Morecambe Offshore Windfarm: Generation Assets

Development Consent Order Documents

Volume 4

Outline Compensation Implementation and Monitoring Plan

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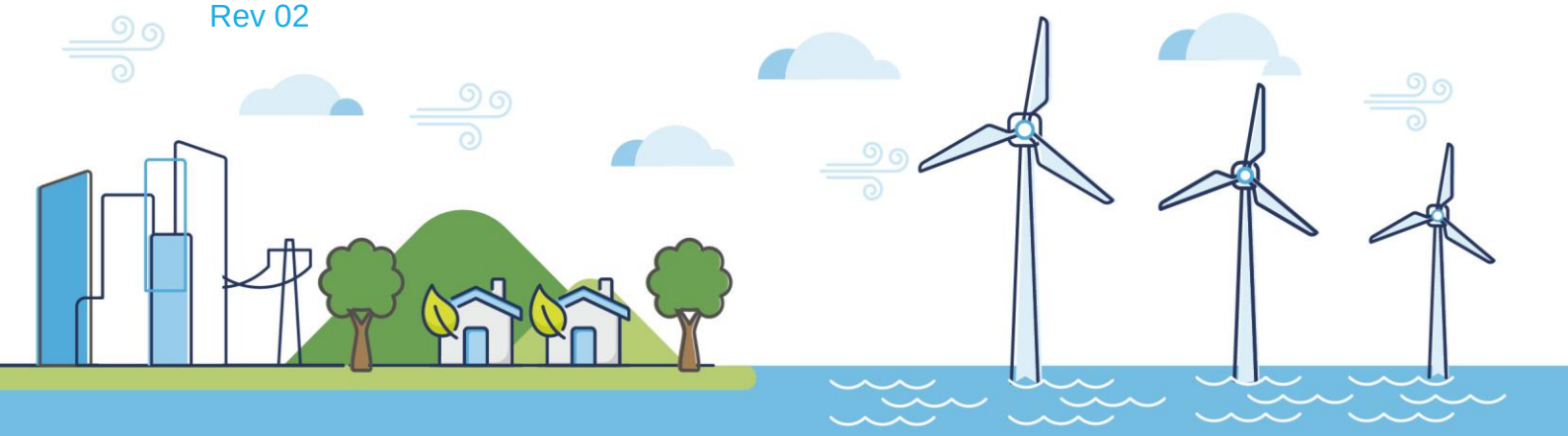

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Contents

Glossary of Acronyms

AfL	Agreement for Lease
AEoI	Adverse effect on integrity
BTO	British Trust for Ornithology
CIMP	Outline Compensation Implementation and Monitoring Plan
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ESO	Electricity System Operator
HNDR	Holistic Network Design Review
HRA	Habitats Regulations Assessment
LBBG	Lesser black-backed gull
LBBGCSG	Lesser black-backed gull Compensation Steering Group
MRF	Marine Recovery Fund
NE	Natural England
OSP	Offshore Substation Platform
KAMT	Kenneth Allsop Memorial Trust
OTNR	Offshore Transmission Network Review
RIAA	Report to Inform Appropriate Assessment
SoS	Secretary of State
SSSI	Site of Special Scientific Interest
UK	United Kingdom
WTG	Wind Turbine Generator

Glossary of Unit Terms

GW	Gigawatt
ha	hectare
km	kilometre

Glossary of Terminology

Applicant	Morecambe Offshore Windfarm Ltd
Application	This refers to the Applicant's application for a Development Consent Order (DCO). An application consists of a series of documents and plans which are published on the Planning Inspectorate's (PINS) website.
Generation Assets (the Project)	Generation assets associated with the Morecambe Offshore Windfarm. This is infrastructure in connection with electricity production, namely the fixed foundation wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSP(s).
Inter-array cables	Cables which link the WTGs to each other and the OSP(s).
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The transmission assets for the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm. This includes OSP(s)[1], interconnector cables, Morgan offshore booster station, offshore export cables, landfall site, onshore export cables, onshore substations, 400kV cables and associated grid connection infrastructure such as circuit breaker infrastructure. Also referred to in this chapter as the Transmission Assets, for ease of reading.
Offshore substation platform(s)	A fixed structure located within the windfarm site, containing electrical equipment to aggregate the power from the WTGs and convert it into a more suitable form for export to shore.
Wind turbine generator (WTG)	A fixed structure located within the windfarm site that converts the kinetic energy of wind into electrical energy.
Windfarm site	The area within which the WTGs, inter-array cables, OSP(s) and platform link cables will be present.

[1] At the time of writing the Environmental Statement, a decision had been taken that the offshore substation platforms (OSPs) would remain solely within the Generation Assets application and would not be included within the Development Consent Order (DCO) application for the Transmission Assets. This decision post-dated the Preliminary Environmental Information Report (PEIR) that was prepared for the Transmission Assets. The OSPs are still included in the description of the Transmission Assets for the purposes of this document as the in-combination effects assessment carried out in respect of the Generation/Transmission Assets is based on the information available from the Transmission Assets PEIR and associated Habitats Regulation documentation.

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1 Introduction

1.1 Project Background

1. Morecambe Offshore Windfarm Ltd ('the Applicant') is applying for a Development Consent Order (DCO) for the Morecambe Offshore Windfarm Generation Assets (hereafter 'the Project'). The Project was one of six projects selected by The Crown Estate in its Offshore Wind Leasing Round 4 in 2021. The Agreement for Lease (AfL) for the project was received in 2023.

2. The Project includes the Generation Assets to be located within the offshore windfarm site (wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSPs).

3. A separate DCO consent for the Transmission Assets associated with the Morecambe Offshore Windfarm and the Morgan Offshore Wind Project (another proposed Round 4 windfarm to be located in the Irish Sea) would be sought, as explained below.

4. Both the Morecambe Offshore Windfarm and the Morgan Offshore Wind Project have been scoped into the Pathways to 2030 workstream, under the Offshore Transmission Network Review (OTNR). Under the OTNR, the National Grid Electricity System Operator (ESO) is responsible for conducting a Holistic Network Design Review (HNDR) to assess options to improve the coordination of offshore wind generation connections and transmission networks. In July 2022, the United Kingdom (UK) Government published the Pathway to 2030 Holistic Network Design documents, which set out the approach to connecting 50 Gigawatts (GW) of offshore wind to the UK electricity network (National Grid ESO, 2022). The output of this process concluded that the Morecambe Offshore Windfarm and the Morgan Offshore Wind Project would both connect to the National Grid at Penwortham in Lancashire, and as such the developers are working collaboratively.

5. Consequently, effects from the Transmission Assets of the Morecambe Offshore Windfarm and the Morgan Offshore Wind Project have been screened and assessed separately, as part of a joint Transmission Assets Environmental Impact Assessment (EIA), Habitats Regulations Assessment (HRA) process and subsequent DCO application, to be submitted by Morecambe Offshore Windfarm Ltd and Morgan Offshore Wind Limited (the latter being the developer of the Morgan Offshore Wind Project). The separation of assessment has not impacted the conclusions drawn in the Project Report to Inform the Appropriate Assessment (RIAA) (Document Reference 4.9).

1.2 Purpose of this document

6. This document sets out the outline for a lesser black-backed gull (LBBG) Compensation Implementation and Monitoring Plan (CIMP). The proposed compensation measures have been developed to demonstrate that suitable compensation could be provided in the event that the SoS considers that an adverse effect on integrity (AEoI) cannot be ruled out for the LBBG features of Morecambe Bay and Duddon Estuary SPA and Ribble and Alt Estuaries SPA. It is the Applicant's position that AEoI can be ruled out for these sites, and therefore the compensation proposals are presented without prejudice to this position. Natural England (NE) agrees that there would be no AEoI for the Project alone, but considers that AEoI for in-combination effects cannot be ruled out. It is expected that the LBBG CIMP will be further developed by the Applicant, in consultation with the Lesser black-backed gull Compensation Steering Group (LBBGCSG), should consent for the Project be granted and compensation for LBBG gull be required.

7. The detail included in this outline CIMP has been developed in accordance with the compensatory measures described in the Habitats Regulations Assessment Without Prejudice Derogation Case (Document Reference 4.11). The Habitats Regulations Assessment Without Prejudice Derogation Case provides detailed evidence supporting the potential compensation measures for LBBG.

8. The final CIMP will include all details, where relevant for each measure (as outlined in **Section 4** and **Section 5**) to be taken forward, of the:

   - Scale and location
   - Design
   - Delivery process
   - Delivery timeframe
   - Monitoring and adaptive management
   - Reporting requirements

2 Background

9. The Report to Inform an Appropriate Assessment (RIAA; document reference 4.9) for the Project concluded that there would be no risk of an AEoI for the LBBG features of Morecambe Bay and Duddon Estuary SPA and Ribble and Alt Estuaries SPA. This is because the Applicant considers that the predicted mortality for the Project alone apportioned to these SPAs (0.33 birds and 0.69 birds respectively) is so small that it would make no meaningful contribution to in-combination effects. However, NE, in its representations to the Examination for the Project, does not agree with the Applicant's position on this matter. While it agrees that there would be no AEoI as a result of Project

alone effects, it considers that the Project would contribute to in-combination effects, for which AEoI cannot be ruled out.

10. Mindful of this position, the Applicant prepared a without prejudice derogation case and compensation proposals that were submitted to the Examination with the DCO application (Document Reference 4.11). This CIMP provides further detail of the proposed delivery and monitoring of compensation measures at Steep Holm Island, located in the Bristol Channel (habitat management, Section 4). It is noted that the Applicant has included alternative compensation measures at other locations (including predator fencing and management at Banks Marsh and South Walney, Section 5). Further detail of these would be provided if, for any reason, the Steep Holm measures could not be implemented, noting that the Applicant considers that sufficient compensation can be provided at Steep Holm. In addition, the Applicant will maintain the option of a contribution towards strategic compensation measures should these become available. Further details of these potential measures can be found in the without prejudice derogation case and compensation proposals document (Document Reference 4.11).

11. It is noted that the Applicant is proposing to commence the measures at Steep Holm in 2025, ahead of a decision from the Secretary of State (SoS) as to whether such measures would be required. To that end, an interim LBBGCSG has been established with agreed Terms of Reference and proposals for implementation of the first-year measures set out in a methodology document, which is provided at **Appendix A**. This methodology has been developed with the interim LBBGCSG, whose members include the Applicant, NE and the Island managers (Kenneth Allsop Memorial Trust; KAMT). The RSPB has also recently joined the interim LBBGCSG; it is anticipated that these parties will form the core members of the final LBBGCSG.

3 Consultation

12. **Table 3.1** presents a brief summary of relevant consultation undertaken to inform the development of the compensation measures to date.

13. Further updates to this section will summarise all relevant consultation that has taken place through the LBBGCSG in the development of the CIMP. It will capture any key decisions, agreements, and where relevant any outstanding issues under discussion (with clarity as to the steps necessary to resolve any such matters). Ongoing engagement, for example to provide updates on monitoring (post-discharge of the CIMP) will be outlined here.

Table 3.1 Summary of Consultation

Consultee	Timeframe/ Date(s)	Summary of consultation response
KAMT and NE	Initial meetings started in April 2024 and continued on an ad hoc basis until December 2024	Initial discussions on site suitability and logistics for Steep Holm.
KAMT	HSE site visit 1 November 2024	Site visit for Applicant to draft HSE Report to inform recommendations for contractor welfare and discuss practicalities of delivering compensation measure
KAMT and contractors	December 2024 to March 2025	Contractor meetings to discuss individual work package requirements for baseline surveys and scrub clearance and to refine methodology for delivering the initial works. Contract negotiations and on-boarding with Project Team. Discussions on HSE improvements and commercial terms with KAMT.
Interim LBBGCSG	Established January 2025 and monthly meetings to date.	Establishment of the interim LBBGCSG and development and agreement of the Terms of Reference and methodology for habitat management measures on Steep Holm. Contractor attendance as required to plan the delivery of works in 2025-26.
NE	Representations in examination on scale of compensation	NE will advise on appropriate calculations to be used for the final agreed compensation quantum.
KAMT and contractors	30 April 2025 (weather permitting)	Site visit with contractors to discuss work programme delivery and draft site risk assessments for individual work packages

4 Habitat Management

4.1 Scale and Location of Compensation

14. The Steep Holm habitat management measures will be undertaken at Steep Holm Island (approximate centroid 51°20.375'N; 3°6.503'W), which is located in the Bristol Channel approximately 8.5km west of Weston-super-Mare and 13km south of Cardiff. Measures will be implemented on an area known as the Plateau, in the centre of the island, the location of which is shown on Figure 1 of **Appendix A**.

15. It has been agreed by the LBBGCSG that an area of scrub totalling approximately 1.08ha would be cleared within this area (refer to Figure 2 in **Appendix A**) to create new LBBG nesting habitat. At a density of 452 nests/ha (Ross-Smith *et al.*, 2015; refer to Annex 2A of the Derogation Case (Document Reference 4.11)), this would provide sufficient space for up to 488 LBBG pairs. Currently, the Applicant estimates that 26 nests would be required to compensate for the predicted mortality as a result of the Project's operation. At a density of 452 nests/ha, 26 nests would be equivalent to an area of 0.06ha. It is noted that the Applicant is awaiting an updated method for calculating the compensation requirement from NE, but in any event the available area is capable of delivering substantial over-compensation for any loss; i.e. the equivalent of more than 18 times the required area, based on the current estimated requirement.

16. These measures would be delivered for the operational lifetime of the wind turbine generators (WTGs) (35 years).

17. Further updates to this section will identify any changes to the scale of compensation required, and how this relates to the consent decision made by the Secretary of State. This section will then also detail any changes to the specific location(s) at which the compensation will be delivered and the suitability of identified sites to deliver the compensation measure. Any further changes to the compensation measure at Steep Holm pre-consent will be approved by the interim LBBGCSG prior to implementation in line with the principles outlined in this document.

18. If the Applicant has elected to pay a contribution to the Marine Recovery Fund (MRF) or equivalent fund towards habitat management measures, then this section will include the sum of the contribution as agreed between the Applicant and Defra or other body responsible for the operation of the MRF in consultation with the LBBGCSG.

4.2 Design

19. The compensation measures at Steep Holm will comprise the following elements:

- Pre-implementation baseline surveys to establish the extent of scrub, LBBG population and productivity.
- Clearance of approximately 1.08ha scrub from the Plateau area to increase available habitat for nesting LBBG.
- Ongoing management of the cleared area and adjacent exisiting open habitat (total area approximately 1.73ha; refer to Figure 2 in **Appendix A**) to maintain suitable open habitat for nesting gulls throughout the life of the Project.
- Monitoring to inform delivery, establish the success of compensation and, if required, identify adaptive management measures.

20. Information on the proposed measures is provided below; refer also to **Appendix A**. Further updates to this section will be undertaken as required, taking into account any updates to the evidence base provided in support of the proposed compensatory measures (Habitats Regulations Assessment Without Prejudice Derogation Case (Document Reference 4.11)) and engagement with the LBBGCSG.

4.2.1 Pre-compensation baseline surveys

4.2.1.1 Habitat survey

21. A habitat survey will be conducted prior to the implementation of the scrub clearance and vegetation management to assess the structure and distribution of vegetation at an appropriate time either before or during the LBBG breeding season.

22. It is proposed that a drone (unmanned aerial vehicle) will be used to carry out the habitat survey. It is expected that the drone survey will be able to clearly differentiate the extent of scrub from areas of Alexanders (*Smyrnium olusatrum*) and open ground. However, assuming access is possible this will be supported by ground truthing habitat surveys to validate the drone surveys.

Aims and objectives

23. The key aim of the pre-compensation habitat survey is to provide a baseline assessment of the extent and, if possible, maximum height of the scrub and vegetation present on Steep Holm.

24. Objectives of the habitat surveys include:

- establish a baseline of scrub and other vegetation types extent against which management measures will be measured;
- assess the availability of suitable habitat for LBBGs across the island;
- confirm where habitat management (scrub clearance and vegetation management) should be located; and

- assess the locations of potential sources of disturbance (e.g., presence of public footpaths and buildings etc).

Scale and location

25. The habitat survey will be conducted over the whole island of Steep Holm, including as far as practically possible, the cliffs and the plateau as shown on Figure 1 in **Appendix A**.

Timing

26. It is proposed that the pre-compensation habitat survey will take place during the 2025 LBBG breeding season (March to August). Consideration will be given to measures to minimise disturbance to nesting birds at this time (e.g. by ensuring the drone operates >40m above ground level), although disturbance risk from the drone operation is considered to be low. Given potential access issues to the island, there is some flexibility in the timing of the habitat survey which needs to take place prior to any compensation-based scrub clearance works.

Habitat survey methodology

27. A drone will be used to record aerial imagery over the whole of Steep Holm Island. Subject to access, ground truthing surveys will additionally be carried out if necessary to validate the drone surveys.

28. Details of the drone (and if required, ground truthing) methodology, including suitable imagery resolution requirements and data analysis outputs will be discussed with the Contractor prior to the survey taking place.

Fieldwork

29. Objectives of the drone survey fieldwork conducted on Steep Holm include:

- photograph the entire island of Steep Holm including cliffs and the plateau to produce one complete image of the vegetation on the island; and
- derive a habitat map from the aerial imagery to show extent of vegetation types, georeferenced to enable future monitoring as part of the CIMP.

Data analysis

30. Images collected from the drone survey will be used to produce a digital surface model. Objectives of the digital surface model include:

- provide an estimate of the extent and location of scrub cover over the whole island, differentiated to different vegetation types where possible;
- provide an estimate of the extent and location of other vegetation types over the whole island;
- provide an estimate of the percentage of scrub on the plateau only; and

- provide an estimate of the range of vegetation heights on the plateau, if possible.

4.2.2 LBBG surveys

31. Pre-implementation LBBG surveys will be undertaken to establish the baseline population size and distribution of birds on Steep Holm, and a baseline assessment of productivity for this species.

4.2.2.1 Population survey

Aims and objectives

32. The key aim of the pre-compensation population surveys is to provide a baseline assessment of the current population size and distribution of breeding LBBGs on Steep Holm. Baseline survey data will be used to inform the efficacy of the compensation measure when compared with data collected following scrub clearance.

33. Objectives of the bird surveys include:

- estimate the breeding population of LBBGs on Steep Holm;
- confirm breeding locations of LBBG on the island;
- estimate density of breeding birds on the plateau of Steep Holm; and,
- confirm where habitat management (scrub clearance and vegetation management) should be located for the Implementation of the Compensation Measure.

Scale and location

34. A drone bird count survey will be conducted over the whole island of Steep Holm, including as far as practically possible, the cliffs and the plateau as shown on Figure 1 in **Appendix A**.

35. Surveyor 'ground truthing' surveys will be focussed on the Steep Holm plateau only, unless there is a need to survey great black-backed gulls, if the thermal camera is unable to distinguish between species.

Timing

36. It is proposed that the bird count surveys will take place during the 2025 LBBG breeding season (March to August). The aim will be to conduct the surveys when LBBG territories are established and the birds are on nests between May to June, the timing of the surveys will coincide with the LBBG egg-laying and chick rearing period.

37. Note that the drone and ground truthing surveys will not be conducted on the same day in order to avoid ground surveyors disturbing gulls while the drone survey takes place, but these surveys will take place as close together in time

as possible to minimise changes to bird numbers and distribution occurring between the two surveys.

Methodology

Drone Survey Fieldwork

38. If approved by NE, a drone with a thermal camera will be used to take aerial imagery over the whole of the island of Steep Holm. This will be undertaken by a suitably experienced specialist contractor.

39. The thermal camera will be capable of recording images from which the location of each gull can be identified, but it will not be possible to tell apart herring gull from LBBG species from the thermal imagery. A conventional drone camera will also be used to record gull imagery to aid species identification. The drone survey will also be used to estimate the population of muntjac deer present on the island.

40. Details of the thermal drone methodology, including suitable imagery resolution requirements and data analysis outputs will be discussed with the contractor.

41. The approach to the thermal drone survey will be as follows:

- record gulls and muntjac deer present over the entire island of Steep Holm including cliffs and the plateau; and
- ensure that people are not walking on the ground either prior to, or at the time of, the drone survey, in order to minimise disturbance and limit the number birds in flight.

Drone Survey Data Analysis

42. Images collected from the thermal drone survey fieldwork (together with the counts recorded during the ground truthing survey) will be analysed to estimate the population size and distribution of gulls breeding on Steep Holm.

43. The approach to the drone image data analysis will be as follows:

- produce a total count of individual gulls present on the whole island;
- produce a total count of individual gulls present on the plateau only; and
- produce an Excel Spreadsheet and GIS Shapefile containing a georeferenced location for each individual gull recorded in the images.
- Produce a total count of the number of muntjac deer present on the whole island.

Ground Truthing Survey Fieldwork

44. In order to ‘ground truth’ the total gull counts recorded from the drone survey, gull counts will additionally be conducted by trained ornithological surveyors on the ground at Steep Holm.

45. Ground truthing surveys will be concentrated on the plateau of Steep Holm, although birds will be counted from all areas on the island that are safe to access.

46. Ground truthing surveys will be conducted very close in time (within two days) to the thermal drone survey to ensure that the assemblage and distribution of gulls is as close as possible between the two survey types.

47. GPS coordinates will be recorded for each LBBG nest encountered during ground-truthing surveys; nest coordinates recorded on the ground will be compared with geo-referenced drone outputs. This comparison will allow for the establishment of an initial correction factor, which should serve to address the potential discrepancy between the number of birds recorded by drone and the number of actual nests present (Hälterlein *et al.*, 1995; Corregidor-Castro *et al.*, 2022).

48. The approach to the ground-truthing bird surveys will be as follows:

- from vantage points, count all gulls of all species (LBBG, herring gull and great black-backed gull) present on the plateau;
- upon reaching a vantage point, allow a period of time for gulls to settle on the ground before starting the count;
- mark each vantage point with a GPS location;
- mark the area of the plateau visible from each vantage point on a map;
- if possible, count the number of Apparently Occupied Nests (AON) of LBBG present on the plateau; and,
- mark each LBBG nest encountered with a GPS location.

49. It is important to note that as the plateau on Steep Holm is flat, it may not be possible to get a good view of the plateau from vantage points whilst standing on the ground. If this is the case, higher elevated vantage points giving a view of the plateau will be sought (e.g. vantage points from buildings if risk assessed as safe to do so or from a temporary platform constructed on the plateau).

50. If a vantage point survey is not considered suitable to provide an accurate count of LBBG nests (i.e. if a suitable vantage point cannot be found or if gulls nesting underneath scrub are likely to be missed), then an alternative method would be to use a flush-count of the adults (Walsh *et al.*, 1995); this method to count birds is used where terrain is difficult, the method would cause considerable disturbance to the gulls, but it could give a broad guide to colony size and species proportions on the plateau.

Ground Truthing Survey Data Analysis

51. Bird counts recorded during the ground truthing survey fieldwork (together with the counts recorded during the drone survey) will be analysed to estimate the population size and distribution of LBBGs breeding on Steep Holm.

52. The ground truthing data analysis approach will be as follows:

- add up the total number of individual gulls recorded on the plateau;
- calculate the proportion of LBBGs recorded on the plateau;
- apply the proportion of LBBGs derived from the ground truthing survey to the total gull count recorded during drone survey to produce the total number of individual LBBGs;
- if not possible to count LBBG nests during the ground truthing survey, divide the total number of individual LBBGs by two to estimate the number of breeding pairs;
- establish an initial correction factor to address any discrepancy between the number of birds recorded by drone and the number of actual nests present on the ground; and,
- estimate the density of LBBG nests present on the plateau.

4.2.2.2 Productivity survey

Aim and Objectives

53. The key aim of the pre-compensation LBBG productivity study is to provide a baseline assessment of the current productivity of this species on Steep Holm.

54. Objectives of the study include:

- record clutch size at each focal LBBG nest;
- record egg hatching success at each focal nest; and
- record fledging success at each focal nest.

Scale and Location

55. LBBG nests selected for the study will be located on the Steep Holm plateau, as shown on Figure 1 of **Appendix A**.

56. Productivity will be monitored at a representative sample of nests that are distributed throughout the LBBG colony on the plateau. The number of focal nests required for the productivity study will be discussed and agreed with the LBBGCSG.

Timing

57. The productivity study will take place during the 2025 LBBG breeding season (March to August). It is expected that the study will commence in April once LBBG territories and nests have been established and egg laying has

commenced. The aim will be to carry out a minimum of 3-4 visits (depending on access) to the focal nests involved in the study between April and August.

58. Note that the drone survey and the LBBG productivity study will not be conducted on the same day in order to avoid ground surveyors disturbing gulls while the drone survey takes place.

Methodology

59. LBBG 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.

60. Mapped pairs will be monitored in the study until such time as chicks can no longer be associated with their nest.

61. The approach to the LBBG productivity study will be as follows:

- walk slowly (to minimise disturbance) through the colony along a transect to locate nests;
- use the same transect (to minimise disturbance) to assess nests on each visit to the colony;
- visually mark focal LBBG nests with an agreed marker (e.g. stake) and mark the stakes with a GPS location;
- characterise the vegetation surrounding and contiguous with the edge of the nest;
- note number of eggs/chicks in each nest on each visit;
- note any signs of nest damage/predation at the focal nest;
- note and photograph any nests containing plastic;
- colour ring the chicks at each nest (to assess if these chicks are recruited back to the same colony in later years);
- continue monitoring each focal nest until chicks can no longer be associated with the focal nest;
- mark-recapture population estimates based on ringed chicks on all visits within years, after chicks colour-ringed; and,
- population estimates based on several measures:
  - detectable occupied nests;
  - adults present across the breeding period (defined by flushing behaviour, i.e. in the air at one time etc.); mark-recapture population estimates of chicks based on colour ringed birds in Visit One. Visit Two, estimates are based on the number of un-ringed chicks (of ringable age) against the number of detected ringed birds tagged during the last visit.

4.2.3 Scrub Clearance and Vegetation Management

4.2.3.1 Aims and objectives

62. The aim of the scrub clearance and vegetation management is to create and maintain additional open habitat at Steep Holm suitable for nesting LBBG.

4.2.3.2 Scale and location

63. An area of approximately 1.08ha scrub will be cleared from the plateau area, as shown shaded yellow and pink on Figure 2 of **Appendix A**. Ongoing management of this area, together with adjacent existing habitat (shown shaded blue on Figure 2 of **Appendix A**; total area approximately 1.73ha) will be undertaken to maintain suitable nesting conditions for LBBGs.

4.2.3.3 Timing

64. Scrub clearance and vegetation management works on Steep Holm will be implemented during the 2025 lesser black-backed gull non-breeding season (September 2025 to February 2026), after the birds have departed the island for their wintering grounds.

65. As winter weather conditions are likely to result in logistical constraints for the scrub clearance and vegetation management works, the aim will be to complete the scrub clearance and vegetation management works between September to November 2025.

66. Ongoing management of vegetation will be undertaken during the same period in subsequent years, for the lifetime of the Project. Ongoing monitoring will inform the frequency of such management; i.e. whether annual or less frequent management is required.

67. If required (for example in response to monitoring), additional clearance of Alexanders may be undertaken outside of this period, e.g. in the March/April period where the plant may be growing vigorously at the time where LBBGs may be settling to nest.

4.2.3.4 Methodology

68. Scrub clearance (location illustrated on Figure 2 in **Appendix A**) will be undertaken using appropriate tools (e.g. chainsaw/clearing saw/brushcutter).

69. Vegetation management (location illustrated on Figure 2) will also be undertaken using appropriate tools (e.g. flail-mower, strimmer).

70. The approach to the scrub clearance and vegetation management works will be as follows:

- check the clearance area (by walking through the scrub) for ecological constraints or other sensitivities (such as the presence of sensitive plant species, deer or features of heritage importance) prior to the commencement of work;
- visually mark the areas of scrub clearance and vegetation management (e.g. with stakes or other method) and mark the stakes with GPS positions;
- cut the scrub and other vegetation to ground level;
- undertake the works progressively from the edge of the clearance area; and
- take photographs of the cleared area before, during and on completion of the works.
- arisings will be either (a) stacked neatly in 'habitat piles'; or (b) cut into small pieces and spread evenly in situ. The preferred approach (or combination of both approaches) will be agreed with the LBBGCSG prior to commencement or during the work, as appropriate.
- vegetation management of open/Alexanders dominated areas will be undertaken using a flail mower and/or brushcutter/strimmer, working progressively in strips across the the cleared area. Cut vegetation will be left *in situ* to decompose.

4.3 Delivery Process

4.3.1 Timetable for delivery

71. As set out above, pre-commencement surveys will be undertaken during spring and summer 2025, with clearance work undertaken during the autumn/winter of 2025/26. This will provide the additional LBBG nesting areas for the 2026 breeding season, which will be maintained for the lifetime of the Project (35-year operational period). As lesser black-backed gulls typically start breeding at four years of age, this will seek to provide the compensation measure four years before the start of operation of Morecambe Offshore Windfarm. Allowing four years to elapse between implementation of the compensation measure and the start of the Project's operational phase will allow for the 'additional' juveniles at the compensation colony to become adults by the start of operation of the windfarm.

4.3.2 Consents and approvals

72. Site of Special Scientific Interest (SSSI) consent will be required from NE for the proposed habitat and monitoring works. This consent will be obtained by KAMT prior to the commencement of works. NE has indicated, as part of its role in the interim LBBGCSG, that it does not foresee any difficulties in providing the required consent.

73. Ringing work undertaken as part of LBBG monitoring will require appropriate NE Licence (administered by the British Trust for Ornithology (BTO)). This work will be undertaken by Licensed ringers from the Severnside Ringing Group, who will be responsible for ensuring that the required Licences and endorsements (if required) from BTO are in place to enable ringing to be undertaken.

74. All drone operators will be required to hold any necessary Civil Aviation Authority (CAA) registration and insurance, and adhere to CAA guidelines.

75. No other consents or licences are required to undertake the proposed compensation works.

76. A commercial agreement with KAMT will be put in place prior to the commencement of the compensation works. This will enable the Project to commence deliver the works prior to the determination of the DCO for the Project. The commercial agreement will be updated post-consent to cover the remaining delivery period, subject to a decision from the Secretary of State on the need for this without prejudice compensation measure.

77. Further updates to this section will identify any changes or additions to the delivery process, including a timetable for delivery, nature and status of all consents, commercial agreements (including land access rights) and other relevant approvals that may be necessary for the compensation measure and a programme for any outstanding consents. The evidence base contained within the Habitats Regulations Assessment Without Prejudice Derogation Case (Document Reference 4.11) will help inform these aspects.

4.4 Monitoring and Adaptive Management

4.4.1 Aims and objectives

78. Monitoring will be undertaken to establish the success of the compensation measures, i.e. to confirm that there a minimum of 26 (or alternative number agreed with NE; refer to paragraph 15) additional successful LBBG nests on Steep Holm compared to the baseline survey estimate. Productivity monitoring will also be undertaken to confirm the additional birds entering the population. Colour ringing will be used to measure recruitment back into the colony.

4.4.2 Timing

79. Monitoring will be undertaken for a minimum of four years following the implementation of the compensation measures. The requirement and frequency of monitoring after this period will be determined in consultation with the LBBGCSG, depending on the success of the measures at that time.

4.4.3 Methodology

80. Monitoring will be undertaken using the same methodology as the pre-compensation surveys, as set out in **Section 4.2.2**. This will comprise:

- Repeat drone count surveys. This will be important to confirm that increases in population have occurred in relation to the whole island population, and that the additional habitat is not just attracting birds that would have nested elsewhere. The surveys will also monitor changes in the muntjac population.
- Ground truthing survey counts. This will use a standard transect approach to enable indexing against the whole island population. This will potentially mean that drone surveys would not be required every year, subject to survey results and agreement with the LBBGCSG.
- Productivity survey, including colour ringing of chicks. Surveys of returning colour ringed birds will also be undertaken to estimate recruitment back in to the population.

81. Other relevant observations will also be recorded, for example evidence of predation or disturbance to nests by muntjac deer and human visitors. Monitoring results will be reported back to the LBBGSG (see below), to enable review of the compensation success to be undertaken and any requirement for adaptive management identified. Analysis will consider wider population trends for the species, for example by benchmarking data from other colonies in the Seabird Monitoring Programme database.

4.4.4 Adaptive Management

82. The requirement for adaptive management will be reviewed by the LBBGCSG in light of monitoring results, and implemented if deemed necessary. As above, the performance of the colony should not be viewed in isolation but should be seen in the wider context of LBBG breeding success locally (i.e. at other colonies around the Severn and Bristol Channel) and regionally (e.g. around the Irish and Celtic Seas). Hence, poor breeding success at Steep Holm in a year when this is also seen at most other LBBG colonies locally or regionally would be indicative of wider issues (e.g. reduced prey stocks, adverse weather conditions or disease) and would not automatically trigger remedial action. However, under these circumstances the Project would look to understand the reasons for poor reproductive performance at Steep Holm, attempt to identify potential remedies and collaborate with relevant groups to understand the wider context in terms of other local or regional colony breeding success. Conversely, if the Steep Holm colony performs less well than other monitored sites, this would be a strong indicator that action is required to identify and address the causes.

83. Adaptive management would be agreed with the LBBGCSG, should this be required. This would be dependent on the reasons (if known) that the

compensation was not achieving its objectives, i.e. the minimum required number of additional LBBG nests. Examples of adaptive management measures may include:

- Further increase in scrub clearance area
- Clearance of scrub from alternative areas at Steep Holm
- Changes to vegetation (e.g. Alexanders) management
- Management of predators or muntjac deer, should monitoring indicate that they are affecting LBBG productivity.

84. Further updates to this section will identify changes or additions to the monitoring and adaptive management principles and processes that will have been agreed with the LBBGCSG, including survey methods; success criteria; adaptive management measures; timescales for the monitoring and monitoring reports to be delivered; and details of the mechanism to determine the need for any alternative compensation measures and/or implementation of adaptive management measures. It will be developed taking into account the evidence base that has been provided in support of the proposed compensation measures set out within the Habitats Regulations Assessment Without Prejudice Derogation Case (Document Reference 4.11). Following discharge of the LBBG CIMP, the LBBGCSG will be engaged in reviewing on-going monitoring and implementing adaptive management if required as outlined in **Section 3** (Consultation) above.

4.5 Reporting

85. Annual reporting of management and monitoring results will be produced and provided to the LBBGCSG at the end of each breeding season. The report will set out the success of the compensation measures against project objectives. This will be followed by a meeting of the LBBGCSG where the results will be discussed and comments on the annual report provided. The LBBGCSG will also review any requirement for adaptive management. The final report will be submitted to SoS to enable sign-off, and to enable any adaptive management measures to be implemented for the following breeding season.

86. Further updates to this section will set out and changes to the reporting requirements associated with the monitoring and adaptive management. In doing so, it will confirm the necessary changes to objectives and timescales for the reporting.

5 Construction of a Mammalian Predator-proof Exclusion Fence and Mammalian Predator Removal

87. As set out in **Section 2** above, the Project is actively implementing the without prejudice LBBG compensation measures at Steep Holm during 2025. Consequently, further details of other potential measures are not developed further within the draft CIMP. However, should these measures be progressed, these details would be updated in accordance with the outline provided below.

5.1 Scale and Location of Compensation

88. Initial proposals have included the installation of predator exclusion fencing at Banks Marsh and South Walney (Document Reference 4.11), however concerns about the suitability of these locations as a compensation measure have been raised by the RSPB, who jointly manage Banks Marsh with NE (Document Reference 9.2). Further site selection discussions would be required to identify and secure a suitable location for the delivery of this measure.

89. This section will identify the scale of compensation proposed to be provided, and how this relates to the consent decision made by the Secretary of State. This section will then also detail the specific location(s) at which the compensation will be delivered and the suitability of identified sites to deliver the compensation measure.

90. If the Applicant has elected to pay a contribution to the MRF or equivalent fund, then this section shall include the sum of the contribution as agreed between the Applicant and Defra or other body responsible for the operation of the MRF in consultation with the LBBGCSG.

5.2 Design

91. This section will identify the design for the construction of a mammalian predator-proof exclusion fence on a site-by-site basis (dependent on the sites identified). The evidence base provided in support of the proposed compensatory measures (Habitats Regulations Assessment Without Prejudice Derogation Case (document reference 4.11)) and engagement with the LBBGCSG will be important in informing the specific design aspects of this measure.

5.3 Delivery Process

92. This section will identify the delivery process, including a timetable for delivery, nature and status of all consents, commercial agreements (including land

access rights) and other relevant approvals that may be necessary for the compensation measure and a programme for any outstanding consents. The evidence base contained within the Habitats Regulations Assessment Without Prejudice Derogation Case (Document Reference 4.11) will help inform these aspects.

5.4 Monitoring and Adaptive Management

93. This section will identify the monitoring and adaptive management principles and processes that will have been agreed with the LBBGCSG, including survey methods; success criteria; adaptive management measures; timescales for the monitoring and monitoring reports to be delivered; and details of the mechanism to determine the need for any alternative compensation measures and/or implementation of adaptive management measures. It will be developed taking into account the evidence base that has been provided in support of the proposed compensation measures set out within the Habitats Regulations Assessment Without Prejudice Derogation Case (Document Reference 4.11). Following discharge of the LBBG CIMP, the LBBGCSG will be engaged in reviewing on-going monitoring and implementing adaptive management if required as outlined in the **Section 3** (Consultation) above.

5.5 Reporting

94. This section will set out the reporting requirements associated with the monitoring and adaptive management. In doing so, it will confirm the necessary objectives and timescales for the reporting.

6 References

Corregidor-Castro, A., Riddervold, M., Holm, T.E. and Bregnballe, T., (2022). Monitoring colonies of large gulls using UAVs: from individuals to breeding pairs. Micromachines, 13(11), p.1844.

Hälterlein, B.; Fleet, D.M.; Henneberg, H.R.; Mennebäck, T.; Rasmussen, L.M.; Südbeck, P.; Thorup, O.; Vogel, R. Anleitung zur Brutbestandserfassung von Küstenvögeln im Wattenmeerbereich; Common Wadden Sea Secretariat, Trilateral Monitoring and Assessment Group, Joint Monitoring Program for Breeding Birds in the Wadden Sea: Wilhelmshaven, Germany, 1995; Volume 57.

Ross-Smith, V.H., Johnston, A. and 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.

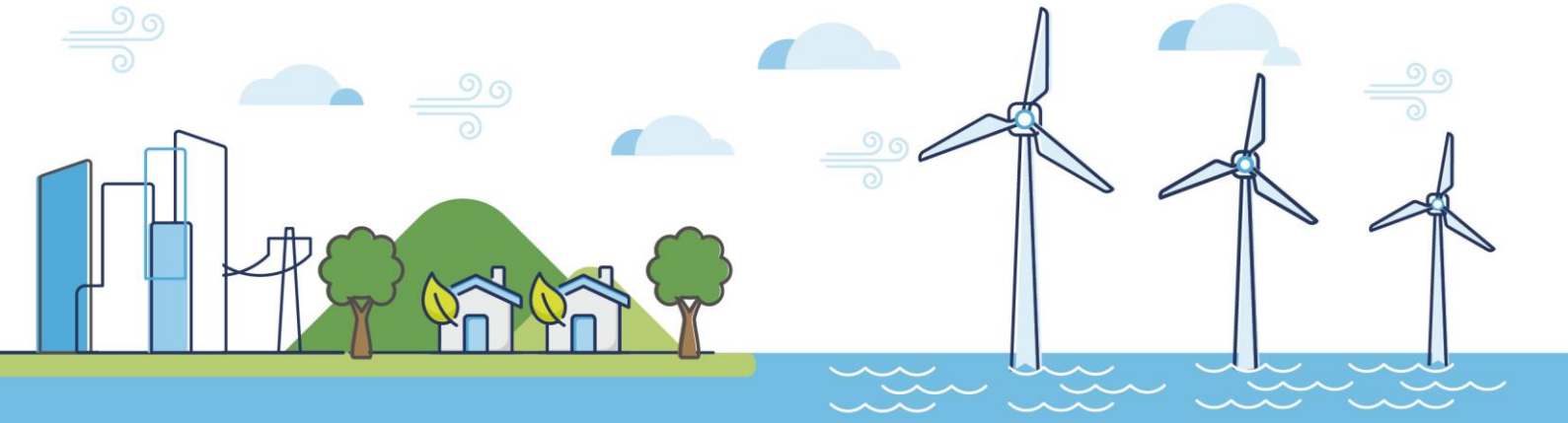
Walsh, P.M., Halley, D.J., Harris, M.P., Del Nevo, A., Sim, I.M.W. and Tasker, M.L., (1995). Seabird monitoring handbook for Britain and Ireland: a compilation of methods for survey and monitoring of breeding seabirds. JNCC/RSPB/ITE/Seabird Group.

Appendix A

MORECAMBE

Morecambe Generation Assets DCO

Steep Holm First Year Methodology for Lesser Black-Backed Gull Compensation



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Checked by:	Ross Bower and Abby-Louise Fraser
Approved by:	Steep Holm LBBG C. Steering Group

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V1	Initial draft	19/02/2025
V2	Approved for use by SH LBBG CSG	04/03/2025

Contents

1 Introduction

1.1 Project Background

1. This note sets out an outline of the methodology and timeframe proposed for the **Pre-compensation Baseline Ecological Surveys** (habitat and bird surveys) followed by the **Implementation of the Compensation Measure** (habitat management) required for the potential Lesser black-backed gull Compensation Plan on Steep Holm Island.
2. The Lesser black-backed gull Compensation Plan may be required to compensate for predicted mortality impacts on lesser black-backed gulls (predicted mean mortality of 1.02 individuals per annum, upper 95% confidence limit mortality of 3.43 individuals per annum) at Morecambe Bay & Duddon Estuary Special Protection Area (SPA) and/or the Ribble & Alt Estuaries SPA resulting from development of the Morecambe Generation Assets offshore windfarm (the Project).
3. The proposed compensation measure on Steep Holm for the Project will take the form of scrub clearance and vegetation management to increase available nesting habitat for lesser black-backed gulls, a species that nests on the island.
4. Steep Holm is a Site of Special Scientific Interest (SSSI) which lists breeding lesser black-backed gull (as well as herring gull and great black-backed gull) colonies as a feature of interest. Although Steep Holm is not directly connected with either the Morecambe Bay & Duddon Estuary SPA or the Ribble & Alt Estuaries SPA which may be impacted by the Project, this island is potentially connected with other SPAs in the National Site Network, including the Skomer, Skokholm and the Seas off Pembrokeshire SPA. Therefore, lesser black-backed gulls recruited into this SPA from Steep Holm could potentially benefit the wider National Site Network.
5. It is proposed that the pre-compensation baseline ecological surveys as well as implementation of the compensation measure will commence in 2025.

1.2 General site access

6. Steep Holm is owned and managed by the Kenneth Allsop Memorial Trust (KAMT).
7. The island will be accessed by boat either from Weston-super-Mare or Cardiff. The boat will be arranged by KAMT and their preferred charter company (Bay Island Voyages[1]).
8. All required personnel and equipment required, which is not already available on-site, for the pre-compensation baseline ecological surveys and implementation of the compensation measure will be transported on the boat.

[1] Bay Island Voyages: https://www.steepholm.online/sailings2

9. It is important to note that **no fuel may be transported on the boat at the same time as personnel**. Fuel required for any survey or compensation works must be transported to the island on a separate trip. Some fuel is stored on Steep Holm, potential use of this fuel by contractors should be discussed with KAMT.
10. Contractors must adhere to safety briefings and other instructions provided by KAMT and Bay Island Voyages.
11. Access to survey and work areas on Steep Holm will be along existing paths. Contractors should keep to existing routes at all times. Any queries on access (including transport of equipment) should be directed to KAMT.

1.3 Lesser black-backed gull Compensation Steering Group

12. A Lesser Black-Backed Gull Compensation Steering Group (LBBGCSG) has been set up to help steer the delivery of compensation implementation and maintenance, monitoring, reporting and any other relevant matters, as determined by the conditions of the consent. It is envisaged that, core members of the LBBGCSG will be Natural England, as well as the Royal Society for the Protection of Birds (RSPB), and KAMT.

2 Pre-compensation Baseline Ecological Surveys

13. Pre-compensation baseline surveys will include a **Habitat survey** and **Bird surveys**.

2.1 Habitat survey

14. A habitat survey will be conducted on Steep Holm prior to the **Implementation of the Compensation Measure** (scrub clearance and vegetation management) to assess the structure and distribution of vegetation at an appropriate time either before or during the lesser black-backed gull breeding season.
15. If approved by Natural England, it is proposed that a drone (unmanned aerial vehicle) will be used to carry out the habitat survey. If the drone is not able to differentiate clear areas of ground from areas of scrub and stands of Alexanders, then ground truthing habitat surveys will be undertaken to validate the drone surveys.

2.1.1 Aim and Objectives

3. The key aim of the pre-compensation habitat survey is to provide a baseline assessment of the extent and, if possible, maximum height of the scrub and vegetation present on Steep Holm.

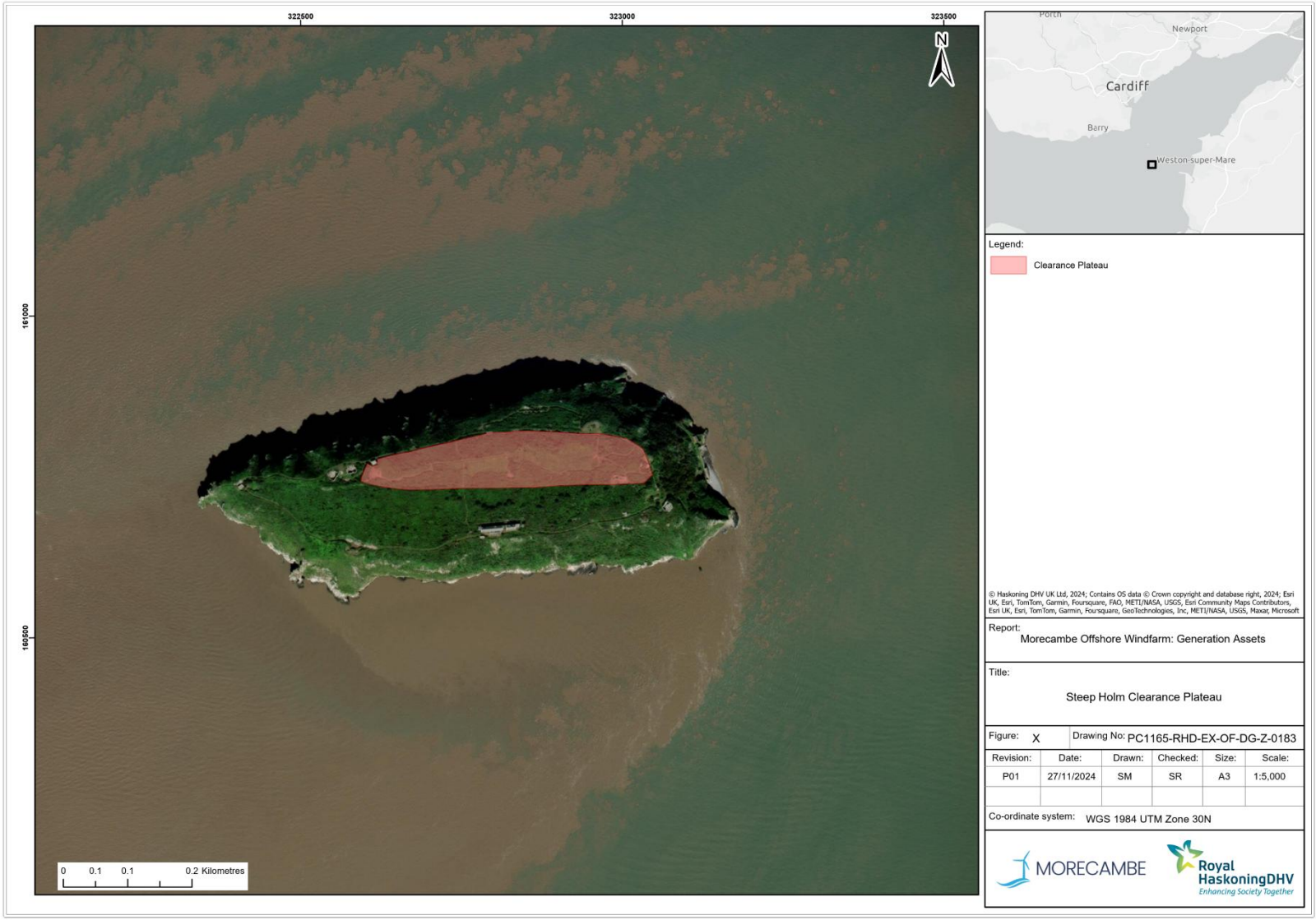
4. Objectives of the habitat surveys include:

- assess the availability of suitable habitat for lesser black-backed gulls;
- confirm where habitat management (scrub clearance and vegetation management) should be located for the **Implementation of the Compensation Measure**; and
- assess the locations of potential sources of disturbance (e.g., presence of public footpaths and buildings etc).

2.1.1 Scale and Location

5. The habitat survey will be conducted over the whole island of Steep Holm, including as far as practically possible, the cliffs and the plateau as shown on **Figure 1**.

Figure 1 - *Steep Holm island – area shaded red shows approximate extent of the plateau*



2.1.1 Timing

6. It is proposed that the pre-compensation habitat survey will take place during the 2025 lesser black-backed gull breeding season (March to August). Given potential access issues to the island, there is some flexibility in the timing of the habitat survey which needs to take place prior to any compensation-based scrub clearance works (refer to **Implementation of the Compensation Measure)**.

2.1.1 Habitat Survey Methodology

7. If approved by Natural England, a drone will be used to record aerial imagery over the whole of Steep Holm Island. Ground truthing surveys will additionally be carried out if necessary to validate the drone surveys.

8. Details of the drone (and if required, ground truthing) methodology, including suitable imagery resolution requirements and data analysis outputs will be discussed with the **Contractor** prior to the survey taking place.

2.1.1 Fieldwork

9. Objectives of the drone survey fieldwork conducted on Steep Holm include:

- photograph the entire island of Steep Holm including cliffs and the plateau to produce one complete image of the vegetation on the island; and
- derive a habitat map from the aerial imagery to show extent of vegetation types, georeferenced to enable future monitoring.

2.1.1 Data Analysis

10. Images collected from the drone survey will be used to produce a digital surface model. Objectives of the digital surface model include:

- provide an estimate of the extent and location of scrub cover over the whole island, differentiated to different vegetation types where possible;
- provide an estimate of the extent and location of other vegetation types over the whole island;
- provide an estimate of the percentage of scrub on the plateau only; and
- provide an estimate of the range of vegetation heights on the plateau, if possible.

2.1.1 Contractor

11. A local contractor Geckoella[2], based at Watchet, south of Weston-super-Mare has been identified by KAMT as the preferred contractor to conduct a drone habitat survey on Steep Holm.

12. Geckoella is an ecological and geological consultancy highly experienced at taking photographic and video images with a drone and analysing the recorded images by creating digital surface models.

13. Subject to their agreement, it is expected that Geckoella will be employed to conduct the drone surveys as well as the associated data analysis required from the collected imagery.

[2] Geckoella: https://www.geckoella.co.uk/project/drones-and-aerial-surveying/

2.2 Bird surveys

14. Bird surveys will be conducted on Steep Holm prior to the **Implementation of the Compensation Measure** (scrub clearance and vegetation management).

15. Two types of baseline bird survey will be required including **2a) Bird Count Surveys** (including a drone survey and a 'ground truthing' survey) and **2b)** a **Lesser Black-Backed Gull Productivity Study**.

16. Bird count surveys will assess the population size and distribution of lesser black-backed gulls breeding on Steep Holm. If approved by Natural England, it is proposed that a drone with a thermal camera (together with additional conventional drone camera data) will be used to count birds over the whole island. In addition, a 'ground truthing' bird count survey will be conducted by ornithologists present on the ground at Steep Holm.

17. A lesser black-backed gull productivity study will provide a baseline assessment of productivity for this species on Steep Holm. The productivity study will be carried out on the island by ornithologists.

2.2.1 Bird count surveys

2.2.1.1 Aim and Objectives

18. The key aim of the pre-compensation bird count surveys is to provide a baseline assessment of the current population size and distribution of breeding lesser black-backed gulls on Steep Holm. Baseline survey data will be used to inform the efficacy of the compensation measure when compared with data collected following scrub clearance.

19. Objectives of the bird surveys include:

- estimate the breeding population of lesser black-backed gulls on Steep Holm;
- confirm breeding locations of lesser black-backed gull on the island;
- estimate density of breeding birds on the plateau of Steep Holm; and,
- confirm where habitat management (scrub clearance and vegetation management) should be located for the Implementation of the Compensation Measure.

2.2.1.2 Scale and Location

20. A drone bird count survey will be conducted over the whole island of Steep Holm, including as far as practically possible, the cliffs and the plateau as shown on **Figure 1**.

21. Surveyor 'ground truthing' surveys will be focussed on the Steep Holm plateau only unless there is a need to survey great black-backed gulls, if the thermal camera is unable to distinguish between species, as shown on **Figure 1**.

2.2.1.3 Timing

22. It is proposed that the bird count surveys will take place during the 2025 lesser black-

backed gull breeding season (March to August). The aim will be to conduct the surveys when lesser black-backed gull territories are established and the birds are on nests between May to June, the timing of the surveys will coincide with the lesser black-backed gull egg-laying and chick rearing period.

23. Note that the drone and ground truthing surveys will not be conducted on the same day in order to avoid ground surveyors disturbing gulls while the drone survey takes place, but these surveys will take place as close together in time as possible to minimise changes to bird numbers and distribution occurring between the two surveys.

24. To avoid any disturbance by visitors during the surveys, both the drone and the ground truthing surveys will be conducted on days when there are no public boat trips to Steep Holm. It will therefore be necessary to organise boat trips to Steep Holm specifically for the drone and ground truthing surveys.

2.2.1.4 Bird Count Surveys Methodology

Drone Survey Fieldwork

25. If approved by Natural England, a drone with a thermal camera will be used to take aerial imagery over the whole of the island of Steep Holm.

26. The thermal camera will be capable of recording images from which the location of each gull can be identified, but it will not be possible to tell apart herring gull from lesser black-backed gull species from the thermal imagery. A conventional drone camera will also be used to record gull imagery to aid species identification.

27. Details of the thermal drone methodology, including suitable imagery resolution requirements and data analysis outputs will be discussed with the **Contractor**.

28. Objectives of the thermal drone survey include:

    - record gulls present over the entire island of Steep Holm including cliffs and the plateau; and
    - ensure that people are not walking on the ground either prior to, or at the time of, the drone survey, in order to minimise disturbance and limit the number birds in flight.

Drone Survey Data Analysis

29. Images collected from the thermal drone survey fieldwork (together with the counts recorded during the **Ground Truthing Survey Fieldwork**) will be analysed to estimate the population size and distribution of gulls breeding on Steep Holm.

30. Objectives of the drone image data analysis include:

    - produce a total count of individual gulls present on the whole island;
    - produce a total count of individual gulls present on the plateau only; and
    - produce an Excel Spreadsheet and GIS Shapefile containing a georeferenced location for each individual gull recorded in the images.

Ground Truthing Survey Fieldwork

31. In order to ‘ground truth’ the total gull counts recorded from the **Drone Survey**

Fieldwork, gull counts will additionally be conducted by trained ornithological surveyors on the ground at Steep Holm.

32. Ground truthing surveys will be concentrated on the plateau of Steep Holm, although birds will be counted from all areas on the island that are safe to access.

33. Ground truthing surveys will be conducted very close in time (within two days) to the thermal drone survey to ensure that the assemblage and distribution of gulls is as close as possible between the two survey types.

34. GPS coordinates will be recorded for each lesser black-backed gull nest encountered during ground-truthing surveys; nest coordinates recorded on the ground will be compared with geo-referenced drone outputs. This comparison will allow for the establishment of an initial correction factor, which should serve to address the potential discrepancy between the number of birds recorded by drone and the number of actual nests present (Hälterlein et al, 1995; Corregidor-Castro et al, 2022).

35. Objectives of the ground-truthing bird surveys include:

    - from vantage points, count all gulls of all species (lesser black-backed gull, herring gull and great black-backed gull) present on the plateau;
    - upon reaching a vantage point, allow a period of time for gulls to settle on the ground before starting the count;
    - mark each vantage point with a GPS location;
    - mark the area of the plateau visible from each vantage point on a map;
    - if possible, count the number of Apparently Occupied Nests (AON) of lesser black-backed gulls present on the plateau; and,
    - mark each lesser black-backed gull nest encountered with a GPS location.

36. It is important to note that as the plateau on Steep Holm is flat, it may not be possible to get a good view of the plateau from vantage points whilst standing on the ground. If this is the case, higher elevated vantage points giving a view of the plateau will be sought (e.g. vantage points from buildings if risk assessed as safe to do so or from a temporary platform constructed on the plateau).

37. If a vantage point survey is not considered suitable to provide an accurate count of lesser black-backed gull nests (i.e. if a suitable vantage point cannot be found or if gulls nesting underneath scrub are likely to be missed), then an alternative method would be to use a flush-count of the adults (Walsh et al, 1995); this method to count birds is used where terrain is difficult, the method would cause considerable disturbance to the gulls, but it could give a broad guide to colony size and species proportions on the plateau.

Ground Truthing Survey Data Analysis

38. Bird counts recorded during the ground truthing survey fieldwork (together with the counts recorded during the **Drone Survey Fieldwork**) will be analysed to estimate the population size and distribution of lesser black-backed gulls breeding on Steep Holm.

39. Objectives of the ground truthing data analysis include:

- add up the total number of individual gulls recorded on the plateau;
- calculate the proportion of lesser black-backed gulls recorded on the plateau;
- apply the proportion of lesser black-backed gulls derived from the ground truthing survey to the total gull count recorded during drone survey to produce the total number of individual lesser black-backed gulls;
- if not possible to count lesser black-backed gull nests during the ground truthing survey, divide the total number of individual lesser black-backed gulls by two to estimate the number of breeding pairs;
- establish an initial correction factor to address any discrepancy between the number of birds recorded by drone and the number of actual nests present on the ground; and,
- estimate the density of lesser black-backed gull nests present on the plateau.

2.2.1.5 Contractor

40. It is proposed that a local contractor Eco Explore, based in Cardiff, Wales, will be employed to carry out the thermal drone survey works on Steep Holm, subject to agreement of commercial terms. Eco Explore have carried out extensive gull survey work on Flat Holm Island over the past 15 years.

2.2.2 Lesser Black-Backed Gull Productivity Study

2.2.2.1 Aim and Objectives

41. The key aim of the pre-compensation lesser black-backed gull productivity study is to provide a baseline assessment of the current productivity of this species on Steep Holm.

42. Objectives of the study include:

- record clutch size at each focal lesser black backed gull nest;
- record egg hatching success at each focal nest; and
- record fledging success at each focal nest.

2.2.2.2 Scale and Location

43. Lesser black-backed gull nests selected for the study will be located on the Steep Holm plateau, as shown on **Figure 1**.

44. Productivity will be monitored at a representative sample of nests that are distributed throughout the lesser black-backed gull colony on the plateau. The number of focal nests required for the productivity study will be discussed and agreed with the LBBGCSG.

2.2.2.3 Timing

45. The productivity study will take place during the 2025 lesser black-backed gull breeding season (March to August). It is expected that the study will commence in

April once lesser black-backed gull territories and nests have been established and egg laying has commenced. The aim will be to carry out a minimum of 3-4 visits to the focal nests involved in the study between April to August.

46. Note that the **Drone Survey Fieldwork** and the lesser black-backed gull productivity study will not be conducted on the same day in order to avoid ground surveyors disturbing gulls while the drone survey takes place. Surveys will be conducted on days when there are no public boat trips to Steep Holm.

2.2.2.4 Methodology

47. Lesser black-backed gull 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.

48. Mapped pairs will be monitored in the study until such time as chicks can no longer be associated with their nest.

49. Objectives of the lesser black-backed gull productivity study include:

- walk slowly (to minimise disturbance) through the colony along a transect to locate nests;
- use the same transect (to minimise disturbance) to assess nests on each visit to the colony;
- visually mark focal lesser black-backed gull nests with an agreed marker (e.g. stake) and mark the stakes with a GPS location;
- characterise the vegetation surrounding and contiguous with the edge of the nest;
- note number of eggs/chicks in each nest on each visit;
- note any signs of nest damage/predation at the focal nest;
- note and photograph any nests containing plastic;
- colour ring the chicks at each nest (to assess if these chicks are recruited back to the same colony in later years);
- continue monitoring each focal nest until chicks can no longer be associated with the focal nest;
- Mark-recapture population estimates based on ringed chicks on all visits within years, after chicks colour-ringed; and,
- Population estimates based on several measures:
  - detectable occupied nests;
  - adults present across the breeding period (defined by flushing behaviour, i.e. in the air at one time etc.); mark-recapture population estimates of chicks based on colour ringed birds in Visit One. Visit Two, estimates are based on the number of un-ringed chicks (of ringable age) against the number of detected ringed birds tagged during the last visit.

2.2.2.5 Contractor

50. Subject to agreement, it is proposed that the Skopeo Ltd. (based in Bristol) will lead monitoring. The ringing group is currently undertaking the lesser black-backed gull colour-ringing study on the island. It is expected that the ringing group will advise on the final monitoring design, which will integrate the existing colour-ringing study.

3 Implementation of the Compensation Measure

51. The proposed habitat management compensation measure on Steep Holm will take the form of scrub clearance and vegetation management to increase the number of breeding lesser black-backed gulls on Steep Holm and support the wider National Site Network.

52. The scrub clearance works will create new habitat on Steep Holm for breeding lesser black-backed gulls.

53. Vegetation management in areas where lesser black backed gulls currently breed will ensure that the vegetation remains at a suitable height to allow this species to continue breeding.

3.1 Aim and Objectives

54. The key aim of the compensation measure is to increase the number of breeding lesser black-backed gulls through habitat management to create suitable lesser black-backed gull nesting vegetation height and cover.

55. Objectives of the habitat management measure include:

- habitat management at an existing lesser black-backed gull colony or a recently vacated colony or in an area that is close to an existing/recently vacated lesser black-backed gull colony to create suitable nesting vegetation height and cover and prevent scrub encroachment;
- ongoing vegetation and scrub management and monitoring to assess increases in lesser black-backed gull breeding population; and,
- annual monitoring of the compensation colony to record the number of breeding lesser black-backed gulls and evaluate the effectiveness of the proposed compensation measure to be reported back to the LBBGCSG and Secretary of State.

3.2 Location of Compensation

56. The proposed locations of the scrub clearance and vegetation management works are illustrated on **Figure 2**.

Figure 2 – *Proposed scrub and vegetation clearance areas on Steep Holm island*

Yellow = scrub clearance area A (c. 0.60ha)
Pink = scrub clearance area B (c. 0.48ha)
Blue = habitat management/mowed area (c. 0.65ha)

57. Scrub clearance on the plateau will be carried out over an area adjacent to an existing lesser black-backed gull colony.

58. It is proposed that the scale of the scrub clearance works on Steep Holm (at the location illustrated in **Figure 2**) to create new breeding habitat for lesser black-backed gulls will be approximately 1.25 hectares – this scale of clearance has the potential to significantly over-compensate for the potential loss of lesser black-backed gulls at the Project (for an explanation refer to paragraphs Error! Reference source not found. to Error! Reference source not found.).

3.3 Scale of Compensation

59. The Project may require compensation for a predicted mean number of 1.02 adult lesser black-backed gull individuals per annum lost to the SPA populations (combined Morecambe Bay & Duddon Estuary SPA and the Ribble & Alt Estuaries SPA) due to predicted collisions at the Project. Therefore, to quantify successful compensation for the Project, the compensation measure needs to deliver a minimum of 1.02 adult lesser black-backed gulls into the population each year.

60. Natural England has advised the Project that the method presented by Hornsea 3 OWF to calculate compensation requirements for their predicted kittiwake impacts is also appropriate for calculating lesser black-backed gull compensation. The Hornsea 3 OWF approach uses detailed demographic data which are not available for most species and is also quite difficult to follow as limited explanation was submitted by the project. However, as a guide for the scale of compensation this method estimated, it is possible to take the final output (467 nest spaces) and divide it by the predicted mortality (73) to obtain a compensation multiplier of 6.4. Hornsea 3 then applied precaution to this through a proposal to build 4 structures, each with this nest space capacity. Hence the total compensation multiplier was 25.6 (4 x 6.4).

61. By applying the 25.6 multiplier derived by Hornsea 3 OWF to the Project's mean mortality of 1.02 lesser black-backed gulls, it can be estimated that a total of 26 (25.6 multiplied by 1.02) new nest spaces would be required to offset the mean mortality of 1.02 lesser black-backed gull adults per year.

62. To reach a compensation target of an additional 26 new nest spaces, in theory, the scrub clearance area on Steep Holm would need to be approximately 0.06ha if assuming a 'low' lesser black-backed gull nest density (Ross-Smith et al, 2015 recorded a lesser black-backed gull nest density of 0.0475 to 0.0452 nests/m2 on the neighbouring island of Flat Holm between 2007 and 2008).

3.4 Timing

63. Scrub clearance and vegetation management works on Steep Holm will be implemented during the 2025 lesser black-backed gull non-breeding season (September 2025 to February 2026), after the birds have departed the island for their wintering grounds.

64. As winter weather conditions are likely to result in logistical constraints for the scrub clearance and vegetation management works, the aim will be to complete the scrub clearance and vegetation management works between September to November

2025.

3.5 Scrub Clearance and Vegetation Management Methodology

65. Scrub clearance (location illustrated on **Figure 2**) will be undertaken using appropriate tools (e.g. chainsaw/clearing saw/brushcutter).

66. Vegetation management (location illustrated on **Figure 2**) will also be undertaken using appropriate tools (e.g. flail-mower, strimmer).

67. Objectives of the scrub clearance and vegetation management works include:

- check the clearance area (by walking through the scrub) for ecological constraints or other sensitivities (such as the presence of sensitive plant species, deer or features of heritage importance) prior to the commencement of work;
- visually mark the areas of scrub clearance and vegetation management (e.g. with stakes or other method) and mark the stakes with GPS positions;
- cut the scrub and other vegetation to ground level;
- undertake the works progressively from the edge of the clearance area; and
- take photographs of the cleared area before, during and on completion of the works.

68. Arisings will be either (a) stacked neatly in 'habitat piles'; or (b) cut into small pieces and spread evenly in situ. The preferred approach (or combination of both approaches) will be agreed between with the LBBGCSG prior to commencement or during the work, as appropriate.

3.6 Contractor

69. It is proposed that a local contractor, Green Mantle[3] based in south-west England, will be employed to carry out the scrub clearance works on Steep Holm.

70. The Green Mantle company is highly experienced at delivering quality and appropriate wildlife habitat management at a wide range of site in south-west England.

[3] Green Mantle: https://www.green-mantle.co.uk/services.html

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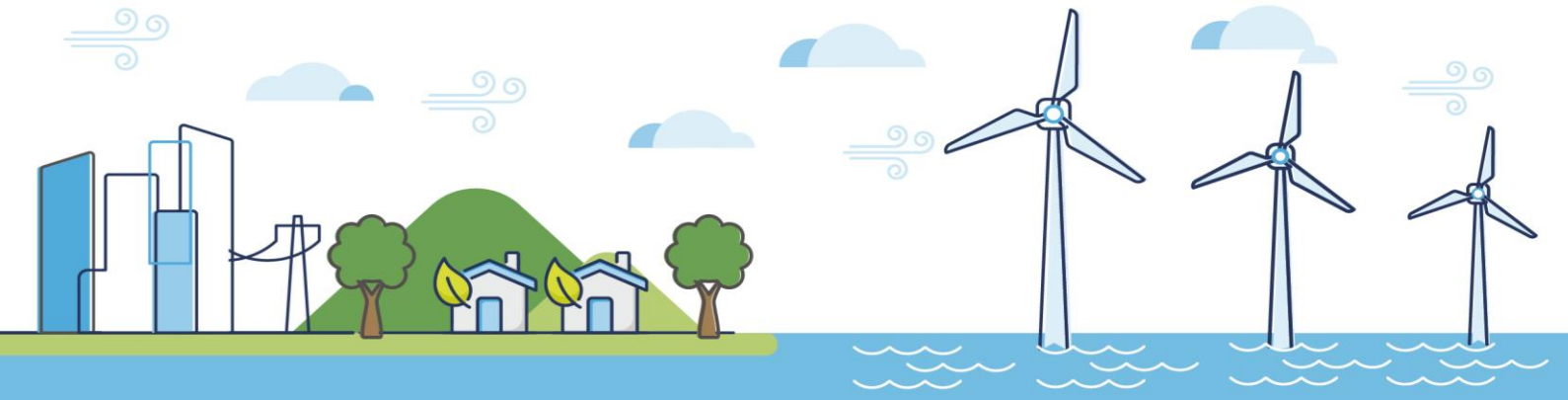

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