

Appendix 9.8: Outline Habitat Enhancement and Management Plan

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Shepherds' Rig Wind Farm
Outline Habitat Enhancement and
Management Plan

June 2026

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Client	Boralex
Project	Shepherds' Rig Wind Farm, Outline Habitat Management Plan
Version	FINAL
Project number	P24-144

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Approved for issue to client	Ian Heard	Principal Ecologist	31 January 2025
Issued to client	Ian Heard	Principal Ecologist	31 January 2025
Amended	Hannah Shone	Senior Ecologist	21 March 2026
Reviewed	Ian Heard	Principal Ecologist	27 March 2026
Re- Approved for issue to client	Ian Heard	Principal Ecologist	27 March 2026
Re-Issued to client	Hannah Shone	Senior Ecologist	27 March 2026
Amended	Hannah Shone	Senior Ecologist	11 May 2026
Reviewed	Ian Heard	Principal Ecologist	22 May 2026
Re-Issued to client as draft	Ian Heard	Principal Ecologist	22 May 2026

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1 Introduction

Proposed Varied Development Background

- 1.1 SETT Wind Development Limited ('the Applicant') gained Section 36 consent and deemed planning permission from Scottish Ministers in August 2023 to construct and operate Shepherds' Rig Wind Farm ('the Consented Development'). The Consented Development comprises 17 turbines (15 turbines with a maximum blade tip height of 149.9 metres (m) and two turbines with a maximum blade tip height of 125 m) and associated infrastructure.
- 1.2 The Applicant is now applying to Scottish Ministers for consent under Section 36C of the *Electricity Act 1989 (as amended)* and the *Town and Country Planning (Scotland) Act 1997* to vary the Consented Development. The proposed variations include:
- Removal of six turbines and associated crane hard standings;
 - Increase in the maximum blade tip height of the remaining 11 turbines to 220 m;
 - Increase in size of associated crane hardstandings to accommodate the larger turbines;
 - Relocation of eight turbines beyond the micro-siting allowance of the Consented Development, but within the same pattern of development;
 - Amendments to part of the track layout to reflect turbine removal and relocation (as outlined above);
 - Change to the number and location of required watercourse crossings to accommodate the amended track layout;
 - Increase in size and capacity of the associated Battery Energy Storage System (BESS);
 - Relocation of the temporary construction compound slightly beyond micro-siting allowance;
 - Removal of the previously proposed anemometer mast; and
 - Increase to the period of consent from 30 to 40 years.
- 1.3 Collectively, the proposed variations listed above are referred to as the 'Proposed Varied Development'.
- 1.4 The key element of the Proposed Varied Development is that turbine numbers are reduced, and the locations of three turbines (5, 6 and 7) are unchanged (within micro-siting allowance) from the Consented Development. Locations of turbines 3, 8, 9 and 10 are within 200 m of a consented turbine position, relocated to incorporate the constraints associated with larger turbines. Four turbines (1, 2, 4 and 11) are over 200 m from a consented turbine location; however, no turbine is over 500 m from a consented location and all turbines are located within the same habitat types as the original application. No significant additional impacts are therefore predicted.
- 1.5 A suite of ecological survey data was gathered by Bear Environmental Limited in 2018 to support the Consented Development (Bear Environmental, 2018). The application was determined based on the ecological baseline gathered in 2018, with the ecology chapter of the Consented Development's Environmental Impact Assessment (EIA) Report having determined that no significant impacts would occur. Due to the age of the data collected in 2018, updated ecological surveys have been undertaken to support the Proposed Varied Development, to determine if the conditions on-site have remained unchanged.
- 1.6 BSG Ecology have been commissioned by the Applicant to provide an updated terrestrial ecology chapter for the Proposed Varied Development's EIA Report, as well as updated baseline habitat and protected species survey data for the site and an Outline Habitat Enhancement and Management Plan (OHMP), to support the Section 36C application.

Site Description

- 1.7 The site remains the same as that of the Consented Development and is centred on British National Grid (BNG) 262319 593591, approximately 5 km east of the village of Carsphairn, Dumfries and Galloway. The site totals approximately 752 hectares (ha) and encompasses predominantly coniferous plantation in various stages of maturity interspersed with remnants of grassland and bog habitats.
- 1.8 The site is surrounded by wet grassland habitats (some of which are in current grazing use), heathland, and other coniferous plantation. Goat Burn, Black Burn, Craigengillan Burn and several small un-named watercourses, flow through the site. Full habitat descriptions are contained within the Proposed Varied Development's Habitat Report, provided as Appendix 9.5 (BSG, 2025).
- 1.9 The biodiversity enhancement areas shown in Figure 1 of this OHMP will be managed by the Applicant (and/or and subsequent owner of the Proposed Varied Development), who are responsible for actioning all elements detailed within this report.

Purpose of Report

- 1.10 The aim of this OHMP, is to provide outline details of the creation, enhancement, management and monitoring of the habitats on-site in connection with the Proposed Varied Development. The OHMP will be refined and developed into a final HMP post-consent, agreed with Dumfries and Galloway Council in consultation with NatureScot and any other relevant stakeholders as appropriate prior to the commencement of construction of the Proposed Varied Development.
- 1.11 This OHMP is written in line with guidance published by NatureScot (previously Scottish Natural Heritage [SNH]) (SNH, 2016). The measures detailed within this OHMP will aim to achieve significant biodiversity enhancement as a direct result of the Proposed Varied Development over its operational lifetime, in line with the objectives outlined in Policy 3 of the National Planning Framework 4 (NPF4) (Scottish Government, 2023).

2 Selection of Management Features

2.1 The selection of the Management Features as part of the OHMP for the site has been informed by baseline habitat surveys. The selection of features has been agreed in consultation with the Applicant and is based on the existing knowledge of the main nature conservation interests of the site and the vision for the long-term management. The location of the features for management or creation is shown on Figure 1. The identified Management Features are listed below with justification provided in subsequent sections:

- Coniferous plantation understory restoration to blanket bog.
- Dry heath/ acid grassland mosaic creation.
- Broadleaved woodland creation.
- Riparian corridor enhancement.
- Fencing.

Management Objectives

2.2 As part of the OHMP, the current state of each feature and how its target condition will be attained will be outlined following the below structure:

- **Current status:** This provides a summary of the current status of each habitat feature following fieldwork conducted during 2024.
- **Rationale:** A rationale is given as to why the management targets have been set, giving consideration to the current status of the habitat.
- **Targets:** An overall target condition is set taking into account current status and long-term vision. This will inform the management that will take place.

Habitat Creation, Enhancement and Objectives

2.3 Each habitat feature to be created or enhanced is related to a description of methods for their establishment and the appropriate management conditions in the relevant tables.

3 Target Habitats

Feature 1: Blanket bog restoration.

Current status

- 3.1 Blanket bog is listed on the Dumfries and Galloway Local Biodiversity Action Plan (Dumfries and Galloway Council, 2009) as a habitat of priority action. Restoration and creation should be targeted through the blocking of moorland 'grips' and drains. Blanket bog is also a UK Biodiversity Action Plan Priority Habitat (Brigg, 2008, NatureScot 2025) and a Habitat Directive Annex I habitat (7130 Blanket Bogs).
- 3.2 Coniferous plantation woodland along the western boundary of the site, identified in Figure 1, will be targeted for enhancement. At present this woodland is in various stages of maturity with both felled and unfelled areas due to the active forestry operations.
- 3.3 Currently the woodland is dominated by Sitka spruce *Picea sitchensis* and European larch *Larix decidua*. The mature plantation areas generally contain no ground flora or a ground flora dominated by mosses *Bryophyta* spp. In juvenile to semi mature woodland, ground flora varies dependant on age; however, the dominant habitat is species poor grassland containing indicator species for marshy and other neutral grassland. Moss and degraded blanket mire are also present.
- 3.4 Peat cover was found to be present across 27% of the Proposed Varied Development study area, largely concentrated in the west of the site, with depths up to 5 m. Peatland habitats on-site are currently heavily modified and degraded due to the commercial forestry activities.
- 3.5 Infrastructure layout has been designed to avoid or minimise impact on blanket bog habitats and peat where possible, in total an estimated 88,081 m³ of peat is proposed for excavation. Proposed peat reinstatement areas within the temporary infrastructure, clearance areas, earthworks and borrow pit could accommodate an estimated total volume of 91,600 m³ of excavated peat (reuse volume therefore exceeds the peat excavation volumes with a balance of 3,159 m³ additional peat reinstatement area available). Additional detail is provided in the Peat Management Plan (Appendix 12.2).

Rationale

- 3.6 Historically, the plantation woodland was blanket bog habitat, which has since degraded. Consequently, within the woodland understory, where the water table is higher on-site due to poor forestry drainage, bog species are present, including red bog moss *Sphagnum capillifolium*, papillose bog-moss *Sphagnum papillosum*, redstemmed feathermoss *Pleurozium schreberi*, bog haircap moss *Polytrichum strictum* and magellanic bogmoss *Sphagnum magellanicum*. It is this bog habitat the OHMP seeks to re-instate.
- 3.7 The plantation woodland within the blanket bog restoration areas in Figure 1 will be removed from commercial forestry operations and allowed to develop as blanket bog and bog woodland. This will create a buffer between blanket bog located off-site directly to the west and forestry operations on-site. Blanket bog is a priority habitat previously present on-site, largely lost due to forestry operations and habitat succession.
- 3.8 A high water-table and presence of sphagnum suggests that conditions are suitable for continued peat formation. Restoration of the bog will protect the peat surface from erosion and oxidation preventing carbon loss and increasing carbon sequestration (thereby helping to slow climate change).
- 3.9 It is assumed that the modified bog under the forest was once classifiable as blanket bog and that these habitats are likely to regenerate following tree removal. However, it is likely that before reaching bog classification, there will be periods of rush, and grass dominance.

- 3.10 Restoration of blanket bog habitat will create a more varied habitat structure and increase the cover of species that provide food or shelter for a variety of species, including:
- Invertebrates: blanket bog fringes can support more tussocky vegetation, and the associated litter build-up provides cooler, more sheltered microhabitats in addition to and drier microhabitats and a well-developed vegetation structure beneficial to a variety of invertebrates.
 - Mammals: Open ground is of benefit to small mammals and the increased extent of forest edge is of benefit to both foraging and commuting mammals, notably pine marten (*Martes martes*).
 - Birds: blanket bog is of importance to a variety of bird species feeding on invertebrates (notably Black Grouse *Tetrao tetrix*), nesting habitat for upland breeding waders and foraging grounds for birds of prey.
- 3.11 In the absence of the Proposed Varied Development, continued felling operations would prevent the formation of blanket bog on-site and cause the continued degradation of existing modified bog.

Management

- 3.12 The final blanket bog restoration plan on-site will be informed by peat depth data of target areas. A total area of 66.75 ha of forest to bog restoration is currently proposed, as mapped in **Figure 1**.
- 3.13 Management measures should all be undertaken in line with The UK Forestry Standard (2023), Armstrong *et al.*, (2009) and Peatland Action Guidance (NatureScot, 2024).
- 3.14 Management should be tailored based on the results of the detailed peat depth data; however measures may include:
- Removal of all conifer and non-native invasive species and implementation of regular conifer regeneration removal and scrub control. Low level regeneration may be retained on forest edges to create a gradual feathered edge between the restored bog and woodland, however, this must be managed as not to encroach on the bog.
 - Previously afforested sites often retain a legacy ridge and furrow pattern, with either single or double ploughed furrows up to 80 cm deep. The overall process of eliminating the furrows involves several stages including; Tree Harvesting, Mulching, Furrow Blocking and Ground Smoothing. The following methods are fully described in the NatureScot Peatland Action, Technical Compendium¹.
 - *Tree Harvesting*: remove as much timber and brash as possible prior to restoration (although some brash left scattered across the restored site may be beneficial for sphagnum recovery because it reduces exposure to sun and wind). Removal of woody material will aim to make restoration activities easier and more successful. The timber can be extracted or mulched and spread over the harvested area.
 - *Furrow Blocking*: used in addition to other 'forest to bog' restoration techniques to assist with rewetting. This can be achieved by damming or reprofiling (or both) or 'flipping' the remaining stumps (including brash) into the furrows (in conjunction with initial creation of peat dams).
 - *Ground Smoothing*: if the objectives of furrow blocking are not achieved, then active removal of ridges and furrows can be undertaken to create a flatter topography, reflective of near natural peatlands. This aids re-wetting in order to produce conditions conducive to the recovery of peatland species. Cross-tracking (use of an excavator driving back and forth over the ground to flatten the surface and distribute mulch or brash) may be implemented to achieve this. This method is used in conjunction with peat dams wherever peat depths allow, to ensure that water preferential pathways do not develop along the base and sides of the drains in the future. Vegetation recovery on the resultant smooth surface can be rapid, with good cover of species seen within a matter of 1-5 years in the right climatic condition and where there are local seedbanks.

¹ Nature Scot, Peatland ACTION - Technical Compendium - Restoration - 8 Forest to bog restoration. Available online: <https://www.nature.scot/doc/peatland-action-technical-compendium-restoration-8-forest-bog-restoration>. Accessed January 2025.

- Drain and ditch blocking may be required using peat dams and/or plastic piling (see NatureScot Peatland Action Guidance). The aim is to create a watertight dam to prevent or reduce flow, allowing the water table to rise. Where blocks are installed at regular intervals, water can be diverted out of the ditch and onto the peat surface, allowing natural patterns of water flow to resume. The methodologies of ditch blocking are determined on a ditch-by-ditch basis, with hydrological input.
- Management of vegetation growth through mechanical cutting and scrub removal or seasonal grazing, as appropriate.
- The need for implementation of vegetation management will be identified through monitoring. However, if grazing is considered appropriate, stocking densities should be no more than 0.02 livestock units/ ha/ year (one livestock unit is equivalent to one cow or 0.15 ewes). Wild deer should also be accounted for within calculations. Ground conditions on the site will dictate when stock are introduced and removed to avoid poaching.
- Supplementary seeding of vegetation may be required if natural vegetation establishment does not occur and / or if areas of bare peat persist. Measures should follow Peatland Action Guidance, and consider local conditions (including species provenance, ground conditions, water table and topography). Supplementary seeding should include robust plants such as cotton grass *Eriophorum angustifolium* initially, followed by application of sphagnum plugs, propagules or locally sourced fragments as appropriate. Alternatively, it may be appropriate to apply donor turf or mulch obtained from established areas within the site.

Targets

3.15 Long term, the aim is to create good condition bog with the following characteristics:

- A high water table within 10 cm of the surface most of the year with small pools formed when the water table is high.
- Little to no bare peat or lasting ruts caused by vehicles.
- A variety of vegetative bog indicator species present. See Upland Management Group (2017) for full list of indicators (also provided in Appendix A).
- A balance of vegetation types with even ratios of heather (no more than 50% cover), cotton grasses and sphagnum, with an understory of sphagnum.
- The presence of hummock forming sphagnum mosses (e.g. *S. papillosum*, *S. capillifolium* and *S. magellanicum*).
- No regeneration of conifers or scrub.

Feature 2: Dry heath/ acid grassland mosaic creation.

Current status

- 3.16 Upland heath is listed on the Dumfries and Galloway Local Biodiversity Action Plan (Dumfries and Galloway Council, 2009) as a habitat of priority action. Upland heath is also a UK Biodiversity Action Plan Priority Habitat (Brigg, 2008) and a Habitat Directive Annex I habitat (4030 Dry Heaths)
- 3.17 Currently 4.42 ha of dry heath/acid grassland-dry heath mosaic is present on-site, predominantly adjacent access tracks and verges. Heather *Calluna vulgaris* is dominant, with blueberry *Vaccinium myrtillus*, pleurocarpous mosses, rush species, bog haircap moss *Aulacomnium palustre*, red-stemmed feather moss *Hylocomium splendens*, and tormentil present. Bell heather *Erica cinerea* occurs rarely. Species frequent in areas of acidic grassland are limited to wavy hair grass *Deschampsia flexuosa*. Vegetative markers of neutral grassland are also present, such as Yorkshire fog *Holcus lanatus* and foxglove *Digitalis purpurea*, which may be indicative of the influence of disturbance and imported rock from the access tracks impacting the marginal habitat. In places, scrub is encroaching, consisting of bracken and willow *Salix* spp.

Rationale

- 3.18 A mosaic of dry heath and acid grassland is proposed in areas of shallow, or no peat within the keyholed areas surrounding the wind turbines (a 85 m buffer of each turbine). Additional creation will take place alongside access tracks to maintain habitat connectivity throughout the site.
- 3.19 New dry heath/ acid grassland mosaic is proposed in areas currently subject to active forestry operations which are scheduled to be cleared in line with the development in keyholed areas and along access tracks. Keyholed areas comprise an 85 m buffer of each proposed turbine. A total area of 8.83 ha of dry heath/ acid grassland mosaic creation is currently proposed within the Site, as mapped in **Figure 1**.
- 3.20 Creation of additional dry heath and acid grassland will increase connectivity throughout the site. Upland heaths are prime habitats for a variety of species, including:
- Breeding birds, such as Red Grouse *Lagopus lagopus*, Black Grouse, Golden Plover *Pluvialis apricaria*, Dunlin *Calidris alpina*, Snipe *Gallinago gallinago*, Hen Harrier *Circus cyaneus*, Merlin *Falco columbarius*, Wheatear *Oenanthe oenanthe*, Ring Ouzel *Turdus torquatus* and Twites *Carduelis flavirostris*. many of which have declined substantially over the last 100 years.
 - Black grouse specifically forage on shoots, flowers and seed heads which will be abundant in the heath and acid grassland mosaic.
 - Many invertebrates are dependent on the three-dimensional structure of upland shrubs and other vegetation.
 - Mountain Hare *Lepus timidus* are characteristic of this habitat, and other mammals, such as pine marten and badger (*Meles meles*) also use heathlands associated with woodland edge for foraging.
- 3.21 In the absence of the Proposed Varied Development, the site would continue to be managed as commercial forestry, with annual felling of mature crops and re-planting of areas of clear-fell.

Management

- 3.22 Management actions will be informed by a pre-management baseline survey to assess the height and uniformity of heather, extent of conifer regeneration, and presence of non-native invasive species within the management areas. If considered necessary, a rotational cutting or grazing regime (where practical to do so) will be planned and implemented. A plan including the size of area to be cut each year, and height of the cut or stocking type/density within the heather areas is required. The objective of management is to increase biodiversity in areas where species diversity is poor, and to provide structural diversity.
- 3.23 Supplementary seeding of heathland species including heather and bilberry *Vaccinium myrtillus* will be undertaken in any area temporarily disturbed by construction activity.
- 3.24 Along moorland edges and boundaries with bog habitats, seeding should be more species diverse with the incorporation of additional grasses, rushes and shrubs, including: cotton grass, heath rush *Juncus squarrosus*, blaeberry, cowberry *Vaccinium vitis-idaea* and crowberry *Empetrum nigrum* should also be incorporated to provide an additional year-round foraging resource.
- 3.25 Regeneration of conifer, non-native invasive species, and undesirable species (such as bramble *rubus fruticosus*) will be periodically controlled by mechanical methods for the operational life of the wind farm. The cover of broadleaved scrub (such as willow and rowan) will be maintained at < 10 % cover.

Targets

- 3.26 The following indicators should be monitored to ensure the condition of the dry heath is maintained:
- The habitat should present a good example of its habitat type (phase 1 dry heath/acid grassland mosaic). Dry heath cover should be greater than 25%.

- There are at least two dwarf shrub species present.
- All heather age-classes (pioneer, degenerate and mature) present with at least 10% degenerate or mature heather in the uplands.
- No more than 33% of heather shoots have been recently grazed.
- Unshaded bare ground is between 1-10%.
- Absence of non-native plant and animal species.
- No signs of disturbance (including managed burns), damaging activities (such as excessive poaching, damage from machinery use/ storage or damaging levels of public access) or contamination (such as artificial grains, peat extraction, silt, leachate or eutrophication).
- The canopy cover of scattered trees and or scrub (not including gorse *Ulex* spp.) is under 20%.
- Total gorse cover is less than 50%, with common gorse *Ulex europaeus* less than 25%.
- The cover of bracken *Pteridium aquilinum* is less than 5%.

Feature 3: Broadleaved woodland creation.

Current Status

- 3.27 Native wood is listed on the Dumfries and Galloway Local Biodiversity Action Plan (LBAP) (Dumfries and Galloway Council, 2009).
- 3.28 Currently, the land to be subject to broadleaved woodland creation is a mixture of felled woodland to the east and coniferous plantation to the west. Ground cover is limited, where present it predominantly comprises brash. Vegetative species present includes: soft rush *Juncus effusus*, tufted hairgrass *Deschampsia cespitosa*, fox glove *Digitalis purpurea* and bent grasses *Agrostis* spp.

Rationale

- 3.29 The deciduous woodland will be composed of native, flowering/fruited scrub and trees and will feature a scrub understorey and multi-layered canopy. The species composition will be reflective of the Dumfries and Galloway LBAP, including oak *Quercus robur*, birches *Betula* sp, willows *salix* sp. and hawthorn *Crataegus monogyna*. All trees should be of local provenance. Trees with specific benefit to black grouse should also be included, notably: rowan *Sorbus aucuparia*, hazel *Corylus avellana* and birch *Betula pubescens*.
- 3.30 Deciduous woodland planting will be localised to avoid blanket bog habitat and will not occur within 100 m of turbines to reduce the risk of elevated bird and bat strike.
- 3.31 A total area of 35.82 ha of forest to broadleaved woodland creation is currently proposed, as mapped in **Figure 1**.
- 3.32 In addition to the creation of new low-density woodland, uneven feathered edges should be added to the existing plantation woodland. This will maximise the woodland edge available and provide a transition between the woodland and moorland. In these areas fruit bearing shrubs and trees such as birch, willow and rowan should be planted. The fringes should be maintained as a scalloped edge.
- 3.33 Woodland provides suitable habitat for a variety of species in the locality, including:
- Invertebrates, notably those that rely on decaying wood.
 - Nesting and foraging birds. Notable benefits for black grouse as a result of woodland fringing and low-density planting.
 - Mammals including: badger, otter (*Lutra lutra*), pine marten, red squirrel (*Sciurus vulgaris*) and bats rely on woodland for shelter and foraging, in addition to utilising woodland rides to commute throughout the wider landscape.

- 3.34 At the time of writing, the proposed Lorg Wind Farm Grid Connection (SPEN, 2025) crosses the central area of the site from west to east and continues for approximately 1 km along the site's boundary. Current proposals consist of overhead cabling at an average height of 13 m and maximum height of 22 m, 'H' pole wood pylons (spaced between 120 to 155 m), associated wayleaves, and access routes between pylons. The erection of the pylons and the associated groundworks, installation of access tracks and the wayleaves around the pylons and below the overhead cabling will bisect the woodland creation area and result in a small reduction in the final area of broadleaved woodland creation.
- 3.35 The associated wayleaves will be likely be converted from woodland planting to short grassland extending several meters either side of the overhead cable (the exact width is not currently known) to facilitate access to the pylons for maintenance and eliminate the risk of trees or scrub coming into contact with the overhead cabling. As a result, it is anticipated that the wayleaves will only partially regenerate from coniferous plantation and be permanently rush or grass dominated. The implementation of wayleaves will have the effect of increasing the amount of woodland edge habitat available.
- 3.36 The current proposals for Lorg Wind Farm Grid Connection feature both access routes from nearby roadways through the site to the cable route itself, largely along existing rides between stands of coniferous plantation, as well as an access route between the individual pylons. The proposed access route from the road partially overlaps access routes proposed for the Proposed Varied Development. It is considered likely that, should the Proposed Varied Development be consented, access routes for the Lorg Wind Farm Grid Connection would be amended appropriately to fully overlap with those constructed for the Proposed Varied Development, and no additional proposed habitat would be affected beyond that described above. The access route between pylons falls within the wayleave around the cable and is considered unlikely to affect additional proposed habitat beyond that described above.

Management

- 3.37 Management will entail the felling of existing conifer plantation to make way for the broadleaved woodland.
- 3.38 Planting densities should be low at 800 stems/ha (in line with Scottish Forestry (2020) guidance and black grouse habitat preferences). The tree and scrub species to be planted should be native and reflective of those within the broader locality. Planting is to be naturalistic in appearance to provide random, single and mixed groups of species with variable spacings at 0.5 / m² - 2/ m² spacings, and to allow for future open glades. A regular grid-based planting structure should be avoided.
- 3.39 Transplants to be individually planted with variable spacing, with planting compost added if appropriate. Transplants will be planted to the existing nursery root collar level.
- 3.40 Each tree will be protected by appropriate bio-degradable tree guards, stakes and ties (for examples a Tubex 600 mm high tree shelter 80-120 mm diameter and secured by a 750 x 32 x 32 mm softwood timber stake or a 12 mm cane and ratchet ties may be appropriate for 60cm-100cm transplants).
- 3.41 Management should be undertaken in November to March (avoiding frosty conditions), with woodland creation to take place in the first season following construction.

Targets

- 3.42 The following should be targeted to ensure the condition of the proposed woodland is maintained:
- A variety of tree age classes within the woodland with vertical structure present.
 - Five or more native tree and scrub species present with overall cover of native species over 80%.
 - Presence of deadwood, including standing and fallen deadwood.
 - No significant browsing damage evident.
 - No invasive plant species present.

Feature 4: Riparian Corridor Enhancement.**Current Status**

- 3.43 River headwaters are listed on the Dumfries and Galloway Local Biodiversity Action Plan (Dumfries and Galloway Council, 2009) as a habitat of priority action. Riparian corridors primarily flow through the plantation and broadleaved woodland on-site (as described in Feature 3).

Rationale

- 3.44 Riparian tree planting to create woodland corridors throughout the site will increase connectivity between the existing and proposed woodland habitats, providing routes for dispersing mammals such as otter, pine marten and badger. The trees will also prevent bank erosion and create dappled shade and shelter for a variety of riparian species, including invertebrates and fish.
- 3.45 The creation and management of riparian vegetation would follow SEPA's good practice guide (SEPA, 2009).
- 3.46 A total area of 11.06 ha of riparian corridor enhancement is currently proposed, as mapped in **Figure 1**.
- 3.47 Rivers and streams on-site are of importance to a number of species which would benefit from additional bankside planting, including:
- Invertebrates such as water bears, mayflies *Ephemeroptera* sp., caddisflies *Trichoptera* sp., blackflies *Bibio* sp. and molluscs rely on shallow fast flowing watercourses, whilst other species are dependent on bankside vegetation.
 - Fish, such as the brown trout known to be present in water courses on-site will benefit from the intermittent shading provided by tree planting.
 - Mammals, notably otter, water vole, badger and pine martin use riparian corridors both to forage and commute through the landscape, additional planting will strengthen these corridors and reduce habitat fragmentation.

Management

- 3.48 Management actions will include:
- The removal of all conifers within the riparian zone.
 - Supplementary tree planting within the riparian zone (reflective of the broadleaved native species to be planted within the woodland). 25% mature canopy cover should be targeted.
 - Implementation of regular conifer regeneration removal and scrub control.
 - Tree planting will allow for adjacent open areas to develop as a heath and grassland mosaic. If considered necessary, a rotational cutting regime will be planned and implemented to increase biodiversity in areas where species diversity is poor. Regeneration of conifer, non-native invasive species, and undesirable species (such as bramble) will be periodically controlled for the operational life of the wind farm.

Targets

- 3.49 The following indicators should be monitored to ensure the condition of the riparian corridor maintained:
- Retention of good water quality with clear water of low turbidity with no obvious signs of pollution.
 - Maintenance of sufficient water levels in line with baseline water table measurements.
 - Less than 10% cover of filamentous algae and/or duckweed (signs of eutrophication).
 - Where the bed material and flow allows, a range of submerged and floating plants are present.

- A fringe of marginal aquatic vegetation and trees (although no more than 10% of the watercourse length should be heavily shaded).
- Physical damage evident along less than 5% of the watercourse length. Damage may include excessive poaching, damage from machinery or storage and damaging management activities.
- Absence of non-native plant and animal species.

Feature 5: Fencing.***Current status***

- 3.50 Currently, perimeter fences are present throughout the site. These will be retained in line with the Proposed Varied Development. Additional fencing will be necessary surrounding woodland planting to protect saplings from browsing.

Rationale

- 3.51 Collisions with fences can be a significant source of mortality of woodland birds, notably black grouse. Consequently, the creation of new fencing must be minimised where possible and all existing fences require modifying to reduce avian collision rates. Any retained fences and new fences necessary to protect young trees from browsing deer should be well marked, making them visible to flying birds and consequently reducing collisions. Full guidance on methods to mark fences and marker spacing are provided in the forestry commission guidance note (Forestry Commission, 2012). In this case, diagonal chestnut (or soft wood) batons are considered appropriate. In more exposed areas the batons should be spaced 300 mm apart, with a spacing reduced to 600 mm in more sheltered areas.

Management

- 3.52 Management actions will be limited to the installation and maintenance of the fencing in line with Forestry Commission guidance (Forestry Commission, 2012).
- 3.53 Targets are not appropriate for fencing installation, except a requirement for maintenance. Should avian collisions continue, fencing design must be re-addressed.

4 Monitoring

Monitoring and HMP Review

- 4.1 The management prescriptions in this OHMP are intended to be flexible to allow adaptation in response to unanticipated conditions on the site such as that caused by adverse weather conditions. In addition, progress towards the habitat creation and enhancement targets should be monitored annually.
- 4.2 Monitoring will be undertaken to determine the effectiveness of the management and assess the need to alter management prescriptions. It will inform decisions such as the requirement for heathland cutting or seeding, when and how much conifer regeneration and encroaching scrub removal is needed, and whether remedial measures or a contingency plan is required.
- 4.3 Initial monitoring methods (for the first five years post-construction) will involve high-level survey to confirm establishment of broad habitat types and presence of undesirable species. Once the management areas have had time to establish to a desired condition, a more detailed NVC survey will be undertaken. The frequency of detailed survey over the duration of the OHMP will depend on the development of managed areas, and achievement of the OHMP objectives.
- 4.4 In general, monitoring will:
- Record the establishment and condition of heathland in managed areas.
 - Record failures of planted scrub and broadleaved woodland.
 - Assess the recovery of bog habitats through recording of sphagnum cover and presence of other indicator species.
 - Record the condition of restored peatland including peat integrity, hydrology (including recording of water depth using dip wells) and evidence of erosion.
- 4.5 Prior to the commencement of construction this OHMP will be finalised. The final HMP is based on a 40-year plan of habitat creation and enhancement activities, capable of being rolled forward on an annual basis. Monitoring will take place following habitat creation and the enhancement of habitat features. To keep the OHMP updated and relevant, a 5-year review will take place for the duration of the 40-year plan period. Each review will include a report commissioned by the Applicant (and/or and subsequent owner of the Proposed Varied Development), stating the condition of the habitats success for the management plan to date and likely remaining time to target condition. This will be an opportunity to report on the status of habitats and other ecological features, informed by the ongoing monitoring events. Allied with this, an annual review should be undertaken to enable a process of fine-tuning, allowing for the alteration or addition of new management activities to the work programme for subsequent years.

Responsibility for Implementation

- 4.6 The Applicant (and/or and subsequent owner of the Proposed Varied Development), will be responsible for the implementation of the areas of biodiversity enhancement shown in Figure 1. They will manage and maintain the area covered by this OHMP in accordance with the obligations set out in this OHMP and will be responsible for the ongoing management and monitoring. In addition, they will be responsible for the production of a finalised HMP and its review throughout the duration of the 40 years.

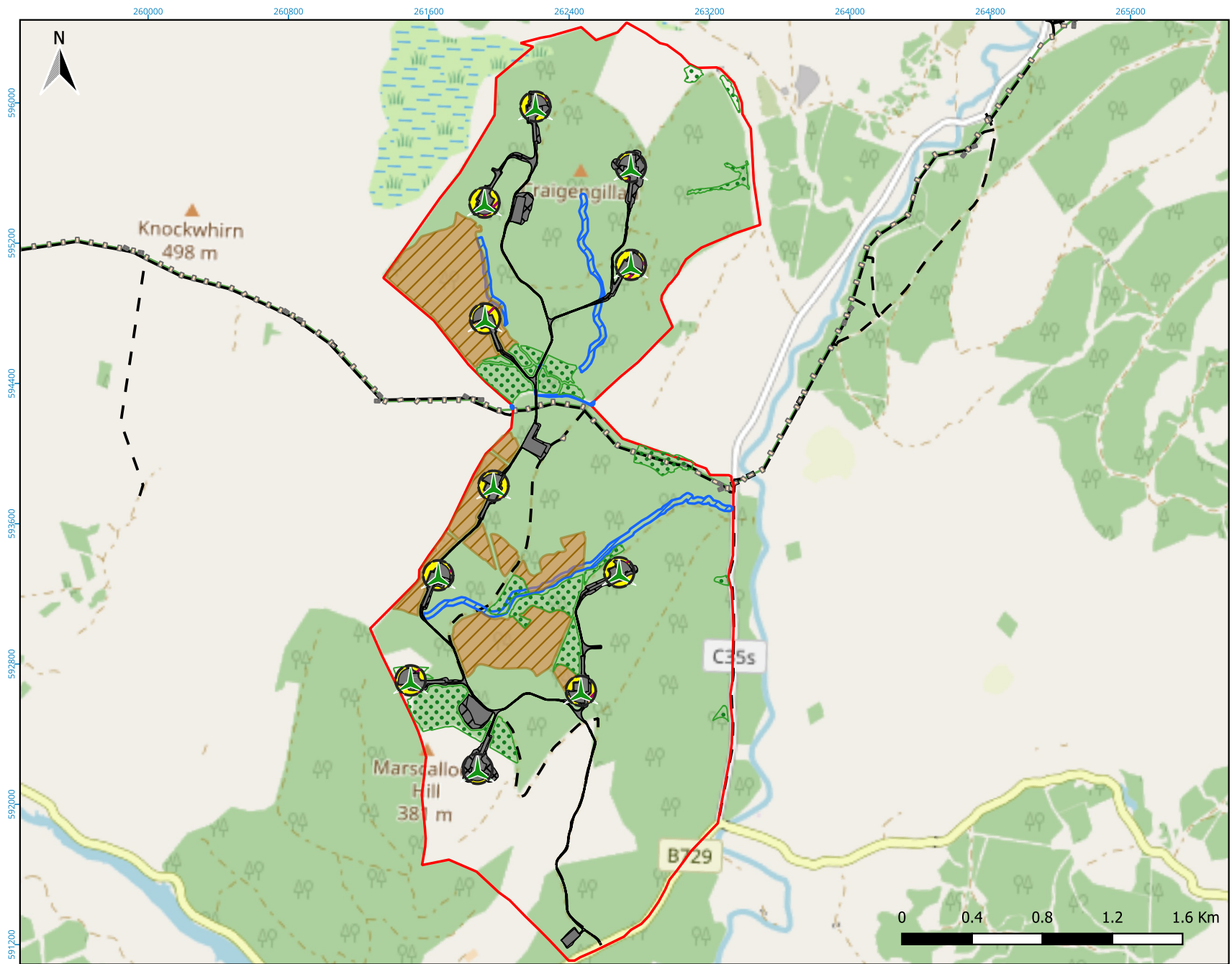
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6 Figures

Figure 1: Draft habitat management plan.

Figure 1: Habitat Management Plan



Legend:

Site boundary

Turbine

85m radius keyhole

Wind farm infrastructure

Proposed Lorg grid connection wayleave area

Proposed Lorg grid connection overhead line

Proposed Lorg grid connection access route

Habitat Enhancements:

Forest to bog restoration

Heath/grassland mosaic

Low density broadleaf planting

Open habitats on disturbed ground

Riparian corridor

Title:

Habitat Management Plan

Project:

Shepherds' Rig Wind Farm Section 36C

Source:

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13/05/2026

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1:31,000

Revision No.

1.2

BORALEX

BSG | ecology

Appendix A: Blanket Bog Condition Indicators

- 6.1 The following is in reference to Upland Management Group (2017) guidance. A peatland moving toward 'good' condition should have the following characteristics:
- The water table is high (within 10cm of the surface most of the year) and the surface peat feels wet throughout the year)
 - Limited areas of bare peat showing signs of continuing erosion;
 - A wide variety of bog species present – at least six of the following bog indicator species:
 - Heather *Calluna vulgaris*
 - Sundews *Drosera* sp.
 - Heaths *Erica* sp.
 - Crowberry *Empetrum nigrum*
 - Cotton grasses *Eriophorum* sp.
 - Bog asphodel *Narthecium ossifragum*
 - Non-crustose lichens
 - Feather mosses (Pleurocarpous mosses)
 - Reindeer moss (various *Cladonia* lichens)
 - Woolly hair moss *Racomitrium lanuginosu*
 - Cloudberry *Rubus chamaemorus*
 - Sphagnum sp.
 - Deer grass *Trichophorum cespitosum*
 - Bilberry, cranberry, cowberry; *Vaccinium* spp.
 - Vegetation types should be balanced at approximately 1/3 heather; 1/3 cotton grasses and at least 1/3 sphagnum with a range of other wetland species present. The more sphagnum the better; it should be ideally forming an understorey beneath the other species.
 - The presence of hummock forming sphagnum mosses (e.g. *S. papillosum*, *S. capillifolium* and *S. magellanicum*).
 - If burning or cutting management has taken place there should be no exposure of the peat surface or lasting ruts caused by vehicles.
 - The presence of small pools of open water formed by pooling where the water table is high.