the extent of the area for which no baseline data exists to rigorously assess the impact that current levels of vessel movements have within The Haven. This is important to assess the current impact that this activity is having on the abundance and distribution of qualifying features of The Wash SPA/Ramsar.

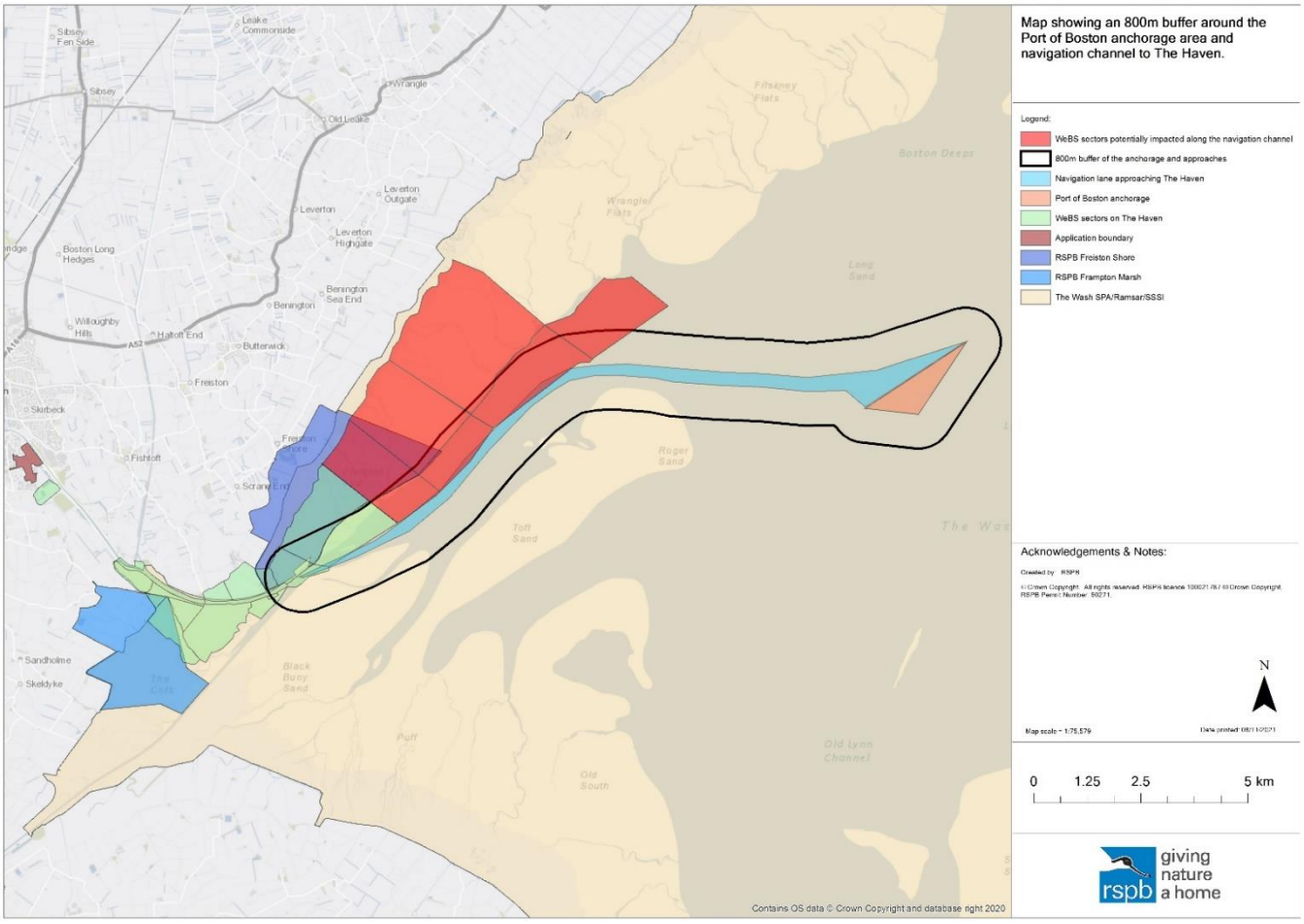

Figure 5: Map showing an 800m buffer of the Port of Boston anchorage area and the navigation channel connecting it to The Haven. The locations of the anchorage area and navigation channel have been based on Figure 17.1 (sheet 2, APP-091) of the Environmental Statement and are indicative. This demonstrates the relationship between the anchorage area and the navigation channel with The Wash protected areas, RSPB reserves and WeBS sectors. The WeBS sectors in red have not been considered and no data on their importance has been provided despite the proximity to the navigation channel.

2.15 Figure 5 also identifies that there are additional WeBS sectors along the navigation channel leading to the anchorage area that could be impacted by disturbance from vessel movements. We recommend that the data for these additional WeBS sectors be obtained and included in revised assessments of potential impacts both of baseline activity and during construction and operation of the facility. The Sectors that need to be included are:

- Butterwick 30
- Butterwick 51
- Butterwick 31
- Butterwick 52
- Benington 30
- Benington 50
- Leverton 50

2.16 The wider area of interest will also mean that additional qualifying features of The Wash may be disturbed by vessel movements and will need to be considered within the HRA. Large numbers of common scoter and eider may be present and additional species may be present. No information has been provided or collected to inform the abundance and distribution of qualifying features of The Wash SPA/Ramsar over the entire area that vessel disturbance could occur and is a significant concern for any conclusions being drawn about the appropriateness of the Application.

2.17 We disagree with the statement made in the addendum appendix (the HRA produced by Atlantic Ecology) that:

"*It is beyond the scope of this HRA to assess what impact the baseline MOTH vessel disturbance may be having on The Wash SPA qualifying interests and whether it may compromise the SPA conservation objectives.*" (Section 2 of the Atlantic Ecology report, pp. 78-79 of the addendum)

2.18 The HRA must have a suitable evidence base to understand the current levels of disturbance and how these could be affecting qualifying features. This is important where features have declined and have specific restoration targets. Any additional disturbance could exacerbate declines and make restoration targets challenging if not impossible. In the absence of such evidence, it is incumbent upon the Applicant to ensure such data is collected and available to enable the Examining Authority to determine whether the Application could have an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt.

2.19 The need to understand the baseline situation is highlighted by the current restoration targets for qualifying features of The Wash SPA/Ramsar: redshank, turnstone, shelduck, oystercatcher and dunlin. The latest WeBS data collected between 2014/15 and 2019/20 have shown that there continue to be declines for species such as dark-bellied brent goose and site-specific causes for these declines remain unknown. These need to be understood fully to ensure any additional disturbance pressures will not reduce the ability to maintain and restore populations of qualifying species on The Wash SPA/Ramsar.

2.20 The addendum appendix adds further weight to the concern that current levels of vessel movements and disturbance may already be impacting of waterbirds within the approaches to The Haven (emphasis added):

"*Several species are screened out of requiring assessment due to their low baseline use of the MOTH roost sites. In this respect the low use of two wader species stand out, knot and bar-tailed godwit. These two species appear to make only low use of MOTH site despite there being extensive intertidal mudflat feeding habitat nearby and having large to very large non-breeding populations overwintering in The Wash. Both these species are considered to have a relatively high sensitivity to noise and visual disturbance (Cutts et al., 2003) and* ***their low utilisation of the MOTH site and local area (as defined) for roosting may indicate they are not able to tolerate the relatively high frequency of baseline vessel disturbance at the MOTH****. This cannot be confirmed, but if true would indicate that baseline vessel disturbance is affecting the local distribution and abundance of these species within The Wash SPA, and therefore could be considered to be having an AEOI.*" (Section 3.2 of the HRA, p. 86 of the addendum)

2.21 We agree that such a conclusion cannot be confirmed due to the lack of evidence, but this does highlight the high degree of uncertainty regarding current levels of disturbance on waterbirds in this area of The Wash. Without this information any conclusions on the potential impact of the Application must necessarily consider the worst-case scenario and apply a precautionary approach.

2.22 We consider that observers could have been deployed on vessels using The Haven to monitor what features of The Wash SPA/Ramsar/SSSI occurred along the entirety of The Haven and out to the anchorage area and how they behaved in the presence of the vessel. There is not enough time during the examination to gather a suitable amount of evidence, as surveys will need to cover all seasons and for a minimum of 2 years to account for annual variations.

f) Failure to collect two full years of ornithological data

2.23 We note that Section 3.4 of the addendum stresses that, with respect to the mouth of The Haven, "*…observation sessions have been completed over two winter seasons: November to March of winter 2019/20, and January to March of winter 2020/21.*" Whilst some data have been collected in both winters, this is not the same as data over **two full years.** No data were collected for October to December 2020. Limited survey effort of the autumn and spring passage periods have also been completed. Observations completed between May and July 2021 amounted to three surveys and did not account for late July and August when significant numbers of features such as common tern are known to occur from the WeBS data presented by the Applicant (see Section 3(m) below for more comments on how common terns have failed to be adequately assessed in the HRA).

2.24 We therefore disagree that two winters worth of data has been collected, or that two **full** years of ornithological data have been collected. This would appear an unusual situation for a Nationally Significant Infrastructure Project and especially one that could have an adverse effect on integrity to sites within the National Site Network.

g) WeBS data identify data gaps and highlight the need for additional surveys to be conducted along The Haven

2.25 Figure 4-2 of the addendum (p.39) presents maps showing data for the key species identified for assessment in the HRA (dark-bellied brent goose, black-tailed godwit, oystercatcher, redshank, turnstone, lapwing and golden plover). The maps show that significant numbers of these species have been recorded, with some of the highest counts in sectors that could not have been observed from the Tabs Head hide (Figure 3 above). Figure 4-2 also highlights where no data or counting effort for each of the species has been undertaken. Many of these areas cover the area from Hobhole to the mouth of The Haven and should have been used to help inform where additional site-specific ornithological assessment should have been carried out to inform the Environmental Statement and the supporting HRA.

h) Failure to assess against worst-case scenarios

2.26 Having reviewed the addendum, we do not consider any new information has been presented to show that the full suite of worst-case scenarios has been assessed in the Application. We have particular concerns regarding the following areas:

- Failure to assess the maximum noise levels
- Failure to assess the maximum vessel movements
- Failure to assess the impact of night-time operation

2.27 At this time, the assessments have also failed to consider impacts to roosting and foraging waterbirds along the entirety of The Haven, as well as along the navigation channel out to the anchorage area in The Wash. This represents a significant gap. The worst-case scenario must assume that significant numbers of qualifying features of The Wash SPA/Ramsar could be present in these areas due to the suitability of habitat and the presence of significant numbers of waterbirds at the application site and the mouth of The Haven. We do not consider the worst-case scenarios have been applied to the

assessments and this needs to be reviewed to determine if any available evidence could address the data gaps on this issue.

i) Lack of surveys at night to assess bird distribution and behaviour

2.28 Whilst we welcome the information that has been collected on the behaviour of birds in the presence of vessels, all such observations have been made during daylight. There is no information provided to understand how birds are using The Haven at night. This is necessary to determine if there are any diurnal and nocturnal differences in the way waterbirds use The Haven and the area of The Wash out to the anchorage area. For example:

- How many birds are roosting along The Haven during the day and at night, where, and does their distribution and abundance vary through a 24-hour period?
- How many birds forage along The Haven during the day and at night, where, and does their distribution and abundance vary through a 24-hour period?
- How do birds respond to disturbance at night? Do responses differ from daytime responses?

2.29 For clarity, the definition of 'day' for ecological receptors is dawn to dusk, and 'night' is defined as dusk to dawn. The duration of 'day' and 'night will vary seasonally. This will mean that, especially during the winter, a large number of vessel movements will occur between dusk and dawn. None of this night-time activity has been quantified by the Applicant.

2.30 There are various studies that have identified that waders use sites differently at night than during the day. Lourenço *et al*. (2008)[2] provides a useful reference that highlights the range of evidence of waders foraging at night. They highlight two hypotheses that exist to explain why waders use sites differently during the day and at night, both of which could be in operation within The Wash:

- Waders forage at night to supplement their diet when they have not been able to find sufficient food during the day.
- Waders preferentially forage at night as it may be safer, or they may be able to find more food.

2.31 Lourenço *et al*. (2008) found that night foraging was important for all the species that they observed (avocet, **redshank, black-tailed godwit, grey plover, ringed plover** and Kentish plover – species in bold have been observed using the area of The Haven and its approaches) to ensure that they met their daily energy budget. They conclude that:

"*Night foraging should be seen as essential for the survival of wintering waders in temperate estuaries, and should be taken into account when planning the management of the wetlands in which these birds winter*."

2.32 With respect to redshank, this species is known to use different sites during the day to at night. Burton & Armitage (2005)[3] studied redshanks on the Severn Estuary and found that there were differences in how they used riverine and estuarine areas through the day. The study found that certain areas could be avoided during the day due to disturbance levels and conversely more birds could use estuarine areas at night, potentially to avoid higher predation pressures at night on the riverine systems. Burton and Armitage ultimately conclude that:

[2] Lourenço, P.M., Silva, A., Santos, C.D., Miranda, A.C., Granadeiro, J.P., & Palmeirim, J.M. (2008) The energetic importance of night foraging for waders wintering in a temperate estuary. Acta Oecologica 34: 122-129.

[3] Burton, N.H.K, & Armitage, M.J.S (2005) Differences in the diurnal and nocturnal use of intertidal feeding grounds by Redshank Tringa totanus. Bird Study 52: 120-128.

"*Comparison with previous studies suggests that the importance of sites predominantly used at night and the total extent of the areas used by waders may be underestimated by studies that rely on daytime surveys alone. It is important, therefore, that information on nocturnal distributions should be available to inform decisions on site management and protection.*"

2.33 The British Trust for Ornithology[4] has completed a pilot study on oystercatcher in The Wash. Ten birds were fitted with GPS transmitters. The data gathered was able to report back the locations of birds during the day and the night. The plots of these data showed that that a significant amount of activity took place around The Haven and its approaches and that a greater number of data points registered at night than during the day. This strongly supports the need to understand how birds are using The Haven and its approaches at night to inform the HRA conclusions.

2.34 Given the importance of night foraging for waders (with evidence showing this to be true for species recorded using The Haven and its approaches) and the fact that the Facility will operate 24 hours a day meaning vessels will utilise tides between dusk and dawn, it is critical that the use of the entirety of The Haven and out to the Port of Boston anchorage area by qualifying features of The Wash SPA/Ramsar/SSSI is assessed. This is essential to ensure the right conclusions can be drawn regarding potential impacts on the protected sites. This is a significant data gap and not one that can be resolved during the time available through the examination.

j) Failure to assess the impact of maximum noise levels

2.35 We have set out our concerns about the failure to assess maximum noise levels arising from the facility in detail in our Written Representation (Section 7c, pp. 48-60). There has been no new evidence presented on the impact of loud noise on waterbirds using The Haven. We consider it essential that the baseline maximum noise levels are mapped showing sound contours. Maps for the construction and operational periods of the facility should then be provided to show how noise levels could change over time.

k) Uncertainty around use of The Haven by waterbirds during periods of severe weather

2.36 Whilst it is helpful that some additional information is being considered with respect to the use of The Haven during cold weather periods, no data have been provided to justify the position. From our experience we are also do not agree that birds will be continually passing through The Wash, given that many species will be settled during the winter.

2.37 Paragraph 4.24 (p.26) of the addendum lists a number of references to support the Applicant's position on severe weather refuges on The Wash. Notwithstanding that at least two of these references are over 50 years old and limited contemporary data appear to be available, a precautionary approach must be adopted. This is particularly important where no site-specific data for The Haven exists. We request the references be provided and the evidence in them summarised within a table to show the data that has been considered.

2.38 We also note that there is some ambiguity in paragraph 4.2.4. On one hand it suggests that birds move away from The Wash and yet it highlights that for species like redshank that is highly site faithful, higher wader mortality has been recorded on east coast estuaries such as The Wash. We request clarification on the Applicant's position with respect to the use of The Haven during severe weather periods.

[4] Clewley, G.D., Franks, S.E., Clark, N.A., & Robinson, R.A. (2021) Plot study to investigate Oystercatcher (*Haematopus ostralegus*) feeding behaviour to enhance bird food modelling and shellfisheries management in The Wash. BTO Research Report 735.

l) Concerns about the Applicant's approach to addressing waterbird impacts at the application site

2.39 Paragraph 4.3.3 (p.28) of the addendum states that the Applicant's survey data has shown that at the application site:

"*…roosting birds take flight when vessels transit past the site. They do not fly to alternative roosts, but the disturbance does cause the birds to utilise energy resources. An additional level of disturbance will therefore result in additional disturbance flights, resulting in further use of energy reserves. It is not expected that the additional disturbance would force the birds to leave this roost site*."

2.40 This information highlights the importance of the application for redshanks in particular and that there are clearly important factors that need to be consider by the Applicant to understand why the birds are choosing to use this area of The Haven. No evidence is presented to explore this. We request a more detailed assessment of why redshanks and other waterbirds are using this area to roost and forage in significant numbers. This will inform the compensation requirements for redshanks and other waterbirds and the factors that need to be considered to ensure that such measures will be effective.

2.41 We also note that the area that is being considered as an alternative roost is being considered as "mitigation." It is also not an "offset measure" as suggest in paragraph 4.3.6 (p.30). We disagree that this is "mitigation", as it is the provision of alternative habitat to address an impact that cannot be mitigated directly at the site where the impact is occurring. Mitigation measures would enable redshanks and other waterbirds to continue to use the application site, but this will not be possible and they will be displaced. The terminology throughout the Environmental Statement and addendum must be clarified to ensure it is consistent with Habitats Regulations. We set out our position on this in detail in Section 8 of our Written Representation.

2.42 We also have no certainty that any alternative roost provided in the location suggested will be effective. It will still be close to the navigation channel and subject to the impact of vessels using the navigation channel. This will cause a level of disturbance that will mean the proposed compensation area could not function as intended. We request a more detailed set of options for compensation measures be provided that demonstrate effective and deliverable compensation measures can be secured.

m) Concern about the Applicant's approach to assessing impacts from vessel movements

2.43 The addendum seeks to provide further consideration of the addition vessel numbers using The Haven and its approaches as a result of the facility. Paragraph 4.1.1 (p.24) states that:

"*…the number of large cargo vessel passages attributable to the project (2 x 580, 1160 vessel movements per year) would divide between available tides (730 per year) to 1.6 vessel movements per tide. The baseline number of large cargo vessel movements per used tide is one to three and there is capacity of five per tide (see ES Chapter 18 Navigational Issues (document reference 6.2.18, APP-056) paragraph 18.6.13).*"

2.44 The average number of vessel movements are then used to assess impacts, as set out in paragraph 4.3.6 (p.30):

"*The additional disturbance is predicted as 1.6 vessels per day which would be 3.2 movements per day, equating to 1.6 vessel movements per tide.*"

2.45 We do not consider this approach to assessing impacts represents the worst-case scenario.

2.46 Firstly, it is not possible to have 0.6 of a vessel. Therefore, if such an approach is to be used to assess potential impacts from vessels then the figures should be round up to the nearest whole vessel.

2.47 Fundamentally, however, this approach to averaging impacts across all navigable tides within a year will fail to distinguish between the variation in total numbers of vessels that could use different tides. Tidal height will vary and therefore disturbance impacts on the highest tides will be greater than the lowest tides as there will be a longer period of time when draught height would allow the larger vessels to use the navigation channel. On the highest tides therefore, up to 5 vessels would be the worst-case scenario (as defined in paragraph 4.1.1, p.24). Some tides will be lower and therefore fewer vessels could navigate The Haven.

2.48 We request that a more detailed assessment be carried out to identify the maximum number of vessels that could use any tide throughout a year. The total numbers of vessels on each tide can then be assessed against the maximum disturbance impact that this could generate. This is important to understand the annual variation in vessel movements across tides and how this could affect qualifying features of The Wash SPA/Ramsar. It would also enable an assessment of the proportion of tides that would be used by vessels at night (see Section 2(i) above). This more detailed assessment would then better enable the ecological consequences of the additional vessel movements to be assessed.

2.49 The additional vessel number dataset out in Table 4-9 (p.38) and Figure 4-1 (p.37) of the addendum is helpful in understanding the trend over time. The overall trend is a reduction in vessel numbers, with c.60% fewer vessels using The Haven than in 1918. Since 1996, a c.50% reduction in vessel numbers is shown. This represents a significant reduction in disturbance that could enable more birds to use The Haven. The historic importance is noted but impacts on the current population of The Wash SPA/Ramsar have to be considered against the current baseline levels of disturbance to ensure the conservation objectives that are in place are met. That means that any reduction in the current abundance and distribution of qualifying features of The Wash SPA/Ramsar need to be maintained. Where an increase in vessel movements is proposed this must be assessed against the current population figures. Where no data exist to enable an assessment of impacts to be undertaken then it is essential that detailed site-specific and species-specific data are collected.

n) Failure to consider the full range of factors that could influence the importance of The Haven area for qualifying features of The Wash SPA/Ramsar/SSSI

2.50 The limited data that has been collected has highlighted that The Haven supports significant numbers of waterbirds. Whilst the addendum concludes that impacts to qualifying features of The Wash SPA/Ramsar are not significant there is a failure to assess the factors that may attract the waterbirds to use The Haven and navigation channel area out to the anchorage area in such large numbers. Factors that can influence the distribution of birds include, but are not limited to:

- Availability of high tide roosts
- Distribution of food
- Levels of disturbance
- Seasons
- Tidal cycle
- Weather

2.51 Significant proportions of The Wash SPA/Ramsar qualifying features have been recorded using the mouth of The Haven and at the application site. Given the connectivity between The Wash and along

The Haven there is a high potential for significant numbers of qualifying features to occur along The Haven, for example, dark-bellied brent geese are now to utilise the lower reaches of The Haven in significant numbers from the mouth of The Haven to Hobhole yet this has not been quantified by the Applicant. The presence of over 2% of The Wash SPA population of non-breeding redshanks adjacent the Application site provides good evidence that other areas of The Haven could also support significant numbers of this species, especially given the true importance for this species was not known until the Applicant conducted surveys. Species such as shelduck, curlew and other waterbirds have been observed using The Haven, yet the importance for these species has not been fully determined.

2.52 This is important as any birds using The Haven and its approaches will be exposed to disturbance by vessels and other activities that generate noise and visual disturbance. The ability to quantify these impacts s important to enable appropriate conclusions to be made in the HRA based on the site-specific conditions.

2.53 With respect to the availability of alternative roost site, no work has been undertaken by the Applicant to confirm where alternative roosts are located and their nature. Roost site availability will be dependent on the height of the tides. On a neap tide (the lowest tidal heights), some areas may not be fully inundated and enable waterbirds to roost and forage. On a spring tide (the highest tidal heights), very few, if any, areas will be left exposed and therefore roost sites will be at a premium or not available at all until the tide recedes. The weather can also impact on the inundation of areas, with strong winds creating surge tides. If these coincide with spring tides in particular, all available roost sites around The Haven might be inundated. This has been reported by WeBS counters over the weekend of 6 November 2021, where a surge tide left very few roost sites on The Wash. The surge tide also held the tide from retreating meaning that mudflats took longer to become exposed and for birds to return to forage. In such situations, this places additional stress on birds and means that there is a greater amount of competition for space at the roost sites that are available. This can have serious consequences for the energy budget of waders. Where these natural events already put pressure on waders, additional disturbance from vessels and other activities that generate noise and visual disturbance will exacerbate the stress. This could have serious ecological consequences for the birds fitness and survival.

2.54 We have also observed a similar situation at the Tabs Head hide. On neap tides, there is an area of mudflat that is left exposed at high tide. This allows birds to not simply roost but also to continue to forage over the hightide period. This can be important for species that have energy budget deficits such as black-tailed godwit and vessel disturbance could be significant when these lower tides would still allow birds to forage and bathe. This has not been explored by the Applicant in detail.

2.55 In addition, birds will also distribute themselves to areas where there is a good food supply. Food supply will vary seasonally and according to differences in substrate, microclimate, water quality etc. This means The Haven and its approaches cannot be considered as having an even distribution of food and therefore all areas of mudflat will be equally valuable for foraging waders. On The Wash, the British Trust for Ornithology (BTO) have completed a plot study on oystercatcher and how they distribute themselves. Clewley *et at*. (2021)[5] found that different birds exploit different parts of The Wash to forage and have different foraging tactics. These traits meant that whilst a few birds might move some distance to forage over time, the majority of birds stayed close to the area that they were

[5] Clewley, G.D., Franks, S.E., Clark, N.A., & Robinson, R.A. (2021) Plot study to investigate Oystercatcher (*Haematopus ostralegus*) feeding behaviour to enhance bird food modelling and shellfisheries management in The Wash. BTO Research Report 735.

caught. This was concluded to be due to the proximity to a good food supply that they could exploit. The work also found that there are specific areas within The Wash that are preferentially used by the oystercatchers that were studied. Whilst only a limited number of birds were tracked in this pilot study, it does highlight that bird use across The Wash is not uniform, that this distribution is linked to prey availability, and that the area around The Haven is one of the most important areas used by oystercatcher.

2.56 We are, therefore, disappointed that the addendum does not provide a wider analysis of the factors that could affect waterbird survival and fitness on The Wash. This is important as many of the factors listed above will impact non-breeding birds during migration and especially during the winter. Understanding the increased effect that additional disturbance associated with the construction and operation of the facility must be made against these wider pressures.

o) The approach taken to the Habitats Regulations tests

2.57 Paragraph 5.3.2 of the addendum (p.42) does not appear to address the full tests set out in the Habitats Regulations. The HRA has to consider whether impacts from the Application alone or in-combination with other projects/activities and plans would avoid an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt. The approach to the HRA must be to meet this specific test.

2.58 Paragraph 5.3.2 of the addendum (p.42) states that

"…*Non-breeding waterbirds designated as features of The Wash SPA or as part of the non-breeding waterbird assemblage were considered to potentially experience a Likely Significant Effect* ***if they were present at the Application Site in numbers exceeding 1% of their population within The Wash SPA***."

2.59 This approach to the HRA fails to appreciate that the test of Likely Significant Effect must consider, on a precautionary basis, whether the project is likely to have a significant effect on the SPA, either alone or in combination with other plans or projects. We provide more detail on the tests of the Habitats Regulations in Section 3d below and Section 8 of our Written Representation.

2.60 In this instance, that there has not been sufficient data presented for The Haven or the navigation channel out to the anchorage area to have an accurate understanding of:

- The abundance of qualifying features of The Wash SPA/Ramsar that use the area along the whole of the navigation channel throughout the year.
- The distribution of qualifying features of The Wash SPA/Ramsar that use the area along the whole of the navigation channel throughout the year.
- The impact of additional recreational activities and other projects and plans operating in ana d around the navigation channel that are also impacting on the qualifying features of The Wash SPA/Ramsar.

2.61 The Applicant's own surveys have recorded qualifying features of The Wash SPA/Ramsar at the application site that include: ringed plovers, dunlins, lapwings, turnstones, redshanks, oystercatchers, black-tailed godwits, bar-tailed godwits, curlews, grey plovers, cormorants, mallards, shelducks, black-headed gulls, herring gulls, lesser black-backed gulls and great black-backed gulls. This demonstrates that these features are all present on The Haven and therefore there is potential for them to be impacted by vessel movements. There is therefore a likely significant effect on these features. Consequently, all the qualifying features of The Wash SPA/Ramsar that have been recorded

along the navigation channel must be considered in the Appropriate Assessment of the HRA. Only where there is appropriate evidence to demonstrate that qualifying features are not present should they be scoped-out of the assessment, as we set out in section 3d above.

2.62 A revised list of species that are screened-in to the assessment be provided and the assessments revised.

p) Disagreement with species that have been scoped out of the Appropriate Assessment

2.63 We are concerned that species being screened out of the appropriate assessment based on limited data, as set out in Section 2(o) above.

2.64 Paragraph 5.3.4 (pp.42-43) of the addendum states that common tern is scoped out as the Applicant considers there to be no breeding colonies close to The Haven, although the addendum appendix indicates that common tern is scoped-in to the assessment. Irrespective of this discrepancy, this statement in the addendum is incorrect as c.39% of The Wash SPA population of common terns bred at RSPB Freiston Shore and RSPB Frampton Marsh in 2021 (see section 3(m) below for more detail). Common terns were also observed to be disturbed at the mouth of The Haven by vessels during surveys, however, the surveys did not assess numbers of birds or how many were disturbed by vessel movements in late July and through August when peak numbers of birds have been recorded during WeBS counts (addendum appendix, p.152). Whilst paragraph 5.3.4 suggests that birds using the area at the end of the breeding season may be from other colonies, this has not been quantified. In addition, the UK SPA Review 2001 site account[6] states that:

"Note that sites selected for waterbird species on the basis of their occurrence in the breeding, passage or winter periods also provide legal protection for these species when they occur at other times of the year."

2.65 Whilst features may occur outside the main season for which they are listed as a feature, they are therefore afforded protection at other times of the year. This applies to not just common terns but all other qualifying features, such as redshanks and oystercatchers that occur year-round on The Wash.

2.66 The limited additional survey effort to understand the abundance and distribution of qualifying features of The Wash SPA/Ramsar also means that other species must be scoped-in to the assessments. We are particularly concerned about shelduck that has declined considerably on The Wash and can be present in significant numbers around The Haven. The additional survey work is therefore essential to ensure that the appropriate species have been screened-in and screened-out of the HRA. We have no confidence in the current approach taken in the HRA and disagree with the approach adopted by the Applicant.

q) Failure to assess the importance of The Haven area of The Wash using the latest WeBS data

2.67 Whilst we welcome the inclusion of the 2013/14 to 2018/19 WeBS data in the addendum, a more recent data set is available to assess the importance of The Haven area of The Wash and trends in bird numbers. The 2014/15 to 2019/20 data are available and show that for some species there continue to be declines in numbers of some species using The Haven area, for example, dark-bellied brent goose and turnstone. We recommend revising the HRA to include the latest WeBS data.

[redacted]

r) Failure to include an assessment of The Wash Ramsar within the HRA

2.68 Paragraph 5.1.2 (pp.40-41) of the addendum recognises the need to consider The Wash Ramsar alongside The Wash SPA with regards assessments of impacts to ornithological features within the HRA. However, it does not appear that appropriate consideration of The Wash Ramsar and its qualifying features has been considered within the appendix to the addendum. We request clarity on how The Wash Ramsar has been taken into consideration throughout the HRA. This is important, as there may be additional features that are features of The Wash Ramsar but have not yet been included as part of The Wash SPA. This would be particular the case for ruff, which is also an Annex 1 species and therefore requires year-round protection across its range.

s) Disagreement with all the Applicant's conclusions set out in the HRA

2.69 Section 6 (pp.46-69 of the addendum sets out the Applicant's position with respect to the qualifying features of The Wash SPA/Ramsar. They conclude that there will be no adverse effect on site integrity.

2.70 We cannot agree with any of the conclusions drawn for any of the species assessed by the Applicant, including the waterbird assemblage feature. This is for the reasons detailed above, which include:

- Inappropriately defined assessment area.
- Significant data gaps to understand the abundance and distribution of qualifying features of The Wash SPA/Ramsar seasonally and on different tidal states.
- A lack of detailed site-specific evidence presented to demonstrate that the ecological requirements for qualifying features of The Wash SPA/Ramsar are known to demonstrate any conclusions are appropriate to this site.
- Failure to apply the Habitats Regulations tests correctly.

2.71 Consequently, we do not consider that the required "…*high standard of investigation*" has been demonstrated, as has been established as a key principle for appropriate assessments by the English and Welsh Court of Appeal in *R (on the application of Mynydd v Gwynt Ltd) v Secretary of State for Business, Energy and Industrial Strategy [2018] EWCA Civ 231.*[7]We, therefore, canot agree that an adverse effect on integrity of The Wash SPA/Ramsar would be avoided beyond reasonable scientific doubt.

2.72 We provide more detail on why we disagree with the species accounts in Section 3 below.

3. Comments on Appendix 1 of the Ornithology addendum

a) Disagreement with the approach taken to the Habitats Regulations tests

3.1 Section 2.4 of the addendum appendix (p.82) does not appear to address the full tests set out in the Habitats Regulations. The HRA has to consider whether impacts from the Application alone or in-combination with other projects/activities and plans would avoid an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt. The approach to the HRA must be to meet this specific test.

3.2 The language used with the HRA is not specific to the Habitats Regulations and therefore risks applying a less strict or rigorous approach than is required. We set out the approach that we expect to be followed within Sections 8 and 10 of our Written Representation. Section 2.4 of the addendum

[7] We provide more detail on this in Section 3d below and also within Section 8 of our Written Representation.

appendix simply asks if "*Is the additional disturbance likely to cause impacts on SPA qualifying interests…*" This is inadequate.

3.3 The addendum appendix (section 2.4) then sets out 3 questions that the Applicant considers need to be addressed in the HRA. We are continuing to review the full addendum and anticipating making further representation on this issue in future submissions, however, the approach outlined by the Applicant is flawed by the limited approach that is being taken and the limited data collected to understand the full ecological importance of this area of The Wash.

3.4 It is not possible to apply this approach to only a small area of The Wash. The HRA needs to consider the relative importance of this area of The Wash with respect to its interest features. If some species are disproportionately using this area of The Wash, then any impacts will be greater. Any assessment also needs to be considered against any changes in abundance or distribution that have already been documented and which conservation action is being taken to address pressures. Additional pressure from increased vessel movements would exacerbate any issues. The full context of The Wash must be considered.

3.5 In reviewing the species sections outlined within the addendum appendix, there is also vague language used that provides not certainty that the conclusions being drawn are appropriate. Nowhere within the HRA are any conclusions made with respect to whether a 'likely significant effect' has been concluded for any qualifying features or whether the key test is being made in the second stage (appropriate assessment) of the HRA, namely, whether impacts from the Application alone or in-combination with other projects/activities and plans would avoid an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt., This needs to be stated, as conclusions made by the Applicant are currently ambiguous and uncertain.

3.6 The following statement from the dark-bellied brent goose account in the addendum appendix (p.94) provides a good example of the uncertain language that is used in the Applicant's conclusions:

"*The average and peak number of black-tailed godwit affected by vessel disturbance **is not anticipated** to **materially** change*." (p.99)

*"…it is concluded that the additional disturbance would **not materially affect** local distribution or abundance of black-tailed godwit across The Wash SPA."* (p.100)

"*The birds affected **are likely** to be roosting birds and therefore the disturbance is **not anticipated** to **materially affect** foraging time and thus energy intake rates*." (p.101)

3.7 The phrase "*not anticipated*" reflects the lack of evidence to enable conclusions that no adverse effects on features of The Wash SPA/Ramsar can be concluded beyond reasonable scientific doubt.

3.8 The phrases "*materially change*" and "*materially affect*" are not Habitats Regulations terminology and create ambiguity of the Applicant's position. It must be clearly set out whether the Applicant considers and adverse effect on integrity of The Wash SPA/Ramsar will or will not be avoided. The use of such a phrase reflects the lack of evidence available to demonstrate that it is not possible to conclude that there will not be an adverse effect on integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt based on the currently available evidence.

b) Disagreement of the definition of the 'Local Area'

3.9 In Section 2(b) above we have set out why it is not realistic to consider impacts on features of The Wash SPA/Ramsar over only a small proportion of The Haven. Consequently, any assessment should be based on the navigation channel from the Application site out to the Port of Boston anchorage area.

3.10 We agree with the parts of Section 2.2 that recognise that the ecological requirements of the qualifying species of The Wash SPA/Ramsar must be considered when determining the area over which impact assessment should take place. However, despite this statement there is no site-specific evidence or species-specific evidence used to inform the area to assess; the Applicant simply states the 'Local Area' will be defined as the WeBS sectors for which data have been obtained.

3.11 This is an unrealistic approach as vessel movements occur along the whole of the navigation channel and as such will cause disturbance to waterbirds along the entire route. Whilst the actual scale of disturbance will vary from species to species, seasonally and even spatially along the navigation channel, no evidence has been collected to demonstrate an understanding of how qualifying features of The Wash SPA/Ramsar use The Haven and the navigation channel out to the anchorage area. A greater area should be used for the impact assessment such as that shown in Figure 1.

c) Disagreement of the definition of the 'Mouth of The Haven'

3.12 In Section 2(b) above, we have set out why it is not realistic to consider impacts on features of The Wash SPA/Ramsar over only a small proportion of The Haven. Consequently, any assessment should be based on the navigation channel from the Application site out to the Port of Boston anchorage area.

3.13 There is no justification in Section 2.3 to explain why a selection of the WeBS sectors have been used to define a very small area impacted by vessel movements. There is no benefit to assess such a small area, as it is unrealistic for disturbance from vessel movements to only impact qualifying features of The Wash SPA/Ramsar in this limited area. Vessel movements occur along the whole of the navigation channel and as such will cause disturbance to waterbirds along the entire route. Whilst the actual scale of disturbance will vary from species to species, seasonally and even spatially along the navigation channel, no evidence has been collected to demonstrate an understanding of how qualifying features of The Wash SPA/Ramsar use The Haven and the navigation channel out to the anchorage area. A greater area should be used for the impact assessment such as that shown in Figure 1.

d) Disagreement with the approach to screening

3.14 We disagree with the approach outlined in the addendum appendix to screening and do not consider it is compatible with the Habitats Regulations tests.

3.15 Section 3 (p.85) of the addendum states that "*It is necessary to prioritise the qualifying interests and focus the assessment on those that have greatest potential to be affected.*" This is a fundamental misapplication of the Habitats Regulations tests.

3.16 As stated in paragraph 8.26 (p.89) of our Written Representation, an appropriate assessment requires all aspects of the project which could affect the site, its species and it's conservation objectives to be identified in the light of the best scientific knowledge in the field[8]. The competent authority, "*taking account of the conclusions of the appropriate assessment of the implications…for the site concerned, in the light of the conservation objectives, are to authorise such activity only if they have made certain*

[8] Waddenzee CJEU Case-127/02; [2004] ECR-7405 at [61]

that it will not adversely affect the integrity of the site." That is the case "where *no reasonable scientific doubt remains as to the absence of such effects."*[9]

3.17 In paragraph 8.21 (p.87) of our Written Representation we set out the key steps in the Habitats Regulations process, namely:

Step 1: consider whether the project is directly connected with or necessary to the management of the SPA. If not,

Step 2: consider, on a precautionary basis, whether the project is likely to have a significant effect on the SPA, either alone or in combination with other plans or projects.

Step 3: make an appropriate assessment of the implications for the SPA in view of its conservation objectives. Regulation 48(2) empowers the competent authority to require an applicant to provide information for the purposes of the appropriate assessment. There is no requirement or ability at this stage to consider extraneous (non-conservation e.g. economics) matters in the appropriate assessment.

Step 4: consider whether it can be ascertained that the project will not, alone or in combination with other plans or projects, adversely affect the integrity of the SPA, having regard to the manner in which it is proposed to be carried out, and any conditions or restrictions subject to which that authorisation might be given (the Integrity Test).

Step 5: In light of the conclusions of the assessment the competent authority shall agree to the project only after having ascertained that it will not adversely affect the integrity of the SPA, alone or in combination with other plans or projects.

Step 6: If, despite not being possible to ascertain that there will not be an adverse effect on the integrity of the site, there are no possible alternative solutions to the proposed development and there are imperative reasons of overriding public interest (IROPI) (which, subject to regulation 64(2), may be of a social or economic nature), for it, consent can still be granted if…

Step 7: any and all necessary compensation measures must be secured to ensure the overall coherence and protection of the National Sites Network[10]. (consideration of the management objectives for the National Sites Network (as set out below) should be part of these considerations).

3.18 With respect to Step 2, a decision regarding whether a likely significant effect may occur must be taken on a precautionary basis. The English and Welsh Court of Appeal in *R (on the application of Mynydd v Gwynt Ltd) v Secretary of State for Business, Energy and Industrial Strategy [2018] EWCA Civ 231* has recently set out the following principles for appropriate assessments under Regulation 63(1) referring to other important caselaw in this area:

"(1) The environmental protection mechanism in Article 6(3) is triggered where the plan or project is likely to have a significant effect on the site's conservation objectives: Landelijke: Vereniging tot Behoud van de Waddenzee v Staatsscretaris van Lanbouw (Case C-127/02) [2005] All ER (EC) 353 at [42] ("Waddenzee").

[9] Waddenzee [59].

[10] Formerly known as the Natura 2000 Network.

(2) In the light of the precautionary principle, a project is "likely to have a significant effect" so as to require an appropriate assessment if the risk cannot be excluded on the basis of objective information: Waddenzee at [44].

(3) As to the appropriate assessment, "appropriate" indicates no more than that the assessment should be appropriate to the task in hand, that task being to satisfy the responsible authority that the project will not adversely affect the integrity of the site concerned. It requires a high standard of investigation, but the issue ultimately rests on the judgement of the authority: R (Champion) v North Norfolk District Council [2015] UKSC 52; [2015] 1 WLR 3710, Lord Carnwath at [41] ("Champion")."

3.19 We consider screening out of species when they are present and would be subject to impacts from vessel movements would not represent exclusion "*on the basis of objective information*." The approach to screening must therefore be revised.

e) Disagreement with the screened-in species

3.20 We agree with the species that have been screened into the appropriate assessment but disagree that an appropriate process has been followed. This has resulted in an incomplete list of species that are likely to be significantly affected by vessel movements (as we discuss in Section 2(o) and 2(p) above).

3.21 The Applicant's own surveys have also recorded qualifying features of The Wash SPA/Ramsar at the application site that include: ringed plovers, dunlins, lapwings, turnstones, redshanks, oystercatchers, black-tailed godwits, bar-tailed godwits, curlews, grey plovers, cormorants, mallards, shelducks, black-headed gulls, herring gulls, lesser black-backed gulls and great black-backed gulls. This demonstrates that these features are all present on The Haven and therefore there is potential for them to be impacted by vessel movements. There is therefore a likely significant effect on these features. Consequently, all the qualifying features of The Wash SPA/Ramsar that have been recorded to be present along the navigation channel must be considered in the Appropriate Assessment of the HRA. Only where there is appropriate evidence to demonstrate that qualifying features are not present should they be scoped-out of the assessment, as we set out in section 3d above.

3.22 A revised list of species that are screened-in to the assessment be provided and the assessments revised.

3.23 We provide our detailed position with respect to the Habitats Regulations Assessment stages in more detail in Section 8 of our Written Representation.

f) Disagreement with the screened-out species

3.24 We disagree with the approach taken by the Applicant to screen-out species that are likely to be significantly affected by vessel movements (as we discuss in Section 2(o) and 2(p) above).

3.25 The Applicant's own surveys have also recorded qualifying features of The Wash SPA/Ramsar at the application site that include: ringed plovers, dunlins, lapwings, turnstones, redshanks, oystercatchers, black-tailed godwits, bar-tailed godwits, curlews, grey plovers, cormorants, mallards, shelducks, black-headed gulls, herring gulls, lesser black-backed gulls and great black-backed gulls. This demonstrates that these features are all present on The Haven and therefore there is potential for them to be impacted by vessel movements. There is therefore a likely significant effect on these features. Consequently, all the qualifying features of The Wash SPA/Ramsar that have been recorded to be present along the navigation channel must be considered in the Appropriate Assessment of the

HRA. Only where there is appropriate evidence to demonstrate that qualifying features are not present should they be scoped-out of the assessment, as we set out in section 3d above.

3.26 The limited additional survey effort to understand the abundance and distribution of qualifying features of The Wash SPA/Ramsar along The haven and navigation channel out to the anchorage area also means that other species may need to be scoped into the assessments. We are particularly concerned about shelduck that has declined considerably on The Wash and can be present in significant numbers around The Haven. Eider and common scoter as well as other species may also have to be considered. The additional survey work is therefore essential to ensure that the appropriate species have been screened-in to the HRA. We have no confidence in the current approach taken in the HRA and do not consider it is consistent with the Habitats Regulations tests.

g) Disagreement with the HRA conclusion regarding dark-bellied brent goose

3.27 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on dark-bellied brent goose.

3.28 Birds observed during the surveys at the mouth of The Haven will not have been roosting. They will have been present bathing, drinking, preening or feeding as part of their daily pattern of use of The Haven area. Dark-bellied brent geese will feed on adjacent areas such as grass fields. However, no detailed assessment has been completed to understand the daily movements of dark-bellied brent geese which could have helped inform how frequently they may have been present when large vessels transit The Haven.

3.29 In addition, large numbers of dark-bellied brent geese are known to use the lower reaches of The Haven from Hobhole to the mouth (Figure 4-2 of the addendum, p.39), for example, 4,500 are reported for the Frampton North 25 sector (which is one of the sectors that could not be viewed from the Tabs Head hide). However, no data have been presented on how many birds use the area, what areas are particularly important, or the behaviour exhibited when large vessels pass through. It was in part due to the presence of dark-bellied brent geese in the lower reaches of The Haven that restrictions were placed on the Environment Agency's Ground Investigation works that the Applicant has mentioned in the Environmental Statement. This was also deemed necessary given the sensitivity if this species to disturbance.

3.30 We request more detailed, **site-specific** information on the ecology and distribution of dark-bellied brent geese in the lower reaches of The Haven. This is essential to inform the HRA and justify its conclusions.

h) Disagreement with the HRA conclusion regarding black-tailed godwit

3.31 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on black-tailed godwit.

3.32 It us our understanding that black-tailed godwits do not roost on the rocks at the mouth of The Haven. Where birds were observed during the surveys at the mouth of The Haven it is likely that these observations took place on lower neap tides and therefore some exposed mudflat would still have been available for the birds to feed or simply loaf.[11] There is no information presented to understand the daily pattern of use by black-tailed godwit along The Haven and its approaches. Surveys have not been conducted through the tide to consider the full potential to impact black-tailed godwit.

[11] Loafing includes resting and preening and forms an important part of the daily behaviour of birds. Disturbance during this time can impact on energy budgets and also affect the birds' condition if they are disturbed whilst maintaining their feathers.

3.33 We request more detailed, **site-specific** information on the ecology of black-tailed godwits and their distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

i) Disagreement with the HRA conclusion regarding oystercatcher

3.34 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on oystercatcher.

3.35 Recent oystercatcher studies have shown that they are very dependent on good food supply, and Clewley et al. (2021) have found evidence that birds can be highly site faithful. This is due to the differences in food types that different birds exploit. Consequently, although some interchange does occur across The Wash, many oystercatchers appear to stay close to the same area where they know there is a good food supply that they can access. Any factors that cause birds to move away from these food sources, or reduce their ability to forage when feeding areas are exposed, is a serious issue.

3.36 Oystercatchers on The Wash are well studied, as a mass mortality event in the late 1990s was linked to poor shellfish stocks. Through the studies that have followed to understand oystercatcher ecology and distribution on The Wash, it has been identified that there are differences in the age and sex of birds wintering in different areas of The Wash. Durell & Atkinson (2004) summarise this as:

"Oystercatchers caught on the southwest shores were more likely to be young birds and females. Birds caught on the east shore were more likely to be adults and males. Shellfish-stabbers were more common on the south and east shores and shellfish-hammerers more common on the west shore. Most mudflat-feeding birds were caught on the south shore."

3.37 As a consequence of these findings, Durell & Atkinson (2004)[12] highlight that:

"*When feeding specializations are age- and sex-related, any change in the food supply, or any habitat loss, may affect some age or sex groups more than others. Therefore any increase in mortality may not be equal across the population, resulting in a reduction in population size greater than if the increase in mortality affected all age and sex groups the same (Durell et al. 2001). Knowledge of age and sex differences in shorebird distribution on wintering grounds is invaluable in understanding how populations might change due to food supply or habitat loss.*"

3.38 At the mouth of The Haven, it is therefore likely that oystercatchers would be predominantly juvenile and female birds. Any increase in disturbance that increases energy expenditure and reduces the ability of birds to forage could affect the numbers of pairs that able to breed in future seasons, or the number of young birds surviving to become adults, all of which could cause population declines. We do not consider the evidence presented in the HRA provides sufficient evidence that such an impact could not occur from increased vessel movements on this species.

3.39 As well as The Haven, we are also aware that there is a large roost (potentially some 2000 birds) that can form on the Welland. We have not seen any evidence to understand whether this roost could be affected by vessel movements using The Haven and its approaches.

[12] Durell, S.E.A.Le V., & Atkinson, P.W. (2004) Differential distribution of Oystercatchers Haematopus ostralegus overwintering on the Wash, east England. Bird Study 51: 76-82.

3.40 We request more detailed, **site-specific** information on the ecology of oystercatchers and distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

j) Disagreement with the HRA conclusion regarding redshank

3.41 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on redshanks.

3.42 There has been no assessment of the use of the whole of The Haven and its approaches by redshanks. The Wash SPA/Ramsar/SSSI boundary extends to Hobhole and the Applicant's surveys at the Application site have identified significant numbers of redshanks roosting and foraging. It must therefore be assumed that redshanks use the whole of The Haven, but we have no information on their potential numbers and how they may use different areas during the day, at night or seasonally. This information is essential to understand the potential consequences of increased vessel movement along The Haven and whether adverse effects on this qualifying species can be avoided.

3.43 We request more detailed, **site-specific** information on the ecology of redshanks and distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

k) Disagreement with the HRA conclusion regarding turnstone

3.44 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on turnstones.

3.45 Turnstones are a qualifying feature of The Wash SPA/Ramsar. They have declined in numbers and have a restoration target. The HRA suggests that there are alternative roost sites available for turnstones to use at the mouth of The Haven but provides no detail on where such roosts are located or whether these suggested alternatives are available at all states of the tide. There is also no consideration of competition with other species that may also try and make use of any exposed areas not covered at high tide. If birds are forced to fly to Freiston Shore this would be c.2.5-3km, which is distant from the mouth of The Haven and will be a change in distribution.

3.46 We request more detailed, **site-specific** information on the ecology of turnstones and distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

l) Disagreement with the HRA conclusion regarding lapwing and golden plover

3.47 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on lapwings and golden plovers and fundamentally disagree with the suggestion that these species should have less weight in the HRA.

3.48 The HRA completed by Atlantic Ecology (pp.122-123 of the addendum document) states that (emphasis added):

> "*Neither lapwing nor golden plover are qualifying interests of The Wash SPA in their own right despite the fact that numbers of birds regularly using the Wash are considered to be of international importance. Numbers of both species comfortably exceed the 1% threshold of the UK non-breeding population of these species. For lapwing, the Wash birds make up approximately 2% of the UK nonbreeding population (11,483 birds out of 635,000). For golden plover, the Wash birds make up approximately 3% of the UK non-breeding population (13,421 birds out of 410,000).*

Lapwing and golden plover are cited as contributing to The Wash SPA non-breeding waterbird assemblage feature. However neither species is listed as a 'main component species' of the waterbird assemblage, despite occurring in numbers that considerably exceeding that of many of the species that are listed as main components. For these reasons it is doubtful if the small to moderate local-scale changes that could affect these species as a result of the Proposed Development could be judged as having an AEOI on the [sic] The Wash SPA waterbird assemblage feature. ***Indeed, because these species have low relevance to The Wash SPA for the reasons listed, it follows that potential concerns are lower and that they should be given lower priority in the HRA. For this reason the potential for the Proposed Development to cause disturbance to these two species is not examined in as much detail as it is for the other species assessed***."

3.49 Both lapwing and golden plover are named in the assemblage in the UK SPA Review 2001 site account[13]: this means they are notable components as they are present in more than 1% national population levels (the threshold required for inclusion within the SPA Site Account in the 2001 Review). The importance of this has been helpfully acknowledge by the Applicant. The site account from the 2001 Review lists the following as features/components of The Wash SPA (emphasis added):

"*This site qualifies under* ***Article 4.1*** *of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:*

During the breeding season;
Common Tern Sterna hirundo, 152 pairs representing at least 1.2% of the breeding population in Great Britain (Count, as at 1993)
Little Tern Sterna albifrons, 33 pairs representing at least 1.4% of the breeding population in Great Britain (5 year mean, 1992–1996)
Marsh Harrier Circus aeruginosus, 15 pairs representing at least 9.4% of the breeding population in Great Britain (Count as at 1995)

Over winter;
Avocet Recurvirostra avosetta, 110 individuals representing at least 8.7% of the wintering population in Great Britain (5 year peak mean 1991/2–1995/6)
Bar-tailed Godwit Limosa lapponica, 11,250 individuals representing at least 21.2% of the wintering population in Great Britain (5 year peak mean 1991/2–1995/6)
Golden Plover Pluvialis apricaria*, 11,037 individuals representing at least 4.4% of the wintering population in Great Britain (5 year peak mean 1991/2–1995/6)*
Whooper Swan Cygnus cygnus, 68 individuals representing at least 1.2% of the wintering population in Great Britain (5 year peak mean 1991/2–1995/6)

…

Assemblage qualification: A wetland of international importance.
The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

Over winter, the area regularly supports 400,273 individual waterfowl (5 year peak mean 1991/2–1995/6) including: Black-tailed Godwit Limosa limosa islandica, Avocet Recurvirostra avosetta, ***Golden Plover Pluvialis apricaria****, Bar-tailed Godwit Limosa lapponica, Pink-footed Goose Anser*

[13] See assemblage text at p216 out of 397 in the Sites volume: [redacted]f

brachyrhynchus, Dark-bellied Brent Goose Branta bernicla bernicla, Shelduck Tadorna tadorna, Pintail Anas acuta, Oystercatcher Haematopus ostralegus, Grey Plover Pluvialis squatarola, Whooper Swan Cygnus cygnus, Dunlin Calidris alpina alpina, Sanderling Calidris alba, Curlew Numenius arquata, Redshank Tringa totanus, Turnstone Arenaria interpres, Little Grebe Tachybaptus ruficollis, Cormorant Phalacrocorax carbo, White-fronted Goose Anser albifrons albifrons, Wigeon Anas penelope, Mallard Anas platyrhynchos, Ringed Plover Charadrius hiaticula, ***Lapwing Vanellus vanellus****, Knot Calidris canutus.*

Note that sites selected for waterbird species on the basis of their occurrence in the breeding, passage or winter periods also provide legal protection for these species when they occur at other times of the year."

3.50 The above clearly highlights that golden plover is a feature of The Wash SPA. It is also an Annex 1 species and requires special protection throughout its range year-round. Lapwing is also clearly listed under the assemblage qualification.

3.51 The UK SPA Review 2001 Rationale document[14] provides further justification for fully assessing the impact of the Application on golden plovers and lapwings that have been disturbed on multiple occasions at the mouth of The Haven:

"*4.3.1 Definition of important assemblage components Guidelines 1.1 and 1.2 refer to numbers of a particular species at a site, whilst guideline 1.3 covers total numbers of all species within a defined assemblage at a site.* ***All migratory and Annex I waterbirds within an assemblage are qualifying species****. The main component species that characterise particular assemblages have been identified. To achieve this, 1% of national populations was used to provide basic guidance. In other words, at sites holding at least 20,000 waterbirds, species have been listed in this review where at least 1% of a national population is present within the assemblage.*

This approach, however, does not highlight the presence within internationally important assemblages of those species with very large national populations (and hence very large 1% national thresholds). This relates especially to ***Lapwing*** *and more occasionally Wigeon, Dunlin, Knot and Oystercatcher. These species may rank as the primary or secondary component of a site's waterbird assemblage but despite many thousands being present, numbers are less than 1% of national populations. In order for species to qualify as a listed component of an assemblage, their numbers had to exceed 10% of the minimum qualifying assemblage of 20,000 individuals (i.e. at least 2,000 individuals). The same rules were adopted for assemblages of seabirds*."

3.52 As a consequence of the selection criteria clearly being met for golden plover and lapwing it is essential that a full assessment of these features is carried out. Table 4 of the addendum appendix (p.87) clear shows the significant proportion of The Wash SPA lapwing and golden plover populations that are being impacted by vessel disturbance (10% and 19% of The Wash SPA populations respectively). The observations of bird disturbance at the mouth of The Haven recorded lapwings and golden plovers being disturbed on multiple occasions, highlighting the importance of the area for the birds and the reluctance to move away. This strongly indicates that there is some factor making this area highly important for these species. In addition, surveys on 19 December 2019, recorded 1,100 lapwings and 2,500 golden plovers being disturbed by vessel movements and they collectively made up 56% of the total 6,480 birds disturbed by that event (the total birds disturbed equated to 1.9% of

[14] The relevant text to can be found on numbered page 10 at: [redacted]

The Wash SPA waterbird assemblage). A full assessment of these species must be presented, including a fully developed energy budget.

3.53 We request more detailed, **site-specific** information on the ecology of lapwings and golden plovers, and their distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

m) Disagreement with the HRA conclusion regarding common tern

3.54 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on common tern.

3.55 The Addendum Appendix states that:

"The closet [sic] breeding colonies within the Wash SPA are located on the east coast of the Wash between approximately 24 and 30 km from the MOTH."

3.56 This is not the case. Common terns breed at both RSPB Freiston Shore and RSPB Frampton Marsh, having done so since annually since 2005, and are located c.3km and c.3.5km from the mouth of The Haven. We are happy to share our data with the Applicant and have presented the latest breeding figures and 5-year means for the reserves in Table 1. We know that the birds will move between sites and if birds fail they can relocate to the other reserve to relay. For analysis purposes, we therefore recommend that the combined breeding figures would be most appropriate. Whilst we have provided the latest breeding figures, there have been up to 126 pairs breeding at RSPB Freiston Shore, with the highest 5-year mean for this reserve being 105 pairs. For RSPB Frampton Marsh, the highest 5-year mean has been 43 pairs. These reserves are therefore highly important in supporting The Wash SPA population of common tern.

Table 1: The tables below present the common tern data from RSPB Freiston Shore and RSPB Frampton Marsh. Data are presented according to A) the number of pairs recorded breeding on the reserves in 2021 and B) the 5-year mean number of pairs breeding on the reserves. The proportion of The Wash SPA is presented. It should be noted that The Wash Ramsar population of common tern is 152 pairs.

A) RSPB Reserve	**Number of pairs (Adults on Nests) in 2021**	**% of The Wash SPA population (based on 220 pairs)**	**% of the latest WeBS 5-year peak mean (based on 583 pairs)**
Freiston Shore	65	29.5	11.1
Frampton Marsh	20	9.1	3.4
Combined	85	38.6	14.6

B) RSPB Reserve	**Pairs (5-year mean of Adults on Nests)**	**% of The Wash SPA population (based on 220 pairs)**	**% of the latest WeBS 5-year peak mean (based on 583 pairs)**
Freiston Shore	42	19.1	7.2
Frampton Marsh	27	12.3	4.6
Combined	69	31.4	11.8

3.57 We also note that surveys at the mouth of The Haven have only been conducted on three occasions during the breeding season and that surveys will have ended before movements of juveniles and adults that had finished breeding may have used the area. This is acknowledged within the addendum appendix (p.152):

"*When assessing the potential for MOTH vessel disturbance to affect The Wash SPA breeding common tern qualifying feature, it should be borne in mind that WeBS counts of common tern made in August and September (the months when peak numbers are counted at the MOTH site and the local area) will include juvenile birds. Also, August and September WeBS counts are made after common terns have departed their breeding colonies and therefore may include birds that are not from The Wash SPA breeding colonies.*"

3.58 Whilst we agree that there may be mixing of birds from other colonies, we disagree that impacts on juveniles and adults that have finished breeding should be ignored. Juveniles will still be developing their ability to fly and forage, anything that could increase their stress during this time preparing to migrate could be significant. Anything that could reduce juvenile survival would have consequences for the breeding population over time. Equally, adult birds will need to restore their fitness after breeding in preparation for migration and increased disturbance in foraging and roosting areas could be significant. None of this has been explored. We also note the caveat provided in the UK SPA Review 2001 site account[15] that provides protection for features of The Wash SPA throughout the year:

"*Note that sites selected for waterbird species on the basis of their occurrence in the breeding, passage or winter periods* ***also provide legal protection for these species when they occur at other times of the year***."

3.59 We request more detailed, **site-specific** information on the ecology of common terns, the local breeding colonies, and their distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

n) Disagreement with the HRA conclusion regarding waterbird assemblage

3.60 We disagree that there would not be an adverse effect on integrity beyond reasonable scientific doubt on the waterbird assemblage. We do not agree with any of the conclusions drawn for qualifying features alone or where they have been assessed as a component of the waterbird assemblage. The mouth of The Haven has been shown to support significant numbers of waterbirds and these have been observed to be disturbed by current vessel movements. We also disagree that the full suite of qualifying features (notably, shelduck) has been assessed and therefore the assessment on the waterbird assemblage is incomplete.

3.61 We request more detailed, site-specific information on the ecology of the waterbird assemblage qualifying features, the local breeding colonies, and their distribution along The Haven and the entire navigation channel. This is essential to inform the HRA and justify its conclusions.

4. Conclusions

4.1 Whilst we welcome the addition of the WeBS data, there is no new evidence presented in the addendum. The available data have simply been analysed in more detail. This analysis does not address the significant data gaps that exist within the application and which there is no time available for the Applicant to address during the Examination. The further analyses presented in the addendum general restate the Applicant's position of many of the concerns that we and other interest parties have raised prior to submission of the Application. We have also identified a number of areas of the report where the Applicant's evidence is incorrect, such as for the common tern feature if The Wash SPA/Ramsar/SSSI. Consequently, none of our concerns are allayed. All our comments set out within our Written Representations remain.

[15] See assemblage text at p216 out of 397 in the Sites volume: [redacted]

4.2 We also have concerns that the Applicant's approach to the HRA is not consistent with the Habitats Regulations tests. We therefore consider the HRA needs to be revised to consider impacts over a greater area, on a greater number of qualifying features and that considerably more evidence is needed to justify any conclusions in the HRA. Additional evidence must be site-specific and species-specific.

4.3 For the avoidance of doubt, we do not consider sufficient information has been presented to demonstrate that there will not be an adverse effect on the integrity of The Wash SPA/Ramsar beyond reasonable scientific doubt.

4.4 We will continue to discuss the Application with the Applicant and review any new information that is made available. We are happy to share any data we hold that would be helpful to the Applicant in revising their assessments.

Appendix: The RSPB's initial comments with respect to specific sections and paragraphs in the addendum, and recommendations on how the issues identified could be addressed. (This are not are our final and complete comments and we will submit any revisions at a future Deadline).

Ref	Para	Table	Page	Comment	Recommendation
1	2.1.1		7	We consider the Kvist *et al*. (2001) and Collop *et al*. (2016) papers are helpful references for the basis of the energy budget calculations that have been applied to qualifying features if The Wash SPA/Ramsar that were observed to take flight and return to their original location following disturbance by vessel. These are established, peer-reviewed methods for calculating energy expenditure. However, reality is different from the answer to an equation. The impacts on birds does not depend only on energy budgets but also on behavioural ecology. The site may be abandoned by the birds or used only by smaller numbers of birds because of the disturbance. There is good evidence that this is what actually happens in reality in response to disturbance at coastal sites. Burton et al. 2002 showed that construction work at Cardiff Bay reduced the numbers of redshank and several other wader species, and reduced the carrying capacity of the bay. Burton et al 2006 showed that the loss of intertidal habitat in Cardiff Bay caused the redshank mortality rate to increase by 44%. Whittingham et al. 2019 showed that undisturbed sites supported higher densities of turnstones than those with human disturbance. Burton, N.H.K., Rehfisch, M.M. & Clark, N.A. 2002. Impacts of disturbance from construction work on the densities and feeding behaviour of waterbirds using the intertidal mudflats of Cardiff Bay, UK. Environmental Management 30. 865-871. Burton, N.H.K., Rehfisch, M.M., Clark, N.A. & Dodd, S.G. 2006. Impacts of sudden winter habitat loss on the body condition and survival of redshank Tringa totanus. Journal of Applied Ecology 43: 464-473. Whittingham, M.J., McKenzie, A.J., Francksen, R.M., Feige, D., Cadwallender, T., Grainger, M., Fazaa, N., Rhymer, C., Wilkinson, C., Lloyd, P., Smurthwaite, B., Percival, S.M., Morris-Hale, T., Rawcliffe, C., Dewson, C., Woods, S., Stewart, G.B. & Oughton, E. 2019. Offshore refuges support	More detailed species accounts that consider site-specific abundance, distribution and behaviour to inform the HRA conclusions.

Ref	Para	Table	Page	Comment	Recommendation
				higher densities and show slower population declines of wintering Ruddy Turnstones Arenaria interpres. Bird Study 66: 431-440.	
2	3.1.1		7 & 8	This is not additional data. Such data have been made available to the interested parties listed and used to inform our Written Representations. The addendum simply provides an update on the analyses that the Applicant has undertaken and any updates on the conclusions that have been drawn. No new information has been collected since surveys ended in July 2021.	More detailed data is required to assess the abundance and distribution of qualifying features of The Wash SPA/Ramsar/SSSI along the whole of The Haven and the navigation channel out to the Port of Boston anchorage area. This is needed as impacts from vessels will occur along the entirety of the navigation channel and not isolated to a small area at the mouth of The Haven or Application site. There will be insufficient time during the Examination and a pause may be necessary to ensure a more appropriate evidence base is available.
3	3.1.3		8	Whilst it is helpful to have clarity on the area now covered by the assessments, there is still a substantial area of The Haven where no data have been collected to inform the potential importance for features of The Wash SPA/Ramsar/SSSI and to understand baseline disturbance levels and the increased impact that could arise during construction and operation of the Facility.	See recommendation on para 3.1.1

Ref	Para	Table	Page	Comment	Recommendation
4	3.1.4		8	The Applicant states that there was "very little known about bird data in the area" when designing the surveys. However, WeBS data was available to the Applicant going back decades yet no surveys were considered until after the Preliminary Environmental Information Report (PEIR) consultation responses had been submitted in 2019. The fact that such data was not used to considered until such a late stage in the development process has delayed data collection. However, bird data along The Haven outside of the WeBS sectors is limited and when discussions started with the Applicant no bird survey work had been completed. Following the survey work, the Application site was identified as having greater importance for birds than was known. Whilst survey work along the length of The Haven has been encouraged, no work to understand the full importance of The Haven has been completed, which leaves gaps in our understanding of whether additional areas of The Haven have a high importance for supporting features of The Wash SPA/Ramsar/SSSI and which could be adversely affected during construction and operation of the Facility. The RSPB holds data on the bird species that occur at RSPB Freiston Shore and RSPB Frampton Marsh. No data requests have been made by the Applicant despite our willingness to share reserve data to help inform the evidence base. In addition, The Wash is a well-studied site with papers produced on a number of qualifying features of The Wash SPA/Ramsar/SSSI such as oystercatcher and redshank. None of this existing evidence had been collected or reviewed to inform PEIR conclusions on the ecological impacts that could arise from the Application.	Collate all available evidence and species-specific evidence to inform detailed consideration of the qualifying features of The Wash SPA/Ramsar/SSSI.
5	3.3.1		18	The RSPB did identify WeBS sectors that would need to be reviewed to consider impacts during construction and operation of the Facility. We did notify the Applicant that there was a small sector that had not been identified that would need to be included in revised assessments. We appreciate that this may not have been possible to include for the Deadline 1 submission, but request that updates ensure this sector is included.	Revise assessments to include Witham 21 sector.

Ref	Para	Table	Page	Comment	Recommendation
6	3.3.1		18	The RSPB did identify WeBS sectors that would need to be reviewed to consider impacts during construction and operation of the Facility. We did notify the Applicant that there was a small sector that had not been identified that would need to be included in revised assessments. We appreciate that this may not have been possible to include for the Deadline 1 submission, but request that updates ensure this sector is included. Having reviewed the evidence further, we consider it essential that a wide assessment is undertaken along the entire navigation channel. Impacts from vessels will extend from the Application site out to the Port of Boston anchorage area. Vessels have been shown to cause disturbance to roosting and foraging birds both at the Application site and mouth or The Haven; such impacts will not stop between the application site or out to the anchorage point. We therefore request data for the following WeBS sectors be obtained based on Figure 2 above.	Obtain data for additional WeBS sectors and revise assessments: • Butterwick 30 • Butterwick 51 • Butterwick 31 • Butterwick 52 • Benington 30 • Benington 50 • Leverton 50
7	3.4		18 & 19	This is not additional data. Such data have been made available to the interested parties listed and used to inform our Written Representations. The addendum simply provides an update on the analyses that the Applicant has undertaken and any updates on the conclusions that have been drawn. No new information has been collected since surveys ended in July 2021.	
	3.4.1		18	This section indicates that surveys have been conducted in winter and during spring/early summer, but no surveys have been conducted at the MOTH area during August, September & October. These are the months of the year when bird numbers of some species on the Wash are at their highest due to the autumn passage period when many birds stopover at the Wash to feed or to moult before onward migration.	Conduct surveys during August-October. We are reviewing the additional August to October 2021 survey report (REP3-019) and will provide comments at Deadline 5 (25 January 2021)
8	3.5		19	This is not additional data. Such data have been made available to the interested parties listed and used to inform our Written Representations. The addendum simply provides an update on the analyses that the Applicant has undertaken and any updates on the conclusions that have been drawn. No new information has been collected since surveys ended in July 2021.	

Ref	Para	Table	Page	Comment	Recommendation
9	3.5.1		19	Whilst surveys have taken place since winter 2019, they have not been continuous. This means that there has been limited data collected to assess the use of The Haven for non-breeding birds during spring and autumn passage periods and through the summer (when non-breeding individuals could be present for some SPA features). The RSPB has highlighted concerns about the survey approach in our Written Representation. Surveys also only account for one visit per month where they have been undertaken and due to the limited number of ship movements (of which the majority caused disturbance to waterbirds) the overall data set to assess impacts is limited and any conclusions must be precautionary.	Through the tide surveys needed to be completed to understand how birds use the area along the entirety of The Haven. We are happy to discuss with the Applicant and will provide more detail once we have completed our review of the addendum.
10	3.5.1		19	With respect to Figure 3-2, we note that survey section B is c.2.1km from the boundary of the closest WeBS sector for which data is available at the mouth of The Haven. No data are available that we are aware of to understand the importance of this area of The Haven for features of The Wash SPA/Ramsar/SSSI or the impact that additional vessel movements could have in this area. This could include foraging and any roosting birds. The significant number of redshanks using the proposed wharf site were not known until project specific surveys were carried out. It is therefore possible that other areas of importance exist but have currently not been documented. This is an important consideration for the Habitats Regulations Assessment.	Data to be collected on the abundance, distribution and effect of disturbance on qualifying features along the navigation channel from the Application site to the anchorage area.
11		3_3	20 & 21	The figures highlight the significant numbers of redshanks using the area adjacent the application site. On 8 out of the 9 occasions where a count took place (89% of the time) redshank were present in excess of 1% of the SPA population. The number of redshanks exceeded 2% of the SPA population in 56% of surveys. Low tide counts even recorded greater than 1% of the SPA population using the survey areas at low tide on 67% of the survey visits. The narrowness of the channel and the increase in vessel movements and noise and visual disturbance at the Facility all have the potential to significantly affect the birds foraging and roosting in this area.	Maps showing noise contours of baseline levels should be created. Additional maps will then need to be provided to show noise levels during construction and when the facility is operating. This is necessary to understand the distance

Ref	Para	Table	Page	Comment	Recommendation
					at which ecological impacts could occur.
12	3.5.7		24 & 25	Whilst some surveys have been conducted at the wharf site to consider changes in behaviour of waterbirds due to vessel movements, we again highlight that this was a limited sample size. Despite this disturbance did occur. Further, the type of vessels causing disturbance included the smaller pilot boats and fishing boats, suggesting that the birds are exhibiting increased sensitivity to disturbance adjacent the wharf site. In addition, no surveys have been conducted at night to assess the potential impact of vessel movements on any foraging and roosting birds. This remains a significant gap in the evidence base to understand pressures on birds using the application site and adjacent areas.	See recommendation for paragraph 3.5.1. In addition, surveys at night are required to understand any differences in bird use and react to disturbance in and around the navigation channel compared to how they use this whole area during the day.
13	4.1		24	Whilst the vessel movements are set out, there is a failure to assess the worst-case noise and lighting impacts. The impact of vessels along the entirety of The Haven is not considered. Ultimately, there will be impacts that force birds to move away from the disturbance and redistribute. This could have significant consequences for fitness and survival. The worst-case scenario must be that the high tide roost will be lost and that foraging birds will be displaced out to an agreed distance from the Facility. We do not consider the information set out here adequately covers the worst-case scenarios for the reasons set out in our written representation.	See recommendation for 3.5.7.

Ref	Para	Table	Page	Comment	Recommendation
14	4.1		24	It is concerning that an average number of vessels per hight tide is being used. The highest tides are when birds have fewer opportunities to move to as covered by water, yet they will enable the maximum number of vessels (up to five) to use The Haven. Information on tide heights is available and the maximum vessels that could use each tide can be calculated. The full number of vessels on each tide can then be calculated. It would also allow for assessment of maximum number of vessel movements at night during construction of the facility and through its operation. We consider a minimum of two years of tidal data would be required to account for annual variations.	Undertake enhanced modelling of vessel movements per tides across the year to understand how many tides could accommodate the maximum number of vessel movements.
15	4.2.3		20	Whilst breeding redshanks may not have been recorded from the Application Site in surveys, it is likely that observed non-breeding birds could form part of the locally breeding population. Therefore, impacts on non-breeding birds could have consequences for redshanks breeding on The Wash. This would be a concern given the decline in the breeding population, as set out in our written representation (Table 5, p.33) , and the need to restore the breeding population to ensure The Wash SSSI remains in favourable condition.	More detailed understanding of redshank demographics using The Haven.
16	4.2.4		26	This only considers a UK context and not that The Wash is part of the East Atlantic Flyway. Hard winters on the continent (i.e. father east) could lead to birds coming to (rather than departing) The Wash. We disagree with the Applicant's suggestion that birds are "…continually passing through…" The Wash. We know some species (such as redshank and increasing evidence for oystercatcher) are very site faithful and a lot of birds coming to the Wash will stay for the winter. It is also unclear what position the Applicant holds with respect to The Haven being a cold weather refuge. On the one hand they suggest birds will move to other sites, but the Applicant also highlights that east coast sites have higher mortality. Our position is that The Haven has the potential to be an important cold weather refuge, that redshanks in particular are incredibly site faithful, and that mortality can be increased where birds are exposed to increased levels of disturbance during cold weather events. This must be included within the worst-case scenario i.e. increased mortality could occur during cold weather periods given the proposed 24hr operation of the Facility. The applicant may find the following references (not included already) useful: • Jacquie A. Clark (2009) Selective mortality of waders during severe weather, Bird Study, 56:1, 96-102, DOI: [redacted] • Jacquie A. Clark (2004) Ringing recoveries confirm higher wader mortality in severe winters, Ringing & Migration, 22:1, 43-50, DOI: [redacted]	More detailed, site-specific evidence is required on the use of The Haven and navigation channel out to the anchorage area on bird abundance distribution through the winter, including during cold weather periods.

Ref	Para	Table	Page	Comment	Recommendation
17		4_4	27	Table 4-4 is a potentially useful summary of the impacts from the construction and operation of the Facility. However, there is no mention of the impact of increased lighting, especially from the wharf area. We also suggest that noise from the application site should be identified as a separate issue given maximum noise levels, especially impulsive noise, is not covered. We also recommend that an additional column could be added to quantify the amount of habitat or number of species that could be affected (based on worst-case scenario principles). This would be useful to identify the scale of mitigation and compensation measures that would then be needed to maintain the integrity and condition of The Wash SPA/Ramsar/SSSI and The Wash & North Norfolk Coast SAC.	More detailed assessment on the effect of lighting and noise assessments are required to understand the worst-case ecological consequences arising from the Application.
18	4.3		28	This section deals with lots of conjecture that has little or no evidence to support it. The mitigation area (should be compensation) is actually existing habitat in its own right that will then potentially need compensating for as well and finally this area is also well within the likely disturbance corridor by vessels meaning it is questionable whether it will be effective.	
19	4.3.3		28	There is no consideration of the loudest impulsive noise that could be generated during construction or operation and how far out this could carry. It is not clear that the evidence base for a 250m buffer is appropriate for this location for the construction and operation of the Facility. The applicant may find the following paper helpful in terms of the potential impact of disturbance: Gill, J.A., Norris, K. & Sutherland, W.J. 2001. Why behavioural responses may not reflect the population consequences of human disturbance. Biological Conservation 97: 265-268. The Applicant is suggesting that they will be creating additional habitat as net gain measures. Irrespective of the fact that additional habitat should be considered as mitigation, there is no indication of the scale of habitat that would be provided, where such measures would be located, whether such measures could be secured, or if measures would be of a suitable scale to be viable. All of these issues need to be addressed post-consent.	A map showing the proposed buffer would be helpful to assess how this is being applied and implications birds using adjacent mudflat and saltmarsh areas.

Ref	Para	Table	Page	Comment	Recommendation
20	4.3.4		29	The importance of the saltmarsh communities must be placed within their importance for The Wash as a whole. We understand that Natural England consider the saltmarsh communities present in the area of the Application site to have limited distribution around The Wash and therefore the impact at this site would be more significant. The ability to replicate the saltmarsh community must also be considered with respect to the amount of compensation that will be required. The measures proposed to mitigate impacts (debris clearance and vegetation clearance on the saltmarsh) are not appropriate to mitigate impacts on redshanks and other waterbirds, and habitat works would cause more damage to a priority habitat that would need to be compensated. The mitigation measures proposed are therefore limited and will not address the impacts on waterbirds or the loss of the saltmarsh communities due to construction of the Facility. Debris clearance should be seen as a net gain measure rather than mitigation or compensation, although its overall benefit to habitat quality and biodiversity benefits are limited.	An in-principle derogation case needs to be provided. This should consider alternatives, Imperative Reasons of Overriding Public Interest, and clearly identify compensation measures and the scale of such measures that will be provided.
21	4.3.5		30	We have no confidence that the proposed 'Habitat Mitigation Area' is sufficient or will work. It will also affect existing priority habitat, as outlined under 4.3.3.	A more detailed set of options to compensate for impacts is required to identify the best option that will deliver the required compensation and can be secured and delivered.
22	4.3.6		30	This isn't clear whether it's referring to the wharf site or the Witham Mouth. The assumption about utilising another roost site is not supported by any evidence one is even available. This could have significant consequences for energy budgets. This paragraph assumes an alternative site is available and suitable. 0.36% additional energy requirement (if correct) could be significant for species already in net energy deficit as has previously been identified for at least one species (black-tailed godwit).	

Ref	Para	Table	Page	Comment	Recommendation
23	4.3.6		30	An average figure for vessel movements is not appropriate to assess additional vessel disturbance on qualifying features of The Wash SPA/Ramsar in this situation. The worst case could be up to five vessels on a single tide. This would have significantly greater impact. It is not clear that the worst-case scenario is being considered.	See recommendation for paragraph 4.1 – more detailed modelling of vessel use of different tidal heights over a minimum two-year period.
24	4.3.7		31	This section appears to be confusing The Wash SPA non-breeding redshank feature with The Wash SSSI breeding redshank feature. There have been no additional areas identified to compensate for lost feeding areas. Without compensation there will be a significantly reduced area for qualifying features of The Wash SPA/Ramsar to forage. It is also assumed that the whole of The Haven is of equal value for foraging birds. No evidence is presented to support this assertion. Sampling undertaken for the Boston Barrier project recorded the highest benthic invertebrate numbers at the boundary of Survey areas A and B, which may suggest that food supply is greater in the area adjacent the Application site. Other areas of The Haven may be sub-optimal for foraging for a range of reasons such as lower prey availability, less exposed mud for foraging, greater levels of disturbance etc. Equally, birds may forage in significant numbers along The Haven, but no data have been collected to understand how waterbirds distribute themselves along The Haven. This highlights the challenge posed by the current evidence base to draw conclusions on the potential	More detailed assessment of the use of the whole of The Haven and navigation channel out to the anchorage area is required to understand abundance, distribution and response to disturbance of qualifying features of The Wash SPA/Ramsar.

Ref	Para	Table	Page	Comment	Recommendation
25	4.3.7		31	It is not clear where such a compensation area would be located or how it would be secured. Our position remains that such compensation is needed to address the disturbance to foraging and roosting birds. Whilst we are concerned about the breeding redshank population, it is not clear what is being proposed to benefit breeding birds. The habitat extent and management will need to be appropriate attract breeding birds. However, the key focus has to be on the lost foraging and increased level of disturbance to roosting birds. This could affect overwintering mortality and fitness for the breeding season. There needs to be a clear breakdown of what is proposed as mitigation, compensation and any additional net gain measures that will deliver the added value indicated in this paragraph. Any measures need to be detailed so that confidence can be had that they can be secured and delivered post-consent.	Provision of an in-principle derogation case. Provision of a summary table that sets out the proposed mitigation measures, compensation measures and net gain options to show the scale of habitat that will be created.
26	4.3.8		31	The use of the term "offset" is not appropriate with respect to the Habitats Regulations tests. The suggestion that habitat will be created indicates that measures to mitigate impacts on site are not viable, especially for impacts at the mouth of The Haven. Consequently, any habitat provided to ensure the integrity of The Wash SPA/Ramsar is maintained will need to be correctly considered as compensation. Net gain measures that go above and beyond measures needed to avoid adverse effects on integrity of The Wash should also be provided. We request the Applicant clearly sets out its plans with respect to mitigation, compensation and net gain measures.	Provision of a summary table that sets out the proposed mitigation measures, compensation measures and net gain options to show the scale of habitat that will be created.
27	4.3.8		31	When considering whether habitat creation options may be appropriate there also needs to be a full understanding of what is currently using the site. For example, any wetland creation on grass fields may be at the expense of dark-bellied brent geese (a SPA feature) and therefore additional foraging may need to be provided to ensure this feature is maintained. The lack of detail of any measures means that no data has been collected on any potential compensation sites and the full complexity of delivering compensation and net gain measures is uncertain. This has implications for securing appropriate sites and at a suitable scale.	An in-principle derogation case is needed to allow compensation options to be considered.

Ref	Para	Table	Page	Comment	Recommendation
28	4.3.8		31	Any compensation must be of a suitable scale to deliver the requirements needed to compensate for lost habitat, and provide for SPA features displaced from roosting and foraging along The Haven. It is not clear that enough land can be secured to enable appropriately functioning habitat to be in place by the time works start. Post-consent there needs to be enough certainty that measures can be secured and delivered; this cannot be left until after consent has been given as this provides no guarantees that compensation could be provided.	An in-principle derogation case is needed to allow compensation options to be considered.
29	4.3.9		31	It is unclear how net gain is applicable in this paragraph. Sufficient compensation measures must be provided to demonstrate that the integrity of The Wash SPA/Ramsar will be maintained. This compensation should provide for redshank and other waterbirds. Any habitat created may offer opportunities for net gain, but this is likely to be for other bird species and wildlife in the wider landscape. It is important that any net gain measures added to compensation habitat are compatible and will not compromise the ability of compensation habitat to support redshank and other waterbirds. Equally, providing small areas of measures to compensate for impacts are less likely to be effective than a larger block of habitat. This will relate to the number of birds that could be supported, predator impacts and any effect of disturbance from recreation and other factors. It is not clear how these are being considered. Currently the plans for mitigation, compensation and net gain are unclear.	Provision of a summary table that sets out the proposed mitigation measures, compensation measures and net gain options to show the scale of habitat that will be created.
30	4.3.13		33	Whilst undertaking the most disturbing construction activities when fewer non-breeding birds would be present would be appropriate, it is not clear how changes to construction would be possible should higher numbers of birds be present. There needs to be more detail of the realistic safeguards that could be put in place to halt construction and how they would be enforced. The Applicant has also not addressed what would happen should construction over run. Would an extension to allow construction into the autumn passage period be sought or would construction pause until the following year? Such detail must be set out in a plan for interested parties to review as early as possible and ensure that any such approach would be appropriate. Such details cannot be left until post-consent.	Revised set of site-specific and project-specific measures to be provided that are appropriate to The Haven and qualifying features of The Wash SPA/Ramsar.
31	4.3.15		36	The worst-case scenario for vessel movements should be considered. This means up to five vessels per tide. Whilst The Haven may have supported greater vessel movements historically, the reduction in movements may have reduced disturbance and enabled The Haven to become more important for foraging and roosting redshanks and other features of The Wash SPA/Ramsar. No bird trend data for the same time period as vessel movements has been provided. The key consideration is the current waterbird populations of The Wash SPA/Ramsar and how their	See recommendation for paragraph 4.1 – more detailed modelling of vessel use of different tidal heights over a minimum two-year period.

Ref	Para	Table	Page	Comment	Recommendation
				conservation objectives could be compromised by increasing vessel movements from the current baseline.	
32	4.3.17		37 & 38	The additional vessel number data is helpful in understanding the trend over time. The overall trend is a reduction in vessel numbers, with c.60% fewer vessels using The Haven than in 1918. Since 1996, a c.50% reduction in vessel numbers is shown. This represents a significant reduction in disturbance and could enable more birds to use The Haven. The historic importance is noted, but impacts on the current population of The Wash SPA/Ramsar/SSSI have to be considered against the current baseline levels of disturbance to ensure the conservation objectives that are in place are met.	
33	4.3.19		38	We are concerned by the suggestion that birds can simply relocate to alternative roosting locations at the mouth of The Haven without any impacts. Disturbance already occurs and given some of the species using the mouth of The Haven have restore targets, the cause of declines in population numbers is uncertain and may be linked to vessel movements. It is also unclear what assessment there is of impacts to birds foraging within the approaches to The Haven, as no data has been gathered on disturbance out to the anchorage area. We have discussed this in more detail in our Written Representation.	More detailed assessment of the use of the whole of The Haven and navigation channel out to the anchorage area is required to understand abundance, distribution and response to disturbance of qualifying features of The Wash SPA/Ramsar.
34	4.3.20		40	We disagree that noise has been dealt with. There has been no noise mapping and no monitoring of noise levels on the saltmarsh or key points on The Haven channel. The noise assessments do not appear to have considered maximum noise levels and therefore the worst-case scenario regarding noise has not been presented. More detailed noise modelling is required to present noise level maps during construction and operation. This is especially important given cranes operating at the wharf day and night are identified as generating some of the highest noise levels.	Maps showing noise contours of baseline levels should be created. Additional maps will then need to be provided to show noise levels during construction and when the facility is operating.

Ref	Para	Table	Page	Comment	Recommendation
					This is necessary to understand the distance at which ecological impacts could occur.
35	5.3.1		41	The area of impact of the Facility must also consider the drainage network through to the pumping station at Wyberton Marsh. Water will be automatically pumped into The Haven. Water is also pumped to RSPB Frampton Marsh. Any contaminants could therefore enter both of these sites and impact on prey availability and habitat suitability.	A full understanding of the direct and indirect impacts of the Application must be presented in the HRA.
36	5.3.4		42 & 43	Common terns breed at both RSPB Frampton Marsh and RSPB Freiston Shore and can easily forage within the mouth of The Haven and its approaches during the breeding season, as well as loafing late in the season. Whilst it is possible that any loafing birds could be transiting The Wash, the data collected cannot confirm either way and we recommend they be screened into the Appropriate Assessment.	Revision of the common tern section of the HRA to include the reserve data and provide evidence of potential impact on common terns using The Haven over the entire period that they are present. Additional data will likely be required to assess abundance and distribution during late July and August.

Ref	Para	Table	Page	Comment	Recommendation
37		5_1	44 & 45	Shelduck has been screened out of the Appropriate Assessment. We disagree with this feature being removed given it has declined significantly on The Wash. The declining proportion of regional and country-wide numbers supported by this site suggest that site-specific pressures may be affecting numbers on this site. 36 birds where observed on 17 February 2020 (representing 1.6% of The Wash SPA population), which highlights significant numbers can use the area. We also anticipate greater numbers could use The Haven, but no surveys have been carried out to assess the species abundance and distribution along the whole length of The Haven and navigation channel out to the anchorage area. This species should be screened-in to the appropriate assessment.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on shelducks.
38	6.1.7		48	It is not clear that the impact to dark-bellied brent geese involved birds roosting at the mouth of The Haven given our understanding of how the species utilises the area. They may have been loafing or feeding. Whilst they flew to alternative locations (e.g. saltmarsh to feed, as described on 17 January 2020) it is not clear how regularly the disturbance occurs and whether birds are being forced to feed in sub-optimal areas as a consequence. It should also be noted that the number of dark-bellied brent geese has declined on The Wash and this is linked to site-specific pressures. The declining population and the need to restore numbers means that additional pressures from disturbance could be significant and therefore it cannot be concluded that the feature will not be adversely affected by the increased vessel movements. Impacts on dark-bellied brent geese will also need to be considered with respect to any compensation and net gain measures that will be implemented to consider if changes to fields may impact feeding and roosting areas for this species. No surveys have been carried out to assess the species abundance and distribution along the whole length of The Haven. This is important as significant numbers of birds use the lower reaches of The Haven and could be disturbed by vessel movements, but current surveys have not assessed the area between the mouth of The Haven and the Hobhole area.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on dark-bellied brent geese.

Ref	Para	Table	Page	Comment	Recommendation
39	6.1.8		48	It is not correct that the dark-bellied brent geese observed at the mouth of The Haven were roosting. Where birds are feeding any displacement will have a direct impact on energy intake and energy budgets. This could impact on the birds overwinter survival and fitness for migration and breeding. We disagree with the conclusions.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on dark-bellied brent geese.
40	6.1.9		48	Given the potential impact on energy budget for dark-bellied brent geese and the displacement from favoured feeding areas, we disagree that this species will not be adversely affected. It is not clear that the behaviour of dark-bellied brent geese has been accurately applied to this section and therefore we cannot agree with any of the statements that are made regarding impacts arising from the Application on this species.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on dark-bellied brent geese.
41	6.1.11		49	BW has been identified as in energy deficit, so the conclusion about no impact appears to be unsubstantiated Black-tailed godwits experience an energy deficit during the winter and additional disturbance could have significant consequences for their overwintering survival and fitness for migration and breeding. The species has also declined likely due to site-specific pressures, as identified in the current WeBS Alerts. The fact that such high numbers of black-tailed godwits have been observed at the mouth of The Haven highlights the considerable importance this area of The Wash has for this species. We disagree with a comparison of the energy budget of knot, given the energy deficit that has been identified for this species. We do not agree that this species would not be adversely affected. Any additional pressures will make restoration of this SPA feature more difficult. Any conclusions must be suitably precautionary given the limited evidence that has been gathered to draw conclusions.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on black-tailed godwits.

Ref	Para	Table	Page	Comment	Recommendation
42	6.1.14		49	It is not clear that knot is an appropriate proxy for the energy budget of oystercatcher. We also disagree that birds being forced to move up to 3.3km to an alternative roost can be easily dismissed as not impacting on the conservation objectives of the species. This area of The Wash is clearly important for the species. The species has also declined by 14% in the short term and 22% in the long term based on available WeBS data. It is essential that any additional activity does not exacerbate declines or make restoration of numbers harder. There is no evidence presented to suggest that the current baseline level of disturbance is not affecting overwintering survival or fitness of oystercatcher. We therefore cannot agree that there will not be an adverse effect on this species from increased vessel movements.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on oystercatchers.
43	6.1.19		51	We do not agree that the distances redshanks are being displaced can be considered small. It is not known where alternative roosts are available or the capacity of any alternative roosts. The displaced birds are being moved away from their preferred foraging and roosting locations. This can cause reduced ability to feed in new areas, there may be additional competition from other birds and there may be other factors that mean new areas are sub-optimal and could reduce the fitness of displaced birds. All of this needs to be considered when determining the potential impact of disturbance and none of this information has been provided in the addendum.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on redshanks.
44	6.1.22		51	It is not clear that knot is an appropriate proxy for the energy budget of redshank. We also disagree that birds being forced to alternative roosts can be easily dismissed as not impacting on the conservation objectives of the species. This area of The Wash is clearly important for the species. It is essential that any additional activity does not exacerbate declines or make maintenance and/or restoration of numbers harder. We therefore cannot agree that there will not be an adverse effect on this species from increased vessel movements.	
45	6.1.26		52	Lots of turnstone affected in context of The Wash and a species that has a restoration target. There needs to sufficient evidence that turnstone either as a feature on its own, or as part of the waterbird assemblage will not be adversely affected.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on turnstones.

Ref	Para	Table	Page	Comment	Recommendation
46	6.1.27		52	The focus of conclusions about impacts on the waterbird (not waterfowl) assemblage is lapwing and golden plover. Energy budgets have been developed for these species. These species have been affected by multiple disturbance events, as they typically returned to their original roost and did not move away. Golden plover is a qualifying feature of The Wash SPA, and both species are components of the waterbird assemblage. They are also Ramsar features. Given concerns about impacts on the individual features we cannot agree that there would not be an adverse effect on the waterbird assemblage of The Wash SPA.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on lapwings and golden plovers.
47	6.1.28		52 & 53	We strongly disagree that redshanks using the Application site may not be part of The Wash SPA/Ramsar. This is not appropriate given the significant numbers present, the identified potential for interchange, and the failure to collect any evidence to assess abundance and distribution of redshanks or other waterbirds along the whole of The Haven.	
48	6.1.36		58	Section B will be subject to the same amount of disturbance, so this mitigation/compensation area for redshanks is not appropriate.	A more detailed set of options to compensate for impacts is required to identify the best option that will deliver the required compensation and can be secured and delivered.
49	6.1.45		61	We disagree with the conclusion give the lack of data to fully assess abundance and distribution of redshanks and other waterbirds, the lack of information to understand maximum noise levels, the lack of an evaluation of the worst-case vessel movements over different tides and the failure to provide an in-principle derogation case with compensation options. All of this evidence is essential in order to inform the ecological consequences for qualifying features of The Wash SPA/Ramsar from the construction and operation of the Facility.	Provision of an enhanced evidence-base to inform the HRA.
50			77	How can the proposal reconcile the additional disturbance identified as being not of significance with the stated SPA target to "*reduce the frequency, duration and/or intensity of disturbanc*e..."? With no compensation for the disturbance the development will do the opposite to this target.	

Ref	Para	Table	Page	Comment	Recommendation
51	General comment			All mention of observed vessel disturbance is apparently daytime disturbance. No mention of how any species is affected by night-time high tide vessel movements or what the breakdown in day/night high tide vessel traffic movement is going to be	Surveys at night are required to understand any differences in bird abundance and distribution, as well as their reaction to disturbance, in and around the navigation channel compared to how they use this whole area during the day.
52	3.2		86	If knot and bar-tailed godwit are already at low numbers in the MOTH potentially due to disturbance is this not an argument to not increase disturbance further in case current levels of vessel traffic reduce in the future. This is also speculative, could current low numbers be due to other factors which if changed could bring them back were there to be no BAEF vessel traffic?	
53	3.2		86	“probably less vulnerable” is a vague term – is there any evidence to back this up?	Provision of more detailed, site-specific evidence to justify conclusions.
54	3.2	4	87	The WeBS 5-year mean peak counts are not the most recent	Revise the assessments using the latest WeBS data.
55	4.1		88	"The 5-year peak mean WeBS (2014-2019) brent goose count for the Wash is 13,545 birds" WEBS Alerts has a more recent 5-year mean peak for 2015/16 - 19/20 so this number and any associated calculations need to be revised.	Revise the assessments using the latest WeBS data.
56	4.1.3		89	There does not appear to be any evidence presented of the behavioural effects in the presence of large vessels. Do larger vessels travel more slowly and therefore a longer duration of disturbance? A third of birds in the local area being disturbed sounds like a lot.	More detailed account of the effect of different vessel types on waterbirds.

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57	4.1.4		89	It is clear that birds are preferentially using the mouth of The Haven and this will be linked to the proximity to high quality habitat that meets there requirements for bathing, loafing and/or feeding. Therefore, by displacing dark-bellied geese to other areas, they are potentially moving to lower quality habitat, with more competition for resources. More evidence is required to justify the conclusion.	Collect abundance and distribution data along the whole length of The Haven and navigation channel out to the anchorage area to assess potential impacts on dark-bellied brent geese.
58	4.1.7		94	Would we describe a change in disturbance from "64% of the high tide periods to approximately 83% of high tide periods" as "a moderate increase in frequency" - that's an increase of a third. Also, it says they are “likely” to be roosting and therefore not foraging but they don't sound very sure! Any evidence for them not foraging here?	More evidence needs to be provided to inform why dark-bellied brent geese are using The Haven and the behaviours they exhibit within different areas.
59	4.2		95	As above, there is a more recent 5-year mean peak available on WeBS Alerts	Revise the assessments using the latest WeBS data.
60	4.2.2		95	Alternative roost site not the first choice though, so potentially lower quality for shelter/food	
61	4.2.3		96	Doesn't state what proportion of the 8 high tide periods black-tailed godwit were present - were they present in 100% of the periods? Next para states that WeBS counts report black-tailed godwit are only present 23% of high tides	
62	4.2.6		98	This suggest that birds are being displaced into suboptimal habitat.	
63	4.3		102	As above, there is a more recent 5-year mean peak available on WeBS Alerts	Revise the assessments using the latest WeBS data.
64	4.4		108	As above, there is a more recent 5-year mean peak available on WeBS Alerts	Revise the assessments using the latest WeBS data.

Ref	Para	Table	Page	Comment	Recommendation
65	4.5		115	As above, there is a more recent 5-year mean peak available on WeBS Alerts	Revise the assessments using the latest WeBS data.
66	4.6		121	As above, there are more recent 5-year mean peaks available on WeBS Alerts	Revise the assessments using the latest WeBS data.
67	4.7		124	As above, there is a more recent 5-year mean peak available on WeBS Alerts	Revise the assessments using the latest WeBS data.