SEI Volume 5

Technical Appendix A: Combined Outline Habitat Management Plan

Balmeanach Wind Farm and Ben Sca Redesign Wind Farm

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30 April 2025

Revision: Final

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Acronyms and Abbreviations

CEMP	Construction Environmental Management Plan
CSM	Common Standards Monitoring
DOC	Dissolved Organic Carbon
EIA	Environmental Impact Assessment
HAP	Habitat Action Plan
HMP	Habitat Management Plan
HRSG	Highland Raptor Study Group
LU	Livestock Units
NVC	National Vegetation Classification
OHMP	Outline Habitat Management Plan
SI	Supplementary Information
SEPA	Scottish Environment Protection Agency
SEI	Supplementary Environmental Information
RSPB	Royal Society for the Protection of Birds
SNPP	Scotland’s National Peatland Plan
TA	Technical Appendix
THC	The Highland Council

1.0 Introduction

1.1 Background

Balmeanach Wind Farm Limited and Ben Sca Wind Farm Limited (the Applicants) propose to construct and operate two adjacent wind farms comprising 17 wind turbines and associated infrastructure known as Balmeanach Wind Farm and Ben Sca Redesign Wind Farm (the 'Proposed Developments') in the north west of the Isle of Skye. The sites are located approximately 3km to the southwest of Edinbane and 8km to the east of Dunvegan. The locations of the sites are shown on **Supplementary Environmental Information (SEI) Figure V5.1**.

Following responses from consultees (The Highland Council (THC), NatureScot, Scottish Environment Protection Agency (SEPA) and Royal Society for the Protection of Birds (RSPB)) recommending that additional peat habitat restoration be proposed, the Outline Habitat Management Plans (OHMPs) submitted with the EIA Reports for both Proposed Developments have been updated.

This Technical Appendix (TA) is the updated and consolidated OHMP for both sites combined, including habitat management objectives for both Balmeanach Wind Farm and Ben Sca Redesign Wind Farm. The updated OHMPs for each of the Proposed Developments individually, on which this combined OHMP is based, can be found in:

- **Volume 4 SEI TA5.3**: Ben Sca Redesign Wind Farm OHMP; and
- **Volume 4 SEI TA8.5**: Balmeanach Wind Farm OHMP.

Planning permission was previously granted by the Highland Council (THC), on the same site, for:

- Ben Sca Wind Farm (reference 20/00013/FUL) in December 2020. The approved development is for the construction and operation of up to seven wind turbines with a maximum blade tip height of up to 135m and associated infrastructure; and
- Ben Sca Wind Farm Extension (reference (21/05767/FUL) in April 2022. The approved development is for the construction and operation of two wind turbines with a maximum blade tip height of up to 149.9m and associated infrastructure.

Further details of the Proposed Developments are provided in **Ben Sca Redesign SEI Chapter 1: Introduction and Project Description** and in **Balmeanach SEI Chapter 2: Site Design and Chapter 3: Description of Development**, including two options for access tracks at Balmeanach, both of which are considered in this OHMP.

The following SEI Chapters present an updated assessment of the potential ecological and ornithological impact of the Proposed Developments and should be read alongside the relevant EIA chapters for the applicable development:

- **Balmeanach Wind Farm SEI Chapter 8: Ecology;**
- **Balmeanach Wind Farm SEI Chapter 9: Ornithology;**
- **Ben Sca Redesign Wind Farm SEI Chapter 4: Ornithology;**
- **Ben Sca Redesign SEI Chapter 5: Ecology;**
- **SEI Volume 5, Section 4: Ecology; and**
- **SEI Volume 5, Section 5: Ornithology.**

Three previous OHMPs were produced for the consented Ben Sca Wind Farm development and subsequent Ben Sca Wind Farm extension. OHMPs were also produced as part of the

submission of Ben Sca Redesign Wind Farm, combining the two consented Ben Sca schemes, and Balmeanach Wind Farm. The OHMPs produced previously comprise:

- **Ben Sca Wind Farm EIA Report Technical Appendix 8.5**: **OHMP** (SLR, January 2020);
- **Ben Sca Wind Farm Supplementary Information (SI) Report Technical Appendix 8.5**: **OHMP** (SLR, August 2020);
- **Ben Sca Wind Farm Extension EIA Report Technical Appendix C4**: **OHMP** (SLR, November 2021);
- **Balmeanach Wind Farm EIA Report Technical Appendix 8.5: OHMP** (SLR, June 2023); and
- **Ben Sca Wind Farm Redesign EIA Technical Appendix 5.3: OHMP** (SLR, February 2024).

This OHMP takes into consideration the previous OHMPs and proposes additional habitat restoration and management measures in relation to the Proposed Developments, which would remain in place for the lifetime of the schemes. These measures are required to provide compensation for negative effects on important ecological features, notably blanket bog habitats, and to provide biodiversity enhancements, in accordance with planning policy requirements.

1.2 Scope

This combined OHMP has been prepared by SLR Consulting Limited on behalf of the Applicants. The OHMP is intended as a precursor to a more detailed Habitat Management Plan (HMP), which would be produced and agreed with THC, in consultation with NatureScot and SEPA post consent, prior to the commencement of construction. It is anticipated that the production and agreement of the detailed combined HMP would be secured via planning conditions under each of the consents if Balmeanach and Ben Sca Redesign Wind Farms were approved.

This OHMP has been prepared with reference to relevant HMP, peatland restoration and forestry guidance[1,2,3,4,5,6]. It is acknowledged that NatureScot published new guidance on peatlands[7] in June 2023 (revised in November 2023), as such the OHMP also references this guidance.

The aim of the OHMP is to establish the key objectives and principles by which parts of the sites would be restored and managed to the benefit of biodiversity. These would then form the basis for the more detailed combined HMP, which would be developed with relevant consultees post consent. It is not the intention for this document to provide full details of proposed management, many of which cannot be determined fully at this stage.

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[1] NatureScot (2023) *NatureScot pre-application guidance for onshore wind farms*.

[2] SNH (2016) *Planning for development: What to consider and include in Habitat Management Plans. Version 2*.

[3] SNH (2015) *Scotland's National Peatland Plan: Working for our future*.

[4] SEPA, SNH and FCS (2014) *Land Use Planning System SEPA Guidance Note LUPS-GU27. Use of Trees Cleared to Facilitate Development on Afforested Land*.

[5] Forestry Commission Scotland (2015) *Deciding future management options for afforested deep peatland*. Forestry Commission, Edinburgh.

[6] NatureScot. (2020). *Peatland Action – Technical Compendium*. Available online at: https://www.nature.scot/doc/peatland-action-technical-compendium [Accessed March 2025]

[7] NatureScot (2023) *Advising on peatland, carbon-rich soils and priority peatland habitats in development management*.

The OHMP is intended to cover the restoration, management and monitoring of peatland habitats during the operational life of the wind farms and to provide enhancement measures for target bird species. Issues relating specifically to the construction of the wind farms (e.g. control of water runoff, disturbance to birds and other protected species such as reptiles and otter *Lutra lutra*) are not considered here. Further information about ecological mitigation measures to be employed during the construction period is included in **Balmeanach EIA Chapters 8 and 9** and **Ben Sca Redesign EIA Chapters 4 and 5**. Outline Construction Environmental Management Plans (CEMPs) are included in **Balmeanach EIA Technical Appendix (TA) 3.1** and **Ben Sca Redesign EIA TA 1.1**.

The spatial scope of the OHMP is contained wholly within a land area controlled by the two Applicants (as shown outlined in blue on **SEI Figure V5.29**), although parts of the proposed restoration areas lie outside the relevant application boundaries (shown in red and purple on **SEI Figure V5.29)**.

1.3 Priority Features for Management Action

The habitat features which form the subject of this OHMP have been determined through consideration of the relative importance of ecological features present at the sites, the extent to which they may be affected by the Proposed Development (as set out in **Balmeanach EIA Chapter 8** and **SEI Chapter 8,** and **Ben Sca Redesign EIA Chapter 5** and **SEI Chapter 5**), and their potential to benefit from restoration or management. As such, the OHMP primarily relates to blanket bog, with additional measures proposed for wet heath.

The impact on birds (as set out in **Balmeanach SEI Chapter 9** and **Ben Sca Redesign SEI Chapter 4**) has also been considered, with management goals in this report aimed at providing habitat for breeding and foraging waders, and foraging raptors. The key issues for consideration are raptor activity, particularly those of white-tailed eagle *Haliaeetus albicilla* (the potential for collision) and golden eagle *Aquila chrysaetos* (the potential for collision and displacement from the Proposed Developments to other adjacent areas). Therefore, it is important that any monitoring programme addresses the species that may be affected by the Proposed Developments. It should be recognised, however, that 'such monitoring should only be required where there is a gap in understanding or where the scale and extent of impact is uncertain'[8].

The post consent ornithological monitoring programmes for the adjacent operational Edinbane Wind Farm and Ben Aketil Wind Farm have produced a vast amount of information over a long period of time, and it is broadly understood how raptors respond to operational wind farms in this part of Skye. The operational monitoring data show that there is some displacement of flight activity away from the turbines, although this has not affected the long-term population trends for golden eagle, which remain stable, and white-tailed eagle, which have increased. What is not fully understood, however, is the potential cumulative effect of an increasing number of renewable energy developments in the future, on the populations of both eagle species on the Isle of Skye.

Recommendations for ornithological monitoring have been considered in **Section 4.8.2**.

Other important ecological features are identified in the **Balmeanach EIA** and **SEI Chapters 8: Ecology,** and the **Ben Sca Redesign EIA** and **SEI Chapters 5: Ecology**, including otter, fish, flush and spring, acid grassland and aquatic receptors. However, it was established through the impact assessment process that none of these are likely to be significantly affected by the Proposed Developments (subject to the implementation of standard good

[8] Scottish Natural Heritage (SNH) (2009). *Monitoring the impact of onshore wind farms on birds.* Scottish Natural Heritage, Inverness.

practice mitigation measures during the construction phase) and therefore these receptors are not considered priorities for management action in this OHMP.

1.4 Aims

The broad principal aim of this OHMP is to restore and manage c. 422.07ha of peatland habitat within the afforested area to the northwest corner of the Ben Sca, and within the open upland area adjacent to, and to the south of, the proposed Balmeanach infrastructure (the areas targeted for restoration are shown on **SEI Figure V5.29**). Further details, including specific objectives to meet the principal aim, are provided in **Section 3.0**.

Additional recommendations in relation to ornithological monitoring are discussed in **Section 4.8.2**.

2.0 Implementation

2.1 Roles and Responsibilities

As the developer, the Applicants are ultimately responsible for meeting the commitments made in this OHMP. The implementation of the detailed combined HMP would be secured via planning condition, and overseen by a suitably qualified person or persons, appointed by the Applicants.

All management tasks defined within the HMP would be carried out by suitably experienced contractors and all monitoring would be conducted by suitably qualified and experienced ecologists and/or hydrologists.

2.2 Monitoring and Review - Overview

This OHMP has been prepared in accordance with NatureScot guidance[2], which notes that appropriately timed monitoring is important to enable the success of HMP tasks to be determined and identify whether remedial measures are required, if objectives are not being met.

Proposed monitoring is outlined in **Section 4.8.** Any HMP should be a live document, which can be altered following monitoring results, unexpected events or evolving understanding and guidance. Therefore, each monitoring report would include a review of the performance of the HMP and recommendations for changes to management prescriptions, as appropriate. Monitoring results would be reported on an annual basis (during years in which monitoring takes place), and monitoring reports would be submitted to THC, NatureScot and SEPA. Any changes to management prescriptions would be subject to their agreement.

2.3 Programme

An indicative programme showing the restoration, management and monitoring tasks specified in this OHMP, is provided in **Section 5.0**. A detailed programme would be provided in the detailed combined HMP.

3.0 Goals and Objectives

3.1 Goals

The goals of this combined OHMP are to as far as reasonably practical:

- to create a 131.61ha area of blanket bog via forest to bog peatland restoration;

- to restore a 267.12ha area of blanket bog via gully blocking and micro-erosion stabilisation;
- to restore 18.52ha of blanket bog via drain blocking;
- to stabilise and re-vegetate 4.82ha of bare peat;
- to enhance 41.89ha of wet heath;
- within 30 years have created hydrological conditions suitable for the development and maintenance of carbon sequestering bog/ wet heath habitats that are largely self-sustaining, therefore making a significant contribution to the restoration of this habitat type at the local level;
- to provide enhanced foraging areas for golden eagles and white-tailed eagles; and
- to discourage golden eagles and white-tailed eagles from utilising the turbine area

3.2 Specific Objectives

The following specific objectives are proposed in order to meet the goals outlined in **Section 3.1** (see **Figure V5.29**):

- to fell trees within a 131.61ha area of conifer plantation, and maintain the area free of trees;
- to increase the water table across the 131.61ha forest-to-bog restoration area, 267.12ha of micro-erosion and gully blocking area, 18.52ha of drain blocking area and 4.82ha or bare peat, in order to restore the underlying processes suitable for blanket bog restoration;
- to create conditions across 422.07ha of blanket bog restoration areas that should, in time, increase the abundance and distribution of bog plants, particularly peat forming *Sphagnum* mosses, and facilitate its recovery back to blanket bog habitat;
- to maintain the habitat management areas free of trees/ conifer regeneration;
- to minimise threats to regenerating bog/ heath habitats such as grazing and fire;
- to monitor bog/ heath regeneration to assess if the necessary conditions have been created that should, in time, increase the abundance and distribution of bog plants, particularly peat forming *Sphagnum* mosses, and facilitate its recovery back to active peatland habitat;
- to reduce erosion on wet heath, stabilising shallow peat where it connects with sensitive blanket bog areas;
- to improve foraging resource for white-tailed and golden eagle in the area, and enhance foraging areas >500m from any turbines; and
- to discourage scavenging by white-tailed and golden eagle within the turbine area.

3.3 Background and Rationale

Peatland is a general term for a wide range of peat soils and habitats that occupy more than 20% of Scotland's land area[9]. Scotland holds around 60% of the UK's peatlands soils[10]. Peatland has been identified as a national conservation priority within Scotland's National Peatland Plan (SNPP), for its importance for biodiversity, water quality, and as a carbon

[9] SNH (2015) *Scotland's National Peatland Plan: Working for our future*.

[10] SEL (2009) Scottish Environment Link. *Peatlands Briefing May 2009*

store[4]. The most extensive and deepest peat soils occur under blanket bog and raised bogs. These habitats cover an area of around 1.9 million hectares in Scotland and are recognised as internationally important under the EU Habitats Directive (as a priority habitat included on Annex 1 of the Directive). Blanket bog is also listed on the Scottish Biodiversity List[11] and for Skye and Lochalsh[12] is subject to a Habitat Action Plan (HAP) (as part of the Mountain and Moorland HAP). Blanket bog is therefore considered to be a priority habitat for conservation both nationally and locally.

Habitat management areas intend to increase the area of active blanket bog and enhance existing active blanket bog, improving habitat for associated upland plants, birds and other fauna. The restoration will improve breeding habitat for target species such as golden plover and hen harrier and increase the density of golden and white-tailed eagle prey, such as grouse species, wader species and hares. With 113ha of the peatland restoration >500m from any turbines (including existing adjacent wind farms), this will provide enhanced foraging for eagles in areas away from the turbines and extend foraging areas for eagles that were previously unavailable due to the conifer plantation. The peatland restoration also includes an open corridor from Beinn Bheag up to Ben Aketil and Ben Sca, which lies in between the three windfarms.

3.3.1 Identification of Restoration and Management Areas

SEI Volume 5 Section 4 predicts that the construction of the Proposed Developments would result in the combined loss (direct and indirect) of 36.74ha of blanket bog in the worst-case scenario (Balmeanach track Option B), 34.45ha in Balmeanach track Option A, and 7.58ha or 7.34ha for Balmeanach track Option A or B respectively of heathland or heathland mosaic habitat (wet heath, upland dry heath, upland dry heath/acid grassland mosaic). A combined total loss of 44.08ha of Annex 1 habitats is predicted in the worst-case scenario (Balmeanach track Option B) or 42.03ha in Balmeanach track Option A. The targeted restoration and management of peatland habitat proposed here is intended to compensate for these losses and provide substantial biodiversity enhancement.

SLR was commissioned by the Applicants to undertake a range of non-avian ecological surveys on the proposed Balmeanach Wind Farm in 2019, on the now consented Ben Sca Wind Farm in 2018 and on the now consented Ben Sca Wind Farm Extension in 2021. As part of this commission, Phase 1 habitat, UK Habitat and National Vegetation Classification (NVC) surveys all areas within 250m of proposed infrastructure were carried out in 2018, 2019 and 2021. Surveys on Balmeanach Wind Farm of all areas within 250m of proposed infrastructure were carried out in summer 2020 and updated in 2022 after a change in the proposed layout. UK Habitat and NVC surveys were also carried out on Ben Sca Redesign Wind Farm in 2023 to assess any changes in the habitat baseline.

One of the aims of these surveys was to inform an assessment of the sites' potential to benefit from habitat restoration or management. The results of these surveys are provided in the **Balmeanach EIA TA 8.1**: **Vegetation Survey and Habitat Mapping Report** and the **Ben Sca Redesign EIA TA 5.1: Habitats and Vegetation Survey Report**. The results of the habitat surveys are illustrated on **SEI Figure V5.12** and **SEI Figure V5.13**.

Additional surveys were carried out by Crosscut Forestry in 2021 and 2023 to assess the potential of blocks of conifer plantation for forest to bog restoration. The 2023 survey is reported in the **Balmeanach EIA TA 8.4: Forestry Report** and the **Ben Sca Redesign EIA TA 5.4: Forestry Report**.

[11] Scottish Government (2013) Scottish Government Scottish Biodiversity List SBL

[12] Skye and Lochalsh Biodiversity Group (2003) The Skye and Lochalsh Biodiversity Action Plan December 2003.

All land within the HMP option area was visited by a habitat surveyor and their suitability for restoration was assessed. Areas where updated full habitat surveys are required will be surveyed prior to works taking place (see **Section 4.1.1**).

During the surveys to inform the EIAs for the Proposed Developments, an area of conifer plantation measuring c. 131.61ha[13] was identified as having good peatland restoration potential, to offset the habitat loss for the Balmeanach and Ben Sca Redesign applications.

Peatland restoration potential on both sites was reviewed in 2025 with reference to recent peatland restoration methods[14,15], with the aim to meet current NatureScot guidance. NatureScot guidance recommends a peatland restoration area 10 times the area lost (which equates to Balmeanach track Option A: 344.5ha, Balmeanach track Option B: 367.4ha), plus an enhancement of 10% of the area of peatland recorded across both sites (with 420ha of blanket bog recorded on site, 10% would represent 42ha here), totalling a requirement for 386.5ha of blanket bog restoration for Balmeanach track Option A and 409.4ha of blanket bog restoration for Balmeanach track Option B. As such, an additional 290.46ha of peatland habitat on the wind farm, adjacent to the infrastructure, and to the south of the proposed turbine envelope was identified as having potential for restoration. This increases the total peatland restoration area to 422.07ha for the Proposed Developments combined. See **Table 3-1** for summary.

In addition, 41.89ha of wet heath will be included in the restoration measures to compensate for the worst case scenario loss of 7.58ha of heath habitat and provide additional enhancement. Areas classified as wet heath at the sites represent shallow peat habitats. The wet heath links blanket bog habitats on the steeper slopes, providing continuous restoration across the landscape to prevent further erosion.

Note that the 422.07ha excludes the area which would be occupied by wind farm infrastructure and any area within 30m of wind farm infrastructure, although restoration works will also take place in areas within 30m of infrastructure. A 30m buffer from infrastructure and surrounding conifer plantation has been applied to the HMP areas as a precautionary measure, with the assumption that once the blanket bog areas are improved there will no longer be eroded blanket bog within 10m of the infrastructure, this increases the drying buffer caused by drainage associated with infrastructure to 30m as recommended by NatureScot[12]. The approximate boundary of these areas are shown on **SEI Figure V5.29**.

[13] Note this area is slightly smaller than the area proposed in the Ben Sca Redesign EIA and the Balmeanach EIA, this is due to the addition of a precautionary 30m buffer for blanket bog restoration around infrastructure.

[14] NatureScot (2022) Peatland Action – Technical Compendium – Restoration – 5 Bunding intervention. Available online at https://www.nature.scot/doc/peatland-action-technical-compendium-restoration-5-bunding-intervention#:~:text=Surface%20bunding%20is%20mostly%20used,that%20lead%20to%20water%20loss. [Accessed March 2025]

[15] IUCN Peatland Programme. (2021) Drain (grip) blocking in the Cairngorms National Park. Available online at: https://www.iucn-uk-peatlandprogramme.org/news/drain-grip-blocking-cairngorms-national-park [Accessed March 2025]

Table 3-1: Blanket bog and heath loss and restoration

Track Option	Habitat	Habitat Loss (direct and indirect)	Restoration Requirement	Restoration Type	Area Proposed	Notes
Option A	Blanket bog	34.45ha	1:10 Compensation: 344.5ha 10% Enhancement: 42ha Total Requirement: 386.5ha	Forest-to-bog	131.61ha	This represents the combined area outlined in the OHMPs submitted with the EIAs for each Proposed Development as forest-to-bog
				Micro-erosion stabilisation and gully blocking/reprofiling	267.12ha	This represents the combined additional areas outlined in the OHMPs submitted with the SEIs for the Proposed Developments
				Drain Blocking	18.52ha	This represents additional areas outlined to the south-west of the Balmeanach infrastructure
				Bare peat stabilisation	4.82ha	This represents additional areas outlined adjacent to Balmeanach infrastructure on top of the hill
				All	422.07ha	
	Heath	7.58ha	7.58ha	Micro-erosion stabilisation and gully blocking/reprofiling	41.89ha	This represents a continuation of restoration methods applied to surrounding bog habitats for both of the Proposed Developments
Option B	Blanket bog	36.74ha	1:10 Compensation: 367.4ha 10% Enhancement: 42ha Total Requirement: 409.4ha	Forest-to-bog	131.61ha	This represents the combined area outlined in the OHMPs submitted with the EIAs for each Proposed Development as forest-to-bog
				Micro-erosion stabilisation and gully blocking/reprofiling	267.12ha	This represents the combined additional areas outlined in the OHMPs submitted with the SEIs for the Proposed Developments
				Drain Blocking	18.52ha	This represents additional areas outlined to the south-west of the Balmeanach infrastructure
				Bare peat stabilisation	4.82ha	This represents additional areas outlined adjacent to Balmeanach infrastructure on top of the hill
				All	422.07ha	
	Heath	7.34ha	7.34ha	Micro-erosion stabilisation and gully blocking/reprofiling	41.89ha	This represents a continuation of restoration methods applied to surrounding bog habitats for both of the Proposed Developments

3.3.2 Forestry Considerations

An area of 131.61ha has been identified for forest-to-bog restoration. The following factors have been considered in concluding that these areas of conifer plantation are appropriate for peatland restoration:

- the areas were densely planted with non-native Sitka spruce *Picea sitchensis* and Lodgepole pine *Pinus contorta* trees in 1990, but the growth rates are generally very poor and many of the trees are stunted, indicative of trees planted on wet, deep peat;
- a peat depth survey (see**: Balmeanach EIA TA 10.2: Peat Management Plan and Ben Sca Redesign EIA TA 6.1: Peat Management Plan**) indicates that of those areas surveyed within the proposed habitat management areas (mostly comprising the rides), peat depth ranges from 0 - 2.5m, but is most frequently 0.5 – 1.5m;
- the rides between the forest coupes support blanket bog habitat. Coupled with this, the forested areas lie adjacent to a large expanse of extant blanket bog habitat to the east and southeast, thereby suggesting that vegetation within the densely planted forest coupes originally supported similar blanket bog communities to those within forest rides;
- the areas have been modified via drains to lower the water table and encourage tree growth, indicating that they have good restoration potential via tree felling and drain blocking to raise the water table; and
- as noted above, the areas lie adjacent to a large area of extant blanket bog to the east and southeast and further areas of blanket bog habitat are located within 1km to the west and south. Restoration of these areas would therefore improve the functional connectivity of priority blanket bog habitat within the wider area.

Inappropriate planting of trees on peat is known to degrade the peatland habitat, can reduce biodiversity, and cause release of greenhouse gases when tree growth is poor and peat soils are heavily drained and disturbed[16]. The fact that the forested areas contain relatively deep peat and blanket bog is present within forest rides (and is the dominant habitat to the east and southeast of the forested areas), provides strong evidence to indicate that the plantation areas comprised blanket bog prior to conifer planting. It is therefore reasonable to assume that the planting of coniferous trees within the proposed habitat management area has significantly degraded blanket bog habitat present previously, to the extent where it is no longer peat-forming, and has lost its characteristic blanket bog vegetation. As such, the removal of the trees to facilitate the restoration of peatland habitats is considered appropriate in this situation.

The Scottish Government's Policy on Control of Woodland Removal[17] lists criteria where woodland removal, without a requirement for compensatory planting, is most likely to be appropriate. This includes criteria which are applicable to this OHMP, specifically '*where it would contribute significantly to enhancing priority habitats and their connectivity*'. As set out in this OHMP, the restoration proposed would contribute significantly to enhancing priority blanket bog habitats and their connectivity and it can therefore be concluded that the removal of the conifer trees for the purposes of restoring the peatland, without a requirement for compensatory planting, is appropriate in terms of aligning with Scottish Government Policy. Further details are provided in **Ben Sca Redesign EIA TA 5.4.**

[16] Forestry Commission Scotland (2015) *Deciding future management options for afforested deep peatland*. Forestry Commission, Edinburgh.

[17] Forestry Commission Scotland (2009) The Scottish Government's Policy on Control of Woodland Removal.

White-tailed eagles used the forestry area in 2023 as a daytime roosting site and may continue to use the area. Any management undertaken should be preceded by ornithology surveys to avoid disturbance to protected species. Should protected species be present, mitigation as outlined in **Balmeanach EIA Chapter 9: Ornithology** and **Ben Sca Redesign EIA Chapter 4: Ornithology** should be carried out.

3.3.3 Micro-erosion and gully blocking

A combined area of 267.12ha has been identified for gully blocking and reprofiling, and micro-erosion stabilisation. Following the recovery of the sites from a fire in 2020, the condition of the peatland was uncertain. Review of the sites in 2025, in consultation with a peat restoration expert, and review of recent methods of peatland restoration**Error! Bookmark not defined.** **Error! Bookmark not defined.** has revealed additional potential for peatland restoration across the open upland areas of the sites. Gullies and micro-erosion features are found across the sites (see **Photographs 3-1 to 3-4** which were taken on-site on Balmeanach and Ben Sca), these currently have areas of exposed bare peat on gully sides which are vulnerable to erosion and offsite transport. These are also sources of particulate and dissolved organic carbon offsite. The aim of this work would be to move areas of hagged gullies (gullies with bare peat sides) from actively eroding/drained (gully/hagg) condition to a modified revegetated condition class. This would stabilise existing gullies and prevent further erosion whilst helping to reduce peak flows and offsite transport of particulate and dissolved organic carbon (DOC). Exact locations would be determined during detailed peatland management and restoration planning.

Gully reprofiling and bunding methods would be aligned with the Peatland Action Technical Compendium[6] outlining best practice.

Micro-erosion restoration will target the complex mosaics of peatland erosion that are present across the sites and represent areas of early development of larger erosion features such as gullies and peat pans. Without intervention these will be susceptible to merging to form larger peat erosion features. Micro-erosion treatments aim to reduce flow to larger gullies, stabilise and revegetate areas of gully expansion and increase residence times of water on the sites, reducing peak flows in gullies and erosion of treated areas.

The aim of this work would be to move areas of micro-erosion from actively eroding/drained gully/hagg condition to a modified rewetted condition class. This would stabilise the bare peat, reducing erosion, oxidation and offsite transport of peat from the sites and prevent micro-erosion features expanding further onsite. It would also facilitate the re-establishment of peatland vegetation and improve water retention within the peatland. Removing surface water pathways will also increase water residence times on the sites and reducing peak flows within downstream gullies as well as reducing offsite transport of particulate and dissolved organic carbon (DOC). Exact locations would be determined during detailed peatland management and restoration planning.

To achieve this, an adapted wave damming approach applied successfully in the Monadhliath and Cairngorms National Park[15], would be adopted.

Micro-erosion stabilisation and gully blocking methods would be applied to both blanket bog and wet heath areas. These methods are targeted at blanket bog with deeper peat, however areas of wet heath on steeper ground link areas of blanket bog, and the continuation of peat stabilisation throughout both wet heath and blanket bog areas will help to contain erosion channels and will improve both blanket bog and wet heath habitats.

Photograph 3-1: Example Erosion features

Photograph 3-2: Example Erosion features

Photograph 3-3: Example Erosion features

Photograph 3-4: Example Erosion features

3.3.4 Drain Blocking

An area of 18.52ha has been outlined for blanket bog improvement through blocking active drains. These areas would be targeted for zippering (i.e. realigning the peat either side of a drain to knit together the substrate, stemming the loss of water along the drainline) and wave damming (i.e. drain blocking by realigning the peat surrounding a drainage ditch). **Section 4.4** outlines the methods for these drain blocking approaches. Zippering and wave damming techniques are more resistant to herbivore impacts than other drain blocking techniques.

3.3.5 Bare Peat Stabilisation

An area of 4.82ha has been identified for bare peat stabilisation measures including Jute/Coir geotextiles to stabilise exposed peat, allowing regeneration of surface layer vegetation through moisture retention and erosion reduction. Peat stabilisation methods would be aligned with the Peatland Action Technical Compendium[6] outlining best practice.

3.3.6 Carrion Removal

Availability of carrion is a key aspect influencing eagle flight activity in a particular area, with carrion attracting eagles. Where carrion is available within turbine areas, this puts eagles at

risk of collisions. Fallen stock / deer removal within 200m of each turbine would be carried out. Carcass removal would be carried out by trained personnel, this will be detailed in the final HMP.

4.0 Methods

4.1 Pre-Works Surveys

A number of surveys are required to be carried out prior to the commencement of habitat restoration works, to inform restoration methods and protect species that might be impacted by any works, Surveys are outlined in **Sections 4.1.1** to **4.1.5** below.

4.1.1 Vegetation Monitoring

A botanical monitoring survey would be undertaken within all habitat management areas to establish an up-to-date baseline for the vegetation type present. The botanical survey, paired with drone (if possible) or other aerial monitoring, would then be used as a baseline for ongoing monitoring (see **Section 4.8.1.2** for further details). Baseline botanical monitoring would be undertaken at the appropriate time of year, following tree felling in the forest-to-bog areas, but prior to drain blocking. Reference areas of established target vegetation types would be identified against which restoration progress could be monitored.

4.1.2 Drain Blocking Survey

A drain slope survey and mapping exercise would be undertaken across relevant parts of the proposed habitat management areas. Taking levels of the drain water surface would allow for the creation of drain slope profiles across relevant parts of the restoration area. In the forest-to-bog areas, depending on access to forestry, the drain slope survey would be undertaken either immediately before or after tree felling. The final schedule would be confirmed within the detailed combined HMP.

4.1.3 Gully and Hag Mapping

A gully and hag mapping exercise would be undertaken across relevant parts of the proposed restoration areas, and a detailed map of areas targeted for gully blocking and micro-erosion stabilisation. This would involve mapping all actively eroding gullies and hags with exposed bare peat to ascertain the area of the gullies within the restoration area. The gully and hag mapping survey would be undertaken prior to finalising the area of restoration works on the sites. The final schedule would be confirmed within the detailed combined HMP.

4.1.4 Protected Species Surveys

Protected and notable species surveys would be undertaken to establish an up-to-date baseline for the protected species present within the HMP areas. All HMP areas should be assessed for signs of species that could potentially occur in the area including otter, pine marten, red squirrel and reptiles following recommended guidance[18,19,20,21].

[18] Bang, P. & Dahlstrøm, P. (2006). Animal Tracks and Signs. Oxford University Press, Oxford

[19] Chanin P (2003b) Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough

[20] Sargent, G. & Morris, P. (2003) How to find & Identify Mammals. The Mammal Society, London.

[21] Forestry commission (2009) Practical techniques for surveying and monitoring squirrels. Available online from: https://www.researchgate.net/profile/Peter-

The aims of the survey would be to confirm the presence or absence of protected or otherwise notable mammals within areas which could be affected by HMP works and identify the need for any avoidance or mitigation measures (if required).

4.1.5 Ornithology Surveys

Ornithology surveys would be undertaken prior to works taking place to assess the HMP areas. The surveys would aim to assess the HMP areas for breeding and roosting birds and avoid negative impacts to sensitive breeding bird or eagle roost sites, through felling, drain blocking or gully blocking works. Ornithology monitoring should be aligned with the detailed ornithological monitoring programme outlined in **Section 4.8.2.**

4.2 Forest-to-bog Restoration

4.2.1 Felling

All conifer trees within the peatland restoration area would be felled (i.e. an area of up to 131.61ha), to promote recovery of the bog habitat. The trees would either be felled using the whole timber harvesting method (whereby trees are severed at the stump and the whole trees are then extracted to roadside where they are chipped and delivered to the biomass market), or whole tree mulching (whereby the trees are reduced to smaller particles that are spread across the cleared site), or a mixture of the two methods, if feasible. Further details are contained within **Balmeanach EIA Technical Appendix 8.4** and **Ben Sca Redesign EIA TA 5.4**. The final method of felling would be agreed prior to construction and confirmed within the detailed combined HMP. Any spreading of brash would need to be undertaken in strict accordance with SEPA guidance[4], involving spreading chipped material in a thin layer, allowing for 25% light penetration with brash 'particles' of between 5-30cm in length. Should tree mulching be undertaken, some of the brash would also be used to aid ground smoothing (e.g. within furrows), see **Section 4.2.2**. Tree felling would be conducted outside of the mid-March to August nesting bird season, or the area (and appropriate buffer) would be subject to nesting bird checks for any works required within the nesting season, as detailed within **Balmeanach EIA and SEI Chapters 9** and **Ben Sca EIA and SEI Chapters 4**. Tree felling would be undertaken in accordance with Forestry Commission good practice guidelines[22]. The guidelines state that the effects of tree harvesting on surface water acidity are difficult to discern when 20% or less of a catchment is felled within any three-year period. The proposed felling represents considerably less than 20% of the catchment and thus it can be expected that acidification of the watercourses would not occur as a consequence of tree felling.

4.2.2 Ground Smoothing

In order to remove the stump/ridge furrow legacy of the conifer plantation, ground smoothing would be undertaken, subject to feasibility and the felling method adopted. Ground smoothing has been found to be successful in trials at improving water levels [23]. This would involve un-ploughing the ground by overturning tree stumps into existing plough furrows. When combined with tracking by low-ground-pressure machinery, this results in a flattened surface providing protection from erosion. This method has also been shown to be effective in the control of regenerating trees, which were found to fail to survive the treatment, and in

Lurz/publication/237529070_Practical_Techniques_for_Surveying_and_Monitoring_Squirrels/links/00b7d5260e321510c2000000/Practical-Techniques-for-Surveying-and-Monitoring-Squirrels.pdf. [Accessed March 2025]

[22] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines. Forestry Commission, Edinburgh

[23] Short, R. and Robson, P. (2016) *An innovative approach to landscape-scale peatland restoration*. CIEEM In-Practice, Issue 93, September 2016.

the absence of further sources of seed, long-term regeneration was expected to be limited within the trial. Strips of untreated land would be left at intervals within the treated area and at the periphery to act as buffers to help reduce sediment export. Literature[6] encourages undertaking ground smoothing in stages where large areas are involved, to minimise the risk of adverse effects on local water chemistry (particularly dissolved organic carbon, water colour and suspended solids). However, in this instance, due to the relatively small areas involved, and the small proportion of the catchment affected, staging of ground smoothing is not considered necessary. To monitor the water chemistry downstream, a surface water monitoring point would be installed at a downstream location. A continuous logger would be installed, which would monitor for turbidity, dissolved oxygen, pH and electrical conductivity. The water chemistry would be monitored for a period before, during and after the tree felling and ground smoothing works in order to quickly identify and potential issues. In the unlikely event any downstream water quality issues were identified, remedial measures would be employed as appropriate. The location and schedule of the water monitoring and the nature of any remedial measures, if required, would be agreed as part of the detailed CEMP.

4.2.3 Drain Blocking

Active drains would be dammed to raise the water level sufficiently to create conditions suitable for the growth of *Sphagnum* mosses. A decision on the type of dam to be used would be made once the profile of the restoration site has been ascertained. Peat turf dams are the preferred option to be used, which are most suitable for smaller drains. It is recommended that peat turves excavated for the wind farm development infrastructure are stored and used for drain blocking in the restoration area in the first instance. Peat turves can be stored for up to 1 year. Providing restoration activities are commenced and peat turves are used within 1 year of construction, turves should retain their structure sufficiently for use in peat restoration. **Balmeanach SEI TA 10.2: Peat Management Plan, Balmeanach SEI Chapter 10, Ben Sca Redesign TA6.1: Peat Management Plan** and **Ben Sca Redesign SEI Chapter 6** includes for some reuse of peat within the HMP area.

Consideration would also be given to the use of plastic or wooden dams on any larger drains, as these have also been demonstrated to have been used successfully in the UK over the last twenty years. Wallage (2007)[24] found that drain blocking can be highly effective for improving both carbon storage and upland water quality.

4.2.4 Re-vegetation

Following tree clearance and drain blocking, the area would be allowed to revegetate naturally as it is anticipated that there will be a sufficient seed bank available from the existing rides between the planted areas and the large expanse of blanket bog adjacent to the east and southeast. In addition, there are likely to be viable heather seeds (and seeds of other Ericoids) within the existing seedbank from before the area was planted with trees in 1990. Relatively large heather seed banks can survive beneath conifer plantations for 40 years and under some circumstances for more than 70 years[25]. Restoration projects on other afforested sites have had success without using re-seeding/re-vegetation methods[25], and re-seeding/re-vegetation is only reported to be necessary in restoration of bare peat

[24] Wallage, Z. (2007) *Dissolved organic carbon and colour dynamics in drained and restored blanket peat*. PhD thesis, University of Leeds.

[25] Pywell, R.F., Pakeman, R.J., Allchin, E.A., Bourn, N.A.D., Warman, E.A.., Walker, K.J (2002) The potential for lowland heath regeneration following plantation removal. *Biological Conservation*, Volume 108, Issue 2, pp247-258.

areas with significant erosion[26]. On the basis of the above, there is a high likelihood that the natural regeneration of bog and heathland vegetation would be successful. However, this would be monitored and in the unlikely event that the natural regeneration of bog and heathland vegetation does not take place within a reasonable timescale, remedial measures would be considered (see **Section 4.8**).

4.3 Micro-erosion and gully blocking

Restoration would accord with the following strategies recommended by Peatland Action[6] to improve restoration outcomes:

- restoration will be carried out from higher altitudes downgradient through the restoration period to reduce the risk of dam overtopping and erosion post construction;
- micro-erosion would be targeted prior to connected gullies being restored where possible to reduce flow into gully systems and reduce the chance of gully bunds being eroded and lost during high flow events;
- areas of bare peat adjacent to infrastructure would be restored alongside construction activities to ensure turves and peat structure are retained and transport requirements are minimised;
- peat movement would be minimised, storage avoided and excavated peat used locally within the sites where possible; and
- *Sphagnum*-containing turves would be prioritised for restoration activities on both sites.

All restoration would be carried out using low-ground-pressure dumpers and excavators with toothed buckets to prevent further disturbance of peatland on the sites.

4.3.1 Micro-erosion Stabilisation

Micro-erosion restoration on both sites would use a strategy of intercepting flow pathways from micro-erosion areas to reduce erosion within the micro-erosion areas and downstream in larger reprofiled gullies. Ideally in all cases micro-erosion above gully systems would be dealt with prior to reprofiling and gully blocking in more established gully systems to reduce water volumes during high flow events.

An adapted wave damming approach would be used, as seen in the Monadhliath and Cairngorms National Park[15]. This would involve the creation of elongated wave dams which would be applied across multiple flow pathways to form a fishtail bund offset from each other down slope to ensure all overland flow is intercepted and all existing micro-erosion pathways are intercepted. Due to the nature of wave damming a degree of sub surface bunding would also be applied helping rewet micro-eroded areas.

Once fishtail bunds are created, micro-erosion areas where accessible would be subjected to application of donor turves from the infrastructure development.

4.3.2 Gully blocking/reprofiling

Gully reprofiling and bunding methods would be aligned with the Peatland Action Technical Compendium[6] outlining best practice.

[26] Artz, R. E., Faccioli, M., Roberts, M., & Anderson, R. (2018). *Peatland restoration – a comparative analysis of the costs and merits of different restoration methods.* Dundee: The James Hutton Institute (on behalf of Climate Xchange)

Half height peat bunds would be installed where gullies are at their narrowest where there is a minimum of 50cm peat in the gully bottom to get a good seal with the peat bund. These would be spaced at 5m intervals with sufficient width to ensure water cannot flow around the dam edge and re-join the same drain line. The bunds would be formed so they span the full width of the oxidised cross section of the gully, i.e., the zone that has sunken due to the drain on each side.

Donor material of turf required for the top of the dam would be gathered from a donor site that should be upstream and upslope of the dam. Turves would be taken where possible from nearby infrastructure, but where required shallow borrow pits adjacent to (but not too close to) gullies would be used and reinstated afterwards. Where flow rates are high and/or gullies are greater than 1m wide and/or deep, more substantial “composite” bunds (peat used with wood or plastic piling) would be installed.

Gully reprofiling and hag restoration would revegetate bare peat areas within gully systems by removing and reprofiling the underlying peat to 30-35^{o}. Turves would be laid bridging the break-in-slope at the top of the hag ensuring turves used have sufficient depth to them to have a root system that can hold together long enough to allow new growth.

4.4 Drain Blocking in Open Upland

Drain blocking would remove artificial drainage pathways whilst helping to reduce peak flows and offsite transport of particulate and dissolved organic carbon (DOC) and encouraging *Sphagnum* and other peatland vegetation to recolonise. Exact locations would be determined during detailed peatland management and restoration planning, and identified in the detailed combined HMP, however drains have been identified for blocking to the south of the Balmeanach site and drain blocking would also be required within the forest-to-bog area after felling.

Artificial drains would be targeted for zippering (i.e. realigning the peat either side of a drain to knit together the substrate, stemming the loss of water along the drainline) and wave damming (i.e. drain blocking by realigning the peat surrounding a drainage ditch). This is now a commonly used technique, methods would be aligned with the Peatland Action Technical Compendium[6] outlining best practice.

Wave dams would be constructed by creating dams every 7-8m spanning the full width of the drainage depression and peat worked to plug the drainage feature ensuring that the base is sufficiently sealed and vegetation remains intact as the dam is formed, preventing water flow. Vegetation would then be tamped down on top and dressed behind the dam to create a shallow slope ensuring sides are suitable for animal access. The finished dam would then be 30cm above ground level, ensuring features that could form new drain lines are avoided and excess water is able to flow laterally.

Zippering the drain would be achieved downslope of the completed wave dam by pivoting blocks of peat across the drain channel in a staggered pattern, inserting the bucket vertically to ensure blocks key in behind each other. Voids would then be removed by bulking up peat from behind the first blocks and vegetation gently stretched over the void left. This would then be tamped down along the entire peat surface to integrate the peat blocks. This would then be repeated until the next wave dam position, resulting in a zip-like appearance with minimal visible treatment pattern.

4.5 Bare Peat Stabilisation

Bare peat stabilisation will target bare peat areas using the installation of geotextiles in areas of bare peat to stabilise and provide shade in order to promote natural revegetation. This would stabilise the bare peat, reducing erosion, oxidation and offsite transport of peat from

the sites. It would also facilitate the re-establishment of peatland vegetation and improve water retention within the peatland.

Geotextiles comprising biodegradable materials including jute, coir or natural fibres would be installed to allow vegetation to establish without long term disruption. These would be specified to provide suitable air flow and offer high permeability of water, whilst providing protection from erosion.

Installation would follow best practice[6] with the geotextile fabric placed directly onto the bare peat surface, ensuring full coverage of the exposed areas and anchoring the geotextile at the edges using biodegradable pegs or stakes of sufficient length to prevent to prevent movement due to frost heave. Where geotextile sheets meet, these would be overlapped by 10–15cm to prevent gaps that could allow erosion or wind to lift the fabric and edges would be secured to limit peeling over time.

4.6 Livestock Management

Grazing by livestock impacts bog and wet heath habitats, where peat is degraded through trampling. Grazing will therefore be restricted in the areas proposed for blanket bog restoration.

Recommended livestock grazing levels are aimed at reducing erosion through trampling and allowing bare peat to revegetate. Grazing over winter (December to March) will be minimised, as the water table is higher during the winter and bog habitats are more prone to erosion, furthermore, there are fewer palatable species within the grassland sections of the sites over winter, forcing livestock to select sensitive bog and heath habitats for grazing.

Grazing impacts within the proposed restoration areas would be managed via livestock fencing, enclosing the entire restoration areas. The forest-to-bog restoration areas and the blanket bog restoration area to the north of the Ben Sca site are already enclosed and not regularly used for livestock grazing, new fencing has therefore not been proposed for these areas. However grazing impacts should be monitored in these areas and the necessity for fencing or an updated grazing programme should be reviewed following results. New fencing has been recommended for the area of blanket bog restoration to the south-west of the Balmeanach site where livestock graze regularly in the area (indicative fencing locations are shown on **SEI Figure V5.29**).

Livestock should be completely removed for the first three years after restoration to allow the bog to recover, after which an assessment should inform subsequent grazing. An assessment may indicate that continued exclusion of livestock is recommended, or there may be a benefit in some areas to low levels of grazing in appropriate seasons. The recommended grazing level for bogs is 0.02 Livestock Units (LU)/ha/year[27,28] (see **Table 4-1** for details). Should livestock grazing be recommended after three years, grazing should take place within the summer/autumn season at the levels outlined in **Table 4-1** and livestock would be removed during the winter to avoid erosion[26].

[27] NatureScot. (2020). *Peatland Action – Peatland Management Guidance – grazing and muirburn.* Available online at: https://www.nature.scot/doc/peatland-action-peatland-management-guidance-grazing-and-muirburn. [Accessed March 2025]

[28] Farm Advisory Service. (2024). Developing grazing plans for the conservation of semi-natural habitats. SAC and Scottish Government. Available online at https://www.fas.scot/downloads/tn686-conservation-grazing-semi-natural-habitats/ [Accessed April 2025]

Table 4-1 Recommended Grazing Levels in the Balmeanach and Ben Sca Redesign Habitat Management Areas (Year 4 Onwards)

Restoration Area	Livestock Type	LU/ha/year	LU/year in Area[29]
Forest-to-Bog Area (131.61ha)	Sheep	0.13 sheep/ha/year	17.11 sheep/year
	Cattle + suckling calf or cattle >24 months	0.02 cattle/ha/year	2.63 cattle/year
	Cattle 6-24 months	0.03 cattle/ha/year	3.95 cattle/year
Micro-erosion and gully blocking adjacent to Ben Sca and north of Balmeanach infrastructure (232.95ha)	Sheep	0.13 sheep/ha/year	30.28 sheep/year
	Cattle + suckling calf or cattle >24 months	0.02 cattle/ha/year	4.66 cattle/year
	Cattle 6-24 months	0.03 cattle/ha/year	6.99 cattle/year
Micro-erosion and gully blocking, drain blocking and bare peat stabilisation of blanket bog and wet heath south and west of Balmeanach infrastructure (99.4ha)	Sheep	0.13 sheep/ha/year	12.92 sheep/year
	Cattle + suckling calf or cattle >24 months	0.02 cattle/ha/year	1.99 cattle/year
	Cattle 6-24 months	0.03 cattle/ha/year	2.98 cattle/year

4.7 Ongoing Management

4.7.1 Grazing Control

Control of grazing is proposed for the habitat management areas in the form of livestock fencing and continued deer management. Grazing pressure at the habitat management areas would be monitored as part of the botanical monitoring (see **Section 4.8.1.2**). The requirement for any future grazing control would be reviewed in light of the results of the botanical monitoring.

4.7.2 Conifer Regeneration Control

It is expected that following ground smoothing in the forest-to-bog area, conifer regeneration would be reduced. However, due to the presence of conifer plantation within areas adjacent to the habitat management areas, some conifer regeneration is expected. Therefore, conifer regeneration would be monitored, and the removal of regenerating conifers carried out when required, to maintain open vegetation and avoid the area reverting back to forest. The frequency at which regenerating conifers would need to be removed would be subject to the speed of regeneration and would be determined following monitoring.

4.7.3 Peat Dam Maintenance

Research indicates that most peat dams remain intact for six years[6], but some show evidence of erosion. Therefore, peat dams would be checked every five years, to check for signs of erosion or other form of damage. Should the dams be eroded or otherwise damaged, or the dams found to not be functioning as intended, then corrective works would be undertaken as required.

[29] Actual numbers of livestock should be rounded to the nearest whole sheep/cow

4.7.4 Carrion Removal

A livestock carcass search project would be implemented which is measurable and achievable, via a suitable plan to regularly identify and remove fallen stock during the lifetime of the wind farm. All fallen stock / deer found would be removed to dissuade eagles from foraging inside the area around the proposed turbines. The area within 200m of each turbine would be searched by a ranger or keeper regularly and any fallen stock / deer found would be removed. Additionally, any carrion or gralloch found on either site, due to stalking activities, would be removed.

A detailed plan for carcass removal will be agreed with stakeholders and provided within the detailed combined HMP.

4.8 Monitoring and Review

4.8.1 Blanket Bog and Heath Restoration

4.8.1.1 Aims

The purpose of the proposed monitoring of bog and heath habitats is to determine whether the restoration project is on track to meeting its targets, goals, and objectives, or needs adjustment. Monitoring should reflect the key ecosystem attributes as summarised in **Table 4-2**.

Table 4-2 Monitoring Requirements

Attribute	Relevance to Sites	Monitoring Requirement
Absence of threats	Potential threats include: conifer regeneration, grazing, construction work, fire.	Signs of conifer regeneration, fire, ground disturbance and grazing impacts should be recorded during vegetation monitoring.
Physical conditions	Regeneration of bog and heath will require removal of overshading conifers and management of water levels within the peat.	Confirm completion of felling, ground smoothing, stump flipping and drain blocking. Monitor water table levels in peat at both pre-felling and post-restoration stages.
Species composition	Species composition should be similar to areas of existing target habitats within or adjacent to the habitat management areas.	Information on species composition and how reference and restored areas compare to each other in terms of blanket bog and heath condition should be made possible via vegetation monitoring.
Structural diversity	As re-establishing habitat matures, different canopy levels should develop (including moss and dwarf shrub layers).	Information on vegetation structure should be recorded during vegetation monitoring.
Ecosystem function	The habitat should be self-perpetuating over time with little or no active management and should start to sequester carbon.	A record of management requirements should be kept, this could be used to illustrate declining intervention needs over time. Peat accumulation data or other measures of peatland productivity should be taken to assess if the habitat is healthy enough to sequester carbon.
External exchanges	The habitat should be connected to the wider habitat network.	This will have largely been achieved via choosing which locations to restore bog in. Immigration of plant species from the

Attribute	Relevance to Sites	Monitoring Requirement
		surrounding area will help to confirm habitat connectivity.

4.8.1.2 Botanical Monitoring

The methods of botanical monitoring would be identified in the detailed combined HMP and are likely to be bespoke to allow for the specific monitoring against the HMP objectives, but are likely to be based on the Common Standards Monitoring (CSM) protocol for upland habitats[30], which assesses habitat condition. To assess if the goals and objectives of the HMP are being met, the criteria recorded should include: signs of fire, grazing or ground disturbance; vegetation structure; and vegetation species composition.

Botanical monitoring would be undertaken during the optimal survey period for plant species (May – August inclusive). The first year of botanical monitoring would be undertaken during the summer prior to tree felling, and then after tree felling but prior to other restoration measures, to provide a baseline. Further monitoring (to assess changes to the baseline) would then take place annually in the first three years following restoration, and then again in year five and ten post-restoration, with the need for further monitoring determined in year ten.

To permit accurate mapping of vegetation cover and change over time, aerial imagery of a suitable resolution should also be obtained, ideally for the same month but at least for the same season, in each monitoring year. Potential sources of imagery that could be obtained for specific times and locations include satellite data, and specially commissioned drone.

4.8.1.3 Monitoring of Water Table Height

Monitoring of water table height would take place by the installation and monitoring of dipwells within the restoration area. If feasible, dipwells would be installed prior to drain blocking, micro-erosion or gully blocking activities, in order to provide a baseline. The number and location of dipwells would be determined as part of the detailed peat restoration plan but it is anticipated that dipwells would be installed at a density equivalent to approximately one per 10 hectares, with a higher density in forest-to-bog and ditch blocking areas. Dipwells would likely be monitored quarterly in each monitoring year (once in each season) in order to capture maximum seasonal variations. Details of water level monitoring should be reviewed ahead of restoration works commencing. Following drain blocking, dipwell monitoring would be undertaken annually in the first three years following restoration, and then again in year five and ten post-restoration, with the need for further monitoring determined in year ten.

Rainfall monitoring should accompany dipwell monitoring to monitor the impacts of rainfall on the drainage on the sites. Data should be obtained from a nearby SEPA weather station[31].

4.8.1.4 Peat Accumulation

A range of approaches to monitoring peatland productivity are available[32], for the purposes of this project it is considered that a rough measure of whether or not new peat and organic

[30] Joint Nature Conservation Committee (2005) *Common Standards Monitoring Guidance for Upland Habitats*. Version May 2005. Joint Nature Conservation Committee, Peterborough.

[31] https://www2.sepa.org.uk/rainfall

[32] Short, R.,Robson, P. (2016) An innovative approach to landscape-scale peatland restoration. CIEEM In-Practice, Issue 93, September 2016

matter are accumulating would be a sufficient indicator of peatland restoration success. Methods that would be considered include:

- erosion pins, these are placed in the ground and the distance from the ground surface to the top of the pin is measured[33]; and
- sediment cores, here a core of the soil/ peat would be taken and the distance from the layer containing forestry debris (baseline) to the soil surface measured[34].

A combination of the above methods may provide the most reliable results. Measurements should be taken quarterly in each monitoring year, at the same times as water table monitoring to allow for contraction and expansion of peat through seasonal cycles.

4.8.2 Ornithological Monitoring

As set out in **Balmeanach EIA Chapter 9: Ornithology** and **Ben Sca Redesign EIA Chapter 4: Ornithology** a programme of post consent monitoring is proposed. If possible, the requirements of the monitoring should be coordinated with the adjacent consented Glen Ullinish Wind Farm and the proposed Ben Aketil Repowering, Edinbane Repowering and Glen Ullinish II Wind Farms, if consented in due course. The exact scope of works would be confirmed after consultation with NatureScot, but is likely to include collision monitoring, flight activity surveys and breeding raptor surveys. It is important that any monitoring is designed to assess the actual versus predicted impacts on birds and to allow for a flexible monitoring plan to be undertaken during the post consent period.

It is proposed that ornithological monitoring should take place during and post-construction, in line with NatureScot guidance[8] as outlined below:

- Year-round collision monitoring: carcass searches, carcass persistence trials and observer efficiency trials should be completed at least once per month throughout the first year, then continued after the first year, as required, following a review of the data. Monitoring will determine whether actual bird collisions are in line with predicted values. Carcasses of all species found on either site should be recorded.
- Flight activity surveys should be undertaken from the same VP locations used during baseline surveys to monitor the flight activity of target species. A suggested survey schedule is in Year 0, 1, 2, 3, 5, and 10, subject to agreement with stakeholders. A minimum of 3 hours of survey effort per VP location per month would be undertaken. Upon completion of surveys in Year 10, the need for further monitoring should be assessed. This would help establish any disturbance/displacement effects of the operational turbines on the resident bird species.
- Targeted raptor surveys should also be undertaken to monitor the status of nesting raptor species within the vicinity of the Proposed Development, in order to further determine the displacement effect. This survey should be undertaken in Year 0, 1, 2, 3, 5, and 10. Upon completion of surveys in Year 10, the need for further monitoring should be assessed.
- Collaboration with other renewable energy developers to ensure that a joined-up approach to wider habitat management for eagles is promoted on Skye. The Applicant is committed to pursuing these discussions through the Skye Developer

[33] Natural England (2011) A Review of Techniques for Monitoring the Success of Peatland Restoration. Natural England Commissioned Report NECR086.

[34] Lucchese, M., Waddington, J. M., Poulin, M., Pouliot, R., Rochefort, L., & Strack, M. (2010) Organic matter accumulation in a restored peatland: evaluating restoration success. Ecological Engineering 36. PP: 482-488.

Forum [35]. This will include funding for an eagle research programme to cover an agreed wider area and consider suitable mitigation strategies.

- Close collaboration with the Highland Raptor Study Group (HRSG) to facilitate a research programme aimed at furthering understanding of white-tailed eagle and golden eagle population prospects in the light of an increasing number of renewable energy projects on the Isle of Skye.

Given the broad range of existing data, a flexible monitoring programme is recommended, which should be undertaken at reasonable intervals throughout the lifespan of the Proposed Development. For example, the above monitoring can take place annually during construction, and after the Proposed Development becomes operational, during years 1-3, 5 and 10, with the requirement for further surveys thereafter to be determined based on previous survey results.

The overarching objective of the proposed eagle research programme would be the monitoring of the breeding populations of the two eagle species, and the effects of the wind farm developments in the northern part of Skye on these species. It is envisaged that GPS or suitable alternative technology could be used to understand eagle movement patterns and use of breeding and non-breeding areas. This approach would allow the exploration of their habitat use and home ranges across the annual cycle, and also to effectively monitor any collisions and displacement effects that might occur as a result of the existing and proposed wind farm developments.

4.8.3 Reporting and Review

Monitoring results would be reported annually (in years when monitoring takes place) and recommendations made for changes to management prescriptions if objectives are not being met, as appropriate.

A reporting template, data collection form and database structure would be provided as part of the detailed combined HMP. This will facilitate a standardised approach to data collection, storage, analysis and reporting through the restoration project's lifespan, even if the people/ organisations working on the project change. The database should be updated every monitoring year and should be made available in an electronic format alongside the reports.

[35] The Skye Developer Forum is a group of Wind Development companies set up by the Scottish Government in 2022 to create collaborative working across the Isle of Skye.

5.0 Indicative Programme

Table 5-1 details the indicative timings of restoration and management tasks contained within this combined OHMP. These are indicative only and would be finalised within the detailed combined HMP and subject to review following ongoing monitoring.

Year 0 represents the year or years of implementation of the HMP, depending on the number of years required to complete the initial works. Year 1 would be the first year following restoration. Implementation of the HMP would either begin during wind farm construction or within the year after the completion of construction.

Table 5-1 Indicative Programme

Year/Activity	0	1	2	3	5	10	15	20	25	30	35	40
Surface water monitoring downstream of habitat management area (before, during and after tree felling/ground smoothing works)	X	X										
Tree felling	X											
Baseline monitoring: drone survey and botanical monitoring	X											
Drain mapping/ slope surveys for dams	X											
Gully and hag mapping	X											
Installation of livestock fencing	X											
Installation of dipwells and baseline dipwell monitoring (quarterly)	X											
Installation of peat dams within forest-to-bog area	X											
Ground smoothing in forest-to bog area	X											
Micro-erosion and gully blocking	X											
Drain blocking in open upland area	X											
Bare peat stabilisation	X											
Ongoing management: Carrion removal	X	X	X	X	X	X	X	X	X	X	X	X
Ongoing management: clearing of tree re-growth	Frequency determined by rate of re-growth and monitoring results											
Ongoing management: Drain block repairs	Frequency determined by monitoring results											
Post-restoration monitoring: drone survey, botanical monitoring, checking of peat		X	X	X	X	X	The need for further monitoring determined by monitoring results in Y10					

Year/Activity	0	1	2	3	5	10	15	20	25	30	35	40
dams, dipwell monitoring and reporting												
Ornithological monitoring	X	X	X	X	X	X	The need for further monitoring/reporting determined by monitoring results in Y10					
Ornithological Reporting and Review	X	X	X	X	X	X						

128000 130000 132000 134000 136000

850000

848000

N

LEGEND

Balmeanach SEI Application Boundary
Ben Sca Redesign SEI Application Boundary
Land Ownership Within Control of the Applicant for Habitat Management
Existing Access Track
Shared Proposed Access Track

Balmeanach SEI Layout

Proposed Turbine Location
Proposed Permanent Met Mast
Proposed Crane Hardstanding
Proposed Construction Compound
Proposed Substation
Proposed Turning Head
Proposed Borrow Pit

Access Track Alignment

Proposed
Proposed Option A
Proposed Option B

Ben Sca Redesign SEI Layout

Proposed Turbine Location
Proposed Crane Hardstanding
Proposed Construction Compound
Proposed Substation
Proposed Borrow Pit
Proposed Turning Head
11. Proposed Access Track

Proposed Habitat Management Areas

Proposed Fence
Bare Peat
Ditch Blocking
Forest-to-Bog
Micro-erosion / Gully Blocking: Blanket Bog
Micro-erosion / Gully Blocking: Wet Heath

0 1 2 Kilometres

SLR

COMBINED ASSESSMENT OF BALMEANACH AND BEN SCA REDESIGN WIND FARMS

PROPOSED HABITAT MANAGEMENT AREA (OS)

SEI FIGURE V5.29a

Scale 1:30,000 @ A3

Date APRIL 2025

405.064982.00001.0228.1 V5.29 Habitat Management Areas

128000 130000 132000 134000 136000

850000

848000

N

1 2 3 T2 T3 T4 T5 T6 T7 T8 T9 T10

0 1 2

Kilometres

LEGEND

- Balmeanach SEI Application Boundary
- Ben Sca Redesign SEI Application Boundary
- Land Ownership Within Control of the Applicant for Habitat Management
- Existing Access Track
- Shared Proposed Access Track

Balmeanach SEI Layout

- Proposed Turbine Location
- Proposed Permanent Met Mast
- Proposed Crane Hardstanding
- Proposed Construction Compound
- Proposed Substation
- Proposed Turning Head
- Proposed Borrow Pit

Access Track Alignment

- Proposed
- Proposed Option A
- Proposed Option B

Ben Sca Redesign SEI Layout

- Proposed Turbine Location
- Proposed Crane Hardstanding
- Proposed Construction Compound
- Proposed Substation
- Proposed Borrow Pit
- Proposed Turning Head
- 11. Proposed Access Track

Proposed Habitat Management Areas

- Proposed Fence
- Bare Peat
- Ditch Blocking
- Forest-to-Bog
- Micro-erosion / Gully Blocking: Blanket Bog
- Micro-erosion / Gully Blocking: Wet Heath

SLR

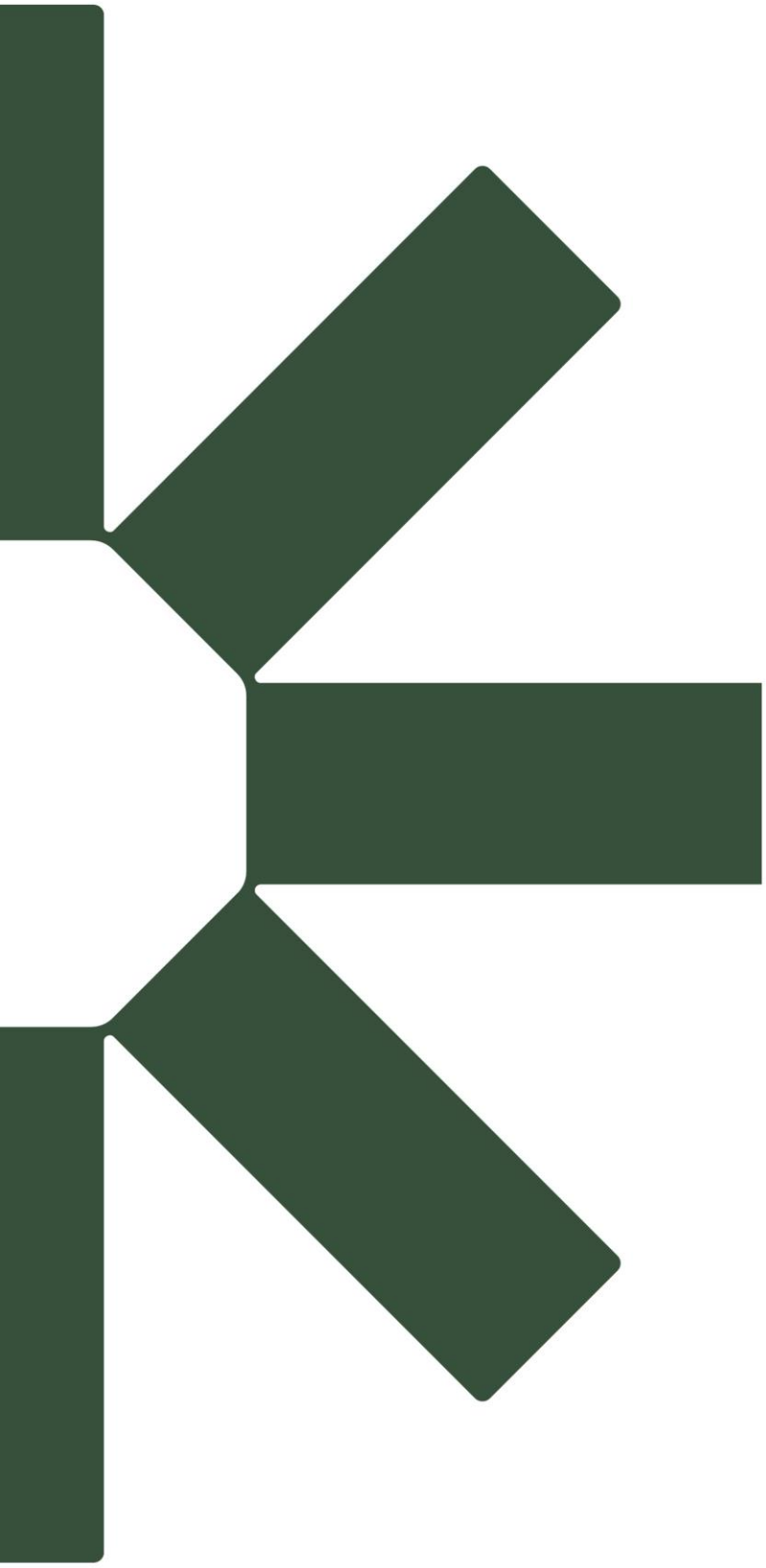
COMBINED ASSESSMENT OF BALMEANACH AND BEN SCA REDESIGN WIND FARMS

PROPOSED HABITAT MANAGEMENT AREA (AERIAL)

SEI FIGURE V5.29b

Scale	Date
1:30,000 @ A3	APRIL 2025

405.064982.00001.0228.1 V5.29 Habitat Management Areas



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