NORTH FALLS

Offshore Wind Farm

HABITATS REGULATIONS ASSESSMENT

Appendix 2 Lesser Black-backed Gull Compensation Document

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NORTH FALLS
Offshore Wind Farm

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Glossary of Acronyms

AEoI	Adverse Effect on Integrity
AOE	Alde-Ore Estuary
AON	apparently occupied nests
CIMP	Compensation Implementation and Monitoring Plan
CL	Confidence Limit
DCO	Development Consent Order
Defra	Department for Environment, Food & Rural Affairs
DEP	Dudgeon Extension project
DESNZ	Department of Energy Security and Net Zero
EA1N	East Anglia ONE North
EA2	East Anglia TWO
EPP	Evidence Plan Process
ETG	Expert Topic Group
GGOW	Greater Gabbard Offshore Wind Farm
HRA	Habitats regulations Assessment
km	Kilometre
LBBG	Lesser Black-back Gull
NB	Norfolk Boreas
NFOW	North Falls Offshore Wind Farm
NV	Norfolk Vanguard
OWF	Offshore wind farm
PEIR	Preliminary Environmental Impact Assessment Report
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
RWE	Renewables UK Swindon Limited
SAC	Special Area of Conservation
SACO	Supplementary advice on the conservation objectives
SEP	Shoal Extension Project
SoS	Secretary of State
SPA	Special Protection Area
SSER	SSE Renewables Offshore Windfarm Holdings Limited
UK	United Kingdom
VEOWL	Five Estuaries Offshore Wind Farm Limited
WTG	Wind turbine generator

Glossary of Terminology

Habitats Regulations	Refers to both the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project Or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.

1 Introduction

1.1 Background

1. The North Falls Offshore Wind Farm (hereafter 'North Falls' or 'the Project') is an extension to the existing Greater Gabbard Offshore Wind Farm (GGOW), located approximately 40km off the East Anglian coast in England. When operational, North Falls would have the potential to generate renewable power for approximately 400,000 UK homes from up to 57 wind turbines.
2. The Applicant, North Falls Offshore Wind Farm Ltd (NFOW), is a joint venture between SSE Renewables Offshore Windfarm Holdings Limited (SSER) and RWE Renewables UK Swindon Limited (RWE), both of which are highly experienced developers.
3. As part of the Development Consent Order (DCO) application, the Applicant must provide information to support the Habitats Regulations Assessment (HRA) to be completed by the Competent Authority, the Secretary of State for the Department of Energy Security and Net Zero (DESNZ).

1.2 Purpose of document

4. This Lesser Black-back Gull (LBBG) Compensation Document is produced in response to the conclusions of the RIAA (Document Reference: 7.1) which shows that an Adverse Effect on Integrity (AEoI) of LBBG *Larus fuscus* from Alde-Ore Estuary (AOE) cannot be ruled out as a result of collision risk of North Falls in-combination with other offshore wind farms.
5. This document demonstrates how the proposed compensatory measure can be delivered to ensure that the overall coherence of the National Site Network is protected, in accordance with Regulation 68 of the Conservation of Habitats and Species Regulations 2017 and Regulation 36 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 (both sets of regulations together referred to as the "Habitats Regulations"), and provides evidence that an appropriate measure has been selected which will be ecologically effective.
6. A LBBG Compensation Implementation and Monitoring Plan (CIMP) will be produced by the Applicant and approved by the Secretary of State (SoS) post-consent, in accordance with the outline version provided with the DCO application (Annex 2A Lesser Black-backed Gull Outline Compensation Implementation and Monitoring Plan, Document Reference: 7.2.2.1). The LBBG CIMP will set out the detailed delivery proposals for the agreed compensatory measure based on those described in this LBBG Compensation Document.
7. The LBBG CIMP is conditioned by the draft DCO (Document Reference: 6.1).

1.3 The Lesser Black-backed Gull Feature of Alde Ore Estuary SPA

1.3.1 Conservation objectives

8. The conservation objectives of the AOE Special Protection Area (SPA) are to ensure that, subject to natural change, the integrity of the site is maintained or

restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of the qualifying features rely;
- The populations of each of the qualifying features; and
- The distribution of qualifying features within the site.

1.4 Supplementary Advice on Conservation Objectives for Lesser Black-backed Gull

9. Supplementary advice on the conservation objectives (SACO) were added for qualifying features in 2023 (Natural England, 2023a). Those for LBBG are shown in Table 1.1:

Table 1.1 Targets given as Supplementary Advice on the Conservation Objectives for LBBG in the AOE SPA

Attribute	Target	Season / Time of Year
Breeding population: Abundance	Restore the size of the breeding population to a level which is above 14,074 whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	Breeding (summer) season
Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	Year round
Disturbance caused by human activity	Reduce the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and / or loafing birds so that they are not significantly disturbed	Breeding (summer) season
Predation: all habitats	Reduce predation and disturbance caused by native and non-native predators.	Breeding (summer) season
Productivity	[Maintain or recover] productivity so that breeding success is maximised within the constraints of the site.	Breeding (summer) season
Supporting habitat: air quality	Maintain concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System.	Year round – to ensure the habitat remains suitable for when the feature is present
Supporting habitat: conservation measures	Maintain the structure, function and supporting processes associated with the feature and its supporting habitat through the management or other measures (whether within and / or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised.	Year round – to ensure the habitat remains suitable for when the feature is present

Attribute	Target	Season / Time of Year
Supporting habitat: extent, distribution and availability of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding). Please see site specific supporting notes for extent details.	Year round – to ensure the habitat remains suitable for when the feature is present
Supporting habitat: food availability (bird)	Maintain the distribution, abundance and availability of key food and prey items (e.g. voles, small seabirds, waders, sandeel, sprat, cod, herring, roach, rudd, beetles, flies, earthworm, shellfish) at preferred sizes.	Year round
Supporting habitat: vegetation characteristics for nesting	Maintain the extent and distribution of predominantly medium to tall (i.e. 20-60 cm) grassland swards.	Year round – to ensure the habitat remains suitable for when the feature is present
Supporting habitat: water quality - contaminants	Reduce aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.	Year round
Supporting habitat: water quality - dissolved oxygen	Maintain the dissolved oxygen (DO) concentration at levels equating to High Ecological Status (specifically ≥ 5.7 mg L-1 (at 35 salinity) for 95 % of year) avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.	Year round
Supporting habitat: water quality - nutrients	Maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.	Year round
Supporting habitat: water quality - turbidity	Maintain natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat.	Year round

2 Development of compensatory measures – methodology

2.1 General Approach

10. The approach taken by the Applicant to identify potential compensatory measures and for considering their suitability considers the policy and guidance described in the Compensatory Measures Overview (Document Reference: 7.2.1) and was as follows:

    - Literature review of compensatory measures;
    - Consultation with relevant stakeholders including:
        - Natural England and RSPB to develop proposals through the Offshore Ornithology Expert Topic Group (ETG) as part of the Project's Evidence Plan Process (EPP); and
        - Department for Environment, Food & Rural Affairs (Defra).
    - Ongoing review of other OWF applications for which compensatory measures have been accepted for LBBG (including East Anglia ONE North, East Anglia TWO, Norfolk Vanguard and Norfolk Boreas); and
    - The options identified through this process were then considered in relation to various criteria (e.g. feasible delivery mechanism, location, spatial scale, timing and monitoring) as described in Section 6).

11. A range of project-led, collaborative and strategic compensatory measures have been considered and are described in Section 4.

2.2 Consultation

12. The Applicant has regularly consulted with relevant stakeholders throughout the pre-application process as discussed in the Compensatory Measures Overview (Document Reference: 7.2.1). Feedback from the stakeholders has informed the development of the compensatory measure and is detailed in Annex 1A Compensation Consultation.

13. Consultation with relevant stakeholders will continue throughout the development and delivery of the compensatory measure. Details of proposed future consultation on the compensatory measure will be set out in the LBBG CIMP.

3 Quantification of effect for lesser black-backed gull

14. This section provides a summary of the Project's contribution to the in-combination adverse effect on the integrity on LBBG at AOE SPA and outlines the context for the proposed compensatory measure. The SoS will determine the level of effect based on the Appropriate Assessment conclusions for North Falls on the breeding adult birds associated with the AOE SPA.

15. The RIAA Part 4 (Document Reference: 7.1.4) presents an assessment of predicted collision mortality affecting LBBG from AOE SPA, which results in an annual in-combination total of 64 LBBG mortalities (RIAA Part 4, Section 1.4.2.5.4). This number can be reduced when taking into account four OWFs (East Anglia ONE North (EA1N), East Anglia TWO (EA2), Norfolk Vanguard (NV) and Norfolk Boreas (NB)) which have recently been consented subject to compensation for LBBG mortalities, leaving an in-combination total of 58 birds. The RIAA concludes that the North Falls contribution to the in-combination collision risk is 3.1 (mean) individuals (95% Confidence Limits (CL)s 0.0-10.6) based on an avoidance rate of 99.39%. This represents 5.3% of the in-combination total (excluding OWFs consented with compensation measures for LBBG).

16. The Applicant offers compensation options based on the mean value of predicted mortality from collision risk, whilst acknowledging Natural England's comments on the use of upper CL values, they also note that, with reference to the documentation on the respective PINS websites, the aforementioned projects (EA1N, EA2, NV and NB) were consented on the use of the mean value.

17. The RIAA concluded that there will be no AEoI for the Project alone due to the predicted collisions on the AOE SPA breeding population of LBBG, however the potential for adverse effects on the SPA population of LBBG from the Project in-combination with collisions at other OWFs within the UK North Sea and Channel cannot be excluded.

4 Selection of compensatory measure

4.1 Compensatory measures selection – options review

18. The process for identifying potential LBBG compensatory measures considered the ecology and existing pressures on LBBG to identify measures which would aim to reduce mortality from other causes, increase survival through other means and/or increase productivity to offset the collision effects described in Section 3.

19. An In Principle Compensation Options Review was submitted alongside PEIR (North Falls Offshore Wind Farm Ltd (NFOW), 2023) which reviewed potential compensatory measures. Following consultation on the In Principle Compensation Options Review and further technical consultation through the Evidence Plan Process, breeding enhancement (e.g. predator exclusion; habitat management; and/or disturbance management) at breeding colonies (discussed further in Sections 5 and 6) was selected as the preferred measure for a project led or collaborative option with other developers.

20. Contribution to a strategic measure or fund (Section 8) is also included as an option to deliver compensation, if required.

21. Table 4.1 provides a summary of the considered measures and conclusions reached in consultation with Natural England and RSPB.

Table 4.1 Screening of compensation measures for LBBG (selected options in bold)

Measure	Conclusions
Closure of sandeel and sprat fisheries close to breeding areas	It is recognised that a permanent closure of sandeel fisheries in English North Sea waters is being introduced from April 2024 (Defra, 2024) and that the Energy Act provides the powers to allow this measure to be allocated as compensation for offshore wind projects. The process whereby sandeel closures can be used as compensation is still in development and at this stage, it is not considered further as a potential compensatory measure for North Falls. However, the Applicant recognises that sandeel closures could be a compensatory measure that the Secretary of State could rely on in the future to provide compensation either for North Falls alone or as part of a strategic approach to compensation. This option is not considered further by the Applicant. However, should this become available as a strategic option, the Applicant may give this further consideration.
Reduce culling	Until 2019 LBBGs could be legally culled under the General Licence with no requirement to report on numbers killed. Licence conditions have changed, and reporting is required which should provide data to assess the population effects (MacArthur Green and Royal HaskoningDHV 2021a). At present, however, the potential impacts of this option on a particular SPA population cannot be assessed and it is not considered further.
Reduce fisheries bycatch	Natural England and RSPB advised against bycatch reduction as a compensatory measure, noting a lack of evidence that bycatch is a key pressure on lesser black-backed gull, with the RSPB stating there is '*no proven measure to reduce bycatch for this species. It would require detailed research of the level and location of bycatch, along with reduction trials to identify a reliable bycatch reduction measure that could be implemented. The RSPB is not aware of any such research being in place at this time*' (Annex 1A). The Applicant is therefore not pursuing this measure further at this time, however, should evidence in support of this measure become available, the Applicant may give this further consideration.

Measure	Conclusions
Breeding enhancement (e.g. predator eradication/ control, or disturbance management)	Predation (e.g. by foxes) may reduce breeding success and adult survival at breeding colonies. Predator-exclusion fencing or predator control is an effective method of enhancing breeding success. Predator exclusion has been legally secured as compensation for the Norfolk Vanguard, Norfolk Boreas, East Anglia TWO and East Anglia ONE North offshore wind farms. Predator control is a widely recognised procedure that has brought substantial benefits to seabird conservation at numerous sites globally. Disturbance management to reduce risk of disruption to birds during highly sensitive breeding period, e.g. through awareness campaigns, wardening, and signage. The above breeding enhancement options may be supplemented with habitat management where appropriate (such as planting, grassland cutting and scrub clearance) to create optimal ground cover and sward height for LBBG breeding success. This measure is discussed further in Sections 5 and 6.
Contribution to a strategic fund	In accordance, with the SEP&DEP DCO which enables compensation to be delivered through contribution to a Strategic Compensation Fund, this option is included for North Falls (Section 8).
Chick rearing	Chick rearing is not considered further at this stage due to uncertainty over delivery. However, it is considered that this approach could be considered as potential adaptive management, if required, should further information become available.

5 Ecological Evidence

22. The Applicant has identified a search area within and around the AOE SPA within which compensation for LBBG could be delivered (shown in Figure 1 and Figure 2, discussed further in Section 6.2). This comprises the central area of the SPA around Orford Ness, together with areas to the west of the River Ore, located outside of the SPA. Within this search area there are a number of locations that could provide appropriate breeding conditions for LBBGs, evidenced by previous use by nesting gulls. There is therefore high confidence that a location within this search area can be identified and secured to deliver effective compensation for this species.

23. Within this search area (discussed further in Section 6.2), potential locations for development of LBBG compensation have been identified by Five Estuaries and for LBBG conservation by the National Trust, and the Applicant is in discussion with these parties regarding potential collaboration. Any collaboration with Five Estuaries would ensure the quantum of combined compensation was appropriate to address the effects described in Section 3 as well as the effects on LBBG identified for Five Estuaries. Any collaboration with the National Trust would be additional to any reasonably foreseeable planned management by the National Trust.

24. Through consultation with stakeholders and liaison with Five Estuaries, the Outer Trial Bank was identified as another potential search area for consideration in relation to North Falls (Figure 3; discussed further in Section 6.2.1.5).

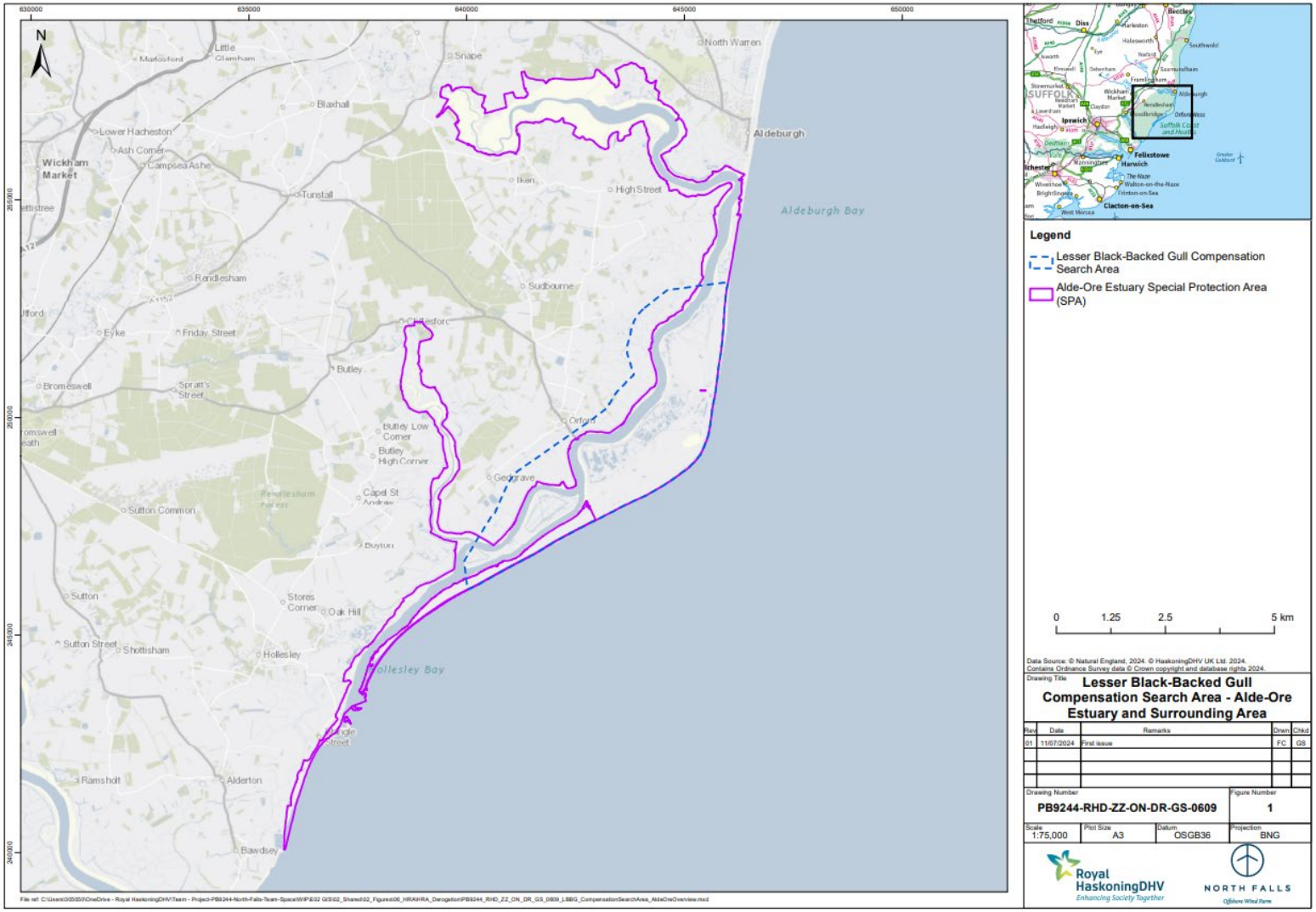

Figure 1 North Falls AOE SPA LBBG search area (including land within or in proximity to the SPA)

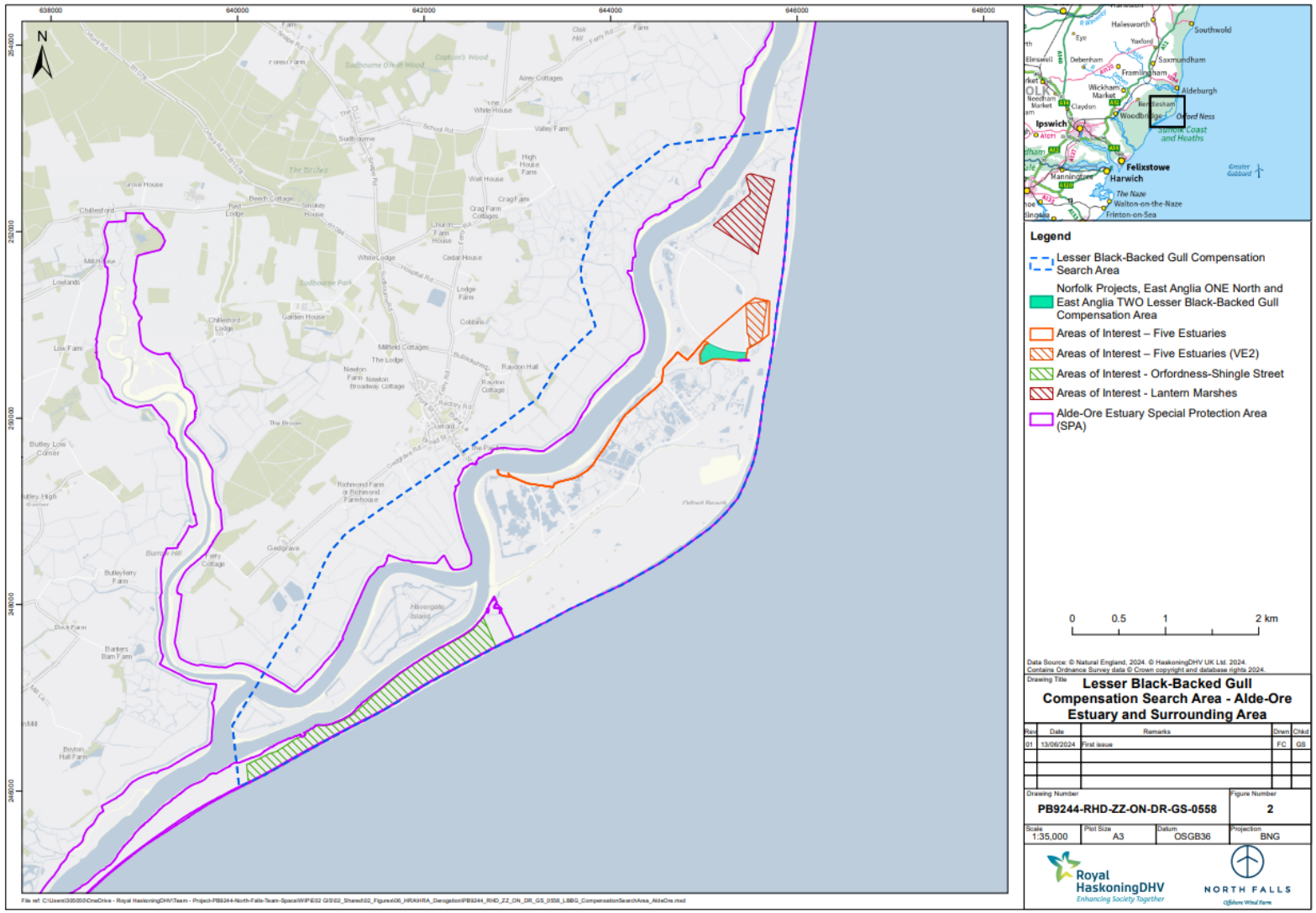

Figure 2 AOE SPA LBBG search area with key areas of interest

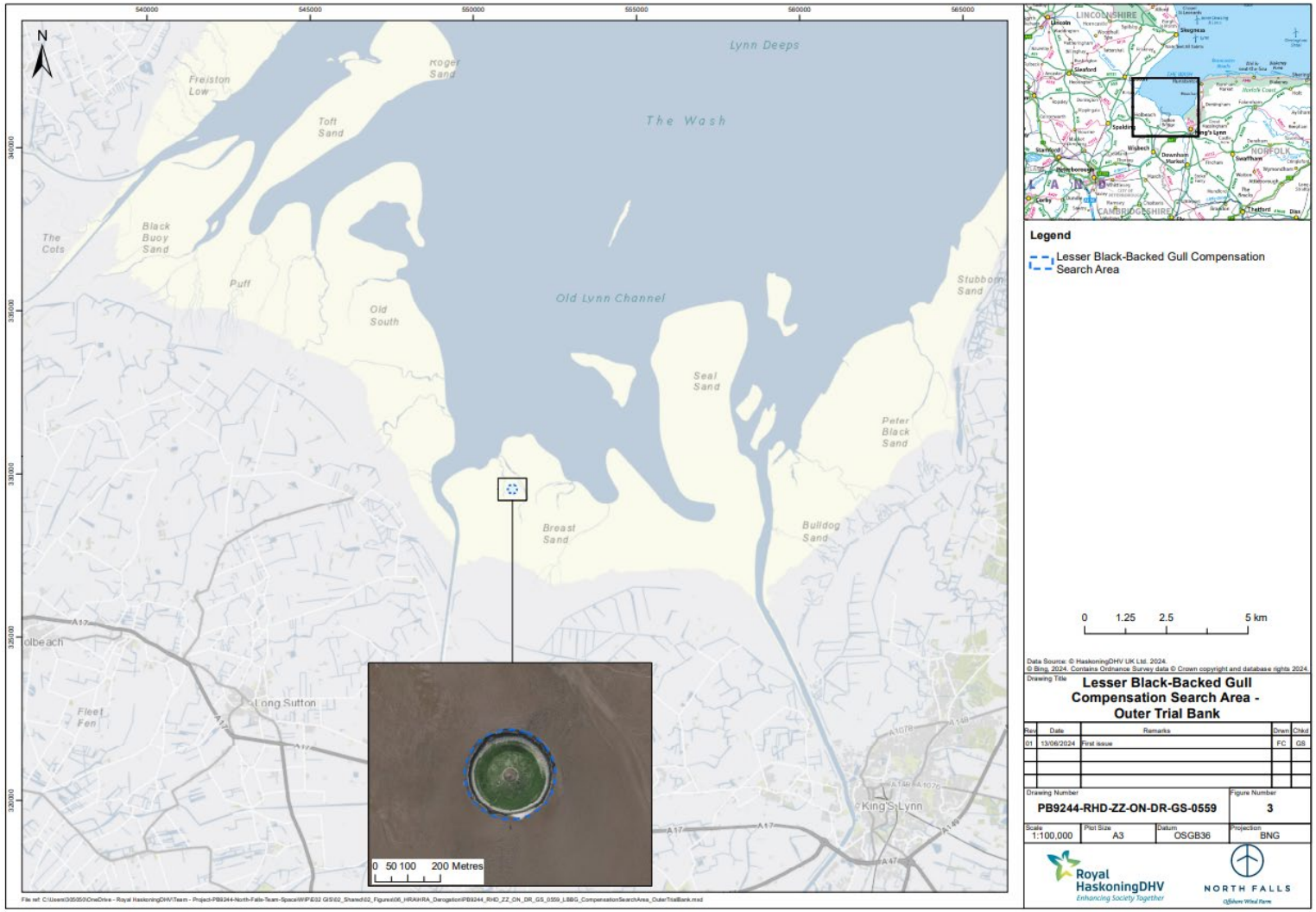

Figure 3 Outer Trial Bank LBBG search area

5.1 Breeding enhancement

5.1.1 Predator exclusion

25. The large-scale decline of LBBG at the AOE SPA, from a peak of 23,400 pairs in 2000 to a 5 year mean of 1,940 pairs 2011-2015, has been attributed mainly to large scale abandonment of the colony in response to predation by foxes (Ross-Smith et al., 2014; Mavor et al., 2001, 2003). As an example of the speed of decline, at Orfordness, 75% of 23,000 nests failed due to fox predation in 2000, and, in the absence of fox control, the breeding population at that site declined to 6,500 pairs by 2002 (Mavor et al., 2001, 2003, MacArthur Green and Royal HaskoningDHV, 2022d). Therefore exclusion of predators from nesting habitat is likely to be ecologically effective.

26. Cooper (2013) listed examples of successful deployment of predator-proof fencing around seabird colonies in New Zealand, Hawaii (USA) and Azores (Portugal), and these were also reviewed in detail by White and Hirons (2019).

27. In New Zealand, a predator-proof fence was completed in 2007 that stretches 10.6 km across the neck of the peninsula from coast to coast at Cape Kidnappers Peninsula on the North Island. Although pests can still gain access at the fence's coastal ends "[Brushtail] Possums have almost been eradicated from the peninsula but feral cats still pose a problem with over 750 caught to date [2013]". This fence protects a privately owned and financed seabird restoration project where grey-faced petrels and Cook's petrels are successfully being re-introduced (Furness et al., 2013).

28. Predator-proof fences constructed in the United States were deployed very effectively in Hawaii at Ka'ena Point Natural Area Reserve to protect vulnerable populations of wildlife (Young et al., 2012). Fences 2m tall were set up in November 2010 to February 2011 around 20 hectares (ha) of coastal habitat within Ka'ena Point to prevent predators (including dogs, cats, mongooses, rats and mice) from entering the protected area. Predators were eradicated within the enclosed 20ha; it took three months to complete for all predators except mice, which were eradicated within an additional six months (Young et al., 2012). Such predator-proof fencing would be appropriate for colonies subject to predation by foxes. Similar predator-proof fences have been established at many sites around the world with very high success in protecting birds from mammal predators (VanderWerf et al., 2014, Ruykys and Carter, 2019).

29. Another good example of successful deployment of a predator-proof fence to protect a seabird colony is one erected in 2001 to protect 36 ha on Pitt Island (Chatham Islands, New Zealand) from feral cats and pigs. Between 2002 and 2005, 200 endangered Chatham petrel chicks from the only known breeding site on South East Island (Chatham Islands) were transferred to a new site within a predator exclusion fence (where there were no Chatham petrels). In 2012, 17 pairs from these translocated birds returned to breed (Furness et al., 2013).

30. In Europe, predator-proof fencing has been used to protect breeding seabirds from alien invasive mammal predators in Azores (Portugal), funded by EU LIFE+.

31. Initial results from predator fencing at the South Walney LBBG colony (which forms part of the Morecambe Bay and Duddon Estuary SPA) have shown increases in breeding population and productivity in the two breeding seasons since fence installation in 2021 (Dalrymple, 2023). This colony was known to be subject to fox and badger predation prior to fencing.

32. It has been demonstrated that not only can seabird breeding success be much higher in areas within predator-proof fences, but also that seabird breeding numbers tend to recover rapidly when given such protection. This method would be much more effective than attempting to reduce fox numbers, as there will often be movement of foxes into the area from the surrounding wider countryside where fox numbers are high. In addition, depending on the nature of the predator-proof fence, it may also exclude rats and American mink as well as other mammal predators such as feral cats.

33. Predator exclusion from an area within the AOE SPA used by breeding LBBG, as a mitigation measure, has been accepted for four consented OWFs[1] in the southern North Sea. The predator exclusion – aimed primarily at foxes – is predicted to reduce predation of eggs and nestlings, which would offset the predicted losses of LBBGs from the SPA population due to collisions at offshore wind farms. The North Falls compensatory measure would be additional to this existing compensation. Given the stated aim to restore the SPA population to 14,074 pairs from the current estimate of less than 3,000 pairs, and that the current provision of fenced areas provides less than 6 ha of available habitat (which even the highest density advised by Natural England (0.047 nests/m^2; refer to Section 6.3) could accommodate 2,820 pairs) there is a clear scope to provide additional benefit to the existing measures in the AOE SPA.

5.1.2 Predator control

34. Should predator exclusion fencing be selected, it is possible that some predator control may be required in addition to fencing, for example to ensure that the enclosure is predator-free once constructed, or as part of adaptive management, should a breach of the fence occur.

35. Alternatively should the Outer Trial Bank be selected, predator control/eradication on the island may be the preferred delivery mechanism, without the requirement for fencing.

36. The eradication and control of mammal predators is a widely recognised procedure that has brought substantial benefits to seabird conservation at numerous sites globally. Predator eradication has facilitated the recovery of many depleted populations of vulnerable seabirds and recolonisation of islands by seabirds that had been eradicated by predators.

[1] EA1N, EA2, NB and NV

5.1.3 Disturbance management

37. Another mechanism to enhance breeding, in particular in an area already occupied by breeding LBBGs, is to manage and reduce disturbance from anthropogenic sources e.g. walkers and those with dogs in nearby area, and recreational boat users landing on beaches. It has been suggested by National Trust staff working on Orfordness that disturbance by humans may be a regular occurrence on the site, particularly in the summer when boat users land on the seaward shore to access the beaches (National Trust, pers. comms.).

38. There is evidence for disturbance to gulls[2] due to the presence of humans (Robert & Ralph, 1975; Martínez-Abraín et al., 2008) and for the effectiveness of disturbance reduction measures from research at bird breeding sites (Allbrook & Quinn, 2020; Dowling & Weston, 1999).

39. Therefore, measures such as awareness campaigns, or creation/support of a warden position to facilitate the management of anthropogenic impacts on and/or around the breeding areas would be considered.

5.1.4 Habitat management

40. LBBGs nest on solid surfaces either on the ground, or on flat/semi-flat roofs of buildings (RSPB, 2021). The nesting sites most preferred by LBBG are open and surrounded by vegetation, that will provide protection from weather and predators to chicks once they are mobile (RSPB, 2021). Vegetation that is overly dense is generally avoided by LBBGs and taller vegetation is deemed sub-optimal, yet it may be used by 'lower-quality' breeding birds (RSPB, 2021). The SACO for AOE SPA states that the target for 'supporting habitat: vegetation characteristics' for LBBG is to 'maintain the extent and distribution of predominantly medium to tall (i.e. 20-60cm) grassland swards'.

41. Sites within the Applicant's search area that are deemed to have 'currently suitable' (e.g. habitat with of the correct density and height of vegetation as per the AOE SPA SACOs) or 'potentially suitable' (habitat that with minimal-to-moderate interventions e.g. strimming outside of the breeding season) habitat types will be assessed, and depending on the location of the site chosen, management plans will be implemented to improve the habitat to bring it as close to 'optimal' as possible. This would most likely be done in tandem with predator exclusion, see Section 5.1.1 above, or with the predator control (Section 5.1.2) or disturbance management (Section 5.1.3) if appropriate. The Applicant does not envisage this measure happening independently of the other measures.

[2] *L. occidentalis* and *L. michahellis*

6 Details of Compensatory Measure

6.1 Delivery mechanism

42. The first stage in delivery of the compensation will be selection of an appropriate location (discussed further in Section 6.2). Site selection will take account of the requirements for a successful LBBG breeding colony (RSPB, 2021) as well as consultation with relevant landowners.

43. Depending on the location selected and relevant pressures on the breeding colony at that location, the compensatory measure may include Project-led or collaborative delivery of:

- Predator exclusion – Predator-proof fencing around a pre-selected area to aid colonisation efforts by LBBG into a 'safe' area;
- Predator control - Removal of predators e.g. by trapping;
- Disturbance management - awareness campaigns, wardening during the breeding season and/or signage; and
- Habitat management - planting, grassland cutting and/or scrub clearance to create optimal ground cover and sward height.

44. The North Falls compensation would be in addition to a predator exclusion area established within the AOE SPA by Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North and East Anglia TWO OWFs.

45. North Falls is seeking to collaborate with Five Estuaries and/or the National Trust in delivery of the compensatory measure. Discussions with the Five Estuaries wind farm and the National Trust are ongoing.

46. Alternatively, the Applicant may consider strategic compensation, as described in Section 8.

6.2 Location of compensatory measure

6.2.1 Search areas

6.2.1.1 Search areas overview

47. In accordance with Defra (2021; 2024), where practicable, compensatory measures that benefit the same feature within the affected site are preferred. Therefore, the initial search area for the North Falls LBBG compensation was the AOE SPA and land in proximity to the SPA. The North Falls Draft In Principle Compensation Review (NFOW, 2023) identified the potential to establish compensation within the AOE SPA or in proximity to the SPA boundary which would benefit the LBBG feature of the AOE SPA.

48. Research was undertaken into the recent and current distribution of LBBGs in the area and distribution of suitable habitats, which is considered a strong indicator of the suitability of a location for LBBG breeding. The selection of the search area also took into consideration the location of other features of the SPA, which could be affected by increasing LBBG numbers. Based on this research the AOE SPA search area (shown in Figure 1 and Figure 2) was identified.

49. During consultation, Natural England has previously indicated that a compensation site located outside of the AOE SPA boundary may be preferable, as it was considered that suitable locations within the SPA were limited. However, the review undertaken by the Applicant has confirmed that potentially suitable areas within the SPA could be progressed and therefore the search area retains both options inside and outside in proximity to the SPA.

50. Consultation with Natural England and RSPB also identified the Outer Trial Bank as a potential area for compensation, although noting additional studies would be required to confirm its suitability.

51. The location for delivery of the compensatory measure will therefore be either within the AOE SPA search area (shown in Figure 2, including land within or in proximity to the SPA) or in the Outer Trial Back search area (Figure 3).

52. Key sites within the AOE SPA search area identified by the Applicant are summarised below, noting that this list is not exhaustive, and that additional areas within the search areas remain under consideration:

6.2.1.2 Lantern Marshes

53. Lantern Marshes (shown in Figure 2) is located within the SPA to the northeast of Orfordness and is owned and managed by the National Trust.

54. This area is known to have previously supported breeding LBBGs. A small part of the area is understood to have been protected by electric fence in 2022, with 1-2 pairs of LBBG attempting to breed since it was installed.

55. The National Trust is considering the installation of predator-fencing around the entirety of the marsh, to deliver benefits to both LBBGs and other species, however there is currently insufficient funding to deliver this proposal and therefore collaboration in this area would be additional to any reasonably foreseeable planned management.

56. There have been positive discussions between the North Falls and the National Trust in respect of this site.

6.2.1.3 Proposed Five Estuaries compensation site

57. The Applicant is aware of the LBBG compensation areas being considered by Five Estuaries Offshore Wind Ltd, including a location in the AOE SPA referred to by Five Estuaries Offshore Wind Ltd as ‘VE2’ (shown in Figure 2) and the Outer Trial Bank (shown in Figure 3). The Applicant is in discussion regarding potential collaboration at these locations.

58. Five Estuaries site selection (GoBe, 2024b) included a review of available data downloaded from the Seabird Monitoring Programme (BTO, 2023) and filtered by a set of defined parameters. Sites were further refined by determining which of those had predation issues; quantification of the level of predation at the site, and the feasibility of predator exclusion; followed by the quantification of the expected benefit to LBBGs as a result of the measure and whether it can meet compensation requirements.

6.2.1.4 Orfordness – Shingle Street

59. Evidence shows LBBG nesting on the shingle spit adjacent to Havergate Island (Figure 2) which is within the Orfordness – Shingle Street Special Area of Conservation (SAC), with potential anthropogenic disturbance from walkers and/or watercraft (e.g. sailing / motorboats, jet skis) that may be closely passing

this stretch of coast or possibly landing to access the beach. Therefore, if deemed a significant threat to the initial attraction and success of LBBGs breeding at this location, the Applicant may consider delivering the compensatory measure in the form of management of disturbance, such as via a public awareness campaign or supporting additional resource of the National Trust as the landowner in this area.

60. This area is outside the AOE SPA and is designated as an SAC for the following habitats:

- Coastal lagoons
- Annual vegetation for drift lines
- Perennial vegetation of stony banks

6.2.1.5 Outer Trial Bank

61. During consultation with Natural England, the Outer Trial Bank was suggested as a potential location where habitat management and potentially predator control could help the LBBG population re-establish their peak numbers. The Outer Trial Bank is a manmade island in the Wash, created as part of a proposed UK government water resources scheme. Herring gulls and LBBG both nest on the Outer Trial Bank and populations of both have declined significantly since 2000 (BTO, 2023). The Outer Trial Bank has seen its LBBG population decline from over 2,100 pairs in 2001 to 582 pairs in the most recent colony count in 2023 (Dalrymple, 2024). During the 2023 survey, chick carcasses with evidence of predation were reported, as well as rats and rat burrows. No evidence of any other mammals was recorded in the 2023 survey of the Outer Trial Bank (Dalrymple, 2024).

62. There is a lack of evidence of connectivity of LBBGs from Outer Trial Bank to AOE SPA due to the lack of ringing studies on this species. However, the two sites are 126 km apart and tagging data from the AOE SPA (Green et al., 2023), in the non-breeding season, has shown birds to travel at least 136 km, suggesting that there is potential for fledglings from Outer Trial Bank to colonise and breed at AOE SPA. Outer Trial Bank is located within two designated sites, the qualifying features of which are detailed in Table 6.1 below.

Table 6.1 Designated sites at Outer Trial Bank

Designated site	Qualifying features
The Wash SPA	*Anas acuta* Northern pintail *A. penelope* Eurasian wigeon *A. strepera* Gadwall *Anser brachyrhynchus* Pink-footed goose *Arenaria interpres* Ruddy turnstone *Branta bernicla bernicla* Brent goose *Bucephala clangula* Common goldeneye *Calidris alba* Sanderling *C. alpina* Dunlin *C. canutus* Red knot *Cygnus columbianus bewickii* Bewick's Swan *Haematopus ostralegus* Eurasian oystercatcher *Limosa lapponica* Bar-tailed godwit *Limosa limosa islandica* Black-tailed godwit

Designated site	Qualifying features
	Melanitta nigra Common scoter *Numenius arquata* Eurasian curlew *Pluvialis squatarola* Grey plover *Sterna albifrons* Little tern *S. hirundo* Common tern *Tadorna tadorna* Common shelduck *Tringa totanus* Common redshank Waterbird assemblage
The Wash and North Norfolk Coast SAC	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Salicornia and other annuals colonizing mud and sand Atlantic salt meadows *(Glauco-Puccinellietalia maritimae*) Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)

6.2.2 Selection of the final location

63. To select a suitable site for compensation, further review will be completed to collate and assess information available at potential sites on the presence of LBBG habitats and colonies and identify the potential scale of mammal populations present within the site.

64. The site selection will include consideration of the following factors at each site:

- The requirements for a successful LBBG breeding colony (RSPB, 2021);
- Population trends and productivity of LBBG colonies in and around the site;
- LBBG nesting habitat availability, supported by information from seabird colony assessments;
- Availability of unoccupied habitat that could support an increased number of LBBGs;
- Current habitat management at the site;
- Conservation status of the site and assessment of whether erecting predator-proof fencing or delivering habitat management would be additional to existing site management and/or affect the ability to achieve conservation objectives for other features;
- The risk of flooding (both freshwater and tidal) to the proposed compensation site;
- Landowner feedback;
- Evidence of mammal predation and whether it is affecting LBBG productivity;
- Evidence of avian predators (i.e. raptors, corvids and other gull species);
- Evidence of mammals causing disturbance, such as Chinese water deer;

- Disturbance levels at the site, including human activity, farming and livestock;
- Logistical constraints of each site; and
- Other known habitat quality variables around the site.

6.2.2.1 Field surveys

65. In order to assess which site location could potentially be most appropriate, effective and feasible to apply the compensation measure to, pre-compensation field surveys will be necessary to collect up-to-date site-specific data during the LBBG breeding season (March to August). Field surveys will collect the following information as a minimum:
    - LBBG population, breeding success and productivity;
    - Evaluation of habitat suitability for LBBG;
    - Assessment of the presence of all mammals – invasive and native (e.g. footprints, droppings, burrows etc);
    - Assessment of potential sources of disturbance (e.g. presence of public footpaths, arable and pastoral farming locations);
    - Assessment of site access; and
    - Consideration of logistical constraints.
66. Following initial site investigations, potential locations will be developed and provided to appropriate consultees (e.g. Natural England, Historic England, local planning authority, landowners, etc.) for feedback and discussion.

6.3 Scale of compensation

67. To calculate the required number of LBBG breeding pairs required to produce new recruits into the AOE SPA population to replace predicted collision mortality at North Falls, Natural England advised that North Falls should follow the method adopted by Hornsea Project Three (HP3) (Niras and GoBe, 2020). This model was devised for kittiwake and relied on, in part, the detailed demographic data available for kittiwake that is not readily available for LBBGs (such as age class recruitment proportions in Coulson, 2011), and so the example given in HP3 was not replicable for LBBGs due to a lack of available data to fit the model.
68. Five Estuaries OWF have employed a similar set of equations initially used in the Hornsea Project Four RIAA for guillemot and gannet (GoBe, 2024b), that is applicable for LBBGs, as follows:

Equation One:

$$N_{Fledglings\ required} = \left(\frac{N_{New\ breeding\ recruits\ required}}{\prod_{Age=0}^{Age=5} Survival_{Age}} \right)$$

Where the age of first breeding for LBBG is assumed to be 5 years (Horswill and Robinson 2015), and $N_{(New\ breeding\ recruits\ required)}$ is equivalent to the number of mortalities from North Falls (mean 3.1).

Equation Two:

$$N_{Breeding\ pairs\ required} = \frac{N_{Fledglings\ required}}{Productivity}$$

69. However, in accordance with advice from Natural England, the Applicant has also considered natal philopatry in its equations to account for birds migrating away from a breeding site that will not be recruited into their natal colony when they reach the breeding age. The rates on natal dispersal are given in Horswill and Robinson (2015), and so natal philopatry is deemed as "*one minus natal dispersal*". Therefore *Equation One* for North Falls is:

$$N_{Fledglings\ required} = \frac{\left(\frac{N_{New\ breeding\ recruits\ required}}{\prod_{Age\ =\ 0}^{Age\ =\ 5} Survival_{Age}}\right)}{1 - Natal\ Dispersal}$$

70. The demographic rates used from Horswill and Robinson (2015) are shown below in Table 6.2:

Table 6.2 Demographic rates from Horswill and Robinson (2015) used in LBBG compensation quantum equations for North Falls

Demographic Factor	Demographic Rate	Comment
Juvenile survival (Age Class 0 to 1)	0.798 (Herring Gull)	Horswill and Robinson (2015) acknowledge that the rates give for juvenile/immature LBBG are derived from insufficient data and suggest using the rates for herring gull.
Adult survival (Age classes ≥ 2)	0.885	For the age classes 1 to 2 through 4 to 5, the adult survival rate has been used. Horswill and Robinson (2015) do not give specific rates for older immature classes, so the adult rate is applied throughout. Survival rates are included up to the age of five, as this is the recruitment age of lesser black backed gulls, as given in Horswill and Robinson.
Productivity	0.480 (Havergate Island 2014-2023 average*)	The RSPB submitted productivity data from Havergate Island (AOE SPA) following an ETG meeting, which may be deemed more accurate and precautionary to use for number estimation in the AOE SPA.
Natal Philopatry	0.530 (1.000 *minus* 0.470; LBBG)	Horswill and Robinson (2015) give natal dispersal rates for gulls, i.e. the proportion of fledglings that will migrate away from their natal colony and will not recruit into that population. Natural England (DAS/27843/458975) suggest the natal dispersal rate of herring gull from Horswill and Robinson is used, as the data quality supporting the LBBG rate is deemed 'poor', and gives a rate described as 'elevated'. Both options are shown in these calculations.
	0.371 (1.000 *minus* 0.629; Herring Gull)	
*The year 2015 is omitted from the mean productivity for Havergate Island, as the colony was severely affected by fox predation in that year which reduced the productivity to 0.04.		

71. Hence, the equations to determine the number of breeding pairs needed to compensate for the mean number of LBBG mortalities from North Falls (3.1), with Havergate Island productivity would look like:

Equation One:

$$N_{Fledglings\ required} = \frac{\left(\frac{3.1}{0.798 \times 0.885 \times 0.885 \times 0.885 \times 0.885}\right)}{1 - 0.470} = 12$$

Equation Two:

$$N_{Breeding\ pairs\ required} = \frac{12}{0.480} = 25$$

72. Therefore, for a mean of 3.1 mortalities, a minimum of 25 breeding pairs would be needed to recruit the required number back into the new colony to account for mortalities, when based on average (2014, 2016-2023) productivity at RSPB Havergate Island, and the LBBG dispersal rate (Horswill and Robinson, 2015). This would require a minimum of 0.05 ha (500 m^2) up to maximum of 1.25 ha (12,500 m^2).

73. This is scaled to a 1:1 ratio for mortality compensation, although higher ratios might be applied, Note that in Natural England's consultation on LBBG compensation (see Table 1.1, page 19 – Annex 1A HRA Compensation Consultation, Document Reference: 7.2.1.1) they:

> *"highlight that the application of a ratio is designed to account for a number of factors (e.g. uncertainty), not simply to ensure a reasonable level of benefit is delivered by the measure".*

74. So, for example, if it were determined by the SoS that a 2:1 ratio was required, the Applicant's compensation offer would be scalable to this.

75. With the rate of natal dispersal accounted for in the Applicant's compensation quantum equation in accordance with advice from Natural England (Table 1.1, page 18 – Annex 1A HRA Compensation Consultation, Document Reference: 7.2.2.1) a considerable amount of the uncertainty has been removed from the quantification of bird numbers that could be conceivably produced in the North Falls compensatory measure. Ratios of 1:1 and 2:1 are therefore presented in Table 6.3.

76. Furthermore, the Applicant has received advice concerning nesting density rates of LBBG, when considering the scale of area needed for the compensation site. Both the RSPB and Natural England have advised on nest density rates (Annex 1A Compensation consultation, Document Reference: 7.2.2.1, Table 1.1, pages 10 and 17 respectively):

- The RSPB have advised a range of 0.002 – 0.005 nests per m2 based on experience from Havergate Island, however this range is largely derived from 1500-2000 pairs spread across a 100 ha area. With the Applicant's aim of providing an enhanced breeding environment (e.g. predator free, desirable vegetation) within the compensation site, it is considered that nesting densities will likely be greater than this, especially since compensation may take place at a location on Orford Ness. Historically, Orford Ness had much greater numbers of LBBGs than Havergate Island (RSPB, 2021).

- Natural England advised density rates should be between 0.002 and 0.047 nests per m2. With the Applicant's aim of supplying an enhanced breeding environment within the compensation site, the higher end of this range is used as an option for compensation scaling. Further, this aligns more closely with the nesting density (0.04 nests per m2) used for the LBBG compensation at the AOE SPA for the consented EA1N, EA2, NV and NB. Both 0.04 and 0.047 are presented for comparison (Table 6.3).

77. Table 6.3 shows the area required for North Falls compensation would be up to 0.18 ha, however the Applicant recognises that an area of 4 ha is likely to be required, particularly if fencing to exclude predators is adopted. A 4 ha site would be ecologically effective in enhancing LBBG breeding, noting the birds may not use a smaller enclosed space. This area could be delivered by North Falls alone or in collaboration with another project(s).

Table 6.3 Quantification of breeding pairs and the potential area required for compensation of LBBG collision mortalities by North Falls, with varying combinations of advised demographic rates and nest densities.

Mortalities	Productivity	Natal Dispersal	Compensation Ratio	Number of breeding pairs required	Area required (ha)*	Without philopatry considered	
						Number of breeding pairs required	Area required (ha)
3.1	0.480 (Havergate Island average 2014-2023**)	0.470 (LBBG)	1:1	25	0.05 - 0.06	14	0.03 - 0.04
			2:1	50	0.11 - 0.13	28	0.06 - 0.07
		0.629 (Herring Gull)	1:1	36	0.08 - 0.09	14	0.03 - 0.04
			2:1	72	0.15 - 0.18	28	0.06 - 0.07

*The calculated area required is based on a range of nesting density (0.047 – 0.04 nest per m^2); this range incorporates the density used by accepted compensation proposals, and the similar nesting density given by Natural England.

**The year 2015 is omitted from the mean productivity for Havergate Island, as the colony was severely affected by fox predation in that year which reduced the productivity to 0.04.

6.4 Outline timing of compensation

78. LBBGs typically start breeding at four (BTO, 2024) to five years of age (Horswill and Robinson, 2015). Allowing four years to elapse between implementation of the compensation measure and the start of the Project's operational phase would allow for the 'additional' juveniles at the compensation colony to become adults by the start of operation of North Falls, and therefore enter the breeding population.

79. However, the Defra (2021) compensation consultation document recognises that it is not always feasible to implement measures before operation of a project: "*Where this is not possible, it is important that necessary licences are in place, finances are secured, and realistic implementation plans have been agreed with the appropriate bodies to demonstrate that the compensatory measure is secured.*" As the compensation required by the Project is for a small number of birds and the minimum scale of compensation necessary for the Project will over-compensate for the potential impact, it is proposed that the compensatory measure is installed at least three breeding seasons (1st April to 31st August (Furness, 2015)) prior to operation of the Project.

80. Where practicable and appropriate the compensation measure will be implemented outside of the LBBG breeding season to minimise disturbance to breeding birds, although potentially some vegetation management (if required and depending on the type of vegetation to be controlled) may need to be conducted early or late in the breeding season. The aim would be to install the compensatory measure between September and March.

81. Legal agreement (e.g. lease of the compensation site by the Project) with the landowner(s) of the selected compensation site will be obtained by North Falls to ensure that delivery of the compensation is secured for the duration of the compensation period. Alternatively, the Applicant may seek a compulsory purchase order under the Electricity Act 1989 for any land rights required to deliver the compensatory measure.

6.5 Implementation and delivery roadmap

82. The approach to delivering the compensatory measure (either alone or jointly with other plans and projects as appropriate) in order to improve breeding success is as follows:

- A steering group would be convened, expected to comprise representatives from the Applicant (and other project companies where relevant), Natural England, the RSPB and, if appropriate, other interested parties, such as Historic England, the relevant Local Planning Authority and an independent chairperson. The steering group would oversee the compensation to be delivered by the Applicant.
- The area to be managed/fenced would be selected via site suitability surveys after an overall site selection process has been completed and a general location has been selected.
- Candidate locations for the compensation would be discussed within the steering group with the aim of agreeing the most suitable area to be taken

forward, given the site constraints and sensitivities and taking into account the features of any other designated sites;

- The Project would secure necessary land rights in the selected site through legal agreement, to ensure that compensation can be delivered for the operational lifetime of the wind farm. Alternatively, the Applicant may seek a compulsory purchase order under the Electricity Act 1989 for any land rights required to deliver the compensatory measure.
- The Project would secure any further permissions required to deliver the compensatory measure. These may include:
    - Planning permission for the installation of predator-proof fencing would be determined under the Town and Country Planning Act 1990 (as amended);
    - Site of Special Scientific Interest (SSSI) Assents from Natural England for the works which may include:
        - Each site survey required for pre-construction, construction and maintenance;
        - Construction and maintenance of fencing; and
        - Site management.
- Following identification of a suitable location, a contractor would be appointed to install the fence and/or undertake habitat improvement works. While this may be timed for the nonbreeding season, unless the work was considered likely to cause disturbance to existing breeding birds there may be no particular need to do this outside the breeding season; and
- Measures to encourage birds to investigate and settle in the fenced area may be undertaken prior to and during initial breeding seasons until such time that the colony is considered established. These may include habitat management (e.g. mowing grass to a short sward length), provision of features for birds to nest against (e.g. railway sleepers or similar), construction of raised platforms and posts to provide perches, placement of decoy birds in visible locations and playback of colony calls. These measures have all been proposed as adaptive management options for other LBBG compensation sites and the need for their deployment and the intensity of such measures will be considered based on the proximity of the compensation site to existing breeding sites, i.e. if the compensation is to extend the protection at an existing colony, fewer of these may be necessary. Should a new location, further from an existing colony, be selected, it may be appropriate to use all of these for several years to maximise colonisation.

83. This compensation is secured by the relevant provisions of the DCO (Document Reference: 6.1).

84. Compensation for North Falls could be progressed by North Falls alone, or in collaboration with the National Trust and/or other OWFs including Five Estuaries.

6.6 Monitoring, maintenance, reporting and adaptive management

6.6.1 Monitoring

85. For North Falls, the success of compensation would be determined through annual monitoring of breeding numbers within the compensation site using standardised breeding seabird survey methods until such time that the compensatory measure is found to be delivering the scale of required compensation (Section 6.3).

86. It is proposed that monitoring will include a combination of the following activities, which are principally derived from Gilbert et al. (1998) and Walsh et al. (1995). The monitoring methods will be agreed with the steering group, and will be undertaken from the first breeding season following installation of the compensatory measure:

- The number of pairs in apparently occupied nests (AON) of breeding LBBG using the compensatory measure will be recorded. As it is unlikely that all nests will be visible from any given location it will be necessary to map observed nests to cross-check between vantage points;
- Productivity will be estimated at the compensation colony by monitoring breeding success and number of chicks fledged at a representative sample of nests throughout the colony. Mapped pairs will be monitored until such time as chicks can no longer be associated with their nest. Productivity monitoring would include information on failed nests, including evidence such as signs of disease or starvation within the colony, changes in behaviour, and appearance of plastic or other sources of pollution;
- Implementation of a colour ringing scheme to monitor survival and productivity of LBBGs would greatly aid in attaining data on the colony, and would help show levels of natal philopatry once the project has been underway long enough to recruit birds produced on site back into the breeding population, as well as movement of birds from Orfordness i.e. where they go to forage or where they recruit (if not on their natal site). This would be conducted by licensed professionals with as minimal disturbance as possible; and will tie into the below measure on observations;
- Observations to obtain both productivity and count data will be conducted in such a way as to minimise disturbance. For example, observations will be made from within a vehicle or through use of portable hides;
- Consideration will be given to the use of drones to obtain aerial images of monitored nests and suitable breeding habitat across the site, particularly if areas cannot be effectively viewed from site boundaries without risk of disturbance. Drones would only be used if agreed with the landowner and if they could be used without causing disturbance. A review of best practice drone use indicates that nesting gulls can be intolerant of drones (Edney et al., 2023), although disturbance can be limited with the use of smaller modern drones with better cameras (Natural England, *pers. comm*., 2024). Use of a thermal imaging drone may also be considered (which may be more effective in identifying nests hidden by vegetation).

Drones would only be used if there is high degree of confidence that it would not have any detrimental effects;

- The availability of suitable breeding ground (i.e. habitat distribution) will be monitored annually at the compensation site;
- Surveyors will also collect opportunistic observations, such as instances of predation by avian species (e.g., other large gull species and corvids), and human disturbance;
- Monitoring of predator activity will be undertaken, through searches for signs (e.g. tracks and paths, droppings, mammal hair) and use of camera traps. This will be linked to maintenance of the fence (see below); for example the requirement for monitoring may be triggered by evidence of damage or breach of the fence; and
- The above methods will be complemented with high resolution photography, to provide a permanent record of how the site is being used.

6.6.2 Maintenance

6.6.2.1 Fencing

87. If fencing is selected, ongoing maintenance and repair may be required. To ensure that the fence remains an effective barrier to mammalian predators for the duration of the proposed compensation, it will be essential that regular checks of the full length of fence are undertaken, and any damaged areas quickly repaired, in accordance with guidance provided by White and Hirons (2019):

- Breeding season
  - Fortnightly inspections of the full length of the fence (March to August).
  - Any damaged areas to be repaired as soon as practicably possible, ensuring disturbance to nesting birds is reduced.
- Outside of the breeding season
  - Inspections 2-3 times between September and February, with additional inspections after severe weather.
  - Substantial/routine maintenance of the fence (e.g. replacement of degraded wire or posts) should be undertaken during this period to avoid risk of disturbance to nesting birds, ensuring that sufficient time is allowed for completion before the breeding season (before the end of February).

88. Any identified damage to the fence that has the potential to allow access by predators would be accompanied by monitoring to confirm presence and undertake additional predator control, if required.

6.6.2.2 Habitat maintenance

89. There may be a requirement for ongoing management of vegetation to provide and maintain suitable habitat for the gulls to nest. Such work would be undertaken outside the LBBG breeding season to avoid disturbance and would also need to be done in accordance with suitable management for other

designated features if present. This vegetation management will also offer a degree of flexibility in how the area is maintained. For example, it may be considered that a mosaic of vegetation types will provide the most suitable conditions, and this may be best achieved by varying the locations cut back each year. It will only become apparent what management is required once the site has been finalised, and thereafter the habitat will be monitored on an annual basis and managed accordingly.

6.6.3 Reporting

90. An annual monitoring report would be produced that would set out the results of gull and predator monitoring, and details of any maintenance undertaken. The report would be produced at the end of the breeding season, with results discussed with the steering group prior to production of the draft report. The steering group would provide comment on the draft report, which would be finalised for submission for approval by the Secretary of State no later than the following January after each breeding season. The report would include:

- Results from LBBG colony monitoring (colony counts, mapped nest locations and productivity monitoring);
- Evidence of mammalian presence within the compensation site;
- Assessment of whether LBBG population/productivity targets are being met;
- Details of maintenance and/or predator management measures;
- Identification of any required adaptive management; and
- Approach to management and monitoring for the following year.

6.6.4 Adaptive management

91. Proposed monitoring, as set out in Section 6.6.1 above, would be designed in consultation with the steering group to demonstrate whether the targets for compensation are being met. In the event that this is not the case, adaptive management measures would be implemented to address any shortfall. Such measures would take into account the monitoring results and advice from the steering group.

92. The key metrics that will determine the success of the compensation measures will be the number of AON and the productivity of those nests. However, the evaluation of success would be considered in the context of LBBG breeding success elsewhere, at both a local (i.e. SPA) and regional scale. If low breeding success at the compensation colony was reflected by similar performance at other colonies, then this could be attributed to wider issues (e.g. prey availability, weather or disease), and would not necessarily indicate that remedial measures (i.e. adaptive management) would be required. Conversely, performance at the compensation site below that of other colonies is likely to indicate that the adaptive management measures would be required.

93. Where a shortfall in breeding success is identified, there would be a requirement to seek to understand the reasons for this. In the initial years of the compensation, it is likely that this would be focussed on colonisation factors.

For example, there may be evidence that birds are not prospecting within the compensation site, or prospecting but not settling, or settling but abandoning during nest building, and each of these would lead to a requirement for different remedial measures. Data will be collected with the aim of understanding the reasons for whichever of these may be occurring, such as the suitability of the vegetation or disturbance (e.g. mammal movements outside the fence or vehicle movements) and the most appropriate corresponding responses. Once colonisation is established, if rate of growth is below expected levels then the causes would be investigated, to establish whether there are particular areas that are affected, or features that are the likely cause. For example, this could be the result of topography, vegetation structure, the proximity to fences, or areas favoured by predatory bird species (such as corvids or other gull species).

94. If required, adaptive management measures would depend on the circumstances, but could include:

- Additional habitat management, conducted over winter and prior to LBBG arrival in spring, to enhance the attractiveness to nesting birds, e.g., through closer sward mowing, patchwork strimming, creation of bare ground, placement of old sleepers (or similar) to provide structures for birds to nest against;
- If avian predation is identified as causing significant loss of eggs then options for reducing this which are not detrimental either to LBBGs or other AOE SPA conservation objectives will be investigated;
- If initial recruitment is below the target level, then colony call playback and placement of decoy birds within the compensation site will be undertaken (although it should be noted that decoys may also be used to encourage birds to colonise the site from the first breeding season year following compensation installation, in which case this would represent an enhancement of the compensation measure already delivered); and
- In the event that the above methods are undertaken, and the compensation site remains under-utilised or unused, then careful consideration would be given to the potential of alternative or additional locations.

7 Impact of Proposed Compensatory Measure

95. If proposed compensatory measures are located within and SPA or SAC, this would be subject to a separate HRA. However, the site selection and design of the measures would ensure that there would be no risk of an AEoI in respect of any qualifying features from these sites.

96. The compensation design would also consider potential effects on other features of ecological importance, including the AOE SSSI, together with other features of biodiversity importance.

97. The design would also consider effects on other receptors, including heritage, landscape, geomorphology and hydrology. In each case, the compensation design would be required to ensure that significant adverse effects on sensitive receptors were avoided.

98. Consideration has been given to any potential impacts that might arise as a result of the implementation of predator exclusion/control, disturbance management or habitat management. The potential impacts identified are described in Table 7.1 together with details, where relevant, of how these would be avoided, reduced or mitigated.

Table 7.1 Potential impact of proposed compensation measures

Potential impacts	Details	Measures required to avoid, reduce or mitigate	Effect significance
Impacts on other protected areas and features	The proposed compensation may be located within, or in proximity to, the following sites designated for nature conservation: AOE SPA AOE Ramsar AOE SSSI Or Orfordness-Shingle Street SAC Or The Wash SPA The Wash and North Norfolk Coast SAC In addition the proposed fencing may be located in proximity to the following sites: Outer Thames Estuary SPA Alde-Ore & Butley Estuaries SAC Orfordness-Havergate NNR Or The Greater Wash SPA Potential impacts associated with predator exclusion, predator control and management of habitat are: A small amount of temporary habitat modification/loss (scraped back vegetation and topsoil along the fence line); Potential disturbance of qualifying species at the fence site due to construction activities; Potential disturbance of qualifying species from the transport of materials, machinery and personnel	Construction of the fence to take place outside of bird nesting season; Speed limits for vehicles associated with construction and management/maintenance; Habitat management and fence maintenance to take place outside of nesting season; and Regular checks of predator traps.	With the implementation of mitigation measures, there would be no likely significant effect on protected areas or features. Furthermore, no AEoI is expected to occur. A Habitats Regulations Assessment will be undertaken to consider potential effects on the designated sites once the location and precise nature of the compensation works is known.

Potential impacts	Details	Measures required to avoid, reduce or mitigate	Effect significance
	to site along the access road; and Potential disturbance of qualifying species at the fence site due to ongoing maintenance / management activities. Potential impacts associated with predator control, if required, are: Trapping of non-target species		
Visual impact of breeding enhancement (e.g. fencing)	The search area lies within the Suffolk Coast and Heaths National Landscape (previously Area of Outstanding Natural Beauty). While this would typically denote a high value, the sensitivity of this landscape to the effects of compensation such as a fence would be moderated by the extent of built development and modern land use practices in this area and across the wider National Landscape. There are no settlements or roads close to the site owing to the divisions created by the River Ore and River Alde. Therefore, the type and frequency of visual receptors (i.e walkers) experiencing views in this area is limited.	Use of sensitive colours on the fence to allow it blend in with surroundings, and limiting the height to two metres would mitigate the visual impact.	With the implementation of the mitigation measures, there would be no likely significant effect on landscape and visual receptors
Impact on cultural heritage assets	The proposed compensation (e.g. fencing) could have an impact on archaeology or cultural heritage setting depending on its location.	The site selection process for the location of the fenced area would include principles setting out the avoidance of statutory heritage designations.	There would be no likely significant effect on cultural heritage receptors.
Increase to flood risk	The compensatory measure will not result in a change to surface water flows or introduce hardstanding.	N/A	There would be no likely significant effect in relation to flood risk. A Flood Risk Assessment will be undertaken for the area chosen for the compensatory measure.
Impacts on recreation	Onsite interventions to reduce recreational disturbance or install predator eradication would represent highly localised displacement.	Where practicable, diversions or alternative routes would be established, if fencing/disturbance management block public rights of way. Where a measure could disrupt users, implementation of the measure would be limited to the breeding season.	There would be no likely significant effect on tourism and recreation.

8 Strategic Compensation and Marine Recovery Fund

99. It is recognised that Defra is considering predator reduction as a strategic measure for offshore wind farms, up to and including Round 4, therefore covering extension projects such as North Falls. The Applicant will continue to monitor the progress of strategic measures, should this become an available option for all projects up to an including Round 4, including extension projects such as North Falls.

100. This or another strategic measure may be delivered through a contribution to a Strategic Compensation Fund (e.g. the Marine Recovery Fund (MRF)).

101. Strategic compensation would be implemented wholly in substitution of the project led/collaborative breeding enhancement compensatory measure, at a level proportionate to the effects described in Section 3; or partly in substitution, in the unlikely event the proposed compensatory measures were not able to deliver the full compensation requirement.

102. Defra's intention to introduce legislation to enable the establishment of the Marine Recovery Fund and the recent consent award for SEP and DEP should give decision-makers confidence that a strategic solution can be relied upon by the Secretary of State in their decision to grant the Project's development consent. Notwithstanding, the Applicant has proposed project specific compensation which can be relied upon.

9 Summary

103. Options for compensatory measures for LBBG have been considered by the Applicant and developed through a process of pre-application consultation with stakeholders.

104. The delivery of breeding enhancement has been identified by the Applicant as the preferred measure that could be taken forward as part of a project alone or collaborative delivery model, whereby the Applicant would seek to deliver compensation through a partnership arrangement with Five Estuaries and/or the National Trust.

105. Alternatively, the Applicant considers that strategic compensation (such as the MRF) for LBBG is a measure that could be wholly or partly substituted in place of the Applicant's proposed measure or as an adaptive management measure, if required.

106. The information provided demonstrates the ecological evidence for the measure, how the measure can be secured and that the mechanism for delivery can be implemented.

107. There are no likely significant effects associated with the compensatory measures.

108. The LBBG CIMP will set out the detailed delivery proposals for the agreed compensatory measures based on those set out in this LBBG Compensation Document and in accordance with the Outline LBBG CIMP. The LBBG CIMP will be produced by the Applicant and approved by the SoS prior to the start of construction in accordance with the draft DCO (Document Reference: 6.1).

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