Technical Appendix 11H: Outline Habitat Management Plan

1.1 Introduction

1.1.1 This outline Habitat Management Plan (oHMP) forms a Technical Appendix to the proposed Lorg Wind Farm Environmental Impact Assessment (EIA) Report, **Chapter 11: Ecology**. The oHMP outlines the rationale and proposed implementation strategy for the delivery of on-site habitat restoration within the Development Site boundary, sufficient to offset predicted significant impacts and provide additional enhancement.

1.1.2 A final Habitat Management Plan (HMP), which would include specific prescriptions and confirmation of the peatland restoration location(s), would be agreed with Dumfries and Galloway Council (DGC) and East Ayrshire Council (EAC), in consultation with the landowner and NatureScot, prior to the commencement of construction of the Proposed Development.

Rationale

1.1.3 During the development phase of the Proposed Development, the Applicant has minimised any potential ecological impacts; firstly, by designing the wind farm to avoid or limit ecological impacts wherever practicable (see **Chapter 3: Project Description**), and secondly, by undertaking to employ industry best environmental practice during wind farm construction and operation (see **Chapter 11: Ecology**).

1.1.4 Within the EIA Report assessment in **Chapter 11: Ecology**, it is predicted that 5.75 hectares (Ha) of blanket bog habitat would be permanently lost, 0.4 Ha temporarily lost during construction, and an additional 19.31 Ha with potential to be indirectly affected and altered during the lifespan of the Proposed Development. The following document outlines criteria for identifying and delivering compensatory blanket bog habitat restoration measures. The aim would be to contribute a greater area than that which is predicted to be affected by the Proposed Development, providing additional enhancement to the surrounding landscape.

1.1.5 Peat management and reinstatement during and following construction is detailed separately in a Peat Management Plan (PMP) (Technical Appendix 6A) and a Construction Environmental Management Plan (CEMP), which will be produced in advance of construction.

1.2 Existing Conditions

1.2.1 The identification of a candidate management area, determination of likely habitat types and the suitability for restoration has been informed by the following:

- Aerial imagery and Ordnance survey (OS);
- Peat depth;
- NVC survey data (presence of mire communities) (See **Technical Appendix 11B**);

- Peatland condition (i.e. presence of historical drainage, erosion features, sheep grazing/trampling etc.) based on the Peatland Condition Assessment (See **Technical Appendix 11.B**).
- Presence of designated sites;
- Land ownership boundaries; and
- Forestry planting areas.

1.2.2 As identified in **Technical Appendix 11.B** (Phase 1 Habitat, NVC and Peatland Condition Report), a large proportion of the blanket bog within the Development Site boundary is considered to be modified through grazing and historic drainage.

1.2.3 Large parts of the eastern Development Site, within the Water of Ken catchment, have been historically managed by draining wet heath/ blanket bog areas through the use of moorland gripping, which was particularly widespread in the British uplands in the 1950s to the mid-1980s. These practices are likely to have had historical detrimental effects on upland habitats, carbon sequestration and downstream hydrology. All identified drainage ditches (grips) have been mapped.

1.2.4 Large erosion features (eroded gulleys) up to ca. 2 m in height were also found to be common in the eastern side of the Development Site; and smaller erosion features (ca. 0.5 m in height) were also common.

1.2.5 The central part of the Development Site, where the best condition blanket bog was identified also exhibited signs of poaching and trampling by sheep and cattle. The site conditions in these areas are favourable for the active restoration of peatland habitats and are considered likely to regenerate naturally, following active measures to reduce peat erosion (See Section 1.4.5).

1.2.6 The implementation of restoration proposals within these areas would therefore be likely to result in downstream ecological benefits resulting from decreased erosion and runoff into the on-site watercourses.

1.3 Scope of the Outline Habitat Management Plan

1.3.1 The purpose of this HMP is to set out the strategy that the Applicant proposes to employ to ensure that habitat management measures are put in place to mitigate the effects on peatland habitats due to the Proposed Development. No significant adverse impacts were predicted for ornithological features within the 2015 ES, the 2017 FEI submission, the withdrawn 2019 Application or the 2022 EIA Report.

1.3.2 This oHMP has been completed following best practice guidance from NatureScot (SNH, 2016) and provides a mechanism to meet the requirements of the Nature Conservation (Scotland) Act, 2004[1].

1.3.3 This OHMP sets out the aims and objectives by which specified areas will be managed for delivering a variety of ecological benefits, together with supporting rationale and an outline of the methods by which they can be achieved. The spatial scope of the HMP includes locations within the Development Site boundary.

1.3.4 Issues relating specifically to construction of the Proposed Development (e.g., preventing pollution of watercourses, disturbance of protected species or reinstatement/restoration of habitats within the development footprint) are not considered in this document. Further

[1] The Nature Conservation (Scotland) Act 2004 states 'It is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions'.

information about the mitigation measures to be employed during the construction, operation and decommissioning periods are included in **Chapter 11: Ecology**. Prior to construction commencing the Applicant will submit a Construction Environmental Management Plan ("CEMP") to DGC and EAC for their approval (in consultation with appropriate consultees). The CEMP will detail the methods and techniques to be employed across the whole of the Proposed Development to ensure compliance with legislation, construction best practice and the mitigation measures. Proposed peat management measures are described in the PMP, which forms part of the CEMP and will be updated as necessary in response to new information from detailed site investigations.

1.4 Peatland/Bog Restoration

1.4.1 The following peatland restoration proposals will provide a variety of benefits to the habitat, the assemblage of species that depend upon it and in terms of associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality.

1.4.2 Suitable areas for peatland restoration would comprise historically drained peatland or actively eroding deep peat with only limited vegetation cover. The extent of these areas would be subject to refinement prior to completion of the final Habitat Management Plan (HMP), but restoration would aim to restore peatland/blanket bog habitat within the following identified candidate management units.

Candidate Management Area

1.4.3 An overview of candidate management areas including identified peatland erosion features, peatland subject to grazing pressure and historic drainage has been identified as shown on **Figure 1.1**, **Figure 1.2** and **Figure 1.3**.

1.4.4 The identified candidate Management Areas have been subject to extensive historical drainage and grazing for many years. These areas have the potential for recovery and would respond to a programme of damming and in some places the removal grazing.

Management Prescriptions

1.4.5 The following measures would encourage the regeneration of blanket bog habitat using best practice techniques (NatureScot, 2020) within the candidate management area within the Development Site boundary in order to increase the quality and extent of blanket bog resource and compensate for habitat loss incurred as a result of the Proposed Development.

1.4.6 Restoration opportunities would focus on re-wetting historical drainage ditches within modified or degraded blanket bog off-site, which would be achieved through a variety of measures, to be agreed with NatureScot, but which are likely to include a programme of drain/ditch-blocking.

1.4.7 Habitat management at Lorg will aim to improve the condition of blanket bog that has been detrimentally affected by artificial drainage. The successful development of blanket bog is dependent on hydrological conditions in which the water table normally lies within 10-20cm of the ground surface. Once those conditions are achieved on relatively flat ground, with nutrient-poor peat at depths usually greater than 0.5m, an available source of colonising vegetation and, ideally, a viable seed bank, blanket bog will become the dominant habitat over a period of five to ten years, and species diversity can be expected to increase within and beyond that period.

1.4.8 There are a large number of drains and gulleys within the candidate management areas, which will benefit from being dammed in order to raise the water table. Drain damming

would be undertaken on peatland drains where peat depths are >1m and drain dimensions are suitable for damming.

1.4.9 Habitat enhancement could also include the establishment of cleuch riparian woodland following recommendations within the Ayrshire and Arran Forestry and Woodland Strategy[2].

1.4.10 At present, very little broadleaved woodland exists within the Development Site and planting will improve habitats for not only black grouse but also other species such as merlin, smaller song birds, as well as aquatic mammals/ invertebrates and fish. Watercourses with existing scrub and woodland could be prioritised for planting to promote connectivity and allow for linkage through natural regeneration. Upland cleuch woodland planting could include downy birch, silver birch, rowan, aspen, hawthorn, blackthorn and downy willow. In lower reaches there will be some native broad-leaved planting of climax species such as sessile oak, ash and wych elm.

1.5 Monitoring

1.5.1 The standard approach to monitoring water levels in peatland restoration areas would be to install dipwells at a range of locations within identified candidate management units. The number and location of such monitoring points would be recommended by a suitably experienced hydrologist. Monitoring would be carried out for at least one year prior to ditch-blocking works and will continue for at least five years following ditch blocking works.

1.5.2 Dependent on the development of accurate remote sensing technology, there could be opportunities to complement monitoring methods, particularly in relation to soil moisture, vegetation classes and properties of the immediate peat surface. The merits of this approach could be considered in consultation with NatureScot and Peatland Action as necessary.

1.5.3 Vegetation surveys undertaken by suitably qualified ecological professionals would monitor the success of peatland/bog restoration and highlight the need for any further management measures. Surveys would collect data on the structure and composition of the vegetation, and plant species abundance and diversity from permanent quadrats in the restored areas. Monitoring would commence during the first Summer after completion of restoration works and would be repeated at appropriate frequency during the operational life of the Proposed Development i.e. at least years 1, 3, 5, and 10 following restoration works. The requirement for longer-term monitoring would be subject to ongoing review of the results and agreement with statutory consultees.

1.5.4 Monitoring of restoration activities, e.g. ditch blocking to record progress in completion of the physical works to install, maintain and, where necessary, repair those features. This monitoring would be completed by wind farm operations staff over the course of the first five years following completion of the restoration works. Any faults or issues identified during this monitoring would be addressed as soon as possible.

1.5.5 The methodology for all monitoring surveys will be informed by evolving survey techniques and future guidance and would be agreed with DGC/EAC and NatureScot. Reports would be submitted to DGC/EAC and NatureScot following surveys in each monitoring year.

1.5.6 The reports would highlight the management measures completed to date, the results of the surveys and any measures proposed for the next reporting period. The results would be regularly reviewed, in consultation with THC and NatureScot, to ensure the HMP objectives are being met and to determine any appropriate amendments, where practicable.

[2] East Ayrshire Local Development Plan Non-statutory Planning Guidance - Ayrshire and Arran Forestry and Woodland Strategy 2014.

1.6 Amendments

1.6.1 This oHMP will be a live document that should be further modified during pre- and post-construction, taking account of any design changes and priorities within the Development Site, in response to monitoring outcomes within the Study Area, or changes in guidance. New opportunities for habitat management and enhancement may become apparent during this pre- and post-construction period and indeed during the lifetime of the Proposed Development. Approval by DGC/EAC and NatureScot should be sought for any amendments before revised measures are implemented.

1.7 References

NatureScot (2020). https://www.nature.scot/climate-change/nature-based-solutions/peatlandaction/peatland-action-project-resources

Peatland Action (2019). Guidance for land managers - Dam installation and techniques - Peat and plastic dams. https://www.nature.scot/sites/default/files/2019-03/Guidance-Peatland-Actioninstalling-peat-dams.pdf

SNH (2016). Planning for development: What to consider and include in Habitat Management Plans. Guidance, Version 2. March 2016.

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Key

- Site boundary
- Turbine location
- Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area
- Candidate management unit areas
- Sheep grazing / poaching damage
- Peat Hagg (area)
- Eroded Gully
- Drainage ditch

0 0.5 1 km

Scale at A3: 1:22,228

Client

RWE

Lorg Wind Farm
Technical Appendix 11.G
Outline Habitat Management Plan

Figure 1.1
Candidate habitat management units overview

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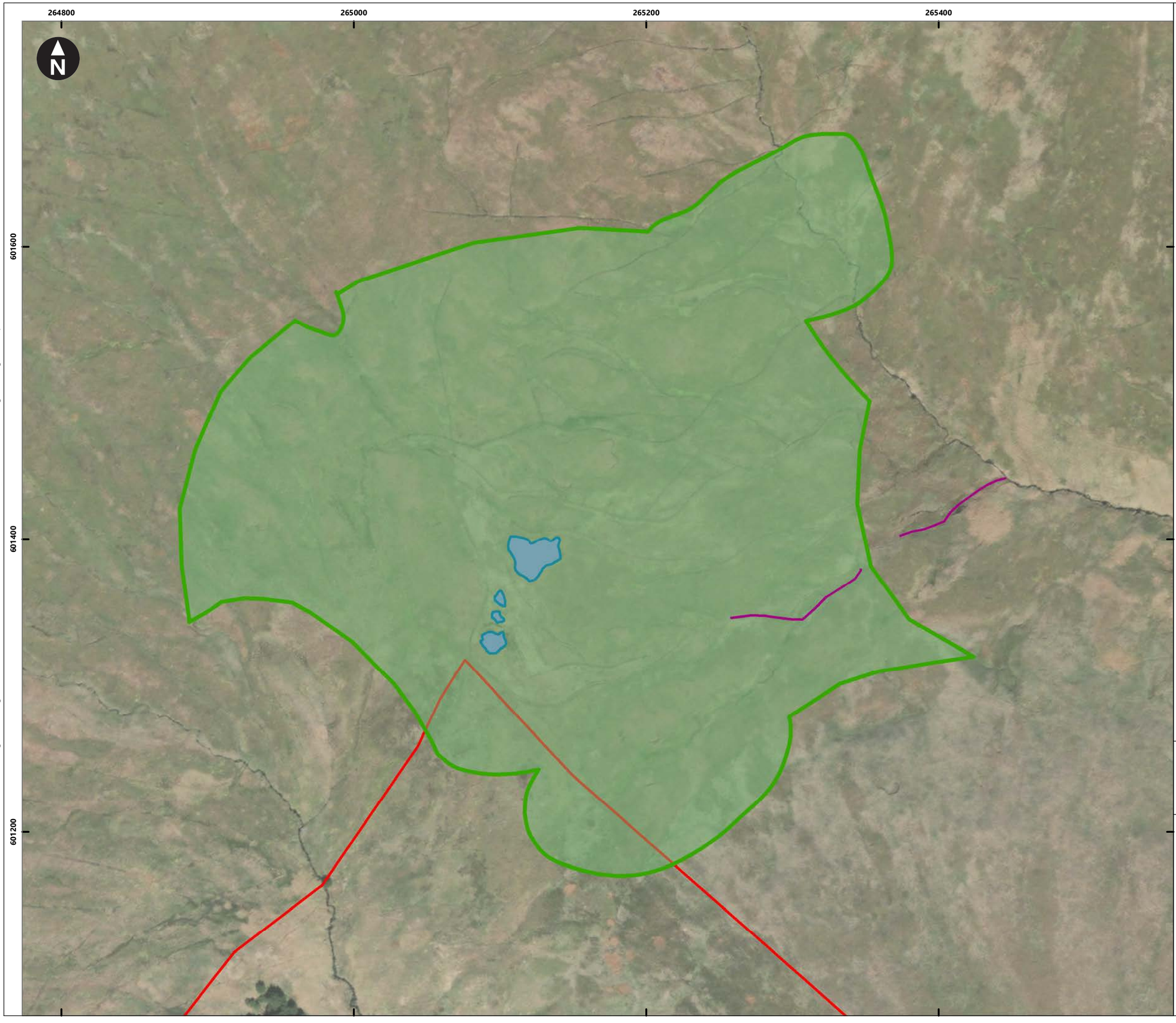
October 2022



Key

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- Met mast location
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- Substation
- Borrow pit search area
- Candidate management unit
- Sheep grazing / poaching damage
- Peat Hagg (area)
- Eroded Gully
- Drainage_Ditches

0 50 100 150 m

Scale at A3: 1:2,500

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Technical Appendix 11.G
Outline Habitat Management Plan

Figure 1.2
Habitat Management Unit A

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Key

- Site boundary
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- Western control building
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- Crane pads
- Access tracks
- Substation
- Borrow pit search area
- Candidate management unit areas
- Peat Hagg (area)
- Eroded Gully
- Drainage ditch

0 100 200 300 400 m

Scale at A3: 1:7,500

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Technical Appendix 11.G
Outline Habitat Management Plan

Figure 1.3
Habitat Management Unit B, C and D

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