

Norfolk Projects Offshore Wind Farms

Lesser black-backed gull Implementation and Monitoring Plan

Annex 2 Site Suitability Report

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Norfolk Projects Offshore Wind Farms Lesser Black-backed Gull Compensation: Habitat Suitability Survey

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1 INTRODUCTION

This report presents a summary of the findings from a habitat survey carried out in June 2022, of an area of land ('the site') within the Cobra Mist site at Orford Ness, Suffolk, with the aim of determining its suitability for nesting lesser black-backed gulls (LBBGs).

1.1 Background

The Norfolk Boreas and Norfolk Vanguard offshore wind farms (collectively the 'Norfolk Projects') are required to secure compensation for predicted impacts on breeding LBBG which is a feature of the Alde-Ore Estuary Special Protection Area (SPA). The compensation will be delivered by provision of an enclosure no less than 4 ha in size which will be contained within a predator-proof fence, designed to exclude foxes, other potential mammalian predators and also reduce disturbance from species such as deer.

The Norfolk Projects have identified an area of land (see Figure 1, Annex A) considered potentially suitable for delivering this compensation. Preliminary visits to the site confirmed the likely suitability of this area to operate as intended. However, it was considered appropriate to undertake a more detailed habitat survey, focussed primarily on the structure of the vegetation, to investigate this site more fully. The survey was also intended to determine if, and how, the site could be managed for the intended purpose, to enhance the available area for LBBG nesting should this be considered necessary.



Photo 1: View of the site facing northeast towards Cobra Mist masts.

A Scope of Works (SoW) was produced by MacArthur Green in May 2022¹, which was circulated to members of the lesser black-backed gull steering group (LBBGSG) for comment, following which the SoW was modified to include consideration of the points raised.

¹ MacArthur Green (2022). Norfolk Projects Offshore Wind Farms Lesser black-backed gull compensation: Habitat suitability survey scope of works. Report for Vattenfall and Royal Haskoning DHV.

The aims of the survey were as follows:

- To determine the existing extent of suitable areas within the site boundary (Figure 1) and the potential for enhancing this extent through habitat management (e.g. mowing or strimming during the nonbreeding period).
- Map areas which are currently less favourable for nesting and provide an estimate of the degree of management that would be required to bring them into a more suitable state.
- Estimate the size of LBBG colony which could be accommodated at present (i.e. within existing suitable habitat) and that which might be accommodated with varying degrees of habitat management.

1.2 Survey methods

The procedure undertaken during the June 2022 site visit can be summarised as follows:

- Distinct areas of habitat type were marked on large scale aerial imagery survey maps, and within each area the following observations were made:
 - Habitat and species composition – dominant species, and the presence of any species which may thrive in nutrient-rich conditions caused by gull nesting ('weed' species);
 - Measurement of the tallest vegetation present, and the general range of sward heights;
 - An estimate of the proportion of bare ground within each area; and
 - The presence of any particular features that may be relevant, either for enhancing the suitability for LBBG nesting (e.g. the presence of railway sleepers which may be nested against) or that could reduce the suitability (e.g. scrub);
- Any evidence or signs of mammalian predators or other mammal species;
- The presence of other breeding birds which may need to be taken into account either in relation to vegetation management, or that may be affected by the presence of an LBBG breeding colony;
- Any notable plant or protected (non-avian) species observed; and
- Photographs of each area were taken to support observations and characterisation of areas within the site.

1.3 Analysis

Following the site visit, each distinct area marked on the survey map was classified into one of the following predetermined categories:

- Currently suitable for LBBG nesting (i.e. without any vegetation management or similar);
- Suitable with minimal management (e.g. following 1-2 person days of strimming during the nonbreeding period);

- Suitable with moderate management (e.g. following 3-4 person days of strimming per nonbreeding season, mowing by tractor etc., addition of sleepers etc. for birds to nest against); or
- Currently unsuitable without a high level of modification (e.g. removal of vegetation and topsoil).

Total areas corresponding to these categories were then calculated using GIS, from which possible nesting capacity was estimated using published values of LBBG nesting density.

2 RESULTS

2.1 Habitat overview

The general habitat type was broadly consistent throughout the survey area, comprising a mature species-poor coarse grassland, most closely resembling the SH71 false oat grass *Arrhenatherum elatius* grassland community described by Sneddon & Randall (1993²) in their classification of coastal vegetation. This community was noted by the authors as being common in Orfordness, and resembles a species-poor version of National Vegetation Classification (NVC³) community MG1a *Arrhenatherum elatius* grassland, *Festuca rubra* sub-community.

During the June 2022 survey it was noted that the grassland habitats on site were dominated by fescues *Festuca rubra* and *F. arundinacea* and Yorkshire fog *Holcus lanatus*, as well as false oatgrass in places. Associated species included creeping bentgrass *Agrostis stolonifera*, creeping thistle *Cirsium arvense*, common ragwort *Senecio jacobaea*, sticky ragwort *Senecio viscosus* and common nettle *Urtica dioica*. Small patches of common reed *Phragmites australis* and bramble *Rubus fruticosus* were also present.

Herbs were more common in parts of the site where the grass sward was less rank, such as on more stony ground and where man-made concrete features are found.

2.2 Water levels and drainage

Water levels on site are controlled by a sluice gate system, with a series of channels through the site (see photos below). These are approximately 2.5 to 3.0m wide and likely >1m deep. The site is subject to occasional influxes of saltwater during extreme weather events. At the time of survey, the site was very dry, with natural hollows and ponds on site containing very little, or no standing water. Generally, the plant species composition suggests that the site becomes drier further east towards the coast, with species such as *Phragmites* reed absent from those areas.

² Sneddon, P., & Randall, R.E. 1993. Coastal Vegetated shingle structures of Great Britain: main report. Peterborough, Joint Nature Conservation Committee.

³ Rodwell, J.S. (2006). National Vegetation Classification: Users' handbook. Joint Nature Conservation Committee, Peterborough.



Photos 2 and 3: Examples of drainage channel within site.

2.3 Notable Species

Although there were no gulls present within the site, LBBGs and herring gulls were nesting on the roof of the transmitter building to the west of the site within 200m. A count was made during the survey of a minimum of 32 pairs of herring gull and four pairs of LBBG, although most of the flat roof was not visible, so the number of pairs is likely to be considerably higher.

Both Chinese water deer and brown hare were regularly observed within and around the site. There were no signs of mammalian predators, and staff on the adjoining National Trust land have informed the surveyors that, although foxes will be present on Orfordness, numbers are currently considered to be low.

No breeding birds were recorded within the site.

Adjacent to the track leading to the transmitter building, and around 250m from the site, a patch of potentially invasive pirri-pirri bur *Acaena novae-zelandiae* was observed. This species can have adverse effects on birds and other wildlife when the burs attach to feathers, fur etc.

2.4 Site suitability classification

The observations made within each distinct habitat/topographical area of the site are shown on Figure 1 in Annex A presented in full in Annex B. Of the 13 distinct areas mapped, and based on the categories presented in section 1.3, two are considered to be currently suitable for LBBG (areas 2 and 10, comprising 12% of the site), two are considered to be suitable with ‘minimal’ management (areas 7 and 12; comprising 16% of the site), and the remaining nine are considered to be suitable with ‘moderate’ management (72% of the site, but see *Discussion* section below for details on levels of management). No parts of the site were considered to be within the category of ‘unsuitable without a high level of modification’ (excluding water channels).

The level of current, or potential, habitat suitability generally formed a west-east gradient, with drier, more stony areas with patchy sward in the east likely requiring less management effort than that for the more rank sward further west. However, at the western end there are areas of man-made former infrastructure (Area 2) which were considered currently suitable, as they contain scattered tall herb species on stony/concrete ground which gulls may choose to nest against. Additionally, scattered wooden sleepers were prevalent in the east, but absent from the western half of the site.

2.5 Estimated LBBG colony size which could be supported

On the basis of the above defined categories within the site (currently suitable, requiring minimal management and requiring moderate management) the estimated number of nests which could be accommodated was calculated. This used an LBBG nest density⁴ of up to 0.04/m² (or 400/ha) with an assumption that all the bare ground would be used for nesting within the currently suitable areas (90% in polygon 2 and 30% in polygon 10) and 50-75% of the area within the minimal and moderate categories would be used for nesting following strimming. On this basis, the numbers of nests would be:

- Currently suitable areas: 0.73 ha, up to 165 nests;
- Minimal management areas: 1.01 ha, between 228 and 341 nests; and,
- Moderate management areas: 4.52 ha, between 1,018 and 1,526 nests.

Thus, with no vegetation management a colony of 165 pairs could be accommodated within the enclosed site and with management of all the subplots identified, the total could be between 1,411 and 2,032 pairs.

3 DISCUSSION AND MANAGEMENT OPTIONS

The habitats within the site differ very little from those in the local area that hosted the LBBG colony when it was at its peak in the late-1990s. The tall grassland was then favoured by the bulk of the LBBG breeding pairs, with herring gulls (and some LBBGs) choosing more open beach areas. It is therefore considered to be the case that the site as a whole is suitable as a LBBG nesting area. The site has the added advantage of being close to existing LBBG nest sites on the nearby transmitter building, which is likely to increase the chances of rapid occupation.

⁴ Ross-Smith, V.H., Johnston, A. & Ferns, P.N. 2015. Hatching success in lesser black-backed gulls *Larus fuscus* – an island case study of the effects of egg and nest site quality. *Seabird* 28, 1-16

In general, there are three main management measures required to produce optimal nesting conditions:

1. Installation of a predator-proof fence;
2. Sward management (strimming/cutting) during the non-breeding season; and
3. Provision of additional structures for gulls to nest against.

The installation of a suitable fence would likely have a benefit, not just for keeping out mammalian predators such as foxes, but also keeping out Chinese water deer, which although not predators, may cause disturbance to breeding gulls during day and night when the deer are active. The fence should be constructed so that there would be no egress for mammals via the water channels on site.

Sward management would most likely take the form of a single round of random cutting of grass during the non-breeding season, and outside of the growing season (assumed to be 1-2 person days). To provide shelter for chicks, a diversity in sward height is recommended and so each area should have left uncut approximately 25-50% of the tall grass in any year. Unless monitoring results suggest otherwise, there would be no need to remove the cut vegetation, simplifying the operations. Additionally, any small patches of *Phragmites* reeds or tall ruderals should be left intact as they can provide suitable nest habitat, but any more extensive areas of tall ruderals or brambles should be cut.

Although the grassland areas in the western half of the site (areas identified as requiring 'moderate' management in Annex B) lack patches of bare ground and can have a thick thatch, it may be the case that a single round of random cutting during the non-breeding season would be sufficient to create a diverse range of sward heights, and therefore in practice there would be little difference in management to those areas categorised as requiring 'minimal management', with only the intensity of cutting during the single visit being different. This should be monitored to ascertain if additional cutting is necessary.

Monitoring should also look for encroachment of scrub as well as any other deleterious species such as piri-piri bur, and if found, appropriate action should be taken for their removal.

There are a number of wooden sleepers scattered across the eastern half of the site and these are of potential value as structures against which gulls may choose to nest. It would therefore be beneficial to add more sleepers or similar suitable structures in the western half of the site in particular, which will increase the potential breeding numbers. It was noted during the site visit that there are potentially suitable sleepers and other materials located just outside the site which may could serve this purpose.

It may also be worthwhile to fix some decoy gulls within the site. This would simulate nesting and encourage other gulls to join them. This method has been successful for tern species and could also prove suitable for gulls.

With no management of vegetation it is estimated that a colony of approximately 165 pairs could be accommodated. With a very small amount of cutting (c. 2 days per year) it is estimated this could be increased to between 400 and 500, and with additional management (e.g. approximately 20

days per year, and addition of structures to aid nesting) it is estimated that a colony of between 1,400 and 2,000 pairs could be accommodated.

4 NEXT STEPS

It is recommended that in order to refine the proposed management measures, an attempt should be made to determine the habitat conditions in existing LBBG colonies in the local area. It is therefore proposed that a survey should be conducted on the lower section of the Orfordness spit and on Havergate Island where pairs continue to nest. The survey should record sward heights and species diversity and also look at distances of nests from the nearest water feature (which may be a limiting factor for breeding numbers within the management site if birds perceive proximity to water as an enhanced risk of predation). It would also be informative to establish any land management which is undertaken at these locations. However, the results of these surveys are not required prior to installation of the compensation and should not delay its delivery.

A count of gulls at these locations would also help determine local nesting densities and therefore help to refine the estimates of potential numbers of breeding pairs that the management site could host.

ANNEX A. SITE BOUNDARY AND HABITAT CHARACTERISATION



ANNEX B. SURVEY RESULTS

Polygon ID and area (ha)	Photo	Habitat / species composition	Sward Height	% Bare Area	'Weeds' and nutrient-rich preferred species	Nesting Structures	Suitability	Estimated no. of nests that could be accommodated *
1 0.40 ha		Red fescue, false oatgrass and Yorkshire fog grass mix. Rank with thick thatch. Patches of common reed.	c. 45cm average	0%	Small amount of sticky ragwort and creeping thistle.	None.	Suitable following moderate management	54-90
2 0.24 ha		Example of man-made concrete/stone feature.	Up to 60cm. Common reed patches up to 1.2m	90%	Sticky ragwort, nettle, common reed.	None.	Currently suitable for LBBG nesting	99

Polygon ID and area (ha)	Photo	Habitat / species composition	Sward Height	% Bare Area	'Weeds' and nutrient -rich preferred species	Nesting Structures	Suitability	Estimated no. of nests that could be accommodated *
3 0.52 ha		Red fescue, Yorkshire fog grass mix. Some <i>pleurocarpus</i> moss mounds (dried).	30-45cm on average . Patchier than ID 1 and short near fence.	<5%	None.	None.	Suitable following moderate management	70-117
4 0.14 ha		Red fescue, Yorkshire fog grass mix. With extent of bramble scrub and some common reed.	45cm	0%	Bramble, nettle	None.	Suitable following moderate management.	19-31

Polygon ID and area (ha)	Photo	Habitat / species composition	Sward Height	% Bare Area	'Weeds' and nutrient -rich preferred species	Nesting Structures	Suitability	Estimated no. of nests that could be accommodated *
5 0.52 ha		Red fescue, Yorkshire fog grass mix. Thick thatch. Some moss and shingle patches throughout.	50cm	5-10%	Creeping thistle, ragwort	None.	Suitable following moderate management.	71-118
6 0.06 ha		Natural pool area with sedges surrounding but drying out. Surrounded by tall false oatgrass and Yorkshire fog. Areas of dry <i>pleurocarpus</i> mosses.	90cm	10-20%	Creeping thistle	Scattered sleepers	Suitable following moderate management.	8-13

Polygon ID and area (ha)	Photo	Habitat / species composition	Sward Height	% Bare Area	'Weeds' and nutrient-rich preferred species	Nesting Structures	Suitability	Estimated no. of nests that could be accommodated *
7 0.79 ha		Yorkshire fog, red fescue and false oatgrass grass mix. More shingle and patchier sward than elsewhere.	40-50cm and up to 70cm.	20%	Ragwort, nettle, creeping thistle.	Scattered sleepers	Suitable with minimal management.	179-268
8 0.47 ha		Yorkshire fog, red fescue and false oatgrass grass mix.	30-50cm	0%	Creeping thistle, sea beet <i>Beta vulgaris</i>	None.	Suitable following moderate management.	64-106
9 0.34 ha		Yorkshire fog, red fescue and false oatgrass grass mix.	30-75cm	0%	Nettle, creeping thistle, ragwort	Sleepers near fenceline	Suitable following moderate management.	46-77

Polygon ID and area (ha)	Photo	Habitat / species composition	Sward Height	% Bare Area	'Weeds' and nutrient -rich preferred species	Nesting Structures	Suitability	Estimated no. of nests that could be accommodated *
10 0.49 ha		Yorkshire fog, red fescue and false oatgrass grass mix. More shingle and patchier sward than elsewhere.	40-50cm and up to 70cm.	30%	Ragwort, nettle, creeping thistle.	Scattered sleepers	Currently suitable for LBBG nesting.	66
11 1.49 ha		Yorkshire fog and red fescue grass mix. Some perennial ryegrass <i>Lolium perenne</i> , common reed patches. Lusher than further east with thick thatch.	40-50cm. Comparably taller than ID 12	<5%	Creeping thistle	None.	Suitable following moderate management.	201-335

Polygon ID and area (ha)	Photo	Habitat / species composition	Sward Height	% Bare Area	'Weeds' and nutrient -rich preferred species	Nesting Structures	Suitability	Estimated no. of nests that could be accommodated *
12 0.22 ha		Yorkshire fog and red fescue grass mix. Relatively shorter, drier sward. Common reed patches.	30-40cm	5-10%	None.	None.	Suitable with minimal management.	49-73
13 0.58 ha		Yorkshire fog and red fescue grass mix. Some perennial ryegrass. Lusher than further east with thick thatch.	>80cm	0%	Creeping thistle	None.	Suitable following moderate management.	79-131

*Nest numbers calculated using a density of 450/ha⁴ using the estimated area of bare ground in 'currently suitable' areas, and 50-75% of the area in the ones requiring minimal and moderate management (hence the range presented), reflecting the recommendation to leave 25% to 50% of vegetation uncut to provide cover for chicks.