

Outline Biodiversity Enhancement & Habitat Management Plan for Millmoor Rig Wind Farm



Alba Ecology Ltd.



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INTRODUCTION

Alba Ecology Ltd. was commissioned by RSK Environment Ltd. to produce an Outline Biodiversity Enhancement & Habitat Management Plan (OBE&HMP) for the proposed Millmoor Rig Wind Farm (hereafter 'the Proposed Development') on a site located at Wauchope Forest, south of Bonchester Bridge in the Scottish Borders. The Proposed Development is a Section 36 wind farm application for up to 13 wind turbines between 180 and 230 metres height to blade tip, battery storage facilities and associated infrastructure at Millmoor Rig in the Scottish Borders. The Section 36 application was submitted to the Scottish Ministers via the Energy Consents Unit in November 2022.

The wind farm site is located in a large, non-native conifer plantation south of Jedburgh (Figure 1). No likely significant adverse effects on ecological receptors were predicted in the Environmental Impact Assessment (EIA) Report and so no compensation measures of offset predicted likely significant effects are required under the EIA Regulations.

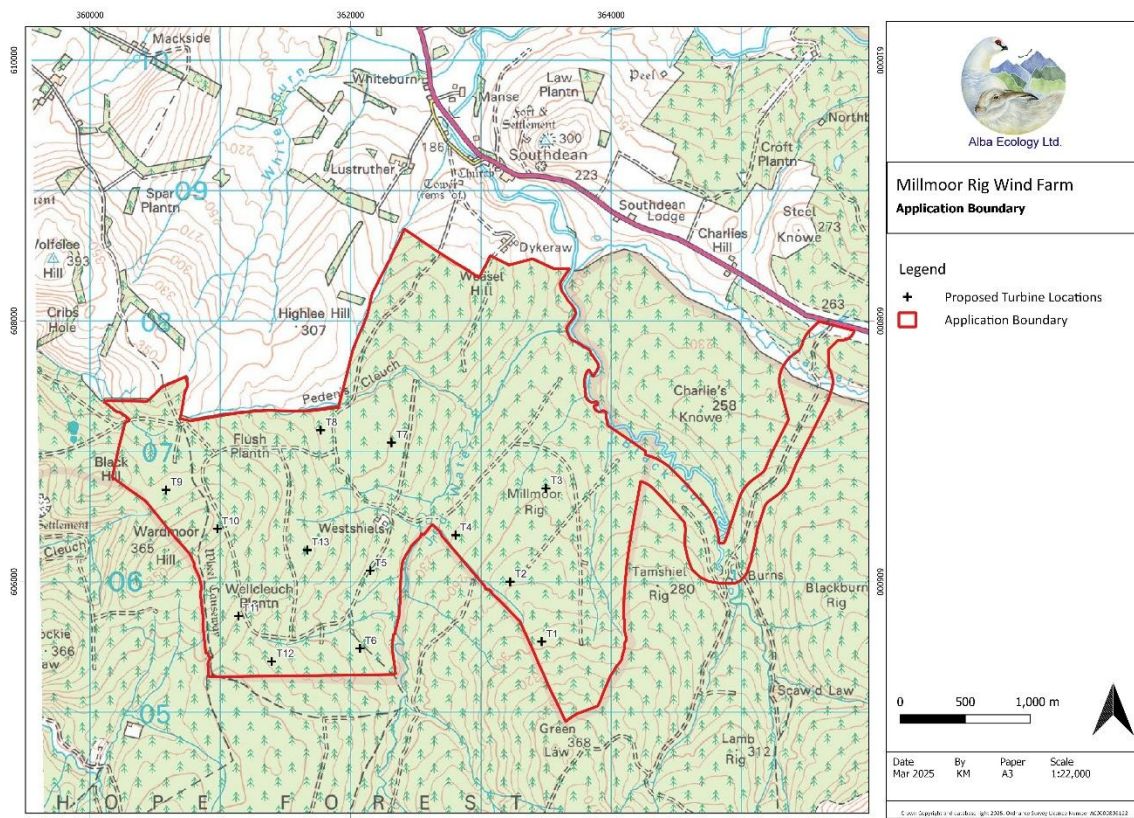


Figure 1. Proposed Development Application Boundary.

An Outline Habitat Management Plan (OHMP) was included as part of the original Environmental Impact Assessment Report (EIA Report) submission (2022). NatureScot (NS) responded to the Section 36 Application in March 2023 and stated “*The Outline Habitat Management Plan (OHMP) presents a very limited range of habitat enhancement and management measures on-site. These should be broader in scope and larger in area*”. NS go on to state “*In our view, there is potential to deliver much more for biodiversity at this site*”.

In response, in June 2024 Alba Ecology was commissioned to consider the nature and scope of a range of potential biodiversity enhancement and habitat management options within the Application Boundary, using online information, best practice guidance and the existing EIA Report for the Proposed Development. This initial work identified a series of potential OBE&HMP options within the Application Boundary. In March 2025, the Application Boundary was walked by two highly experienced Alba Ecology ecologists (Dr Kate Massey, MCIEEM and Dr Peter Cosgrove, FCIEEM) to: (i) assess the up-to-date relevant baseline conditions, (ii) further develop potential enhancement options, and (iii) identify specific suitable locations for biodiversity enhancement and habitat management options.

This OBE&HMP provides a wide range of biodiversity enhancement and habitat management plans. It is in accordance with the NS response, i.e. the measures herein are broader in scope and larger in area and replace those previously outlined within the OHMP. The options recommended within this report are based on site specific evidence collected during the survey in March 2025, where a series of target notes were taken (Appendix 1).

Policy Context

There is now an overriding consensus within recent policy and guidance which sets the context that developments should not just try to avoid causing likely significant effects but also seek to provide overall ecological benefits or enhancements for biodiversity over and above design requirements for avoidance, minimisation or compensation (e.g. CIEEM, 2018). For example, the Scottish Government has recently published three important policy documents related to renewable energy planning, the climate crisis and biodiversity crisis in Scotland:

- National Planning Framework 4 (NPF4)
- Tackling the Nature Emergency - Scottish Biodiversity Strategy (SBS) to 2045
- Onshore Wind Policy Statement

In December 2022 the Scottish Government launched a revised SBS, which aims to tackle the twin crises of Climate Change and Nature Emergency. It's vision encompasses three main objectives: *(i) By 2045, Scotland will have restored and regenerated biodiversity across our land, freshwater and seas; (ii) Our natural environment, our habitats, ecosystems and species, will be diverse, thriving, resilient and adapting to climate change; and (iii) Regenerated biodiversity will drive a sustainable economy and support thriving communities, and people will play their part in the stewardship of nature for future generations.*

NPF4 was adopted by Scottish Ministers in February 2023. It is a long-term plan for Scotland that guides spatial development, sets out national planning policies, designates national developments and highlights regional spatial priorities. It includes a range of policies that will contribute to delivering Scotland's commitment to net zero emissions by 2045 and tackling the climate and biodiversity crises.

Key NPF4 policies that this OBE&HMP would comply with, if fully implemented, include:

- Policy 1 - Tackling the climate and nature crises
- Policy 3 - Biodiversity
- Policy 6 - Forestry, woodlands and trees

In these documents, the Scottish Government recognises the need to jointly tackle the climate emergency and the nature crises throughout society. This OBE&HMP demonstrates how the Proposed Development complies with these recently published policies and how it will practically and directly contribute to the delivery of these important national priorities.

The OBE&HMP measures also accord with the Scottish Borders Council Supplementary Planning Guidance for Biodiversity [SPG Biodiversity Strategy.indd](#) (which appears to supersede the Borders Local Biodiversity Action Plan) It should be noted that this supplementary guidance on biodiversity was published in 2006 and so is out of date in relation to recent Scottish Government policies e.g. NPF4 and SBS. Nevertheless, the Supplementary Planning Guidance for Biodiversity supports measures to plant and protect trees, dig new ponds/pools and the creation of habitat corridors.

IMPLEMENTATION

This OBE&HMP set out the plans for habitat restoration and biodiversity enhancement and will be developed further through consultation with relevant statutory agencies and interested organisations (e.g. NS) to provide more detail should the Proposed Development be approved. Until then, this document provides a summary of the aims, methods and scope of planned OBE&HMP works in relation to the Proposed Development.

At the time of the site walkover (March 2025), the location of all known important ecological and ornithological receptors has been avoided by the proposed measures within the OBE&HMP. However, up-to-date baseline surveys will be undertaken prior to OBE&HMP implementation to ensure sensitive ecological features will be avoided. The approach to monitoring of the success of the OBE&HMP measures would also be developed further with key partners if consent was granted. If the Proposed Development is approved, then it is recommended that delivery of this OBE&HMP is secured through a planning condition.

The overall aim of this OBE&HMP is to conserve, enhance and restore important biodiversity (both habitats and species) around the Proposed Development. Given the generality of this overall aim, it has been subdivided into four discrete 'Objectives' for which particular work packages and methods have been outlined.

- Objective 1: Pool creation
- Objective 2: Creating and strengthening nature networks
- Objective 3: Non-native tree removal
- Objective 4: Targeted species action

Two additional measures were also considered, but upon further investigation were not taken forward. The first was whether impassible barriers and obstructions (natural and man-made) were present on any of the Application Boundary watercourses. Marine Scotland have an excellent on-line mapping resource that identifies all known impassible barriers and obstructions on Scotland's watercourses ([Marine Scotland - National Marine Plan Interactive](#)). Removing or mitigating any such impassible barriers and obstructions from watercourses can open up lengthy sections of watercourses to priority species including migratory salmonids. No such barriers were found to be present on the Marine Scotland interactive map for Application Boundary. Therefore, 'rewilding' or opening-up watercourses was dropped from further consideration.

The second was whether there were suitable peatland restoration opportunities within the Application Boundary. Despite checking, opportunities were considered to be very limited. Only one potentially suitable location was identified, and it was a relatively small and isolated area completely surrounded by non-native plantations. This area would require initial tree felling and likely constant removal of regenerating sitka spruce for the lifetime of the wind farm. On this basis, the restoration benefits were considered marginal at best and this potential measure was dropped from further consideration (See Appendix 1 for further details).

All potential OBE&HMP areas will be surveyed prior to any work commencing to ensure that existing potentially important biodiversity is protected and considered when developing and implementing the finalised and agreed OBE&HMP, whilst also establishing a '*before management baseline*' dataset against which subsequent monitoring can be assessed. Most proposed OBE&HMP works should ideally be undertaken between September and March (inclusive) to prevent the possibility of disturbing/harming breeding birds. However, if works do take place outside this period, then measures will be put in place to ensure that no significant disturbance of sensitive/legally protected species occurs and compliance with legal obligations towards nesting birds etc.

Objective 1 - Pool Creation

Following the site walkover in March 2025, a total of sixteen locations were identified that were considered suitable for pool creation, four old existing but infilled pools were identified to be re-dug and two existing pools were identified for additional management action (Figure 2).

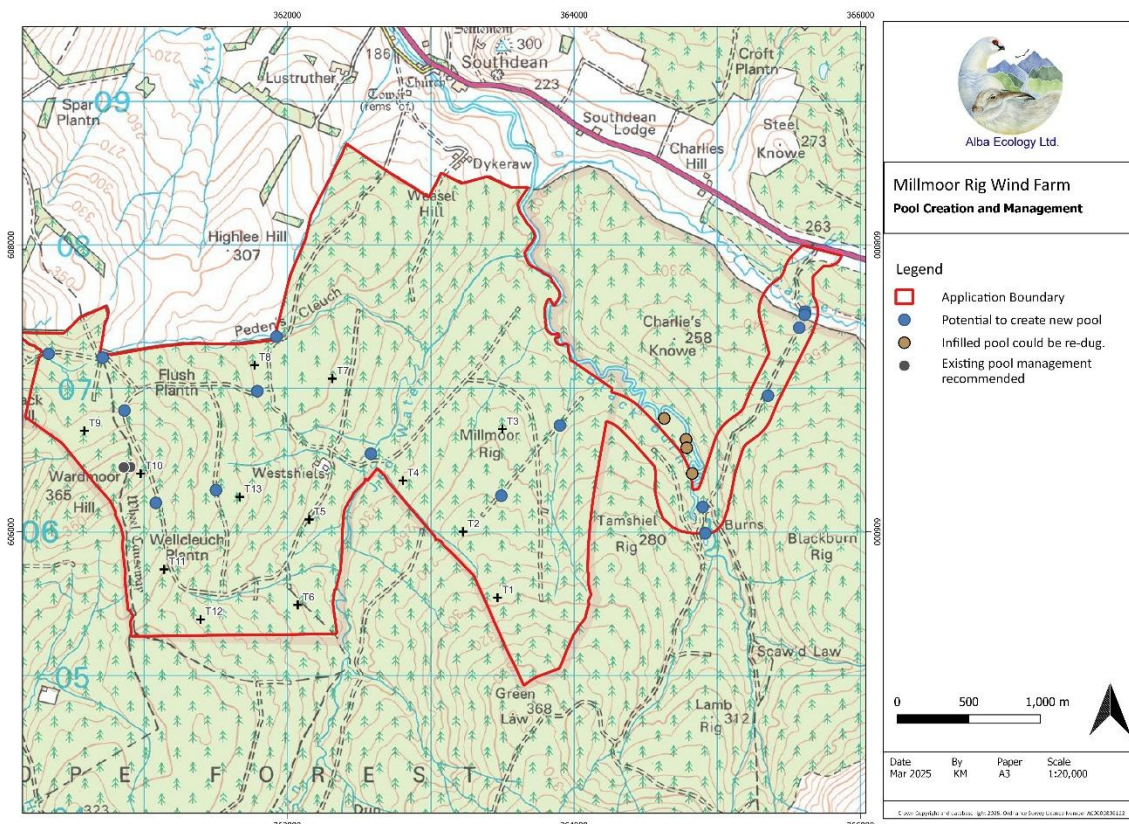


Figure 2. Pool Creation and Management within the Application Boundary.

Pools/ponds provide wildlife opportunities for a variety of aquatic species such as amphibians and macro-invertebrates and they also provide a source of food for other species. During the March 2025 walkover surveys the few existing pools present held very high densities of breeding frogs and toads, providing direct evidence of the importance of such features within Application Boundary (see Appendix 1). This provides direct evidence of the likely success of such biodiversity enhancement measures within the conifer plantation dominated landscape.

The creation of multiple pools will substantially enhance biodiversity across the whole Application Boundary. Different species have different habitat requirements when it comes to pool habitats. Some Odonata species favour smaller pools because it leads to reduced competition with more widespread and common species. Other species favour larger, deeper ponds and the greater variety of niches these provide. Some species prefer nutrient poor ponds, with shade and others more nutrient rich pools with light. As a consequence, a variety of pool types are recommended to attract in as wide a variety of species (including localised specialists) as possible. These biodiversity enhancement opportunities directly comply with and deliver on NPF4 Policy 3, through restoring degraded habitats and enhancing biodiversity within the Application Boundary.

Broadly speaking, pools should permanently wetted and so their location in relation to topography is an important consideration. The pools should be shelved and have various depths to ensure a variety of potential niches are available. Pool size should vary, typically the smallest will be c. 5-10m in length and a few metres wide and range to pools two or three times this size.

Delivery - Up to 16 new pools will be created, four infilled ponds re-dug, and two existing pools will receive additional management action. The pool creation will be undertaken during the construction phase of the Proposed Development, when suitable heavy plant machinery will be available for excavation. Pools will be lined with either robust/thick pond liner or clay to keep them permanently wetted.

Objective 2: Creating and Strengthening Nature Networks

The SBS has a commitment to “*Ensure that every local authority area has a nature network of locally driven projects improving ecological connectivity across Scotland*”. The overarching purpose of the ‘nature network’ commitment is connecting habitats and species at a landscape scale, improving ecological connectivity, creating functioning, healthy and robust ecosystems which mitigate and adapt to the impacts of climate change and provide multiple benefits for society. In addition, Policy 3 of NPF4 promotes the strengthening of nature networks and Policy 6 of NPF4 advocates the enhancement and expansion of woodland.

According to the Scottish Borders Council “*The strategic Nature Network will be based on existing areas of high biodiversity value and will show opportunity areas for habitat improvements and connectivity which could become part of the network*” [Biodiversity projects | Biodiversity | Scottish Borders Council](#). It is envisaged that the outputs of the OBE&HMP could become part of this network, which is currently being worked on and so, as yet, is undefined.

This OBE&HMP objective will demonstrably deliver on these policies through four measures, based around native broadleaved woodland nature networks. Figure 3 illustrates four types of

habitat management opportunities to build and strengthen native broadleaved woodland nature networks within the Application Boundary:

1. Existing broadleaved corridors (pink lines in Figure 3) already function as broadleaved corridors but require some targeted management, e.g. removal of invasive sitka spruce.
2. Network corridors (light green lines in Figure 3) are suitable for broadleaved planting, but are away from watercourses, so would not directly form part of any riparian corridor but could help to link them.
3. Reinforce corridors (turquoise lines in Figure 3) hold individual and isolated patches of broadleaved trees and so planting management would target plugging gaps to create functioning corridors, linking up with other nature networks.
4. Riparian corridors (dark green lines in Figure 3) are suitable for native broadleaved planting along watercourses.

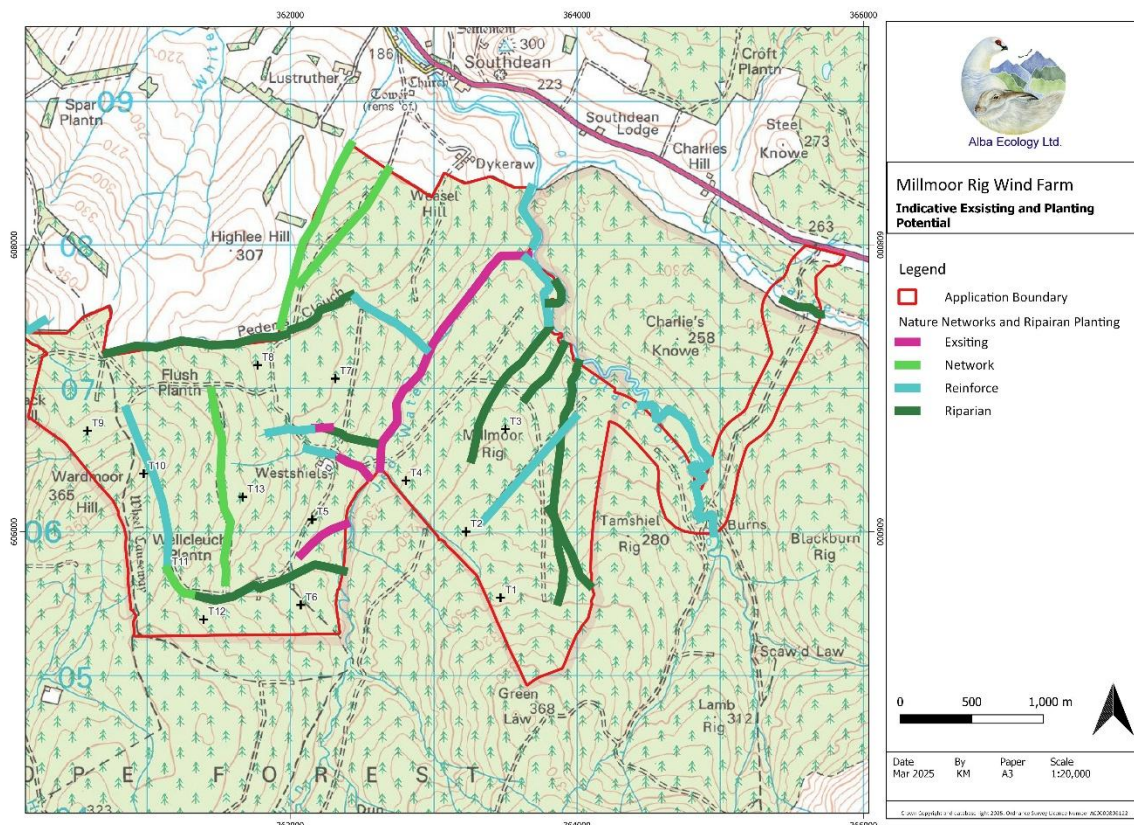


Figure 3. Potential Native Broadleaved Woodland Nature Networks within the Application Boundary.

Details of each of these potential nature network opportunities are highlighted in Appendix 1. Combined, these measures would create a joined-up broadleaved woodland nature network throughout the Application Boundary in accordance with the SBS and NPF4. Targeted baseline surveys of the indicative nature network routes will be undertaken post consent to ensure that any areas of deep peat, Groundwater Dependent Terrestrial Ecosystems and cultural heritage features are deliberately avoided by planting. Species to be planted will be informed by ground conditions and existing broadleaved scrub and tree species present locally

within the Application Boundary. Table 1 provides estimated lengths of the native broadleaved woodland nature networks within the Application Boundary.

Nature Network Type	Estimated length (km)
Existing broadleaved corridors	2.7
Network corridors	4.0
Reinforce corridors	6.6
Riparian corridors	7.7

Table 1: *Estimated Lengths of Native Broadleaved Woodland Nature Networks within the Application Boundary.*

Table 1 demonstrates there is tremendous scope within the OBE&HMP Study Area to produce new functioning nature networks (also known as 'wildlife corridors'), consisting of predominantly broadleaved trackside and riparian tree/scrub plantings. The proposed nature networks reinforce and link together some existing but also isolated native woodland patches. Functional wildlife corridors are seen as critical to allow biodiversity to move in response to a rapidly changing climate and such practical action should be seen as directly helping to strengthen regional nature networks in the Scottish Borders.

Riparian woodlands play a hugely important role in helping to maintain the health and productivity of rivers and burns and well as being corridors for wildlife and shelter for a wide range of species. The multiple benefits and value of native riparian woodland for nature conservation, landscape and ecosystem services has long been recognised. Riparian woodlands play a hugely important role on helping to maintain the health and productivity of rivers and burns as well as being valuable wildlife corridors. For example:

- they protect riverbanks and help stabilise aquatic edge habitats, many of which have become unstable due to extreme climate change derived weather events which in turn benefits invertebrates and fish;
- they cool (help regulate) water temperatures, which is now seen as of critical importance to aquatic species (including salmonids) threatened by extreme climate change derived temperatures;
- they control bank erosion, reducing sediment runoff entering watercourses;
- they capture and recycle mineral nutrients and carbon;
- they supply invertebrates, woody debris and leaf-litter, helping to kickstart the aquatic food chain for fish;
- they provide shade and cover for fish to allow them to hide from predators; and
- they increase biodiversity both directly and indirectly by providing links between different patches of isolated woodland habitats.

Delivery – The riparian planting will be undertaken in the first planting season from the commencement of the construction phase of the Proposed Development. Tree/shrub species will include, but not necessarily be limited to, birch, alder, beech, rowan, aspen, willow and oak. The width of the corridors will be variable depending upon the specific location and requirement such as clearance distances for forestry/wind farm works.

Objective 3: Non-native tree removal

Uncontrolled, some non-native tree species can:

- damage, out compete or displace native species;
- disrupt ecosystems through e.g. acidification;
- spread diseases which affect native species; and
- interfere with rivers, leading to increased flooding.

Whilst undertaking field surveys in March 2025, large numbers of invasive sitka spruce were recorded in most areas of planned OBE&HMP management (there were too many to map). For example, self-sown sitka spruce was recorded in open grassland corridors and forest rides, within existing riparian corridors and around existing pools and potential new pool locations (see Appendix 1 for further details and examples). A systematic programme of initial removal/eradication will be undertaken within all planned OBE&HMP areas. However, given the ability of sitka spruce to invade adjacent habitats from surrounding plantations, it is recognised that regular management will be required, following initial eradication. We suggest that this takes place every five years after initial eradication, so that sitka spruce does not adversely impact on the implementation of the OBE&HMP measures.

Delivery – Eradication of sitka spruce from OBE&HMP areas during construction, followed by subsequent regular invasive sitka control, e.g. at 5, 10, 15, 20, 25 and 30 years. Sitka spruce will be removed and disposed of in line with standard best practice methods and guidance.

Objective 4: Targeted species action

Three targeted species actions are planned and fourth one suggested. The first is to erect barn-tawny owl nest boxes in a variety of suitable locations. Owl boxes tend to be occupied more often if they are located close to suitable foraging areas (often open habitats in the case of plantation woodlands). Another important consideration is potential predation by pine martens. Owl boxes are best located on isolated trees (or on specially erected smooth poles) with a 'pine marten proof skirt' of thick pond liner secured around lower part of the tree to prevent pine martens climbing up. If the trees are close to other trees, then pine martens can simply jump across, hence the recommendation for isolated trees. During the site walkover in March 2025, four locations appeared particularly suitable (Figure 4; Appendix 1), but more locations could undoubtedly take owl boxes.

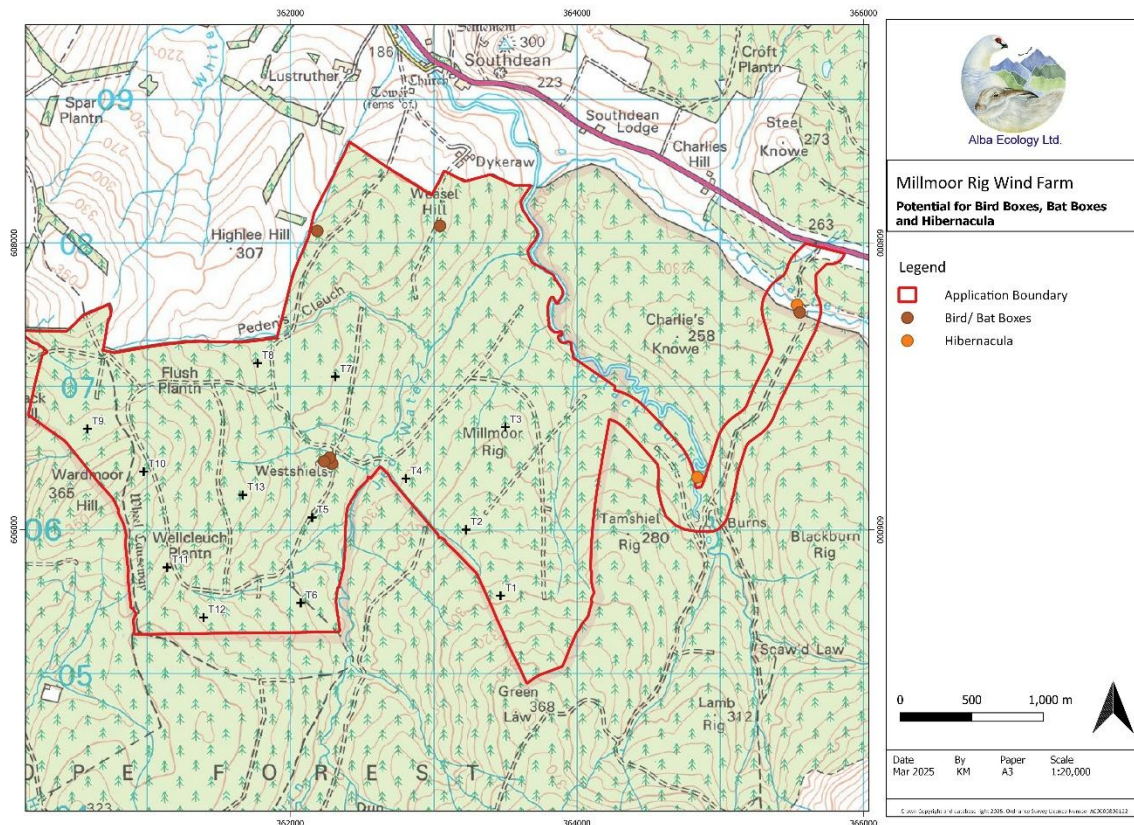


Figure 4. Potential Owl/Bat Box and Hibernacula Locations within the Application Boundary.

As a second measure, bat boxes could also be installed in the locations identified for owl boxes (Figure 4; Appendix 1). Thirdly, two locations appeared to be highly suitable for reptiles and so were identified for the addition of artificial hibernacula (Figure 4; Appendix 1). A case could be made that encouraging owl and bat use of areas with turbines might be unwise, in which case those locations along the perimeter of the site and along the access track into the site should be targeted as preferred locations. In practice, this might mean the location at Westshiels (Figure 4) could be dropped from further consideration and alternatives considered instead.

The third measure will be to create artificial hibernacula within areas of suitable, open habitats. It is possible that common lizards, adders and slow worms could use newly created hibernacula. Given their construction, physical monitoring of occupancy is very difficult without damage to the hibernacula, so formal monitoring is not recommended.

A potential fourth species measure would be to create artificial otter holts and pine marten dens. The installation of the former would be focussed along the larger watercourses e.g. Jed Water and Black Burn, whilst the latter could be placed anywhere within the forest, where commercial forestry operations are unlikely to adversely affect them.

Delivery – There are multiple commercial providers of owl/bat boxes and also artificial hibernacula. A range of suitable boxes will be purchased and erected during construction, and these will be regularly monitored subsequent to installation.

MONITORING

In order to monitor progress of the OBE&HMP it will be necessary to regularly monitor the effectiveness and success of the restoration/enhancement measures implemented. To do this an initial assessment of baseline conditions would be required prior to work commencing (establishing the baseline pre-construction, including illustrative photos), followed by regular post restoration monitoring. Table 2 outlines the proposed monitoring schedule before and after implementation. It is recommended that this monitoring will need to be agreed with NS and Scottish Borders Council as part of the planning conditions.

OBEHMP Objective	Type of Monitoring	Method	Why	Frequency
Objective 1	Pool creation effectiveness	Visual inspection	To ensure pool creation measures have been successful & pool remains permanently wetted	Immediately during/after construction
Objective 1	Pond vegetation, Odonata and amphibian colonisation	Regular surveys of pond plants, Odonata and amphibians	To assess use of newly created pools by target species	1, 3, 5, 10, 15, 20 and 25 years
Objective 2	Tree/shrub health	Monitor survival of tree/shrub plantings	To ensure that all plantings contribute effectively to strengthening nature networks	1, 3, 5, 10, 15, 20 and 25 years
Objective 3	Invasive sitka spruce occurrence in OBE&HMP areas	Visual inspection and removal of invasive sitka spruce	To stop sitka spruce from undermining OBE&HMP objectives	Initial clearance, followed by removal after 5, 10, 15, 20 & 25 years
Objective 4	Monitor use of owl/bat boxes	Visual inspection (under licence) of boxes	To access occupancy, use & success of owl/bat boxes	1, 3, 5, 10, 15, 20 and 25 years

Table 2: Type and Frequency of Ecological Monitoring Recommended for the OBE&HMP.

REFERENCES

CIEEM. 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. CIEEM, Winchester. Version 1.3. 2024.

RSK Environment Ltd. 2022. Millmoor Rig Wind Farm Environmental Impact Assessment Report. On behalf of ESB Asset Development UK Ltd.

Scottish Borders Council. 2006. Supplementary Planning Guidance for Biodiversity. [SPG Biodiversity Strategy.indd](#)

Scottish Government. 2022. [Onshore Wind Policy Statement 2022](#).

Scottish Government. 2023. [Biodiversity strategy to 2045: tackling the nature emergency - gov.scot \(www.gov.scot\)](#).

Scottish Government. 2023. [National Planning Framework 4](#).