

# REPORT

## Boston Alternative Energy Facility

Without Prejudice Habitats Regulations Assessment  
Derogation Case: Compensation Measures

Client: Alternative Use Boston Projects Ltd

Planning Inspectorate  
Reference: EN010095

Document Reference: 9.30

Pursuant to: APFP Regulation: 5(2)(g)

Reference: PB6934-RHD-ZZ-XX-RP-Z-4047

Status: Final/0.0

Date: 11 November 2021



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Document title: Boston Alternative Energy Facility

Document short title: Compensation Measures  
Reference: PB6934-RHD-ZZ-XX-RP-Z-4047  
Status: 0.0/Final  
Date: 11 November 2021  
Project name: Boston Alternative Energy Facility  
Project number: PB6934  
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Date: 11/11/21

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Classification

Project related

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## 1 Introduction

### 1.1 Purpose and Scope

- 1.1.1 This report sets out potential compensatory measures that could be used for the Boston Alternative Energy Facility (herein 'the Facility') on behalf of Alternative Use Boston Projects Limited ('the Applicant'). The Facility is proposed within an area (the Principal Application Area) outlined for industrial development close to Boston in Lincolnshire.
- 1.1.2 This assessment of potential compensatory options provides information in support of Stage 4 (part 2) of the without prejudice Habitat Regulations Assessment (HRA) process for the Facility and identifies 'potential compensation measures' to provide additional or enhanced habitat for birds should this be required. Further assessment of additional data and the requirement for compensation for Special Area of Conservation (SAC) features (specifically harbour seal) has been undertaken (reported within the Addendum to Environmental Statement Chapter 17 and Appendix 17.1 - Marine Mammals (Marine Mammals Addendum) (document reference 9.14, REP1-027) and no compensation measures are identified in this respect as it is anticipated that the mitigation measures identified would reduce any effects that could occur.
- 1.1.3 This report is provided in the context of The Conservation of Habitats and Species Regulations 2017 (as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) (the Habitat Regulations). Other documents which comprise the Applicant's Shadow HRA process are as follows:
- Stage 1: Screening/Likely Significant Effect (LSE) assessment is provided within Appendix 17.1 Habitats Regulations Assessment (document reference 6.4.18, APP-111);
  - Stage 2: Appropriate Assessment is provided in Appendix 17.1 Habitats Regulations Assessment (document reference 6.4.18, APP-111);
  - Stage 3: Without Prejudice Habitats Regulations Assessment Derogation Case: Assessment of Alternative Solutions (document reference 9.28);
  - Stage 4: Without Prejudice Habitats Regulations Assessment Derogation Case: Imperative Reasons of Overriding Public Interest (IROPI) Case (document reference 9.29);
  - Stage 5: Without Prejudice Habitats Regulations Assessment Derogation Case: Compensation Measures (document reference 9.30) (this document).

- 1.1.4 The Assessment of Alternative Solutions (document reference 9.28) sets out the context for the ‘without prejudice’ derogation case and provides details of the scheme and the process that has been followed.
- 1.1.5 The key issues that have been assessed within Appendix 17.1: the HRA (document reference 6.4.18, APP-111) and the ornithology addendum to the HRA (Ornithology Addendum) (document reference 9.13, REP1-026) include the loss of habitat at the Principal Application Area for roosting redshank and an increased level of disturbance, both at the mouth of The Haven and at the Application Site, due to vessel numbers using The Haven during construction and operation. This is discussed further below. The remainder of The Haven is not known to support populations of roosting birds but there is the potential for some birds to use this area. This is discussed in the Ornithology Addendum.
- 1.1.6 The HRA (document reference 6.4.18, APP-111) set out the Applicant’s conclusion that an adverse effect on integrity (AEOI) on The Wash Special Protection Area (SPA) and Ramsar site and The Wash and North Norfolk Coast SAC can be excluded. Consequently, based on that conclusion, no further assessment under the Habitats Regulations (i.e. Stages 3 and 4) was undertaken. The information included within this report is therefore provided ‘in-principle’ and is made entirely without prejudice to the Applicant’s position that there will be no AEOI as a result of the construction and operation of the proposed Facility, either alone or in-combination with other plans and projects.
- 1.1.7 However, Natural England (NE) (and other Interested Parties, including the Royal Society for the Protection of Birds (RSPB) and Lincolnshire Wildlife Trust (LWT)) have advised the Examining Authority (ExA) that (in their view) AEOI cannot be excluded, beyond all reasonable scientific doubt for The Wash SPA and Ramsar and The Wash and North Norfolk Coast SAC. The reasons for NE’s position (as per their Relevant and Written Representation (RR-021) submitted on 18 June 2021 prior to HRA addendums (document references 9.13, REP1-026; 9.14, REP1-027 and 9.15, REP1-028) submitted at Deadline 1) are summarised as follows:
- The Wash SPA - redshank: NE consider that the proposed Facility location would potentially result in AEoI on Annex I redshank, which are a qualifying species of The Wash SPA, and would be impacted by the following risk pathways:
    - Loss of foraging habitat on site through modification
    - Loss of roost on site through modification or disturbance
    - Loss of foraging habitat along The Haven which may be degraded through boat wash along the channel.

- The Wash SPA – Assemblage: There are significant concerns regarding the feeding/ roosting area at the mouth of The Haven which is within The Wash SPA. Significant numbers of the SPA/ Ramsar bird assemblage are using this area at low tide including up to 28% of the black-tailed godwit. NE advise that there are the following risk pathways:
  - Repeated boat movements are likely to result in changes to bird use behaviours of this important area of The Wash.
  - NE also have further concerns regarding the usage of this area at High tide.
- NE note that the area in the Mouth of The Haven likely to be disturbed by the proposed works include:
  - golden plover and black-tailed godwit at over 20% of The Wash SPA total and over 2000 individuals; and
  - lapwing 7.5% and 1100 individuals.

Therefore, NE consider this to be an important area of supporting habitat of The Wash SPA. NE advise that an AEOI can't be excluded beyond all reasonable scientific doubt.
- NE are concerned with potential impacts of additional vessel movements and anchorage on The Wash and North Norfolk Coast SAC harbour seal population. NE advise that there is a Likely Significant Effect from the proposals and if further options to avoid, reduce and mitigate the impacts to acceptable levels can't be found/adopted then an AEOI cannot be excluded beyond all reasonable scientific at this time.

1.1.8 The reason for RSPB's position (as per their Relevant Representation (RR-024) submitted on 18 June 2021 and Written Representation submitted on 19 October 2021 (REP1-060)), prior to HRA addendums (document references 9.13, REP1-026; 9.14, REP1-027 and 9.15, REP1-028) submitted at Deadline 1, was that insufficient information was presented to demonstrate beyond reasonable scientific doubt that there will be no AEOI on the interest features of The Wash SPA and Ramsar and The Wash and North Norfolk Coast SAC. RSPB's concerns are summarised as follows:

- Loss of habitat, direct and indirect impacts, on foraging SPA linked birds at the application site;
- Loss of SPA linked redshank roost and impact on foraging birds adjacent the application site (during construction and operation); and
- Impact on birds roosting and foraging at the mouth of The Haven; and
- Impacts on birds at the anchorage area in The Wash SPA.

1.1.9 The reason for LWT's position (as per their Relevant Representation (RR-011) submitted on 8 June 2021 and Written Representation submitted on 19 October 2021 (REP1-055), prior to HRA addendums (document references 9.13, REP1-026; 9.14, REP1-027 and 9.15, REP1-028) submitted at Deadline 1, was that insufficient information was presented to demonstrate beyond reasonable scientific doubt that there will be no AEOI on the interest features of The Wash SPA and Wash and North Norfolk Coast SAC. LWT's concerns are summarised as follows:

- Impacts of increased vessel movements during the operational phase at the Facility and at the mouth of The Haven on feeding and roosting redshank;
- Loss of intertidal mudflat and saltmarsh; and
- Impact to harbour seal due to piling and vessel movements.

1.1.10 The Applicant has engaged with Interested Parties and has considered comments raised in their Relevant Representations (see document reference 9.11, REP1-024) and Written Representations (see document reference 9.22, submitted at Deadline 2 of the Examination) but does not consider that any of the issues raised alter the position stated at the time of submission of the application.

- 1.1.11 Further information relating to the Interest Parties' concerns has since been provided in the Ornithology Addendum (document reference 9.13, REP1-026) and Marine Mammal Addendum (document reference 9.14, REP1-027).
- 1.1.12 However, whilst the Interested Parties are still to review the additional information to determine their position, there is potential that they will continue to conclude that it is not possible to exclude AEOI. Notwithstanding the Applicant's position that there will be no AEOI of any designated site, this document is therefore produced on a without prejudice basis in order to address part 2 of Stage 4 of the derogation process (to provide compensation for the AEOI) and provides a review of a range of potential measures that could be adopted to compensate for the potential effects on the birds using The Wash SPA and Ramsar.
- 1.1.13 Additional updated information and mitigation measures for the potential effect on Harbour Seals, a feature of the Wash and North Norfolk Coast SAC have been provided within the HRA (document reference 6.4.18, APP-111) and the Marine Mammals Addendum (document reference 9.14, REP1-027). There are no further compensation measures identified for this feature.
- 1.1.14 It should be noted that if compensatory measures are not required, the Applicant is still committed to undertake measures to provide a biodiversity net gain for the project, despite net gain not being a legal or policy requirement for Nationally Significant Infrastructure Projects (NSIPs) at this time.

## 1.2 The Proposed Facility

- 1.2.1 A full description of the Facility is provided within Section 1.3 of the Assessment of Alternative Solutions (document reference 9.28) and is not repeated here. A detailed description of the Facility is also provided within **Chapter 5 Project Description** of the Environment Statement (document reference 6.2.5, APP-043). The layout of the proposed Facility within the Principal Application Area is presented in **Figure 5.1** (document reference 6.3.2, APP-068).
- 1.2.2 The construction period for the whole development, including pre-construction enabling works and commissioning, is anticipated to be up to 55 months, as per the Indicative Construction Programme (document reference 9.18, REP1-031). Construction activities would take place six days a week (Monday to Saturday) between 8am and 8pm (with an option of commencing work at 7am with a finish time of 7pm, in order to restrict working hours to 12 hours a day), with no bank holiday or public holiday working. There may be short periods of 24 hour working when concrete is being poured.



- 1.2.3 The Facility would be designed to operate for an expected period of at least 25 years, after which ongoing operation will be reviewed and if it is not appropriate to continue operation the plant will be decommissioned. The wharf structure, which is required in order to import (refuse derived fuel (RDF)) and import of clay or export materials (lightweight aggregate) from the Facility, would replace a section of the current primary flood defence bank (without impacting on the integrity of the bank) and would form a permanent structure. The flood defence would form a permanent structure that is not anticipated to be decommissioned, however the wharf deck would be decommissioned. The construction of the wharf would involve the removal of intertidal habitat comprising approximately 1 ha of saltmarsh and 1.5 ha of mudflat from within The Haven (but outside of the SPA, SAC and Ramsar site).
- 1.2.4 As discussed above, vessel movements have the potential for effects on the bird populations of The Wash SPA. Therefore, a brief description of the proposed vessel movements and the activities related to the wharf construction and operation is summarised below. For a detailed description of the full development see **Chapter 5 Project Description** of the ES (document reference 6.2.5, APP-043).
- 1.2.5 The Application Site also includes a habitat mitigation area which involves relocation of the rocks used by roosting redshank and other bird species from one area of the existing roosting site (that would be lost) to another (that remains and would be far enough from the wharf area to avoid disturbance from vessels berthing). It also involves measures to restore scrapes (areas of shallow water and bare ground that provide feeding and roosting sites for waterbirds) within the existing saltmarsh and potentially to create a small number (up to 3) of additional scrapes to provide additional wader foraging and roosting habitat. In this way it is predicted that the wider habitat will continue to be able to support the same numbers of redshank as in baseline conditions. The survey data has shown that the Principal Application Site is not used by redshank for breeding.

## Construction

### Delivery of Raw Materials

- 1.2.6 Delivery of raw materials to the Principal Application Site would be via both vessel and road. The first phase of the wharf construction will be undertaken to allow a proportion of the raw materials to be delivered by ship rather than transportation by local roads. It is estimated that it will take approximately six months to construct the first section of the wharf to allow raw materials to be received by ship. The subsequent section of the wharf will take a further 12 months (approximately) to complete.
- 1.2.7 It is anticipated that there will be approximately 89 vessel shipments of raw materials during the construction period.

### Wharf

- 1.2.8 The wharf facility would include a berthing pocket to allow ships to safely dock without restricting the navigable channel within The Haven. The berthing pocket would be constructed by dredging and excavation of the mudflats and land carried out by land-based equipment, although some floating plant may be required to complete the excavation of the berthing pocket towards the edge of the main channel, due to the distance from the proposed location of the quay wall (approximately 50 m). The dredging activity is managed to mitigate any impacts on overwintering birds through a seasonal restriction.
- 1.2.9 The deck structure of the wharf would be constructed by first driving the piles for the berthing face and then constructing the suspended deck. Piling is also restricted to avoid periods where the site is used by overwintering birds.
- 1.2.10 Protection required to prevent scour of the dredged slope beneath the wharf would need to be completed prior to placing the concrete deck. This slope protection would be placed after the piles have been driven and before the deck is formed, as this allows easy access to the area using cranes, and or excavators to place the scour protection mattress. Scour protection will be required at both ends of the wharf, as shown on **Figure 5.1** of the Environmental Statement (document reference 6.3.2, APP-068). Depending on river currents it may or may not be necessary to provide scour protection to the river embankment at either end of the wharf, therefore this would avoid the loss of habitat and is clearly the preferred solution which would be prioritised under any detailed engineering design. However, if scour protection is absolutely necessary detailed design will include consideration of the following options, with the key design principle being minimisation of habitat loss:
- Articulated precast concrete mattress;

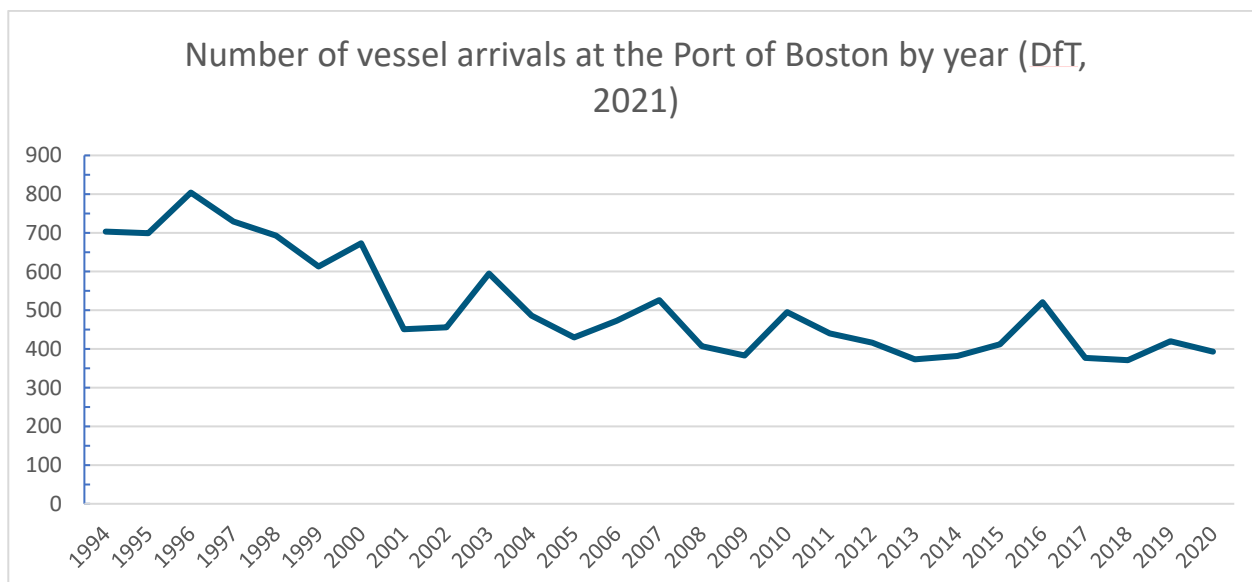
- Grout injected fabric mattress; and
- Individual stone/rock armour

## Operation

### Export and Import of materials by vessel to the Facility

- 1.2.11 The Facility would receive approximately 1,200,000 tonnes of RDF per year.
- 1.2.12 The RDF feedstock would be delivered by vessel to the Facility sealed in plastic-wrapped bales.
- 1.2.13 There will be up to 480 vessels per year to deliver the RDF assuming each vessel has a 2,500 tonne payload, however, this will be directed by the market forces and the shipping fleet operator(s).
- 1.2.14 The proposed wharf would enable delivery to the facility of RDF feedstock, sediment and clay (both of which can be used as binder material in the Light-Weight Aggregate plant), and the export of lightweight aggregate.
- 1.2.15 Cargo vessels that will use the berths at the proposed wharf will navigate up The Haven over high tide and leave over the next available high tide. It is anticipated that vessels will be turned at the Port of Boston, either at the 'Knuckle' point turning circle outside of the Wet Dock, or within the Wet Dock. The vessels could be turned on arrival or departure, taking account of advice from the Port of Boston Harbour Master.
- 1.2.16 The berths at the proposed wharf are designed to allow vessels to sit on the bed of the river at low tide whilst waiting for the next high tide because there is insufficient water depth at low tide to float (i.e. NAABSA, 'Not Always Afloat But Safe Aground', berths). The berthing pocket will have a gravel/chalk bed (or similar) forming a level surface for the vessels when resting on the bed at low tide.
- 1.2.17 The outbound quantity of aggregate is dependent upon the composition of the RDF (in particular the ash content). For a design reference point, it is anticipated that 100 ships per year, on average, bearing approximately 3,000 tonnes of aggregate per load would be required to export this material from the Facility. This is equivalent to approximately two ships per week, on average.
- 1.2.18 In total approximately 580 cargo vessels per year, or up to 12 per week, would be required by the fully operational Facility.
- 1.2.19 The proposed increase in cargo vessel numbers should be considered in the context of the number of current and historical vessel movements. This has varied considerably over the last 26 years between approximately 800 and 400 vessels per year, as shown in **Figure 1-1**. The Port has been operational since before the

SPA was designated, certainly back to 1918 when there were higher numbers of vessels (approximately 1000) visiting per year (Port of Boston, pers com.).



**Figure 1-1 Cargo vessel numbers arriving at the Port of Boston between 1994 and 2020**

## 1.3 Consultation

- 1.3.1 This Compensatory Measures Report presents an outline of each measure together with next steps required to progress each measure which will need to be undertaken through consultation with Landowners, NE, the RSPB, LWT and The Environment Agency, amongst others. This document will be expanded upon at Deadline 3 with further detail on the methodology for the compensatory measures and the mechanisms for delivery of those measures.
- 1.3.2 Discussions were held with the RSPB and NE on 13<sup>th</sup> October 2020 to determine the potential for opportunities for habitat gain within the RSPB reserves near the mouth of The Haven (Freiston Shore reserve and Frampton Marshes reserve). These discussions focussed on the Applicant's desire for the project to achieve a net gain for biodiversity. Potential opportunities for habitat management were identified at the time, although not confirmed. However, later (September 2021) the RSPB informed the Applicant that these opportunities no longer existed as they had alternative funding for the proposed projects within the RSPB reserves to create additional lagoons for birds within the RSPB reserves around the mouth of The Haven.
- 1.3.3 Furthermore, on review of the ES and HRA, RSPB and NE reached a conclusion that (in their opinion) AEOI could not be excluded for The Wash SPA and Ramsar site. As a consequence of that position, opportunities for providing compensatory

measures have been sought (on a without prejudice basis) and these are identified within this report. Given the limited time period available to investigate compensatory measures, the options discussed are only developed in outline. However, consultation has progressed with relevant land owners/managers to ensure that the options are capable of implementation.

1.3.4 Initial consultation has been held with the following organisations with regard to the options for potential compensatory measures with a positive initial response received:

- Her Majesty's Prison North Sea Camp, Boston;
- Local landowner/farmers; and
- Boston Borough Council for sites within the Havenside Local Nature Reserve (LNR).

1.3.5 Other options have been recently identified and these will be put forward and discussed with the relevant stakeholders.

## 2 Guidance on Compensation

2.1.1 Should the Secretary of State conclude that, following Appropriate Assessment, an AEOI on a site(s) forming part of the national site network cannot be excluded, that there are no alternative solutions and that there are Imperative Reasons of Over-riding Public Interest (IROPI), Regulation 68 of The Conservation of Habitats and Species Regulations 2017 requires that 'the appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected.'

2.1.2 Guidance produced by Department for Environment, Food and Rural Affairs (Defra) (2021) and the European Commission (2012 and 2018) explain that for SPAs, the overall coherence of the Protected Sites Network can be maintained by:

- compensation that fulfils the same purposes that motivated the site's designation;
- compensation that fulfils the same function along the same migration path; and
- the compensation site(s) are accessible with certainty by the birds usually occurring on the site affected by the project.

2.1.3 It is however recognised that it may not always be possible to compensate with a 'like-for-like' habitat or to compensate within the same designated site.

- 2.1.4 It is also recognised that compensation should not be used to address issues that are causing designated habitats or species to be in an unfavourable condition. This is the responsibility of the UK Government.
- 2.1.5 Ideally, compensation should be in place prior to the predicted effect taking place.
- 2.1.6 The latest guidance by Defra (Defra 2021) also discusses the requirements of compensation to fully offset the damage which will or could be caused to the site. This states that a Developer should work with the relevant statutory nature conservation body to identify, design and secure suitable compensatory measures and that the proposer will be expected to pay for the compensatory measures. The compensatory measures themselves must not have a negative effect on the national network of protected sites as a whole, despite the negative effects of the proposal on an individual site. Compensatory measures can include creating or restoring the same or very similar habitat on areas of little or no conservation value: within the same site - if it exists; or at a suitable location outside the site.
- 2.1.7 NE has also provided a 'check list for compensation sites' (in note form: no reference). This provides a check list of the aspects of the compensation that need to be described in detail when submitting applications. This information is required to provide decision makers with confidence that the measures put forward will be effective and appropriate.

### 3 Requirement for Compensation in case of AEOI

#### 3.1 Compensation requirement

3.1.1 In the event that the Secretary of State determines that AEOI cannot be excluded, then it is expected (based on the comments received to date from NE, RSPB and LWT) that this would be due to at least one of the following potential reasons (as outlined in **Section 1.1** above):

- Loss of wader roosting habitat at the Principal Application Site.
- Vessel disturbance of waterbirds at the Principal Application Site.
- Vessel disturbance of waterbirds at the mouth of The Haven.
- Vessel disturbance of waterbirds along the middle stretches of The Haven.

#### 3.2 Loss of roosting habitat at the Principal Application Area

3.2.1 The loss of roosting and foraging habitat at the Principal Application Site constitutes a narrow band of saltmarsh and mudflat comprising of approximately 1 ha of saltmarsh loss and 1.5 ha of mudflat. The loss of habitat occurs about 3 km from the SPA boundary and as it is not possible to prove (beyond reasonable scientific doubt) whether or not the redshank roosting and foraging at the Principal Application Site are actually part of the SPA population, a worst-case scenario has been assumed, that they are connected. There is some doubt over this given the distances between the sites and it is not expected that the redshank that are consistently using the Principal Application Site are part of the SPA population. The concern for the SPA redshank populations is that numbers within the SPA may be affected by the loss of this area of roosting and foraging habitat.

3.2.2 The key habitat used for roosting within this area are not the areas that would be lost but are those located adjacent to the Principal Application Site. This adjacent area has consistently been surveyed (as reported in the Ornithology Addendum (document reference 9.13, REP1-026)) showing higher numbers of roosting birds and comprises a much wider area of saltmarsh. However, some of the birds using this wider roosting area do use the habitat in the Principal Application Site. The habitat most often used for roosting by the redshank are the artificial habitat (rocks) that have been placed to seaward of the saltmarsh, within the intertidal mudflat area. The foraging areas used in the Principal Application Site are generally within the intertidal mudflat zones and the scrapes within adjacent areas of saltmarsh.

3.2.3 The surveys undertaken of the habitats within and adjacent to the Principal Application Site show that numbers of redshank fluctuate in this area quite considerably but do support relatively high numbers (exceeding 1% of the SPA

population numbers on a regular basis). If the area of habitat loss is considered on its own it has only supported such numbers on two occasions during the surveys (17 surveys (11 at high tide) as reported in the Ornithology Addendum).

- 3.2.4 It was concluded in the HRA (document reference 6.4.18, APP-111) that mudflat and saltmarsh habitat loss within the Principal Application Site would not constitute an AEOI for The Wash SPA and Ramsar site.
- 3.2.5 Within the ES, proposals were put forward to mitigate the loss of the area that provides roosting and foraging habitats for waders, but in particular, for redshank, by undertaking works to enhance the habitat within a 'Habitat Mitigation Area'. This is situated in the area adjacent to the Principal Application Area (see **Figure 17.9** (document reference 6.3.25, APP-091)), which is located at least 250 m away from the closest edge of the wharf, within Area B (see **Figure 17.8** (document reference 6.3.25, APP-091)), to improve the roosting and foraging habitat. This will involve the creation of up to 3 small shallow pools (10 -15 cm deep) in the existing marshy habitat, re-profiling the edges of existing pools and low-profile banks and, increasing the volume of 'roosting' rocks in the upper intertidal area through the use of the rocks that would be removed during the construction works in the Principal Application Site. Further information on the Habitat Mitigation Area is provided within the Outline Landscape and Ecological Mitigation Strategy (OLEMS) (document reference 7.4, APP-123). It is considered that this measure would provide sufficient habitat for the number of redshank using this site.
- 3.2.6 However, should it still be determined that there is an AEOI then the options for compensation would be required.

### 3.3 Vessel Disturbance at the Principal Application Site

- 3.3.1 During the construction and operation of the Facility there will be increased disturbance due to activities occurring at the Application Site. This will include increased vessel movements and activities associated with loading and unloading of the wharves, as well as the operation of the Facility. It is expected that the increase in vessel movements during operation (maximum numbers of vessels per year) would be up to two large vessel movements per high water tide period. This is against a baseline of between approximately 400 (2020 figures) and 800 (recorded in 1996) vessels per year between 1994 and 2020 (as shown in **Figure 3-1**), which would equate to between 1 and 3 large vessel movements per tide on average.
- 3.3.2 The Facility is within an area that includes existing industry and areas planned for industrial use but will obviously increase the level of activity close to the roosting



habitats within The Haven compared with the baseline situation. The area that is closest to the Habitat Mitigation Area is the aggregate wharf which is only predicted to be used by two vessels a week. Disturbance will therefore be relatively infrequent in this adjacent area once construction is completed. The operation of the Facility should be relatively consistent and as such is not expected to disturb the birds using the area. Waders habituate to consistent operations relatively well as can be seen by the number of waders that roost and forage in close proximity to port areas. In addition, the Habitat Mitigation Area has been designed to provide the additional habitat approximately 250m from the boundary of the Facility. This distance is expected to be sufficient to reduce disturbance levels to an acceptable limit and is in line with the threshold distances for redshank as defined in the Waterbird Disturbance and Mitigation Toolkit<sup>1</sup>.

- 3.3.3 However, should a determination be made that there is an AEOI then the options for compensation will be required.

### 3.4 Vessel Transit through The Haven

- 3.4.1 For the construction and operational phases, vessels will be transiting through The Haven around the high-water period and also within The Wash in the deeper channels for a greater duration of the tidal cycle. The highest vessel numbers would occur during the operational phase. The increase over baseline level for the operational phase is therefore considered below, as a worst-case scenario.

- 3.4.2 Given that the total number of commercial vessels using The Haven is currently (2020 figures) in the order of 420 per year through The Haven, an increase of 580 vessels during the operational phase of the proposed Facility is considered to be relatively high. The vessels that will be using The Haven during the operational phase are similar in size to the commercial vessels currently using The Haven. Currently, large vessels transit on average once per day but anecdotal evidence from the Boston Harbour Master indicates that there are approximately 20-25 % of days per year when large vessels do not transit The Haven (although this varies on a year-by-year basis) and also days when more than one large vessel transits, as seen during the behavioural monitoring of birds at the mouth of The Haven. It is generally the larger vessels, or smaller vessels going at speed, that cause the disturbance to birds.

- 3.4.3 The HRA (document reference 6.4.18, APP-111) concluded no AEOI of The Wash SPA (either alone or in-combination with other plans and projects). What is clear from the survey data reported in the HRA and the Ornithology Addendum, is that there is already a level of disturbance during the baseline scenario that causes

<sup>1</sup> [https://www.tide-toolbox.eu/tidetools/waterbird\\_disturbance\\_mitigation\\_toolkit/](https://www.tide-toolbox.eu/tidetools/waterbird_disturbance_mitigation_toolkit/).

the majority of the SPA bird species to fly to alternative roosts during the high tide period when either large vessels or pilot vessels enter or leave The Haven. The increase of between 75 and 80% of days of disturbance to potentially 100% of days of disturbance is not expected to have an AEOI as there are clearly alternative roost sites that the birds are using when the large vessels transit The Haven. There are some species however that will return to the original roost site close to The Haven vessel transit area and would therefore be disturbed again during subsequent vessel movements. These are the birds that could most likely be affected by increased numbers of vessels.

3.4.4 The species that were considered to be most at risk of repeated disturbance are:

- Golden plover (not a qualifying SPA species in its own right but part of the SPA waterbird assemblage feature);
- Lapwing (not a named SPA species but part of the SPA assemblage);
- Black-tailed godwit;
- Dark-bellied brent goose;
- Oystercatcher;
- Turnstone; and
- Redshank.

3.4.5 If it was determined that additional vessel disturbance would lead to an AEOI then these would be the key species that would be considered for compensation.

3.4.6 Common tern was a potential species for screening but was not regularly observed and does not have breeding populations nearby. The individuals that were observed were loafing birds from local colonies, with the closest breeding colony being in the south east of The Wash. Common tern are known to forage for long distances, up to 11km in some instances and it is expected that common tern would therefore be able to fly to alternative sites without any significant effect.

3.4.7 The SPA species that were counted in the WeBS sectors are expected to be the main populations using this area. There is some concern that some of the SPA birds also use other areas along The Haven as well as at the Principal Application Site. This has not been confirmed but as a worst case it is possible that some of the birds counted on the WeBS sectors also use areas along The Haven at some stage. The average counts of the local area could be expected to include the individuals who sometimes use these alternative areas so any compensation would also compensate these individuals as the compensation habitat would be within travelling distances for these individuals.

### 3.5 Options for Compensation Measures

3.5.1 **Table 3-1** below provides options for compensation to address the potential AEOI should this be determined necessary by the Secretary of State. These measures are provided on an 'in principle' without prejudice basis. However, as good practice, the Applicant has committed to provide some of these measures regardless of the decision, in order to provide a biodiversity net gain for the project.

3.5.2 Should a determination of AEOI be reached it is likely to require compensation for disturbance caused to SPA populations for waterbirds. This would be delivered in the form of additional roosting sites around the mouth of and along The Haven. Non-breeding waders living on estuaries require roost sites where they congregate and rest during the high tide period when their intertidal feeding grounds (mud flats) are covered by water. The choice and availability of roost site is important as it affects individuals' fitness (a bird's chances of survival and successful reproduction). To maximise fitness, roost sites should be relatively close to feeding grounds, safe from predators and not excessively exposed to the inclement conditions such as strong winds and waves.

3.5.3 The conservation objectives supplementary conservation advice guidance produced by NE contains targets and information that has relevance to the potential compensation measures. Two targets of relevance that apply to all The Wash SPA qualifying interest wader species are:

- Maintain a vegetation structure of key roost sites dominated by bare ground or a short sparsely-vegetated sward; and
- Maintain the area of open and unobstructed terrain around roosting and feeding sites.

3.5.4 Compensation roost sites should meet the following general criteria:

- Close to The Haven (ideally within 500m);
- Open in nature;
- Not close to trees or shrubs (i.e. vegetation that provides cover sites for predators);
- Away from areas frequented by walkers with dogs; and
- For compensation of the mouth of The Haven vessel disturbance, compensation roost sites should be close to the existing mouth of The Haven roost site, preferably within 1km and ideally within 500m.

3.5.5 Species that could require compensation habitat if a determination of AEOI is concluded include the following (a description is given for the numbers using the mouth of The Haven site and if known, their habitat preferences in the area in order to try and determine the potential need for compensation):

- Brent geese - The WeBS count data for the mouth of The Haven defined area (as used in the Ornithology Addendum) showed that a peak count in this area was 2,100 birds and the average count when present was 881 birds. Brent geese can roost on a wide range of sites, including open water, saltmarsh and agricultural fields. Disturbance to brent geese was evident even from the faster travelling smaller pilot vessels but once disturbed the brent geese flew to alternative sites. There are a number of alternative roost sites close to the mouth of The Haven but if an AEOI is decided then provision of further alternative roost sites should be found within approximately 1km of the mouth of The Haven. Brent geese generally make use of agricultural land around the edges of estuaries for roosting and feeding, mainly using the estuary for bathing and loafing.
- Black-tailed godwit – The WeBS count data for the mouth of The Haven defined area (as used in the Ornithology Addendum) showed that a peak count in this area was 2,021 birds and the average count when present was 484 birds. Based on the counts for individual Wetland Bird Survey (WeBS) sectors (as reported in the HRA and Ornithology Addendum) the black tailed godwit seem to favour rocky substrate but is also observed further inshore on other WeBS sectors. This species is known to readily take to roosting at suitably located artificial lagoon and island type roost sites, including those created at bird reserves in The Wash.
- Oystercatcher - The WeBS count data for the mouth of The Haven defined area (as used in the Ornithology Addendum) showed that a peak count in this area was 4,150 birds (20% of the Wash population) and the average count when present in more than negligible numbers was 890 birds (4% of the Wash population). Oystercatchers are quite adaptable birds and in recent years have been seen to move further inland from traditional coasts and estuaries and feed in wet grassland, pastures and agricultural fields.
- Redshank – The WeBS count data for the mouth of The Haven defined area (as used in the Ornithology Addendum) showed that the peak count was 250 birds and the average count when present was 84 birds, corresponding to 5% and 2% respectively of the Wash 5-year mean peak population. Redshank were observed roosting on rocks on the upper intertidal area. They also roost in areas behind the seawall where they require shallow water habitats for foraging with an open view to watch for predators. Short-damp grassland provides a good roosting and foraging site for redshank.

- Turnstone - The WeBS count data for the mouth of The Haven defined area (as used in the Ornithology Addendum) showed that the peak count was 237 birds and the average count when present was 45 birds, corresponding to 29% and 6% respectively of the Wash 5-year mean peak population. Turnstone would favour a rocky substrate for a roost site and are therefore likely to be roosting on the artificial rocky revetment around the mouth of The Haven.
- Lapwing and golden plover – Neither species are SPA qualifying species in their own right but do make up the SPA non-breeding waterbird assemblage. The count data for the mouth of The Haven defined area (as used in the Ornithology Addendum) showed that when present in more than negligible numbers, the average and peak numbers of lapwing was 496 and 1,480 birds respectively, corresponding to approximately 4% and 13% respectively of the Wash population. The average and peak numbers of golden plover is 675 and 2,800 birds, corresponding to approximately 5% and 22% respectively of the Wash population. However, both species use the mouth of The Haven site relatively infrequently; lapwing are only present in more than negligible numbers on 47% of high tides, and golden plover on only 20%. Short-grazed pasture provides a good habitat for lapwing and golden plover.

3.5.6 The requirement for compensation depends on the determination of AEOI. If it is determined that the AEOI relates to the overall disturbance caused by any large vessel then it is possible that the baseline situation is also having a disturbance effect. The supplementary advice on The Wash SPA, in particular the Advice on Operations (NE, 2021), includes vessel disturbance as a pressure. Several SPA species are identified as sensitive, and the risk level is given as medium-high risk with a recommendation that the pressure is commonly induced by activity at a level that needs to be considered further as part of an assessment.

3.5.7 From the analysis undertaken for this project specifically as discussed fully in the Ornithology Addendum (document reference 9.13, REP1-026) it seems that the additional number of vessels would affect the species that consistently return to the same roost locations which were lapwing and golden plover, both not being SPA species in their own right. However, the increased disturbance will clearly have some effect on these species. Where there were multiple disturbance events observed these species did eventually move to alternative roosting locations in the area.

- 3.5.8 Given that any disturbance to birds is undesirable the compensation measures outlined below have been investigated in order to provide additional habitat for birds that are displaced by vessel disturbance and habitat loss. There are clearly already alternative locations that birds use for roosting during high tide periods when larger vessels transit through The Haven. Provision of additional habitat would however potentially provide benefit if it was designed to have maximum appeal to key species.
- 3.5.9 Sites have been sought that would meet the objectives outlined above and habitat requirements for the key bird species. The options outlined in **Table 3-1** have been investigated in their early stages. The approximate site locations are identified on **Figure 3-1**. Contact has been made with the owners/managers of the site in most cases. However, the potential, and location for habitat creation within the SPA has not yet been discussed with NE or The Crown Estate as this site is a relatively recent initiative.

Table 3-1 Options for development of compensation measures

Option	Description	Location relative to SPA	Objective for compensation site
1	Habitat management of areas within the prison boundary to encourage birds to use the area in line with the Prisons objectives.	North Sea Camp Prison Boston	To provide foraging and bathing habitat for SPA populations of Dark bellied Brent Geese and Black-Tailed Godwit. Also could provide potential roosting habitat for redshank, oystercatcher, lapwing and golden plover.
2	Habitat reinstatement of overgrown freshwater habitat within the Havenside LNR. Pools located around the monument are in need of clearing to open up the habitat.	Havenside LNR	To provide additional habitat for waders and wildfowl. The distance from the footpath would need to be maximised. As it is within the LNR it is expected that dogs would be kept on leads and therefore disturbance minimised.
3	Potential for habitat creation alongside The Haven on the north bank within the Havenside LNR.	Havenside LNR	As above
4	Provision of artificial wader roosting habitat within the SPA. This could potentially involve the placement of rocks alongside existing rocks that have been placed on the shallow intertidal area within the SPA or provision of floating roosting sites.	Within the SPA but far enough away from the vessel transit routes to ensure minimal or no disturbance.	To provide additional habitat, rocks would provide habitat particularly for black-tailed godwit, turnstone, oystercatcher and redshank. Although this option could meet the objectives for the birds within the SPA it would reduce the area of intertidal mudflat within The Wash and North Norfolk SAC which could compromise the conservation objectives for this site. This would need to be assessed in terms of the potential impacts on the designated sites.
5	Potential for creation of shallow scrapes within agricultural fields although it is recognised that these would be further in from The Haven and may not be suitable.	Approximately 1km from The Haven.	Low potential to provide habitat as relatively distant from The Haven. Potential for habitat for redshank, lapwing and golden plover.
6	Potential for measures to reduce predation risk to shorebirds. i.e. Vegetation management.	Fields alongside The Haven.	Could assist with reduction of predation risk.

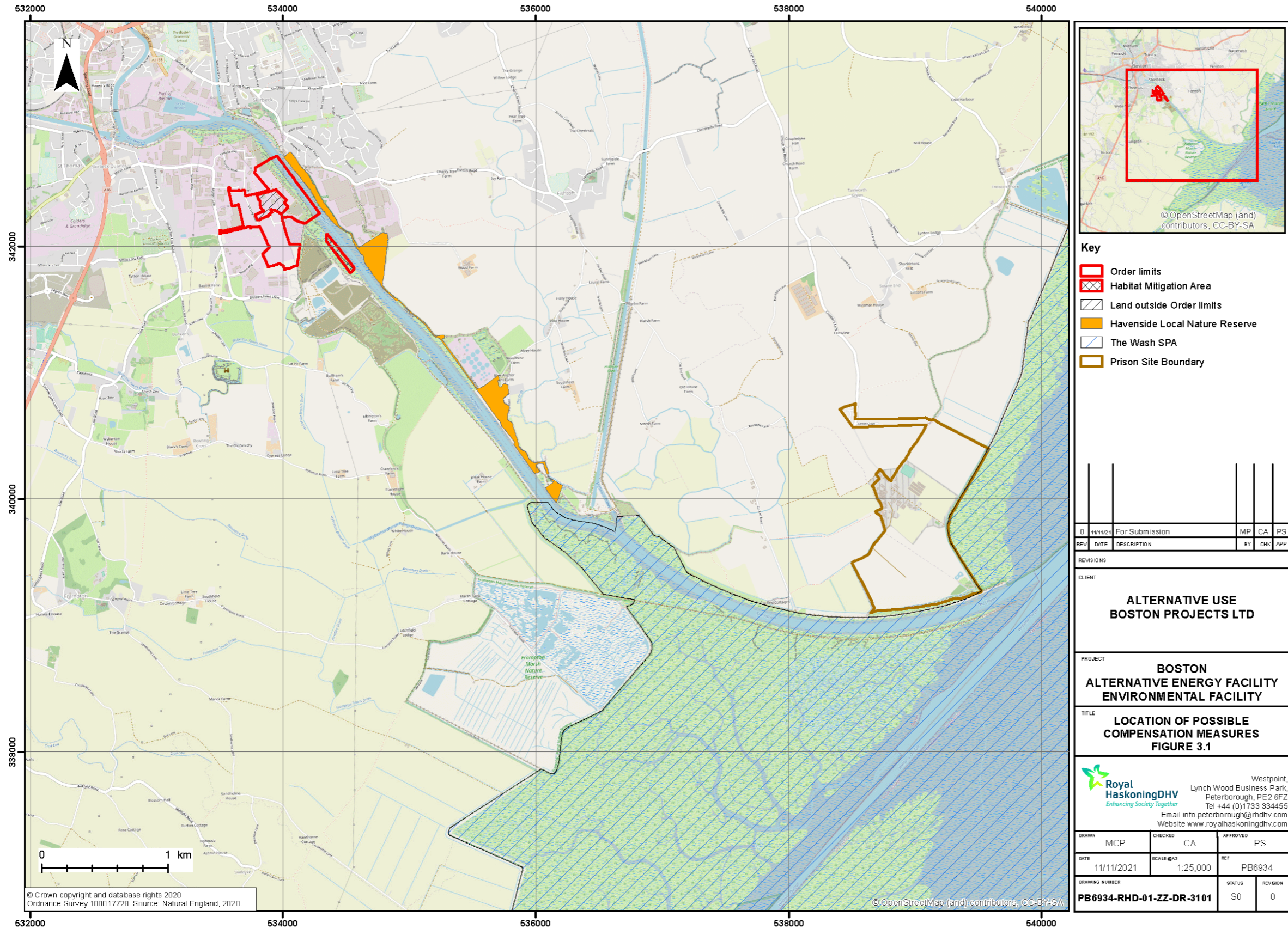


Figure 3-1 Possible Locations of compensation options



### 3.6 Further steps for development of compensation options

- 3.6.1 There are several steps needed to develop these compensation options and these are being followed alongside the submission of this document. These steps include: 1) engagement with landowners and stakeholders to develop potential compensation measures; 2) feasibility studies to determine which measures should be taken forward; and 3) compensation plans produced which sets out the measures in detail and the delivery and monitoring mechanisms to ensure their success.
- 3.6.2 Through the discussion it may well evolve that additional options become available, and these will be included in the list for the evolving compensation document. This document will be expanded upon at Deadline 3 with further detail on the methodology for the compensatory measures and the mechanisms for delivery of those measures. It is essential that compensation measures do not cause adverse environmental impacts in themselves. It is recognised that works near the intertidal areas might need to be undertaken outside of the overwintering periods to avoid disturbance. It is also recognised that other receptors also require consideration in this respect. Measures will also need to be assessed against the conservation objectives for the SPA and SAC.
- 3.6.3 There is also a need to ensure that the habitats are maintained in the long term and that ongoing maintenance is built into any initiatives to ensure this. Monitoring of the success of the compensation sites is necessary and this should be instigated as adaptive monitoring and management to ensure that any issues during the early years can be resolved to ensure that the sites support the objectives for which they are designed.
- 3.6.4 The NE 'check list' for compensatory measure submissions will be followed to develop the potential compensatory measures more fully for the next version of this document.

## 4 References

Department for Environment, Food and Rural Affairs (Defra). 2021. Habitats regulations assessments: protecting a European site.

Department for Transport (DfT). 2021. Port Level Statistics 1994-2017. Available at:

European Commission. 1992. Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora. 21 May 1992. (“Habitats Directive”).

European Commission. 2000. Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. (“Methodological Guidance for the Habitats Directive”).

European Commission. 2007/2012. Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EEC. (“EC Guidance”).

European Commission, 2018. Managing Natura 2000 sites. The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC

HM Government. 2017. The Conservation of Habitats and Species Regulations 2017.

HM Government. 2019. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

Natural England (NE). 2021. Designated Sites View - The Wash SPA. Available at:

Rehfishch, M M, Clark, N A, Langston R H W, and Greenwood, J. J. D., 1996. A Guide to the Provision of Refuges for Waders: An Analysis of 30 Years of Ringing Data from The Wash, England. *Journal of Applied Ecology*, August, 1996, Vol. 33, No. 4, pp. 673-687