



**Creag Riabhach Wind Farm Extension:  
Technical Appendix 6.2: Biodiversity Enhancement and  
Restoration Plan**

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## 1 Introduction

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This Technical Appendix presents the following information in support of Chapter 6: Terrestrial Ecology and Chapter 8: Ornithology of the Creag Riabhach Wind Farm Extension Environmental Impact Assessment (EIA) Report:

- Outline Biodiversity Enhancement and Restoration Plan (BERP)

This BERP will supplement the existing Peatland Habitat Restoration Plan (PHRP) associated with the original Creag Riabhach Wind Farm (CRWF) (Natural Power, 2019). The proposals mentioned herein are in addition to any proposed mitigation contained within the EIA Report.

This document provides the following information:

- Implementation;
- Biodiversity enhancement prescriptions;
- Map of BERP area including extension to existing PHRP area (Figure 1); and
- References.

The BERP will enhance local biodiversity, increase habitat resilience within the wider landscape, and improve connections between nature networks, in line with National Planning Framework 4.

This is a framework for a fully detailed Biodiversity Enhancement and Restoration Plan that will be developed post-consent, delivering biodiversity enhancement required by *National Planning Framework 4* (NPF4) (Scottish Government, 2023), and contributing towards the objectives set out within the *Scottish Biodiversity Strategy to 2045: Tackling the Nature Emergency in Scotland* (Scottish Government, 2022).

Management prescriptions in this plan also contribute towards actions, commitments and priority species included within the *Highland Nature Biodiversity Action Plan 2021-2026* (HNBAP) (The Highland Environment Forum, 2021), the objectives of *Scotland's National Peatland Plan: Working for our future* (Scottish Natural Heritage (SNH), 2015), and the *Pollinator Strategy for Scotland 2017-2027* (SNH & Scottish Government, 2017). In addition, management prescriptions will also contribute towards the conservation objectives of Caithness and Sutherland Peatlands Special Area of Conservation (SAC) and Special Protection Area (SPA) by creating a buffer of similar habitats as well as foraging and nesting opportunities for associated species. Details are given where management prescriptions will contribute towards these in section 6.

This document was prepared by Chris Cathrine (Director) and reviewed by Euan Murray (Senior Ecologist). Mapping was undertaken using ArcGIS Pro and completed by David Eastwood (Assistant Ecologist).

## 2 Overall Objective of the Management Plan

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This plan recognises the requirement of National Planning Framework 4 (NPF4) Policy 3 that “*development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats*”. Once finalised, in consultation with The Highland Council, NatureScot, SEPA and additional relevant stakeholders, the measures outlined within this document and implemented over the lifetime of the proposed development will conserve, restore and enhance the peatland habitats and associated species within the site in a manner which they “*are in a demonstrably better state than without intervention*”. In addition, it will improve connectivity of good quality peatland habitats and associated species in particular. The final plan will include a monitoring and review framework to track and report on the efficacy of management measures, allowing interventions to be adapted to emerging evidence and specialist advice and ensure net benefits are realised over the lifetime of the proposed development.

### **3 Implementation**

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This document sets out outline proposals only; in accordance with standard practice, it is intended that the outline proposals are used as a basis for a detailed management plan, consultation with NatureScot, The Highland Council, SEPA, and other relevant stakeholders.

A detailed Biodiversity Enhancement and Restoration Plan will be secured as a standalone document as a planning condition upon consent, based on the framework within this document.

The period for which the BERP will apply will start with commencement of the development until decommissioning.

## **4 Baseline and Measuring Biodiversity Net Gain**

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The most recent baseline surveys of the PHRP extension area were completed in 2013-2014 for the original CRWF project and can be found in the CRWF Environmental Statement (Creag Riabhach Wind Farm Ltd, 2013). Prior to implementation of the BERP pre-construction surveys for habitats, breeding upland waders, breeding barn owl, reptiles, and invertebrates will be undertaken to establish the baseline. Monitoring will be undertaken at intervals which will be defined in the detailed BERP agreed by stakeholders post-consent alongside methodologies.

The measures outlined in this technical appendix are considered sufficient to deliver biodiversity net gain in accordance with applicable policy and guidance at time of submission. Overall biodiversity net gain will be measured post consent in compliance with relevant statutory requirements and guidance at that time.

## 5 Proposed Development

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Description of the proposed development can be found in EIA Report Chapter 3: Description of Development.

The development is located within Natural Heritage Zone 5: The Peatlands of Caithness and Sutherland. The site is situated within an upland peatland landscape. Much of the peatland onsite has become degraded due to drainage and overgrazing. Adjacent to the site is Caithness and Sutherland Peatlands SAC and SPA which is designated for internationally important peatland habitats and populations of species associated with these. Further details can be found in Chapter 6: Ecology and Chapter 8: Ornithology of the EIA Report.

The proposed development will result in the loss of 35.91ha of habitat, including 4.22ha of peatland. The PHRP extension area for which peatland will be restored is 85.76ha – over twice the area lost to the proposed development, and so provides 35.91ha of compensatory habitat and 52.85ha in addition.

Other measures relate to management for habitats and species which are either not present, or present at low densities due to the lack of suitable foraging habitat, breeding sites, plant species they are associated with, or features used for shelter. Although including the PHRP extension, these measures will be undertaken over a wider area, including the original CRWF PHRP area, Creag Riabhach Wind Farm Extension additional area, and original CRWF area, depending on the particular management prescription. These are therefore enhancements, and not mitigation or compensation for any impacts identified in Chapter 6: Ecology and Chapter 8: Ornithology of the EIA Report.

Further details are provided in the following section.

## 6 Biodiversity Enhancement Prescriptions

The areas within which BERP prescriptions will be implemented are shown in Figure 1 and detailed in Table 1. The areas to which prescriptions apply are described in the relevant sections.

**Table 1. BERP Areas (as shown in Figure 1).**

Name	Area (ha)
PHPR area	439.80
PHPR extension area	85.76
CRWF area	356.29
Creag Riabhach Wind Farm Extension (CRWFE) additional area*	35.91
* As there is overlap between site boundaries, this is the CRWFE area which is additional to the original CRWF area.	

An outline of biodiversity enhancement to be implemented under this BERP are provided below.

### 6.1 Prescription: Peatland Habitat Restoration

#### **Objectives**

This prescription has the following objectives:

- To increase the quality and extent of peatland habitats within the PHRP extension area (Figure 1);
- To increase biodiversity potential;
- Provide additional habitat for birds associated with Caithness and Sutherland SPA;
- To create a buffer of habitats and species associated with Caithness and Sutherland SAC and SPA, which may contribute towards the conservation objectives of the SAC and SPA;
- Improve connectivity between good quality peatland habitats in the wider landscape network;
- Contribute towards delivering the objectives of *Scotland's National Peatland Plan: Working for our future* (SNH, 2015);
- Reinforce the highland nature network by contributing towards HNBAP Action 1: Landscape-scale nature conservation and restoration:
  - Commitment 2.2: Identify landscape-scale work that demonstrates the potential of integrated land management (through liaison with Scottish Land and Estates);



- Contribute towards HNBAP Action 2: Identify and conserve priority species:
  - Dunlin (*Calidris alpina*), greenshank (*Tringa nebularia*), golden plover (*Pluvialis apricaria*), hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*) peregrine (*Falco peregrinus*), and wood sandpiper (*Tringa glareola*).

### **Management**

Management actions within the extended PHRP area will follow the same as those detailed in the PHRP (Natural Power, 2019), including:

- Drain blocking within the extended PHRP area; and
- Removal of any self-seeded trees and shrubs from the extended PHRP area.

The monitoring plan described in the PHRP (Natural Power, 2019) will be extended to include the additional PHRP extension area shown in Figure 1. The monitoring plan, which now includes the PHRP extension area, includes the following prescriptions:

- Baseline assessment of drainage features, water levels, peat depth and presence of peat-forming species within the PHRP area;
  - Baseline ecological monitoring of moorland raptor and wader populations;
  - Ongoing monitoring to assess if water table changes and an increased abundance of peat-forming species is evident as a result of the management prescriptions undertaken; and
- Ongoing ecological monitoring to assess whether and how moorland raptor and wader populations are responding to changes in habitat.

## **6.2 Prescription: Enhancement of Nectar Resource for Pollinating Insects**

### **Objectives**

This prescription has the following objectives:

- Enhancement of nectar resource available to pollinating insects within the PHRP area, the PHRP extension area, and both wind farm site areas (see Figure 1);
- Increase existing local populations of native pollinating insects;
- Increase diversity of local native pollinating insect community by increasing the variety of insect pollinated plant species;
- Provide a steppingstone between other upland habitats offering high quality nectar resources for native pollinating insects (such as the adjacent Caithness and Peatlands SAC and Cnoc an Alaskie Site of Special Scientific Interest (SSSI)), improving connectivity;
- The above objectives are linked with the prescriptions detailed in 3.3 and 3.5, and contributes towards delivering the objectives of the *Pollinator Strategy for Scotland 2017-2027* (SNH & Scottish Government, 2017);

- Reinforce the highland nature network by contributing towards HNBAP Action 1: Landscape-scale nature conservation and restoration:
  - Commitment 2.6: Adoption of a pollinator strategy (through liaison with The Highland Environment Forum); and
- Contribute towards HNBAP Action 2: Identify and conserve priority species:
  - Pollinating insects included as priority species.

### **Management**

Management actions will include:

- Creation of flower-rich areas at blanket bog fringes through encouraging ericaceous shrubs such as, but not limited to, ling heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*), and a diversity of willows (*Salix* spp.), within a mix of species appropriate to the habitat and region, using stock of local provenance, under the advice of a suitably qualified and experienced ecologist (Buglife, 2010).

The monitoring plan described in the PHRP (Natural Power, 2019) will be extended to include planting areas to ensure establishment of plants and recommend any management actions which may be necessary to increase success.

## **6.3 Prescription: Creation of Boggy Pools**

### **Objectives**

This prescription has the following objectives:

- Provide freshwater habitat for invertebrates, including aquatic larval stages of pollinating insects within the PHRP area and the PHRP extension area, enhancing local populations and increasing diversity. This objective is linked with prescriptions 3.2 and 3.5, and contributes towards the objectives of the *Pollinator Strategy for Scotland 2017-2027* (SNH & Scottish Government, 2017);
- Provide foraging habitat for breeding wading birds, such as species associated with the adjacent Caithness and Sutherland Peatlands SPA including dunlin (*Calidris alpina*), greenshank, golden plover, and wood sandpiper. This will create a buffer of suitable habitat for species associated with Caithness and Sutherland SPA, which may contribute towards the conservation objectives of the SPA; and
- Contribute towards HNBAP Action 2: Identify and conserve priority species:
  - Dunlin, greenshank, golden plover, and wood sandpiper.

### **Management**

Management actions will include:

- Creation of a network of boggy pools using methods deemed appropriate at selected locations under the advice of a suitably qualified and experienced ecologist with reference to relevant guidance (e.g. Buglife, 2010; Beadle *et al.*, 2015).

## 6.4 Prescription: Deadwood Management

### **Objectives**

This prescription has the following objectives:

- Provide a range of deadwood habitat types within Creag Riabhach Woodland to support a diversity of saproxylic invertebrates and saprophytic fungi.

### **Management**

Management actions will include:

- In line with the UK Forestry Standard (Forestry Commission, 2017) the forests and biodiversity guidelines for deadwood will be followed when managing these areas. The relevant guidelines are:
  - Leave a proportion of standing and fallen deadwood: concentrate it in areas of high ecological value, where there is existing deadwood and where linkages can be provided between deadwood habitats – avoid uniform distribution across the forest management unit;
  - Retain existing veteran trees and select and manage suitable individuals to eventually take their place; and

Current guidance suggests that deadwood (not including stumps) should amount to roughly 20 m<sup>3</sup> per hectare averaged (though not uniformly distributed) across a given site (Humphrey & Bailey, 2012). This value and composition of the deadwood on this site will be refined under the advice of a suitably qualified and experienced entomologist with reference to best practice (e.g. Cathrine & Amphlett, 2011; Buglife, 2011).

## 6.5 Prescription: Creation of Solitary Bee Nest Sites

### **Objectives**

This prescription has the following objectives:

- Provide nesting habitat for solitary bees, enhancing local populations, and increasing diversity. This objective is linked with prescriptions 3.2 and 3.3, and contributes towards the objectives of the *Pollinator Strategy for Scotland 2017-2027* (SNH & Scottish Government, 2017);
- Reinforce the highland nature network by contributing towards HNBAP Action 1: Landscape-scale nature conservation and restoration:
  - Commitment 2.6: Adoption of a pollinator strategy (through liaison with The Highland Environment Forum); and
- Contribute towards HNBAP Action 2: Identify and conserve priority species:
  - Pollinating insects included as priority species.

### **Management**

Management actions will include:

- Creation of slopes, including areas of bare substrate, providing a range of aspects, using the battery energy storage system bund. This will be designed

under the advice of a suitably qualified and experienced entomologist with reference to appropriate guidance (e.g. Buglife, n.d.).

## 6.6 Prescription: Creation of Reptile Hibernaculum

### **Objectives**

This prescription has the following objectives:

- Provide a communal hibernation site for reptiles (particularly adder (*Vipera berus*) and common lizard (*Zootoca vivipara*), both Scottish Biodiversity List species, known to be present in the area). This will help ensure the continued use of the site by these species.

### **Management**

Management actions will include:

- The battery energy storage system bund will be created to serve as an artificial reptile hibernaculum, with a range of aspects, designed under the advice of a suitably qualified and experienced herpetologist with reference to appropriate guidance (e.g. Baker, 2010; Cathrine, 2018; Edgar *et al.*, 2010; Highways Agency *et al.*, 2005; Showler *et al.*, 2005; Stebbings, 2000; Whiting & Booth, 2012).

## 6.7 Prescription: Installation of Barn Owl Nest Boxes

### **Objectives**

This prescription has the following objectives:

- Provide nesting sites for barn owl (*Tyto alba*), to enhance the local breeding population where suitable locations are limited.

### **Management**

Management actions will include:

- Installation of six barn owl nest boxes at low elevations (below 300 m, as barn owls rarely hunt above this) within the PHRP area, PHRP extension area, and wind farm areas. Nest boxes will be at least 200 m from any turbines, site buildings, overhead power lines, or public roads, which is in excess of the recommended disturbance distance of 100 m for this species (Goodship & Furness, 2022). Note that barn owls typically hunt at heights less than 3 m and rarely as high as 4 m, therefore the risk of collision with turbines is extremely unlikely if boxes are situated with the hole facing away from turbines (Barn Owl Trust, 2012). Therefore, any risk of collision with turbines for barn owls using nest boxes would be negligible. The box will be designed with reference to the specifications set out in Barn Owl Trust (2012). Entrance holes will be visible in the landscape, they will be situated in open ground or at woodland edge with suitable foraging habitat adjacent, will face away from wind turbines, overhead power lines, and public roads, and will be erected at a height above risk of collision with vehicles when near roads or tracks. Locations for boxes will be determined by a suitably experienced and qualified ornithologist, and the type used (indoor, tree mounted, or pole mounted) will depend on the locations selected.

## 6.8 Prescription: Fence Construction and Marking

### **Objectives**

This prescription has the following objectives:

- Ensure fences are visible to flying birds, particularly black grouse (*Tetrao tetrix*), so as to reduce the risk of collision; and
- Contribute towards HNBAP Action 2: Identify and conserve priority species:
  - Black grouse are included as priority species.

### **Management**

Management actions will include:

- Fences installed will be designed, constructed, and marked to reduce the risk of collision with birds – notably black grouse. This will follow best practice guidance (e.g. Trout & Kortland, 2012).

## 7 References

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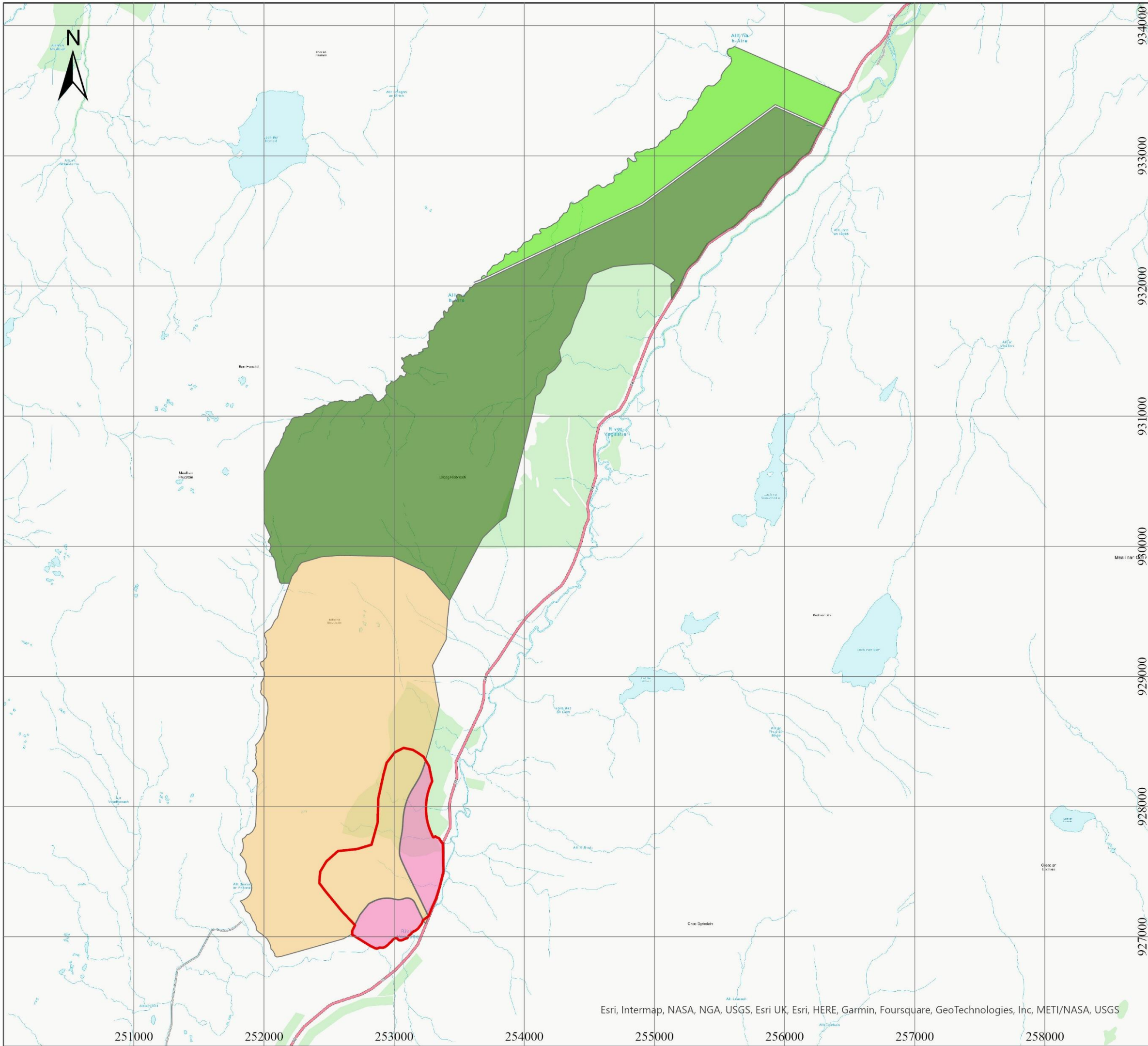
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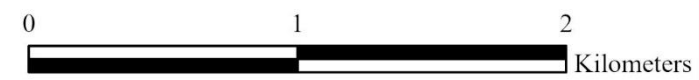
## APPENDIX 1: Figure

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- Key
- Creag Riabhach Extension Site Boundary
  - PHRP Area
  - PHRP Extension Area
  - Creag Riabhach Wind Farm Area
  - Creag Riabhach Extension Additional Area



Creag Riabhach Wind Farm Extension

Figure 1 Biodiversity Enhancement And Restoration Plan

Drawing Number: CRE-ENG-MAP-002-00	Imp. CRE	Dies. ENG	Type MAP	Prog. 002	Rev. 00
Date: 2023-05-16		Map Scale: 1:28,000			
Prepared by: DE	Checked by: EM		Approved by: CC		

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British national grid

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