



# Aultmore Wind Farm Redesign

## Technical Appendix 8.6: Outline Biodiversity Enhancement and Restoration Plan

Vattenfall Wind Power Ltd.

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## 1.0 Introduction

Aultmore Wind Farm Redesign is a proposed development in Aultmore Forest, Moray, Scotland. SLR Consulting has been commissioned to undertake an Environmental Impact Assessment (EIA) and carry out associated ecology and ornithology surveys. The construction of a wind farm on this site will require the loss of plantation woodland, blanket bog and other degraded peatland habitats. Therefore, an Outline Biodiversity Enhancement and Restoration Plan (OBERP) will be required to accompany the Environmental Impact Assessment (EIA) report, describing how the predicted impacts of the development on the biodiversity value of site (as defined in the EIA) will likely be addressed for, on or near these sites. This is also in keeping with the National Planning Framework 4<sup>1</sup> (NPF4) policies.

There is substantial habitat management potential on the Site, primarily with the widening and planting of riparian corridors and in blanket bog and heathland restoration in felled areas.

The purpose of this document is to provide an OBERP for Aultmore Wind Farm to be issued in conjunction with the EIA. At this stage the OBERP presents outline proposals and will be updated through consultation with stakeholders including the landowner, NatureScot, SEPA and the local fishery trust, post consent.

## 1.1 Site Description

The Site lies within part of an extensive area of forestry plantation known as Aultmore Forest. The Site is approximately 6km to the north of the settlement of Keith and 7km south of Buckie, in Moray and is managed on behalf of Scottish Ministers by Forestry and Land Scotland (FLS).

The Site consists predominantly of commercial forestry, which comprises one large parcel of land that is referred to as the eastern and western sections, since the central part of the Site is separated by a small strip of non-forested farmland. The three highest hills within the Site are: Millstone Hill (301m Above Ordnance Datum, AOD) in the west; Addie Hill (272m AOD) in the centre of the Site and Old Fir Hill (262m AOD) in the east.

## 1.2 Planning Policy

A number of the NPF4 Policies are relevant to Biodiversity including:

- Tackling the climate and nature crises;
- Climate mitigation and adaptation;
- Biodiversity;
- Natural places;
- Soils;
- Forestry, woodland and trees; and
- Green belts.

Scotland's Environment Strategy sets out the Scottish Government's vision for tackling the twin climate and nature crises.

Targets for biodiversity will be set out in a new Scottish Biodiversity Strategy for 2022-45, which will stand alone, completely replacing all previous strategies and plans. The aim is for this to be published within 12 months of COP15 (biodiversity), which concluded on 8th May 2022 (a draft has been

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<sup>1</sup> National Planning Framework 4 (2023). The Scottish Government. Available online at <https://www.gov.scot/publications/national-planning-framework-4/>



published at time of writing)<sup>2</sup>. The Strategy will set targets for halting biodiversity loss by 2030 and restoring and regenerating biodiversity by 2045.

The North-East Scotland Biodiversity Partnership<sup>3</sup> details information regarding biodiversity which should be considered by developers at an early stage. This includes examining opportunities to enhance biodiversity, such as restoring degraded habitats, as part of proposed developments. Important habitat groups mentioned as part of the plan include woodland and upland heathland habitats, both of which are discussed in this outline BERP.

This Outline Plan will require to be taken forward by a suitably qualified and experienced biodiversity specialist in the event of planning approval. At that juncture, this Plan will be completed in more detail with all future assessments and decision-making taking due regard of the above integrated to the project decision-making from an early stage.

### 1.3 Approach

This OBERP has been written and will be implemented to compensate for the temporary or permanent loss, or disturbance of Annex 1 habitats (i.e., blanket bog and flush), at the construction and operational phases, to enhance existing habitats on site and aid the recovery of natural habitats and populations in a wider biodiversity context.

The target habitats and species in this report are selected based on impacts to habitats/species from the proposed wind farm construction and potential benefits to existing habitats/species on Site that can be obtained through appropriate management measures.

It is acknowledged that Forestry and Land Scotland, who manage Aultmore Forest on behalf of The Scottish Ministers, have their own independent biodiversity aims and objectives for the Site, as detailed in the Aultmore Land Management Plan (LMP), previously called Aultmore Forest Design Plan (FDP). Land Management Plans have a 10-year duration. The current Plan (from 2013) has now expired and FLS have not yet developed the new LMP. The new LMP is scheduled to be developed by FLS in 2024/2025. The Objectives laid out in this OBERP therefore may be refined post consent as part of the detailed BERP, to be developed and secured via a planning condition, to take into consideration the new LMP. Where there are conflicts the FLS LMP will take priority and alternative biodiversity enhancement opportunities may be explored by the applicant, including those found outwith the FLS forest.

### 1.4 Baseline Data

This section summarises the baseline conditions within the OBERP area. The goals and objectives of this plan have been set relative to the baseline conditions outlined in pre-construction surveys. Pre-construction habitat and protected species surveys undertaken in 2021 and 2022, and historical habitats and protected species include:

- Technical Appendix 8.1: Ecology Desk Study Report;
- Technical Appendix 8.2: Vegetation Survey and Habitat Mapping Report;
- Technical Appendix 8.3: Protected Mammal Survey Report.
- Technical Appendix 8.4: Bat Survey Report;
- Technical Appendix 8.5: Fish Habitat Survey Report.

The habitat is currently comprised predominantly of commercial conifer plantation and clearfell; however, several areas of deep peat and some patches of bog still exist on site, indicating the potential for bog restoration. Many of the open areas and forest rides are dominated by heather, indicating a heathland habitat preceding the afforestation of the Site. Heathland regeneration was

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<sup>2</sup> <https://www.nature.scot/scotlands-biodiversity-strategy-2022-2045#:~:text=In%20light%20of%20mounting%20evidence,large%2Dscale%20restoration%20by%202045>

<sup>3</sup> <https://www.nesbiodiversity.org.uk>



noted on Site within areas of recently felled plantation. Three historic ancient woodland areas have been identified within the Site boundary that are now a mix of conifer plantation and clearfell commercial forestry blocks.

Protected species recorded on Site included otter *Lutra lutra*, pine marten *Martes martes* and four bat species, and suitable fish habitat identified on Site. Other than goshawk *Accipiter gentilis*, habitat suitability for bird species recorded during the vantage point surveys is low and, given the scale of the habitat requirements of these larger species, it is unlikely that they will greatly benefit from the measures outlined in the OBERP. However, smaller passerine species of open and closed habitats should benefit including red-list species<sup>4</sup> such as skylark *Alauda arvensis* and lesser-redpoll *Carduelis cabaret*. Recommendations for barn owl *Tyto alba*, a Schedule 1 species<sup>5</sup>, have also been provided as it is anticipated they occur in the local vicinity.

## 1.5 Terminology

The following definitions are taken from the International Standards for Habitat Restoration<sup>6</sup>:

- The **Aim** is a general summary of the desired condition one is trying to achieve through the work of the project.
- The **Targets** identify the native ecosystems to be restored at a site, along with any social outcomes or constraints expected of the project.
- **Objectives** are formal statements of the interim outcomes along the trajectory of recovery. Objectives must be clearly linked to targets and goals, and be measurable, time-limited, and specific.

## 1.6 Overall Objective and Aims of the Outline Plan

The overall objective of the plan is to improve habitats on Site, through which opportunities for protected and notable species will increase. This will be achieved by increasing habitat connectivity and the condition of open habitats on site, as well as providing enhancements such as bat, pine marten and owl boxes. The four main aims of the plan are:

1. Aim 1: Restoration of degraded peatland habitats on Site.
2. Aim 2: Restoration of heathland habitat.
3. Aim 3: Enhancement of riparian habitats for aquatic species including fish and otter.
4. Aim 4: Enhancement and restoration of woodland habitats on Site including mature conifer plantations, broadleaved woodland and former ancient woodland sites.

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<sup>4</sup> Stanbury A, Eaton MA, Aebischer NJ, Balmer D, Brown A, Douse A, Lindley P, McCulloch N and Win I (2021). The Status of our Bird Populations: the Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and Second IUCN Red List Assessment of Extinction Risk for Great Britain. *British Birds* 114, 723–747

<sup>5</sup> Schedule 1 of the Wildlife and Countryside Act 1981.

<sup>6</sup> McDonald, T., Gann, G., Jonson, J. and Dixon, K., 2016. International standards for the practice of ecological restoration—including principles and key concepts. (Society for Ecological Restoration: Washington, DC, USA.). *Soil-Tec, Inc.*, © Marcel Huijser, Bethanie Walder.



## 2.0 Objectives

### 2.1 Restoration of Degraded Peatland Habitats on Site

Habitat surveys indicate that degraded blanket bog with the potential for restoration is present on Site. The degradation of peatland is likely a result of drainage and habitat modification, related to ongoing forestry operations on Site and perhaps historically through over-grazing.

Surveys have identified a number of areas which would be most suitable for restoration works and include Broken Moan in the west of Site, and an area along the Sheil Burn to the east of Black Hill (centred on OS Grid Reference - NJ 46739 60034) in the east of Site. Broken Moan consists of approximately 22ha of peat deeper than 0.5m, while the area along the Shiel Burn is 12ha in size.

These areas are most likely to be suitable for bog restoration, and any felling in these areas may be combined with land drain /forestry ditch blocking (not more established watercourses) and other bog restoration approaches as appropriate to encourage these areas to return to bog. The Broken Moan area has been felled and some patches show clear bog habitat dominated by hare's-tail cottongrass *Eriophorum vaginatum* and Sphagnum species. Land drain /forestry ditch blocking, stump flipping or ground smoothing across the felled area, and removal of regenerating conifers will be necessary for bog restoration in this area. A peat restoration feasibility plan should be undertaken and findings shared with FLS to define areas appropriate for restoration and the best methods.

The area along the Shiel Burn was identified during the mammal surveys as the most suitable habitat for water vole on Site (despite not having been recorded on site in recent years). Restoration works would further improve this area for water vole. This area also opens onto a larger expanse of open moorland to the west which may provide suitable habitat for open moorland bird species curlew, snipe, skylark, and meadow pipit. Restoration of this area of peatland habitat may provide some additional foraging for these species and additional nesting opportunities for the passerine species skylark and meadow pipit. However, waders would be unlikely to nest within any areas of peatland restoration undertaken on Site due to woodland edge effects.

It should be noted that the full BERP will require to refer to NatureScot's 'Advising on peatland, carbon-rich soils and priority peatland habitats in development management' guidance<sup>7</sup> that recommends developments:

'...should be sufficiently detailed and should identify restoration areas for offsetting and enhancement, using site survey data to demonstrate the areas are appropriate and are likely to result in the outcomes proposed. Our current recommendation is that restoration to achieve offsetting (i.e., compensation rather than biodiversity enhancement) would be in the order of 1:10 (lost: restored), i.e. 1ha loss of peatland should result in measures to restore 10ha of peatland, using the same buffer to assess loss and restored areas (e.g. 30m).'

The proposed development will result in the direct loss of 0.04ha of degraded blanket bog and the indirect loss of 0.03ha. A total of 0.7ha of peatland will need to be restored as part of the proposed development to meet the requirements outline above.

#### 2.1.1 Monitoring

Bog condition and restoration progress should be undertaken for three years after works have taken place then every five years thereafter for the lifetime of the project. A vegetation monitoring methodology should be specified.

Conifer regeneration should be monitored every three years after works have been undertaken and removal of self-set conifer seedlings undertaken where necessary.

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<sup>7</sup> Nature Scot (2023) *Advising on peatland, carbon-rich soils and priority peatland habitats in development management*. Available online: <https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management#Assessing+the+Impacts+of+Development+on+Peatland,+Carbon-Rich+Soil+and+Priority+Peatland+Habitats> [accessed July 2023].



## 2.1.2 Restoration of Heathland Habitats

Many areas with young conifer trees and forest rides are currently dominated by heath habitat, indicating a high potential for heath restoration in areas that will be felled. Creation of more open habitat would benefit ground nesting passerine birds such as skylark and meadow pipit, as well as any reptile species on Site. There is no direct or indirect habitat loss of heathland habitat as a result of the proposed development.

Areas that are felled within the turbine envelope are likely to be originally heath habitat, with heather recorded along forest rides and in open areas. These felled areas should be encouraged to return to their heath state, unless ground conditions indicate that bog habitat is more appropriate. Monitoring during the regeneration phase post-construction should take this into consideration. Heather seeding is likely to occur naturally from the heather seed bank already present in the area. The regeneration of heather should be monitored and if regeneration is poor, manual seeding may be appropriate for restoring heath areas. Conifer regeneration should be monitored and removal of conifer seedlings should be undertaken where necessary. Though heathland can be maintained with low intensity tree coverage in some areas.

The current grazing conditions should be assessed, and a deer management plan put in place where necessary if grazing is considered to be too high for heather to regenerate. The area should be monitored for undesirable species such as self-set non-native conifer seedlings and bracken, a conifer removal plan and bracken treatment plan should be in place in case these species return.

### 2.1.2.1 Monitoring

Heathland condition and restoration progress should be undertaken for three years after works have taken place between April and September then every five years thereafter. A vegetation monitoring methodology should be specified and heather reseeding should be undertaken if monitoring indicates that recovery is poor.

Conifer regeneration should be monitored every three years after works have been undertaken and removal of self-set conifer seedlings undertaken where necessary.

Monitoring should continue for the lifetime of the project.

## 2.2 Enhancement of Riparian Corridors

Riparian corridors provide important habitat for protected species including otter, fish, birds and bats. There are eight main riparian routes identified at the proposed Aultmore Wind Farm site, the most suitable areas for riparian enhancement are along the Burn of Aultmore, Milk Burn, and Crooksmill Burn highlighted in light blue on **Figure 8.6.1**. Areas of the Burn of Aultmore just south outwith of the red line boundary were identified as being the most suitable habitat for spawning fish and enhancements within this area could be considered if access was granted.

Conifer afforestation is identified within the River Deveron Fisheries District Management Plan 2020-2023<sup>8</sup> as potentially problematic to fish when planted close to spawning tributaries. Potentially leading to bank collapse, loss of native trees and overshadowing. Furthermore, it is documented that forestry and forest management practices can affect surface water acidification in a number of ways to depreciate biomass and biodiversity value<sup>9</sup>.

The planting or enabled regrowth of buffer strips with appropriate native planting is recommended to help maintain suitable fish habitat as riparian woodland creation can help regulate light and heat levels in the watercourses, bind the soil to reduce erosion and run off, trap contaminants, and provide appropriate input of organic matter.

Within these riparian corridors native broadleaf planting/managed regeneration of conifer species (periodic removal of commercial conifer species) to provide successional scrub / broadleaf

<sup>8</sup> The Deveron, Bogie and Isla Rivers Charitable Trust (2020) River Deveron Fisheries District Management Plan 2020-2023.

<sup>9</sup> Forestry and surface water acidification (forestresearch.gov.uk)





woodland habitats will provide good habitat for fish, otters and would help to diversify the bird assemblage on Site. . This approach will provide more wildlife friendly commuting corridors through the conifer plantation and wind farm infrastructure, as well as increasing foraging resources for species such as bats. Broadleaf or scrub planting/managed regeneration should only take place in areas suitable for tree growth and trees, if planted, should be done so at a relatively low density, in scattered pockets. Areas dominated by Sphagnum should be left clear of tree planting and allowed to recover as deep peat areas. Equally, areas suitable for water voles (should detection of presence be confirmed in future monitoring), should be avoided for planting of broadleaf trees since this would shadow the bank side vegetation.

A buffer of minimum 30 m should be managed as a riparian corridor on either side of a watercourse. This will require felling and thinning of conifers along the riparian route and follow up control of conifer regeneration.

FLS should be consulted on regionally appropriate tree planting practices and native species mix for the Site. Tree tubes and stakes (an alternative tree protecting arrangement) will be used to protect young trees from damage by herbivores (i.e., deer). Sustainable or non-plastic tree tubes should be used to reduce plastic waste/pollution. If used, they should be removed once trees established to a sufficient level to survive deer and other species damage to growth/survival.

Riparian routes on the Site will be maintained with a 30 m buffer around each watercourse, covering an indicative total area of 59.8 ha. Not all buffer areas will be suitable to riparian planting/managed regeneration. Riparian corridors for habitat enhancement should selected based on their suitability for fish (outlined above); the dimensions/characteristics of the watercourse; evidence of mammal foraging, commuting and shelter, and areas where evidence indicates improvements would provide additional habitat suitability.

Five watercourses were identified during surveys as being more suitable for fish species , these are Burn of Letterfourie, Tack Burn, Burn of Tynet, Milk Burn and Burn of Aultmore, however, only the latter two burns occur on Site. Management of these watercourses should be prioritised for enhancement works as they were identified during the fish habitat survey as providing good quality fish habitat. On Site these watercourses would also benefit from measures such as the blocking of man-made land drainage/ forest ditches within the forest rides which are connected to these watercourses (not blocking watercourses which would block fish passage). This would help water retention on Site for longer periods, designed to direct flows into the groundwater level and reach watercourses on site to increase flow and rates, which would in turn enhance fish habitat and accessibility. The locations of any ditch blocking would have to be agreed with FLS given the current land use on site. Ditch blocking along the Burn of Aultmore could possibly be carried out close to the proposed bog restoration along the Shiel Burn. These burns are next to each other, and water retention in this area may benefit both riparian enhancement and bog restoration by raising water levels. Wet woodland establishment would be particularly favoured, where suitable and achievable, on non-peat soils.

Consideration of reinstating more naturalised watercourse channel hydrogeomorphology will act to retain more water on Site. The detailed BERP should consult a specialist geomorphologist to advise on suitable and achievable measures to give space to watercourse channels to naturally reform or with assisted intervention measures with the objective of slowing flows and providing more diverse riverine structures (i.e., niches for invertebrates to establish/exploit) without interrupting passage to fish species. The Burn of Crooksmill is located within the access area and the landowner has indicated interest in nature restoration works on their land. This area is marked as 'Potential Biodiversity Enhancement Area' on Figure 8.6.1.

The creation of artificial features, which would provide suitable shelter for otters, should also be considered. Artificial holts or brush piles should be placed in areas where otter signs have been recorded on Site: The Burn of Aultmore, Ardmachie Burn and Burn of Fernking. Measures, such as



low-level wildlife warning reflectors either side of track crossings, to alert otters of vehicular movements on Site would act to minimise the risk of otter road collision casualties.<sup>1011</sup>

## 2.2.1 Monitoring

All broadleaf tree planting/managed regeneration areas should be monitored once a year between April and September inclusive for three years after planting/removal of commercial conifer species, then once every five years for tree survival and condition. If employed, the condition of tree tubes, stakes and fencing will take place at those times and appropriate maintenance/removal actioned when appropriate. Beating up (i.e., replacement of newly planted trees that have failed), weeding and replacement of tree protection should be undertaken where necessary.

Conifer regeneration should be monitored every three years thereafter and removal of self-set conifer seedlings undertaken where necessary. This should continue for the lifetime of the project.

## 2.3 Enhancement and Restoration of Woodland Habitats

Consultation with FLS is required to decide the most appropriate areas for this work in terms of feasibility. A felling and conifer plantation management plan should be defined prior to felling activities with details on felling plans and reference to habitat management areas. Ongoing consultation with FLS should be carried out every five years, in tune with monitoring programme, to monitor management of habitat management areas.

Some of the proposed native planting will take place within landowner areas along the new access track. This area is quite sloped with dry and wet areas present which provides the opportunity to plant pockets of both birch and wet woodland. The drier areas should be planted predominately with birch species - downy birch *Betula pubescens* and silver birch *Betula pendula*, along with other species such as rowan *Sorbus aucuparia*. The wetter areas could be planted with tree species such as willow *Salix spp*, aspen *Populus tremula* and alder *Alnus glutinosa*. Willow species are also of high value for invertebrate species from a young age which would benefit all wildlife within the area.

### 2.3.1 Ancient Woodland

Three historic areas of ancient woodland of long-established plantation origin, are indicated on the Site, according to the ancient woodland database<sup>12</sup> (highlighted in green in Figure 8.6.1). These areas have been removed historically and are now a mix of conifer plantation and areas of young plantation with heathland understorey. Their status as previous ancient woodland, however, indicates there may be a seedbank of native species in these areas and therefore there remains potential to restore the areas to native woodland.

The exceptions to this measure are:

- No planting should take place in areas of deep peat (>50cm).
- The eastern most pocket of historical ancient woodland (marked as 2 on the Figure 8.6.1), located partially on/next to Broken Moan, in a deep peat area. This pocket of historical ancient woodland should not be restored as the area would benefit more from tree clearing and retention of peat habitats.
- The footprint for turbine 3 is located within the southern-most pocket of historical ancient woodland (marked as 3 on the Figure 8.6.1). As woodland creation can attract bats to a specific area it is not recommended that this pocket of historical ancient woodland is restored.

<sup>10</sup> Design Manual for Roads and Bridges (2001) Nature Conservation Advice in Relation to Otters. Available online at <https://cieem.net/wp-content/uploads/2019/07/ha8199.pdf>

<sup>11</sup> Microsoft Word - NOTE ON OTTER REFLECTORS ON THE ISLE OF MULL.docx (mullottergroup.co.uk)

<sup>12</sup> <https://data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland>



- The north-western historical ancient woodland pocket (since felled) is the most suitable for habitat restoration (marked as 1 on Figure 8.6.1). It is 44ha in size, though to maintain a suitable buffer from turbines 1 and 2, it is recommended that only the western section (which is circled in yellow on Figure 8.6.1) be considered for any restoration works. This is approximately 6ha in size and from aerial imagery it does not appear to have been replanted for forestry at the time of writing.

It is recommended that low intensity native broadleaf woodland planting is undertaken within the north-western historical ancient woodland pocket, within the area circled in yellow on Figure 8.6.1. Restoration within this area will take advantage of potential seedbanks already present within this area. Given the heathland understorey, trees or scrubs suited to acid soils are recommended and included species such as downy birch *Betula pebescens*, rowan *Sorbus aucuparia*, aspen *Populus tremuloides*, Scots pine *Pinus sylvertris* and juniper *Juniperus communis*. Consultation with FLS will confirm this species assemblage or amend to more appropriate planting scheme.

Other areas on site or on adjacent land should be put aside for native broadleaf woodland planting, in the event that planting/managed regeneration of the historical ancient woodland sites not be feasible. Where possible, these areas should aim to provide connectivity between existing riparian corridors and any other broadleaf tree planting that is undertake on site (for example during the creation of 'soft edges').

Tree tubes and stakes (or an alternative tree protecting arrangement) should be used to protect young broadleaved trees, where planted and if needed (deer density dependent). If employed, sustainable or non-plastic tree tubes should be used to reduce plastic waste. Monitoring and removal will be necessary.

### 2.3.2 Soft Edges

'Soft edges' along the edge of the commercial plantation areas create a transitional boundary where the conifer plantation edge transitions to open ground with gradually thinning tree cover. This will widen the woodland edges and can benefit species such as pine marten and bats will benefit as increasing cover will help these species to forage more effectively.

Soft edges can be created during the re-stocking stage of the forestry or created along existing forest edges during the construction phase of the development with soft edges incorporated within the tree felling stage around the wind farm infrastructure. This can be created with lower density conifer planting or with a wide strip of broadleaved trees at the conifer plantation edges. Soft edges should target areas that most benefit habitat connectivity on the Site, connecting areas of woodland creation or connecting existing woodland and hedgerows in area surrounding the Site.

Large areas of open ground will be created during the construction of the wind farm. Soft edges adjacent to these areas should be decided before the felling process and any thinning works carried out at the time of felling.

### 2.3.3 Conifer Retention

The proposed development will result in the direct loss of 158.8 of commercial woodland. Areas of conifers should be set aside for long term or permanent retention. Mature woodland creates habitat for pine marten, bats and goshawk, with goshawk a confirmed breeder on Site in 2021, and for other bird, mammal, and invertebrate species. Floral diversity on the ground layer beneath the canopy is also higher in mature woodland and can be improved further by thinning with the mature conifer blocks that are set aside for long term retention.

Long term retention conifer blocks are removed from any felling plans and left after their optimal felling age. Particular preference should be given to stands of Scots pine, lodgepole pine and larch as these species have higher value for wildlife within the conifer plantation, and to areas already targeted by goshawk where possible.



## 2.3.4 Enhancements for Protected Species

Though not recorded during the surveys, likely due to their crepuscular/nocturnal behaviours, barn owl can benefit greatly from the installation of suitable nest boxes. Research in Scotland has found that the use of forestry by barn owl is often limited due to a lack of nearby breeding sites.<sup>13</sup> The Site is surrounded by a farmland landscape that is suited to foraging habitat for owl species. Owl boxes should be placed along the woodland edge and face onto open habitats such as arable fields or rough pasture fields. Furthermore, boxes should be sited so that owl species are not attracted close to turbines.

The installation of denning boxes would help improve breeding opportunities for species such as pine marten and red squirrel. These could be considered within the areas of mature conifer woodland which will be retained on Site.

The Site supports foraging bats however it has a low availability of roosting opportunities. The installation of bat boxes within mature conifer woodland that is retained on Site is recommended. Boxes should be placed along woodland edges and face onto open clearings or rides. Conifer species such as Scots' or lodgepole pine would be preferable as they have fewer branches and are therefore less cluttered making entry and exist easier for bat species. Placement of bat boxes would also be valuable in broadleaf woodland areas to the west of site, along the route and south of the access track. The installation of bat boxes should be not within 200m plus rotor radius of the turbine locations.

### 2.3.4.1 Monitoring

All broadleaf tree planting should be monitored once a year between April and September for three years after planting, then once every five years for tree survival and condition and the condition of tree tubes, stakes and fencing (alternative sustainable tree protection measures). Beating up (i.e., replacement of newly planted trees that have failed), weeding and replacement of tree protection should be undertaken where necessary.

Conifer regeneration should be monitored every three years after works have been undertaken and removal of self-set conifer seedlings undertaken where necessary.

Artificial holts, dens and bat boxes should be checked annually for three years after works have taken place then every five years to detect use by their target species, note use by non-target species and to identify damage to structures that requires maintenance or replacement measures to be taken.

This should continue for the lifetime of the project.

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<sup>13</sup> Shaw, G. & Dowell, A. Barn owl conservation in forests. Bulletin 90, Forestry Commission.



**Table 2-1: Management and Enhancement Opportunities**

Aim No.	Objective	Relevant Target(s)	Indicative Location (s)	Timing	Methods	Monitoring
1	Restoration of degraded peatland habitats on Site	Bog habitat	Broken Moan and along Shiel Burn (NJ 46739 60034) would be suitable candidate locations.	Felling and Construction Phase	Removal of trees within target area and on-going removal of saplings. Block drainage ditches to raise water table and re-wet the bog. Peat Restoration Feasibility Plan should be produced to inform works.	Habitat (NVC & photo) monitoring within restored areas will commence during the first year of the development to establish the baseline. Post-construction years 1-3 then every fifth year thereafter.  Conifer regeneration every three years after works complete.
2	Restoration of Heathland Habitats	Heath Habitats Reptiles Ground nesting passerine species	Within turbine envelopment within areas which require felling for construction. Most suitable area appears to be in the west around Turbine 1.	Post-construction	Removal of trees within target area and on-going removal of Sitka spruce saplings.	Habitat (NVC & photo) monitoring within restored areas will commence during the first year of the development to establish the baseline. Post-construction years 1-3 then every fifth year thereafter.  Conifer regeneration every three years after works complete.
3	Enhancement of Riparian Corridors	Riparian Habitat Otter Fish species Nesting birds	Watercourses on Site, preferably Burn of Aultmore and Milk Burn.	Felling and Construction Phase	Creation of 30m buffer strip either side of watercourses. Felling and thinning of conifer plantation within this buffer. Low intensity native planting of shrub and trees / or managed regeneration of plantation conifer species,	Post-construction years 1-3 then every fifth year thereafter to monitor establishment. Conifer regeneration every three years after works complete.

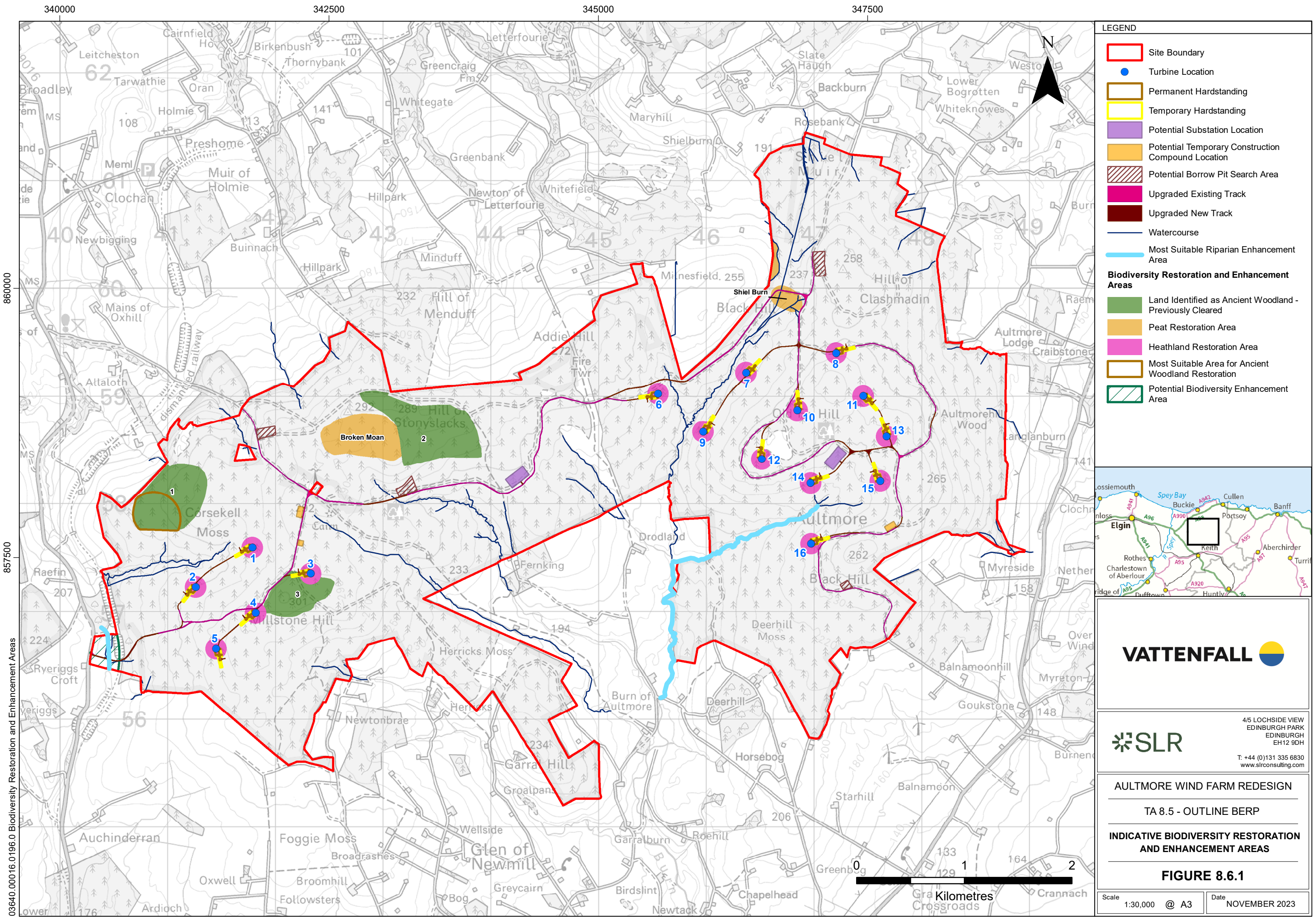


Aim No.	Objective	Relevant Target(s)	Indicative Location (s)	Timing	Methods	Monitoring
					within these areas in appropriate areas. Blocking of man-made land / forestry drains -instead directing flow into groundwater for retention and directed to selected watercourses.	
4	Woodland Restoration and Enhancement	Woodland Habitats Pine Marten Bat Species Owl Species	Western section of the western most pocket of Ancient Woodland if possible. Other areas of native planting and soft edging TBC with the FLS.	Felling and Construction Phase	Native planting in appropriate areas, e.g., along woodland edges and in areas previously classified as ancient woodland. Soft edging – creating wide woodland edge habitat. Retention of areas of mature conifer woodland on Site, preferably pine dominated woodlands, Installation of boxes for owl, pine marten and bats.	Post-construction years 1-3 then every fifth year thereafter to monitor establishment. Artificial holts, dens and bat boxes should be checked annually for three years after works have taken place then every five years. Goshawk should also be monitored annually for three years after works have taken place then every five years.



**Figure 8.6.1: Target Areas**



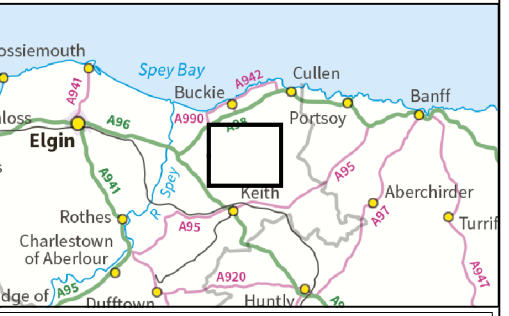


**LEGEND**

- Site Boundary
- Turbine Location
- Permanent Hardstanding
- Temporary Hardstanding
- Potential Substation Location
- Potential Temporary Construction Compound Location
- Potential Borrow Pit Search Area
- Upgraded Existing Track
- Upgraded New Track
- Watercourse
- Most Suitable Riparian Enhancement Area

**Biodiversity Restoration and Enhancement Areas**

- Land Identified as Ancient Woodland - Previously Cleared
- Peat Restoration Area
- Heathland Restoration Area
- Most Suitable Area for Ancient Woodland Restoration
- Potential Biodiversity Enhancement Area



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**TA 8.5 - OUTLINE BERP**

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**INDICATIVE BIODIVERSITY RESTORATION AND ENHANCEMENT AREAS**

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**FIGURE 8.6.1**

Scale 1:30,000 @ A3      Date NOVEMBER 2023





Making Sustainability Happen