

Environmental Impact Assessment Report

Beinneun 2 Wind Farm

Volume 3

Technical Appendix A6.6: Outline Habitat Management Plan

Document prepared by Gavia Environmental Ltd for Beinneun 2 Ltd

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BEINNEUN 2 WIND FARM

TECHNICAL APPENDIX A6.5: OUTLINE HABITAT MANAGEMENT PLAN

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Quality Assurance

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1 Introduction

Gavia Environmental Ltd. ('GEL') was commissioned ENVAMS Ltd on behalf of Beinneun 2 Ltd (the 'Applicant') to prepare an Outline Habitat Management Plan (OHMP) for the proposed Beinneun 2 Wind Farm ('the Proposed Development') which is located at approximate National Grid Reference (NGR) NH 22538 06216, 5.4 kilometres (km) northwest of Invergarry and directly adjacent to the existing Beinneun Wind Farm in the Highland Council area ('the Site'). The Proposed Development is a wind farm consisting of up to 19 turbines of up to 200 m in tip height and ancillary infrastructure.

This OHMP document is provided as Technical Appendix A6.6 to the Beinneun 2 Wind Farm Environmental Impact Assessment Report (EIAR). The management commitments within this OHMP are based on the findings within **Chapter 12: Hydrology**, **Chapter 6: Ecology**, and **Chapter 7: Ornithology** within **Volume 1** of the EIAR.

The OHMP outlines the rationale and proposed implementation strategy for the delivery of on-site habitat restoration, provides measures to offset predicted habitat losses and predicted impacts on protected species during construction and operation, and proposes enhancement and/or monitoring to help to achieve a net gain for biodiversity within the Site.

This OHMP will be used as the basis for a detailed HMP, which will include confirmed Habitat Management Areas (HMAs) and will be agreed with The Highland Council (THC), RSPB and NatureScot (NS) prior to the commencement of construction and will be included as a planning condition to the consent. It is anticipated that conditions attached to any consent for the Proposed Development will require the submission and approval of a detailed HMP and provision for review of the approved HMP by a Habitat Management Group comprising the Applicant, the Highland Council and NatureScot.

This report is accompanied by **Figure 6.5.1**.

2 Rationale

The OHMP outlines the rationale and proposed implementation strategy for the delivery of on-site habitat restoration to offset predicted significant effects.

NPF4 sets out a new requirement for developments to deliver positive effects for biodiversity, primarily under Policy 3. For national and major developments, or those subject to EIA, Policy 3b notes that proposals will only be supported where it can be demonstrated that they will conserve, restore and enhance biodiversity, including nature networks, so they are in a demonstrably better state than without intervention. The Policy requires that significant biodiversity enhancements are provided, in addition to any proposed mitigation.

During the pre-application design phase of the Proposed Development, the Applicant has, in the majority of cases, minimised any potential significant effects; firstly by designing the wind farm to avoid or limit hydrological, ecological, and ornithological effects where practicable and secondly by employing industry best environmental-practice during the construction and operation phases of the wind farm (see Chapter 3: Site Selection & Design, Chapter 4: Development Description and Technical Appendix TA A4.1: Outline Construction Environmental Management Plan (OCEMP) of the EIAR).

Based on NPF4 and in particular Policy 3 of NPF4, and in response to EIA Scoping, NatureScot, Highland Council and SEPA recommendations detail that an outline Habitat Management Plan (OHMP) (including for a Species Protection Plan (SPP)) should be produced including proposals for mitigation and enhancement in relation to important habitats and species.

2.1 Habitats

It is predicted that ~31.95 ha of habitat will be permanently lost during construction and a further ~3.2 ha (total direct and indirect losses ~35.15ha) will be impacted indirectly (based on an additional 10% zone of potential impact around turbines and built infrastructure etc.) from the site area of 1153.98ha, this equates to a habitat loss of ~3.04%.

Predicted direct area losses of habitat:

- Wet heath (M15, M16, M21 & M25) – 16.68ha
- Mire (M1, M2, M3, M4, M6, M10, M17 & M19) – 12.93ha
- Dry heath (H10, H12, H14 & H21) – 1.58ha
- Acid grassland (U4) – 0.75ha
- Bracken (U20) – 0.02ha

Total – 31.95ha

Predicted direct and indirect area impacts on habitat:

- Wet heath – 18.35ha
- Mire – 14.22ha
- Dry heath – 1.74ha
- Acid grassland – 0.83ha
- Bracken – 0.02ha

Total – 35.15ha

2.1.1 Blanket Bog

This document outlines proposals for identifying and delivering on-site compensation blanket bog habitat restoration measures in order to offset the predicted loss (~14.2ha).

The aim will 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. The area to be restored (~131ha) is set to achieve offsetting (i.e. compensation rather than biodiversity enhancement) in the order of 1:10 (lost: restored), i.e. 1ha loss of peatland should result in measures to restore 10ha of peatland as per Nature Scot (2023) guidance (Advising on peatland, carbon-rich soils and priority peatland habitats in development management).

Measures to be included in a Peat Management Plan prior to construction have been prepared to detail the restoration of degraded peatlands on site and reuse of disturbed peat in on site habitat restoration. Peat management and reinstatement during and following construction are detailed separately in the outline CEMP (**Technical Appendix A4.1**) and section 4.2 of the Peat Landslide Hazard and Risk Assessment (**Technical Appendix A12.2**).

2.1.2 Habitat Mitigation & Enhancement

Habitat mitigation for losses of heath (20.09 ha) include:

- Heath (~143 ha) restoration as part of the cleuch and low density woodland planting schemes (see below).

Habitat enhancement measures proposed include:

- Cleuch woodland (~9.7 ha) planting for protected species: and
- Low density broadleaved woodland (~133 ha) planting for black grouse.

These enhancement measures will include restoration of ground flora, native tree planting, stock exclusion and development of Highland BAP habitats.

The enhancement measures included in this OHMP are proposed to provide enhancement and/or monitoring for habitats in order to achieve an overall biodiversity net gain within the Site in-line with requirements as set out in the National Planning Framework 4 (NPF) adopted on 13th February 2023.

2.2 Protected Species

No significant adverse effects have been identified in relation to unintentional disturbance/injury/death/loss of Important Aquatic, Ecological or Ornithological receptors during construction and operation of the Proposed Development (as per chapters 6 and 7 of the EIAR).

However measures included in this OHMP are proposed to provide enhancement and/or monitoring for species recorded utilising the site for breeding (birds, water voles and reptiles), and monitoring of species foraging across the site (birds, bats, badger, pine marten and otter) in order to achieve an overall biodiversity net gain within the Site in-line with requirements as set out in the National Planning Framework 4 (NPF) adopted on 13th February 2023.

A programme of bird monitoring is proposed in Chapter 7, Ornithology.

2.3 Deer Management

No significant adverse effects have been identified in relation to unintentional disturbance/injury/death/loss of wild deer.

However, measures are included in this OHMP to provide management and monitoring of wild deer densities and welfare.

3 Outline Habitat Management Plan

3.1 Objectives and Commitments

This OHMP has been completed following the best practice guidance from NatureScot (SNH, 2016). The purpose of the OHMP is:

- Within five years of commissioning the Proposed Development, to restore and enhance a minimum of 131 ha of peatland habitat within the Site. This area proposed is 25.8% of the total Site area mire habitat (~509 ha) and will offset the area of blanket bog permanently lost or degraded (14.2 ha - 2.8%) as a result of the Proposed Development. The restoration and enhancement of a comparable area is intended to offset both the permanent and temporary loss or degradation and, where possible, a larger area of peatland will be restored than the area lost or degraded. This will increase the quality and extent of Annex 1 (UK Government, 1994) habitat and compensate for habitat loss and degradation incurred as a result of the Proposed Development;
- Within five years of commissioning the Proposed Development, to restore and enhance a minimum of ~143 ha of broadleaved woodland habitat (cleuch and low density broadleaved blocks), with associated heath understory, within and close to the Site. This area proposed (143 ha) will enhance the existing W11 broadleaved woodland within the Site and the proposed area nearby from ~7ha to ~150 ha. The restoration and enhancement of this area is intended to offset both the permanent and temporary loss or degradation of non mire habitats (~20.09 ha as compensation and 116.4ha as enhancement). This will increase the quality and extent of Annex 1 (UK Government, 1994) habitat and compensate for habitat loss and degradation incurred as a result of the Proposed Development; and
- Preconstruction surveys should be carried out to verify protected species presence and absence within 2-3 months of the work commencing. Following these, standard mitigation to minimise potential harm to these species will be implemented, including sensitive lighting, ramps exiting open excavations and consideration of key foraging areas. This will comprise the SPP.

The commitments and recommendations within this OHMP therefore take into consideration both elements of required mitigation in order to reduce potentially significant effects on ecological receptors and general enhancement prescriptions which serve to offset loss and promote an overall biodiversity net gain within the Site. The measures will support nature restoration and increased biodiversity in-line with Policy 3 set out in NPF4.

Following agreement of the outlined habitat management commitments, a final, detailed Habitat Management Plan (HMP) will be created post-consent. This will include confirmed HMAs, and detailed method statements will be developed for the specific measures of the final HMP, such as restoration methods that will encourage the abundance of bog moss (*Sphagnum sp.*). This will be written up by the developer in consultation with landowners, The Highland Council, RSPB and NatureScot prior to the commencement of the Proposed Development's operational period. The final HMP will also take into account the existing land management practices undertaken in the Site and the wider estate and will work in tandem with these practices.

Monitoring will be undertaken by a competent ecologist(s) and if required, all monitoring and enhancement will be overseen by a working group formed with key stakeholders (as mentioned in the paragraph above).

Reports will be completed following the appropriate annual monitoring (per prescription, i.e. 1, 2, 3, 5, 10, 15, 20 & 40 years) during and post-construction detailing the methods and results of each prescription monitored and assessed. If results of this monitoring suggest the habitat enhancement prescriptions are ineffective, then further mitigation and/or measures will be proposed.

It should be noted that the HMP will be a live document and may require alteration based on the findings from the pre-construction surveys, monitoring programme, unexpected events,

or evolving guidance. Any proposed amendments will be agreed with stakeholders before implementation.

Table 1 details potential management and enhancement prescriptions based on the sensitivities and opportunities identified through the course of undertaking the EIA.

3.2 Habitat Management Areas

Annex A of this Appendix contains **Figure 6.7** which shows the proposed locations of the HMAs. These areas are identified as approximate areas, within which to undertake specific elements of the OHMP, however it is expected that a minimum of ~274 ha will be restored, created or enhanced across the proposed Development. The total restoration/enhancement area will be subject to refinement prior to completion of the final HMP.

3.2.1 Management Prescriptions

3.2.1.1 Peatland/Bog Restoration

The following peatland restoration proposals will provide a variety of benefits to the habitat, the assemblages 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.

Suitable areas for peatland restoration will comprise of actively eroding deep peat with only limited vegetation cover. The extent of these areas will be subject to refinement prior to completion of the final HMP, but restoration will aim to restore peatland/blanket bog within the following identified HMAs.

Areas P1-P8

Areas P1-P8 as shown in **Figure 6.7** are ~131 ha and are all located within the Site

These Areas are ideal for restoration of blanket bog and associated wet heath (M15, M16, and M25). Large areas of blanket bog (M1, M2, M3, M4, M6, M10, M17, M19 and M21) with small areas of bare peat and peat hags exist in these areas at present with areas of degraded bog surrounding. In the absence of intervention, over time the peat hags and areas of bare peat will continue to erode over time and further degrade the existing blanket bog. Management within these areas will enhance and prevent the further decline of bog habitats.

3.2.1.2 Cleuch Woodland Planting

The following cleuch woodland (W11) restoration proposals will provide a variety of benefits to the habitat, the assemblages of species that depend upon these upland woodlands, and associated understory, and in terms of associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality.

Suitable areas for cleuch woodland restoration will comprise cleuchs that have existing cleuch woodlands located downstream. The extent of these areas will be subject to refinement prior to completion of the final HMP, but restoration will aim to restore cleuch woodland and associated understory within the following identified HMAs.

Areas W1-W5

Areas W1-W5 as shown in **Figure 6.7** are ~9.6 ha and are all located within the Site.

These Areas are ideal for restoration of cleuch woodlands and associated understory (W11, W18). Over grazed heath (H10 & H12) and acid grassland (U4 & U20)) exist in these areas at present. In the absence of intervention, over time these cleuchs will continue to be over grazed and will continue to move from heath to acid grassland. Management, which will include enclosures and low-density planting of native species, within these areas will enhance and prevent the further decline of heath and woodland habitats.

3.2.1.3 Low-Density Broadleaved Woodland

The following low-density broadleaved woodland restoration proposals will provide a variety of benefits to the habitat, the assemblages of species, in particular black grouse, that depend upon these upland woodlands and associated understory, and in terms of associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality.

The extent of these areas will be subject to refinement prior to completion of the final HMP, but restoration will aim to restore low density broadleaved woodland and associated understory within the following identified HMAs.

Areas A and B

Areas A (74.57 ha) & B (58.81 ha) as shown in **Figure 6.7** are ~133.38 ha and are both located within or close to the Site

These areas are ideal for restoration of low-density broadleaved woodlands and associated understory.

Over grazed dry and wet heath (H10, H12, M15, M16 and M25) exist in these areas at present. In the absence of intervention, over time these habitats will continue to be over grazed and will continue to move from heath to acid grassland. Management, which will include enclosures and low-density planting of native species, within these areas will enhance and prevent the further decline of dry heath and wet heath habitats.

4 Management Prescriptions and Enhancement Opportunities

Table 1 below details the management prescriptions for the proposed commitments as discussed in **Section 3** above and sets out a plan for continued monitoring to evaluate the success of the maintenance, restoration and enhancement of each management area.

Also included within the table are opportunities that are offered as additional measures to enhance the biodiversity of the Site.

Table 1: Management Prescriptions and Enhancement Opportunities

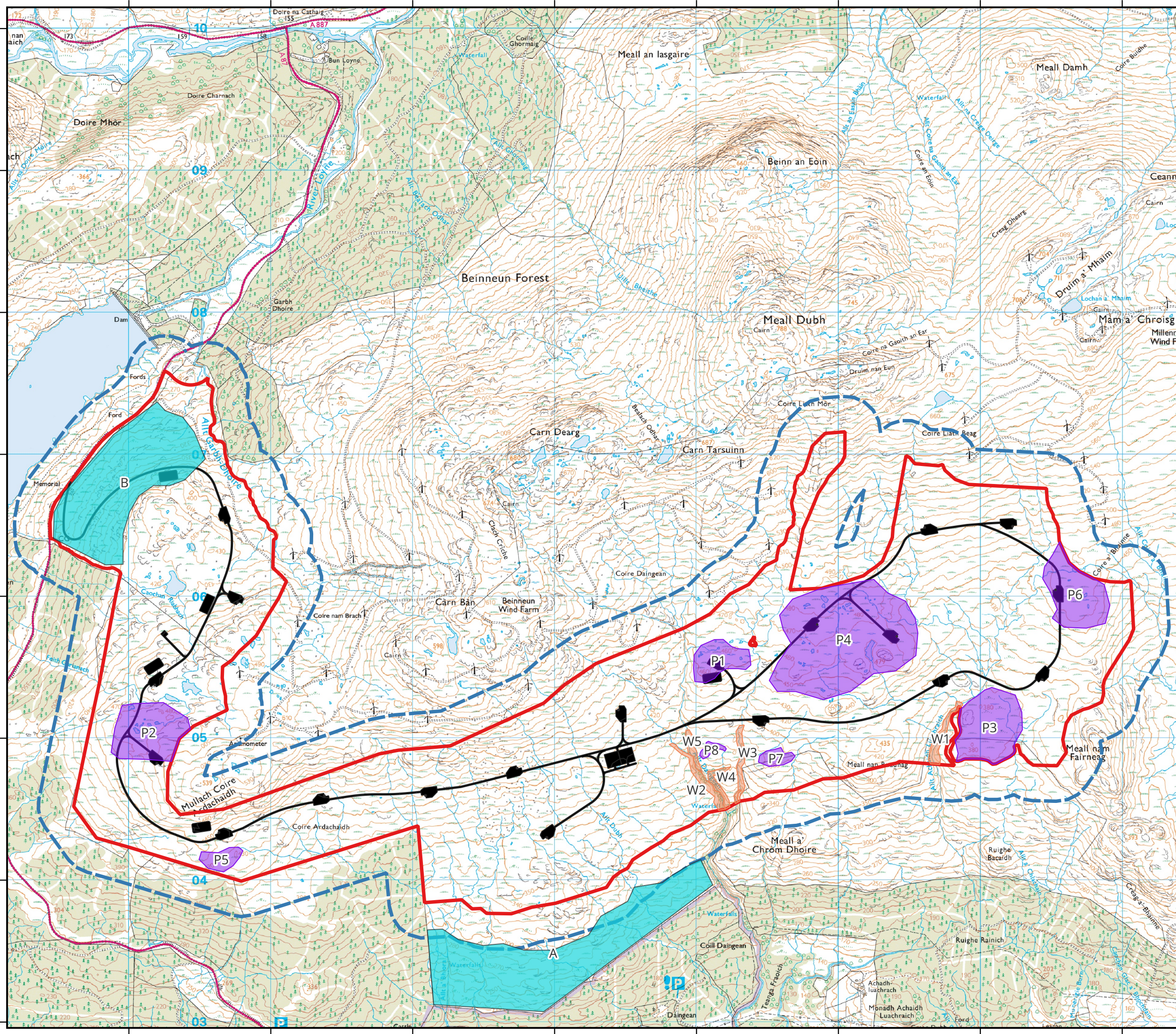
Prescription	Management Category	Where	How	What will benefit	Monitoring and timeframe
Management Prescriptions					
1- Restore Blanket Bog habitat	Mitigation and enhancement	Areas P1 to P8 Within the site.	<p>1. Block drainage ditches to raise the water table. Monitor water levels.</p> <p>2. Fence-off areas of bare ground around infrastructure for natural regeneration (alternatively control deer numbers to acceptable levels to reduce grazing pressure on blanket bog). Prevent continued trampling and grazing by deer.</p> <p>3. Reprofile Peat hags and re-wet bare peat to encourage restoration. Reseeding with cotton grass and other bog species (sphagnum seeding) may be appropriate.</p>	<p>Peatland carbon balance.</p> <p>Wetland vegetation – enhance insect availability for birds/bats etc.</p> <p>Bird Habitat – by providing nesting and foraging opportunities for waders and passerines.</p>	<p>Habitat monitoring, conducted by suitably qualified and experienced ecologists, will evaluate the success of maintenance, restoration and enhancement within HMAs P1 to P8. An inspection of fencing will also be undertaken during monitoring to identify any damage that could affect the integrity.</p> <p>A representative sample of permanent quadrats/plots will be established to gather sufficient data to inform future management and assess the trajectory of plant species and habitats to recover. The success of habitat regeneration will be evaluated based on the species abundance and percentage coverage within each quadrant/plot.</p> <p>Habitat (NVC & photo) monitoring within the HMAs will commence during the first year of operation of the Proposed Development to establish the baseline and will be repeated in years 1, 2, 3, 5, 10, 15, 20 and 40 of the operational life of the Proposed Development.</p> <p>The frequency of monitoring thereafter will be agreed in consultation with The Highland Council and NatureScot.</p>
2- Peat management	Refer to section 4.2 of Technical Appendix A12.2: Peat Landslide Hazard and Risk Assessment for further information.				
3 – Cleuch Broadleaved Woodland Planting	Mitigation and enhancement	Areas W1- W5 Within the site.	<p>1. Planting of native upland species – birch, rowan, aspen, alder etc and supplement with other berry bearing tree and shrub (ericoid) species</p> <p>2. Enclose to allow reinstatement of natural heath/ericoid scrub/shrub vegetation.</p>	<p>Bird species – by providing foraging and nesting opportunities.</p> <p>Mammal species (including bats) – by providing foraging opportunities.</p> <p>Vegetation – by reducing overgrazing and maintaining habitat connectivity while still improving the condition of linear corridors (for insects) which will support bat movements.</p>	<p>Planting of native broadleaved woodland, ericoid shrubs and scrub species should be undertaken once construction has been completed. The newly planted saplings should be either encased in biodegradable tree tubes, and the planting area fenced off so that the saplings cannot be grazed by deer species.</p> <p>A representative sample of permanent quadrats/plots will be established to gather sufficient data to inform future management and assess the trajectory of plant species and habitats to recover. The success of habitat regeneration will be evaluated based on the species abundance and percentage coverage within each quadrant/plot.</p> <p>Habitat (NVC & photo) monitoring within the HMAs will commence during the first year of operation of the Proposed Development to establish the baseline and will be repeated in years 1, 2, 3, 5, 10, 15, 20 and 40 of the operational life of the Proposed Development.</p> <p>The frequency of monitoring thereafter will be agreed in consultation with The Highland Council and NatureScot.</p>
4 – Low density Broadleaved woodland and Shrub planting for black grouse	Mitigation and enhancement	Area A, within the Site, and B, close to the site.	<p>1. Planting of berry, fruit and nut bearing tree and shrub species at low density with open areas with no trees.</p> <p>2. Enclose to allow restoration naturally of ericoid scrub/shrub vegetation to a managed height.</p>	<p>Bird species – by providing foraging and nesting opportunities for black grouse.</p> <p>Mammal species – by providing foraging opportunities.</p> <p>Vegetation – by reducing overgrazing and allowing natural regeneration of native ground layer (for insects etc.) which will support birds and bats.</p>	<p>Planting of native broadleaved shrub and scrub species should be undertaken once construction has been completed. The newly planted saplings should be either encased in biodegradable tree tubes, or the planting area fenced off so that the saplings cannot be grazed by deer species.</p> <p>A representative sample of permanent quadrats/plots will be established to gather sufficient data to inform future management and assess the trajectory of plant species and habitats to recover. The success of habitat regeneration will be evaluated based on the species abundance and percentage coverage within each quadrant/plot.</p> <p>Habitat (NVC & photo) monitoring within the HMAs will commence during the first year of operation of the Proposed Development to establish the baseline and will be repeated in years 1, 2, 3, 5, 10, 15, 20 and 40 of the operational life of the Proposed Development.</p> <p>The frequency of monitoring thereafter will be agreed in consultation with The Highland Council and NatureScot.</p>
Enhancement Opportunities					
5 - Deer /Herbivore Management & Natural Vegetation Regeneration	Restoration and enhancement	Within the site	<p>1. Maintain deer density <15 deer/km² (lower where specified in woodland establishment areas) (Cummins <i>et al.</i> 2011). to prevent habitat degradation, but still allow for prey availability for golden eagle etc on the open hill.</p>	<p>Red Deer – continued welfare management and ensure no further degradation of habitats.</p> <p>Vegetation – Recolonisation of bare ground/peat areas as a result of construction will benefit as reduced grazing will allow for quicker regeneration of habitats.</p>	<p>This must be established pre-construction to allow for optimum success for habitat enhancement.</p> <p>Bare ground and restoration areas should be fenced off to allow newly recolonising vegetation to recover. As per Prescription 1, photo and plot monitoring would be undertaken to monitor the recovery of the vegetation in these areas. (e.g. Herbivore Impact Assessment plot monitoring)</p>

Prescription	Management Category	Where	How	What will benefit	Monitoring and timeframe
6 - Badger	Continued Monitoring and enhancement	Plantation woodland and areas out with construction proximity	1. Survey marginal woodland to identify sett locations 2. See prescriptions 3 & 4	Badger - badger setts will be located to allow for mitigation.	<p>Any identified setts should be checked regularly to determine presence or absence of badgers within.</p> <p>Monitoring surveys should be conducted on years 1, 2, 3, 5, 10, 15, 20 and 40 of the operational life of the Development.</p>
7 - Otter	Continued Monitoring and enhancement	All watercourses and associated crossing locations within the Site.	1. Survey watercourses and surrounding habitat within 200m, where access is granted, to identify holt and resting locations prior to construction.	Otter – holts and resting places will be located to allow for mitigation if these lie within areas of construction or felling and are likely to be disturbed.	<p>A survey to identify otter holts and resting locations should be undertaken prior to construction and felling. If an active holt is identified and will be destroyed as part of the Proposed Development, an artificial holt should be installed in a suitable location.</p> <p>Monitoring surveys should be conducted on years 1, 2, 3, 5, 10, 15, 20 and 40 of the operational life of the Development.</p>

Annex A: Figures

Figure 6.6.1: Habitat Management Areas

Figure 6.6.1
 Outline Habitat Management Plan (OHMP)



Key

- Site Boundary
- 250m buffer
- Development Footprint

OHMP Areas

- Peat Restoration
- Woodland Expansion/Creation
- Ornithological Woodland Creation

N

Scale @ A3: 1:25,000

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