

Appendix 8.7: Outline Habitat Management Plan

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Appendix 8.7 Outline Habitat Management Plan

Introduction

This Outline Habitat Management Plan (OHMP) sets out proposed measures for habitat restoration and enhancement within the Proposed Development site. The site is the area within the site boundary, as shown on Figure 8.2.

The site is dominated by coniferous woodland plantation, M17 *Scirpus cespitosus-Eriophorum vaginatum* blanket mire and M25a *Molinia caerulea-Potentilla erecta* marshy grassland. Significant effects are predicted on M15c *Scirpus cespitosus-Erica tetralix* wet heath, M27a *Filipendula ulmaria-Angelica sylvestris* mire and W4c *Betula pubescens-Molinia caerulea* wet woodland from habitat loss and modification as part of the Proposed Development. Mitigation is required to restore areas of previously active/inactive mire habitat, as discussed in Chapter 8.

The conditions on the site are favourable for the active regeneration of peatland habitats as most of the site shows signs of past drainage, with mire areas being drier and modified. Purple moor-grass (*Molinia caerulea*) dominated habitats are common on the site, indicating a shift towards marshy grassland from a more diverse functional mire. This is particularly notable within and adjacent to the coniferous woodland plantation, where the trees have further influenced the water table. Areas along rides within the coniferous woodland plantation are all predominantly M25a marshy grassland in 2020, in comparison to blanket bog in 2014 and 2017, indicating the area has been drained, lowering the water table and leading to the development of M25a. These habitats are shown on Figure 8.2.

Offset woodland planting will also be required to mitigate for the loss of coniferous woodland plantation and broadleaved woodland, including W4c wet woodland, as detailed in Chapter 8 and Chapter 16. Opportunities exist to restore peatland in felled areas containing peaty soil, such as in the keyholing areas around proposed turbines, and to enhance the woodland habitat present on the site through riparian planting along the Feith Osdail. Opportunities also exist for enhancement of the habitats for species such as pine marten (*Martes martes*), and reptiles and amphibians.

A final Habitat Management Plan (HMP), which would include specific prescriptions and confirmation of the peatland restoration location(s), will be agreed with The Highland Council (THC), in consultation with the landowner and NatureScot (NS), prior to the commencement of construction of the Proposed Development.

Objectives of Outline Habitat Management Plan

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

- To restore and enhance a minimum of 0.46 ha of peatland habitat within the site, within five years of commissioning of the Proposed Development. This area (0.46 ha) is the amount being lost to the Proposed Development and the restoration and enhancement of a comparable area is intended to offset its loss. This will increase the quality and extent of an Annex I (UK Government, 1994) habitat and compensate for habitat loss and modification incurred as a result of the Proposed Development.
- To work in conjunction with the deer management plan provided as Appendix 8.6 to reduce deer grazing pressure, where required, and improve the quality of mire habitat and protect new woodland areas on the site.
- To offset woodland habitat loss through replanting of a minimum of 14.42 ha, including a minimum of 0.89 ha of broadleaved woodland, within five years of commissioning of the Proposed Development. This will compensate for the loss of coniferous and broadleaved woodland incurred as a result of the Proposed Development.

- To further enhance the site through the use of artificial pine marten den boxes, the creation of artificial refugia for reptiles and amphibians, and the control of American mink (*Neovison vison*) to make the Feith Osdail more suitable for water vole (*Arvicola amphibius*).

The implementation of the final HMP will also take into account the existing land management practices undertaken on the site and will work in tandem with these practices.

The design and implementation of the final HMP will be managed by the Applicant in consultation with the landowner and statutory consultees. Detailed method statements will be developed for the specific measures of the final HMP, such as restoration methods that would encourage the abundance of bog-moss.

Peatland Restoration

Suitable areas for peatland restoration will comprise areas of felled woodland on peat and areas of M25a marshy grassland that, based on factors such as the detailed NVC survey and surveyor observations of their context in relation to remaining bog areas, were previously blanket bog or wet modified bog. An area such as this occurs in the south of the site, as shown on Figure 8.4. The extent of these areas will be subject to refinement prior to completion of the final HMP but the area identified for restoration will be no less than 0.46 ha to account for the peatland habitat permanently lost as a result of the Proposed Development. Restoration will aim to restore an area of at least the same size as the area lost as a result of the Proposed Development. Ideally, there will be an overall gain of improved peatland habitat on the site. The confirmed peatland restoration areas will be shown on a figure in the final HMP.

Peat management and reinstatement during and following construction are detailed in the Outline Construction Environmental Management Plan (CEMP) and the Peat Management Plan (PMP) in Appendix 3.3 and Appendix 9.2, respectively.

Management Prescriptions

The following measures will be undertaken to encourage the regeneration of peatland habitats:

- Raise the water table by blocking forest drains and managing any conifer regeneration on the restoration areas. Mapping of drains to be blocked and determination of the most appropriate method of blocking will take place in year 1 of the implementation of the final HMP with brash from felled areas potentially used in that process. A survey will be carried out prior to blocking to identify the number, location and spacing of artificial dams required. Drain blocking will take place in agreement with the landowner. Work will occur between September and March to avoid disturbing breeding birds, amphibians and reptiles. Management of conifer regeneration will be as required.
- It is assumed that the modified peatland under the coniferous woodland plantation was once classifiable as M17 and M15 and that these habitats are likely to regenerate following tree removal. However, it is likely that before reaching such plant communities, there would be periods of rush (*Juncus sp.*), and purple moor-grass dominance as typically seen on previous deforested sites and on drained areas of this site. In order to minimise the dominance of these species and to encourage peatland restoration, peat excavated as a result of the Proposed Development will be re-used in areas of felling to create deeper areas of peat. Peat for restoration will need to be removed in such a way as to ensure that catotelmic (lower level, non-living layers of peat) and acrotelmic (surface living layer of peat) are removed and stored separately. However, as detailed in the PMP, the volume of peat predicted to be excavated is likely to be peaty soil/acrotelm (approximately 1112.5 m³) rather than true saturated catotelmic peat. In areas of felling, it is likely that the brash and tree stumps will need to be removed to provide a suitable surface for the laying of the excavated peat. Determination of

the most appropriate method and locations will take place in year 1 of the implementation of the final HMP.

- Increase the abundance and distribution of bog-moss (*Sphagnum sp.*), particularly red bog-moss (*S. capillifolium*), blunt-leaved bog-moss (*S. palustre*) and compact bog-moss (*S. compactum*). If suitable habitat conditions are recreated, this could occur through natural regeneration. Active measures will be considered in the unlikely event that natural regeneration is unsuccessful.
- Increase the abundance of other bog species, particularly heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), hare's-tail cottongrass (*Eriophorum vaginatum*) and bog myrtle (*Myrica gale*). If suitable habitat conditions are recreated, this could occur through natural regeneration. Active measures will be considered in the unlikely event that natural regeneration is unsuccessful.
- Manage deer grazing pressure through fencing and/or a reduction in deer numbers as agreed with the landowner. Deer numbers will be managed in accordance with the deer management plan for the Proposed Development, provided as Technical Appendix 8.6.

Woodland Offset Planting

All woodland offset planting will be undertaken off-site at a location to be determined post-consent, as discussed in Chapter 16. The extent of these planting areas will be subject to refinement prior to completion of the final HMP but the area identified for restoration will be no less than 14.42 ha, which is the area to be felled as a result of the Proposed Development, as discussed in Chapter 16. Restoration will aim to restore an area of at least the same size as the area lost as a result of the Proposed Development. Ideally, there will be an overall gain of improved woodland habitat off-site. The confirmed woodland offset planting areas will be shown on a figure in the final HMP.

Management Prescriptions

The following measures will be undertaken to offset the woodland lost as a result of the Proposed Development in order to provide woodland that is of a higher ecological value than the woodland removed from the site:

- Where possible, replanting areas will incorporate broadleaved woodland and mixed woodland, instead of a simple 'like for like' replacement of coniferous woodland plantation and broadleaved woodland. Broadleaved woodland will include species such as downy birch (*B. pubescens*) and alder (*Alnus glutinosa*), which were recorded on the site. As the planting is occurring off-site and is not restricted by the soil conditions on-site, other broadleaved species could also be planted, such as silver birch (*Betula pendula*) and sessile oak (*Quercus petraea*), depending on soil conditions at the planting locations. Where possible, mixed areas will be planted and will include the aforementioned broadleaved species plus species such as Scots pine (*Pinus sylvestris*). Coniferous woodland areas will include species such as lodgepole pine (*Pinus contorta ssp. latifolia*) and Sitka spruce (*Picea sitchensis*), which were recorded on the site, but will also include Scots pine, where possible, to enhance the coniferous species recorded on the site with a native species.
- Woodland creation will follow Forestry Commission Scotland Bulletin Guidance (Rodwell & Patterson, 1994). Planting densities will be between 200 and 400 stems per hectare in blocks rather than narrow strips. Individual tree species should be planted in groups, with trees planted a minimum of 2 m apart. However, these planting guidelines will be dictated by the character of the site and can be used flexibly. The species of tree to be planted will be determined further to ground investigation in year 1 of the implementation of the final HMP. Woodland planting will take place in agreement with landowners. Planting will not take place

in frozen or waterlogged ground. Where possible, new woodland will be planted next to an existing woodland as larger areas support more species and the existing woodland will provide a source for the natural colonisation of ground flora in the new woodland. New woodland should contain equal proportions of trees and shrubs, such as hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*), to provide a diverse habitat structure and increase the ecological value. If the new woodland area is larger than 2 ha, approximately 20-30% of the area will be left unplanted to form open glades and rides within the woodland. Rides should be at least as wide as the height of the surrounding trees once they reach maturity. Tree shelters/guards or fencing will be used to protect immature trees from grazing.

- To compensate for the loss of *W4c Betula pubescens–Molinia caerulea* wet woodland (*Sphagnum* sp. sub-community), riparian planting of birch, alder and willow species, such as goat willow (*Salix caprea*) and eared willow (*S. aurita*), will occur along the Feith Osdail. This will also have the added benefit of providing shelter for fish, aquatic invertebrates and otter (*Lutra lutra*). Riparian woodland acts as corridors to enhance connectivity by creating links within and between woodland habitats, providing routes for dispersing or migrating mammals, such as otter as well as foraging or commuting bats. Trees help prevent bank erosion and give shelter and shade for salmonid fish. Riparian vegetation also increases biodiversity and provides habitat for water vole. The creation and management of riparian vegetation will follow the Scottish Environment Protection Agency (SEPA) good practice guide (SEPA, 2009).

Enhancement Measures

Pine Marten

Pine marten are often forced to build dens in man-made structures or in marginal habitats, such as scrub and heath, in response to a lack of other denning opportunities in the human-influenced landscape (Twining *et al.*, 2020). In the short-term, the use of artificial den boxes may mitigate the main source of human conflict with this species and encourage breeding success in area where pine martens are known to be present. A moderate level of pine marten activity was recorded on the site through the presence of scat, though no dens were recorded. As such, an opportunity for enhancement exists through the deployment of den boxes within the coniferous woodland plantation on the site.

Management Prescriptions

The following measures will be undertaken to enhance the coniferous woodland plantation for use by pine marten:

- A minimum of two den boxes will be installed on suitable trees on the site. Installation will follow good practice guidance (Croose *et al.*, 2016), with the boxes installed in areas of long-term woodland retention away from public roads. Each box will be fitted to a tree at a minimum height of 4 m to avoid disturbance.

Reptiles and Amphibians

Although no signs of reptiles or amphibians were recorded on the site, the open habitats, such as the areas of mire in the east and west of the site, are considered to be suitable for these groups. Tree felling for the Proposed Development is also likely to provide more open habitats for these groups. As a result, an opportunity for enhancement exists through the creation of artificial refugia from the brash present after felling.

Management Prescriptions

The following measures will be undertaken to encourage the use of suitable habitats by reptiles and amphibians:

- Five rock piles will be created in mire habitat and felled areas to attract common lizard (*Zootoca vivipara*) by providing shelter and an area for basking. The piles will be scattered throughout the habitat and created using a variety of rock sizes, including larger flat rocks for basking. They will be placed in open, sunny locations.
- Three artificial refugia will be created for amphibians and invertebrates by building small piles of deadwood from the brash created by felling. The refugia will be a minimum of 1 m wide and 50 cm high.

American Mink

American mink are a non-native invasive species that first became established in the UK in the 1930s when animals escaped from fur farms (NS, 2020). The species is an introduced predator that has an adverse effect on native wildlife, particularly water vole and ground-nesting birds. American mink may also result in salmonid mortality in some river systems (NS, 2020).

Two probable American mink scats were recorded on the Feith Osdail in 2014, although no signs were recorded in the 2017 and 2020 surveys. It is likely that mink are still present due to the absence of water vole despite the presence of suitable habitat to support this species. As a result, an opportunity for enhancement exists through mink control to encourage water vole to return to the site with the removal of this introduced predator.

Management Prescriptions

The following measures will be undertaken to control American mink and encourage water vole to recolonise the Feith Osdail:

- The installation of a mink monitoring raft on the Feith Osdail, such as those provided by the Scottish Invasive Species Initiative (SISI) (SISI, 2020). The raft will be deployed on the edge of the Feith Osdail so that it floats close to the bank. The raft can be installed anywhere on the Feith Osdail where it occurs within the site. This raft is used to confirm the presence of mink with a wooden tunnel containing a clay pad to capture footprints.
- As soon as American mink are confirmed to be present from mink footprints in the clay pad, a live capture trap will be installed in the raft's tunnel, replacing the clay pad (SISI, 2020). Any mink captured in the live trap will be culled humanly. This will be done by a suitably qualified person, such as the deer manager for the site, or by SISI project staff. Any other species captured in the trap, such as voles or mice, will be released unharmed.

Work Programme

A detailed work programme will be developed in consultation with THC and the landowner as part of the development of the final HMP.

Funding and Duration

The final HMP and implementation will be funded in full by the Applicant and will continue for the lifetime of the Proposed Development i.e. approximately 30 years.

Monitoring

Peatland Restoration

Vegetation surveys undertaken by suitably qualified ecological professionals will monitor the success of peatland restoration and highlight the need for any further management measures. Surveys will collect data on the structure and composition of the vegetation, and plant species abundance and diversity from permanent quadrats in the restored areas. Monitoring will commence in summer of year 1 of the implementation of the

final HMP (during the first year of operation of the Proposed Development) and will be repeated during the operational life of the Proposed Development i.e. following initial baseline surveys in year 1, surveys will also occur in at least years 3, 5, and 10. The requirement for longer-term monitoring, e.g. in years 15, 20 and 25, will be subject to ongoing review of the results and agreement with statutory consultees.

If vegetation surveys record significant trampling or grazing by deer affecting the success of peatland restoration areas then deer culling and/or fencing will be completed in line with the deer management plan provided in Appendix 8.6. Culling numbers may need to be increased if deer are having an adverse effect on the restored habitats.

Monitoring of restoration activities, e.g. ditch/drainage blocking will also be undertaken to record progress in the completion of the physical works to install, maintain and, where necessary, repair those features. This monitoring will be completed by windfarm operations staff over the course of the first five years of operation of the Proposed Development. Any faults or issues identified during this monitoring will be addressed as soon as possible.

Woodland Offset Planting

New areas of woodland will require monitoring and management, particularly in the first 2-3 years when immature trees are establishing themselves. New trees will be inspected once a year to ensure they are not being choked by other vegetation, such as grass species, until tree shelters/guards are removed. Tree guards will be removed when the base of the tree reaches 7-10 cm in diameter, typically 3-5 years after planting.

Vegetation surveys undertaken by suitably qualified ecological professionals will monitor the success of woodland offset planting and highlight the need for any further management measures. Surveys will collect data on the structure and composition of the vegetation, and plant species abundance and diversity from permanent quadrats in the planted areas. The success or failure of tree planting will be noted during each survey. If more than 25% of planted trees in an area of new woodland have failed, additional planting will be required. Monitoring will commence in summer of year 1 of the implementation of the final HMP (during the first year of operation of the Proposed Development) and will be repeated during the operational life of the Proposed Development i.e. following initial baseline surveys in year 1, surveys will also occur in year 5. The requirement for longer-term monitoring, e.g. in years 10, 15, 20 and 25, will be subject to ongoing review of the results and agreement with statutory consultees.

If vegetation surveys on the site record significant trampling or grazing by deer affecting the success of the wet woodland planting along the Feith Osdail then deer culling and/or fencing will be completed in line with the deer management plan provided in Appendix 8.6. Culling numbers may need to be increased if deer are having an adverse effect on the new area of wet woodland within the site.

Long-term management of new woodland areas will be undertaken by landowners in consultation with THC and NS, where required. Management may include deer control, selective thinning, replanting, rotational mowing to maintain open rides and glades, and the control of invasive non-native species, such as rhododendron (*Rhododendron ponticum*).

Pine Marten Den Boxes

Pine marten den boxes will be monitored, by suitably qualified ecological professionals under licence from NS, once per year in May, when breeding females are occupying natal den sites with their dependent kits. Boxes will initially be checked for signs of use by observing them from a distance using binoculars. Following an initial inspection, a licensed surveyor will access the box using a ladder.

Monitoring will commence in May of year 1 of the implementation of the final HMP (during the first year of operation of the Proposed Development) and will be repeated during the operational life of the Proposed Development i.e. following initial baseline surveys in year 1, surveys will also occur in year 2, 3, 4 and 5. The requirement for longer-term monitoring, e.g. in years 6, 7, 8, 9 and 10, will be subject to ongoing review of the results and agreement with statutory consultees.

American Mink

The monitoring raft will be checked for American mink footprints every one to two weeks. As soon as a live capture trap is installed, the raft will be checked daily for captured mink. Monitoring will be undertaken by the deer manager of the site and/or by SISI project staff, where applicable.

Summary

The methodology for all monitoring surveys will be agreed with THC and NS. Reports will be submitted to THC and NS no later than six months following the survey in each monitoring year. The reports will highlight the management measures completed to date, the results of the surveys and any measures proposed for the next reporting period. The results will be regularly reviewed by the HMP management team, in consultation with the landowner, to ensure the HMP objectives are being met and to determine any appropriate amendments, where practicable.

Amendments

The final HMP will be a live document and will be updated following monitoring results, unexpected events or changes in guidance. Approval by THC and NS will be sought for any amendments before revised measures are implemented.

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