



# Luggies Knowe Wind Energy

## Technical Appendix 6.4: Outline Biodiversity Enhancement Plan

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Client Name:	Shetland Aerogenerators Ltd
Client Contact:	David Thomson
Client Address:	david@burradale.co.uk
Document Status:	Final for Issue
Author:	D Black
Reviewed:	R King
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ITPEnergised Office:	4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh, EH3 5DQ

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# 1. Introduction

## 1.1 Background

ITPEnergised was appointed by Shetland Aerogenerators Ltd to produce an Outline Biodiversity Enhancement Plan (OBEP) for the proposed Luggies Knowe Wind Energy development (referred to as the 'Proposed Development' hereafter), which is located on an area of land approximately 1.2 km north of Gremista, Lerwick, Shetland (referred to as the 'Site' hereafter). The Site is located at central Ordnance Grid Reference HU 462 452 (see Drawing 1).

The Site is approximately 66 hectares (ha) in size and is positioned on the Gremista peninsula surrounded by coastline that makes up part of the East Mainland Coast Special Protection Area (SPA) with cliff heights of approximately 20 m. A base for decommissioning offshore installations and Doos' Cove both lie to the north-west of the Site, and to the south-east is an energy recovery plant. The Loch of Kebister can be found at the southwest corner of the Site, and to the north the Site is bound by an access road beyond which lies Kebister Ness, with Dales Voe to the west and the Bight of Vastland to the east.

The Site predominantly comprises blanket bog, dry and wet dwarf shrub heath, acid grassland and is interspersed by bog pools and runnels. The existing Luggie's Knowe operational turbine lies within the Site.

## 1.2 Proposed Development

The Proposed Development will comprise a wind turbine, additional to the operational turbine already present on the Site, and a Battery Energy Storage System (BESS).

## 1.3 Scope of this Document

The present document is an Outline Biodiversity Enhancement Plan (BEP) that will be further refined into a detailed BEP following grant of planning permission for the Proposed Development and in further consultation with Shetland Islands Council (SIC).

The overall purpose of the document is to identify positive land management measures that will be implemented for the benefit of nature conservation. The aim is to not merely compensate for adverse impacts that the Proposed Development may have on habitats and species of conservation interest but to deliver an overall gain in biodiversity in the years following construction of the Proposed Development.

This document should be read in conjunction with **EIAR Chapter 6: Ecology** and **EIAR Chapter 7: Ornithology** and their technical appendices. It should also be read in conjunction with **Chapter 11: Geology, Hydrology, Hydrogeology and Peat** that considers impacts on a range of features relevant to ecology, notably peat. In addition, **EIAR Technical Appendix 11.2: Outline Peat Management Plan (PMP)** includes measures relevant to the Outline BEP, notably methods on how peat will be excavated and reinstated within the Proposed Development.

The spatial scope of the Outline BEP comprises locations within the Proposed Development site and surrounding Study Area, as shown on **Drawing 2**.

## 1.4 Stakeholder Engagement

As summarised in **Table 6.1** of **EIAR Chapter 6: Ecology**, SIC advised that *'the Applicants should look to provide new benefits for wildlife within their development proposals in order to help reverse the decline in wildlife. The developer should consider how to ensure the development results in no net loss of biodiversity and, if possible, provide options for biodiversity net gain. This could include onsite or off-site peatland restoration. Any adverse effects should be avoided, minimised and/or compensated, and every opportunity should be taken to create improvements for biodiversity'*.

## 2. Policy and Guidance

### 2.1 Policy Framework

The following policies are those relevant to nature conservation and include those from National Planning Framework 4 (NPF4) (Scottish Government, 2023) (which replaced National Planning Framework 3 (Scottish Government, 2014a) and Scottish Planning Policy (Scottish Government, 2014b) in February 2023); Planning Advice Note 60: Planning for Natural Heritage (Scottish Government, 2000); and the Shetland Local Development Plan (SLDP, 2014).

#### 2.1.1 National Planning Framework 4

NPF4 outlines the duty of planning authorities to further the conservation of biodiversity as defined in the Nature Conservation (Scotland) Act 2004. It places climate and nature at the centre of the planning system and includes a cross-cutting outcome to improve biodiversity. Policy 1 (Tackling the climate and nature crisis) gives significant weight to the global climate and nature crises to ensure that they are recognised as a priority in all plans and decisions. Policy 3 (Biodiversity) plays a critical role in ensuring that development will secure positive effects for biodiversity. It rebalances the planning system in favour of conserving, restoring and enhancing biodiversity and promotes nature-based solutions, benefiting people and nature. This policy intends to protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks.

#### 2.1.2 Planning Advice Note (PAN) 60

National planning policy on landscape and natural heritage is supported by Planning Advice Note (PAN) 60 Planning for Natural Heritage, the key elements include:

- Taking a broader approach to landscape and natural heritage than just conserving designated or protected sites and species, taking into account ecosystems and natural processes.
- Facilitating positive landscape change whilst maintaining and enhancing distinctive character.
- Seeking benefits for species and habitats from new development including the restoration of degraded habitats.
- Siting and design of development should be informed by local landscape character.
- Encouraging connectivity between habitats, through green networks.
- Protecting internationally and nationally designated habitats and species.
- Protecting and enhancing woodland and trees of high nature conservation value.

#### 2.1.3 Shetland Local Development Plan (September 2014) (Shetland Council, 2014).

The Shetland Local Development Plan (SLDP) was adopted in September 2014 and sets out a '*Vision and Spatial Strategy for the development of land in the Shetland Islands over the next 10 - 20 years*'.

Relevant supplementary guidance includes:

- Local Landscape Area;
- Local Nature Conservation Sites; and
- Natural Heritage.

The LDP notes that development will be considered against the Council's obligation to further the conservation of biodiversity and the ecosystem services it delivers. The extent of these measures should be relevant and proportionate to the scale of the development. The following LDP policy related to biodiversity and key points have been considered throughout production of the OBEP.

- NH3 - Furthering the Conservation of Biodiversity

Key points of this policy are as follows:

- *'The development will have benefits of overriding public interest including those of a social or economic nature that outweigh the local, national or international contribution of the affected area in terms of habitat or populations of species; and*
- *Any harm or disturbance to the ecosystem services, continuity and integrity of the habitats or species is avoided, or reduced to acceptable levels by mitigation'.*

## 2.2 Biodiversity Priorities

### 2.2.1 Scottish Biodiversity List

Scottish Ministers created the Scottish Biodiversity List (SBL) (Scottish Government, 2013) in 2005 to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004 and assist public bodies in carrying out conservation of biodiversity, as well as to provide the general public with information regarding conservation within Scotland. The SBL comprises species and habitats listed using both scientific and social criteria. Only scientific criteria are considered relevant to this report. They include the following:

- All UK Priority Species present in Scotland;
- Species which Scotland has an international obligation to safeguard;
- All species defined as nationally rare at a UK level that are present in Scotland;
- Species with populations present (resident, wintering or breeding) in 5 or fewer 10km squares or sites in Scotland;
- All species that are endemic to Scotland;
- Any sub-species or race that is widely recognised and accepted by the scientific (or other relevant) community and that is endemic to Scotland, if it also meets one of the other criteria; and
- Natural and semi-natural habitats that are known to be particularly important for supporting assemblages of plant or animal groups that are data deficient, such as fungi, bryophytes, lichens, algae and invertebrates.

### 2.2.2 Local Biodiversity Action Plan

'Living Shetland' is the Local Biodiversity Action Plan (LBAP) produced by the Shetland Islands Council (Shetland Islands Council, 2018). The LBAP aims to:

- *'Translate national targets for habitats and species, as specified in the UK Biodiversity Action Plan, into effective action at the local level;*
- *Stimulate effective local working partnerships to ensure that programmes for biodiversity conservation are developed and maintained;*
- *Raise awareness of the need and responsibilities for biodiversity conservation and enhancement in the local context;*
- *Identify biodiversity resources and priorities in the local area;*
- *Identify targets for species and habitats important to the local area, including both the rare and the common, according to local circumstances;*
- *Ensure that delivery mechanisms for conservation and enhancement of biodiversity resources are promoted and understood at the local level; and*
- *Provide a local basis for monitoring progress in biodiversity conservation'.*

The LBAP contains the following Biodiversity Action Plans which are considered within this Outline BEP:

- Bumblebees; and
- Ungrazed Areas.

## 2.3 Guidance Documents

The following guidance documents were consulted in the production of this document:

- Developing with Nature Guidance: Guidance on securing positive effects for biodiversity from local development to support NPF4 policy 3(c) (NatureScot, 2023);
- Advising on Peatland, Carbon-Rich Soils and Priority Peatland Habitats in Development Management (NatureScot, 2023);
- Land Management Toolkit No. 7: Heath (Gwent Wildlife Trust, 2020a); and
- Land Management Toolkit No. 16: Blanket Bog (Gwent Wildlife Trust, 2020b).

# 3. Priority Features for Management Action

## 3.1 Overview

**EIAR Chapter 6: Ecology** describes the ecological baseline conditions on Site, both in terms of Phase 1 habitats (Joint Nature Conservation Committee, 2010), and their constituent National Vegetation Classification (NVC) communities (Rodwell, 1991 *et seq.*), as well as species interests. **EIAR Chapter 7: Ornithology** sets out the ornithological baseline.

A range of field studies have been undertaken at the Site from 2011 to 2021, as summarised in **EIAR Chapter 6: Ecology** and **EIAR Chapter 7: Ornithology**. Of particular relevance to the present document is the work presented within the following appendices:

- **Technical Appendix 6.1:** Gremista, Extended Phase 1 habitat survey and protected species survey;
- **Technical Appendix 6.2:** Luggie's Knowe NVC Survey;
- **Technical Appendix 6.3:** Luggie's Knowe Otter Survey; and
- **Technical Appendix 7.1:** Avian Baseline Conditions.

Baseline habitats are shown on **Figures 6.3 and 6.4 in Volume 2 of the EIAR** and are described in **EIAR Chapter 6: Ecology** and **Technical Appendices 6.1 and 6.2**.

The receptors which form the priorities for the Outline BEP have been determined through consideration of the relative importance of each receptor and the extent to which it may be affected by the Proposed Development as set out in **EIAR Chapter 6: Ecology** and **EIAR Chapter 7: Ornithology**. Taking the above into consideration, the aims and objectives of the Outline BEP relate to the following key features:

- Blanket bog

The areas of habitats that will be subject to protection and enhancement are shown on Drawing 2.

## 3.2 Blanket Bog

As described in **EIAR Chapter 6: Ecology** a total of approximately 83.56 ha of blanket mire is present within the Study Area and comprises NVC communities M18 and M19 blanket mire (including M3 and M2 bog pools). M18 and M19 align with the SBL priority habitat 'Blanket bog'. Of these, EIA Chapter 6 predicts a direct loss of 0.02 ha of M2 community, but this will in reality be avoided through the micro-siting allowance under direction by a dedicated Ecological Clerk of Works (ECOW).

A total of approximately 0.64 ha of blanket bog is expected to be permanently lost to the Proposed Development, while a further approximately 1.04 ha may be subject to degradation, totalling 1.68 ha.



### 3.2.1 M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire

Within the wide expanse of blanket mire on Site are scattered shallow depressions and channels, sometimes associated with bog pools and runnels, where the vegetation is clearly wetter. In these the cover of heather (*Calluna vulgaris*) is reduced though the presence of shrubs, notably crowberry (*Empetrum nigrum*), is constant and the cover of bog-mosses higher (and with more variety) than in the surrounding mire. This community aligns with M18 *Erica tetralix-Sphagnum papillosum* wet mire. The condition is favourable.

### 3.2.2 M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire

Virtually all of the blanket mire within the Site and wider landholding can be classed as M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire and this community covers the bulk of the moorland area, particularly on the higher ground.

Of the two sub-communities present, the M19a *Erica tetralix* sub-community is found in the flatter areas and is generally wetter, with frequent pools and runnels scattered patchily across it. In some areas, e.g. at the northward extent of M19a close to the existing turbine, hare's-tail cottongrass (*Eriophorum vaginatum*) is almost absent and replaced by common cottongrass (*Eriophorum angustifolium*) at high cover. The condition is favourable.

The M19b *Empetrum nigrum nigrum* sub-community is a dry blanket mire with a typically tussocky cover dominated by heather and the green leaves of hare's-tail cottongrass. It lacks the various hydrophilic species associated with M19a, such as cross-leaved heath (*Erica tetralix*), and it contains fewer bog-mosses, although other mosses are abundant. Again, the condition is favourable. However, a flat area of M19b just north of the Loch of Kebister still has a higher inclusion of acid grassland species and herbs growing through, including Yorkshire-fog (*Holcus lanatus*), heath wood-rush (*Luzula multiflora*), common bent (*Agrostis capillaris*), sweet vernal-grass (*Anthoxanthum odoratum*), spreading meadow-grass (*Poa humilis*), green-ribbed sedge (*Carex binervis*), tormentil (*Potentilla erecta*) and heath bedstraw (*Galium saxatile*).

## 4. Outline Biodiversity Enhancement Plan

### 4.1 Scope of Biodiversity Enhancement Measures

The purpose of the OBEP is to detail enhancements of ecological interests within the Site and wider ownership boundary and how these will be achieved, in accordance with NPF4 (Scottish Government, 2023) and Local Development Plan policy EP2 Biodiversity, Shetland Local Development Plan (SIC, 2014). Cognisance is also made of the recently published NS guidance note relating to the assessment of effects of any development proposals on peatland, carbon-rich soils and priority peatland habitat (NS, June 2023). The OBEP is to inform detailed site design, construction and restoration methodologies, and to produce a detailed BEP. The measures are to include the following aims:

- To restore, enhance and manage localised areas of blanket bog habitats that show signs of degradation and erosion surrounding the Proposed Development, through local slope reprofiling, seeding, damming and use of turves;
- To convert areas of acid grassland including U6 *Juncus squarrosus* – *Festuca ovina* grassland to blanket bog through the exclusion/reduced levels of grazing and seeding; and
- Installation of wildlife friendly features to support locally important species.

### 4.2 Duration of Plan

The OBEP (to be superseded by the detailed BEP once finalised) will be in place for the duration of the operation of the Proposed Development (although some of these measures will commence during the construction period).



### 4.3 Enhancement Plan Implementation Responsibility

The delivery of this OBEP and subsequent detailed BEP will be the responsibility of Shetland Aerogenerators.

A Biodiversity Enhancement Plan Group (BEP Group) will be established to comment and advise on the BEP and to oversee its implementation. The BEP Group would likely include representatives from the following key stakeholders, to be agreed with SIC:

- Shetland Aerogenerators Ltd (the Applicant);
- Landowner;
- Project ecologist ad/or ECoW (the Applicant's representative);
- Principal Contractor;
- SIC;
- NatureScot; and
- SEPA.

The BEP Group will review the OBEP and provide input to the development of the full BEP. During the construction phase and operation of the development, the BEP Group will provide ongoing input to BEP objectives and management prescriptions, review monitoring results, and advise on adaptations to management prescriptions as appropriate. This is outlined further in the following sections.

### 4.4 Review and Monitoring

This OBEP has been based on the guidance given by NS in their publication Planning for development: what to consider and include in Habitat Management Plans (SNH, 2016). This guidance states that the HMP should “incorporate flexibility and be subject to periodic review. This will ensure that works/actions can be altered in response to monitoring results over time, evolving guidance or unexpected events. Any alterations would be subject to approval of the HMP steering group.”

In situations when habitat management activities are implemented in spite of uncertainties about their effects, monitoring is the process undertaken to measure and evaluate the effects of the management, and the results are used to inform future management decisions (Elzinga *et al.*, 2001). This therefore requires periodic and appropriately timed monitoring to form an important part of the approach to the HMP in order to enable the success of the management tasks to be determined and to identify opportunities to further develop and/or improve enhancement measures and align with the HMP objectives.

Monitoring objectives are outlined for each conservation feature in the sections below. Each monitoring objective will be cost effective and ‘SMART’:

**S** – Specifically address the feature;

**M** – Measurable, i.e. quantified (for example, in terms of definitive numbers of individuals or proportionate growth of a population);

**A** – Achievable;

**R** – Relevant, and in compliance with, the overarching HMP aims (which encompass legal, policy and best practice requirements); and

**T** – Time-based to ensure that success rates or alternatively remedial actions can be ascertained.

Monitoring results will be systematically reported to the BEP Group on a pre-agreed schedule. Reporting of monitoring results and the review of management prescriptions will be undertaken by suitably qualified and experienced ecologists. The BEP Group will be responsible for reviewing the results of the monitoring studies and agreeing any changes in management prescriptions, if considered necessary.

## 4.5 Protection of Existing Ecological Features

To protect habitats that are to be retained and enhanced adjacent to the construction area the following working measures should apply during the construction phase.

The Proposed Development layout, including access track routes, will be marked on an Access Plan and will be demarcated on the ground by temporary fencing. Off-road tracking of heavy plant will not be permitted outside the demarcated area.

The following rules will apply to the Access Plan:

- There will be no vehicle access to areas of the site outside the area marked on the Access Plan (the Development layout marked on the plan);
- There will be no stopping of vehicles outside the area marked on the Access Plan;
- Servicing or refuelling activities will only take place within clearly designated areas within the Access Plan, identified in the Construction Environmental Management Plan (CEMP); and
- Laydown of materials (either construction materials or waste materials) will take place only within designated areas within the Access Plan. There will be no laydown, unless identified in the construction drawings, of any type of materials either within the access route corridors or anywhere outside of designated areas.

Access routes and working areas will be clearly delimited throughout the construction phase to ensure that habitat damage in areas not directly involved in the works are avoided.

## 4.6 Restoration and Enhancement Recommendations

This section details the measures to protect and enhance retained areas of blanket bog and conversion of acid grassland to blanket bog on Site and within the wider landholding. Any requirements for mitigation measures for species and other habitats are detailed within **EIAR Chapter 6: Ecology** and **EIAR Chapter 7: Ornithology** and their associated Technical Appendices and will not be detailed within this report. A separate Outline PMP has been produced and should be read in conjunction with this document (**EIAR Technical Appendix 11.2**).

### 4.6.1 Blanket bog

The Proposed Development Site is dominated by blanket bog with a combined area of 43.65ha within the Site boundary and 81.94 ha within the Study Area. Apart from a permanent loss of approximately 0.64ha of blanket bog (and the potential modification of a further approximately 1.04ha), the blanket mire will be safeguarded during the operational life of the Proposed Development, with maintenance of the hydrology of the peatland being key to maintaining the structure and quality of the vegetation and for maintaining suitable conditions for peat forming species such as bog-mosses. This habitat will be further restored and enhanced within the HMA through a number of measures as described in Table 1, which will not only affect those areas directly restored but up to a 30 m buffer surrounding this as well. Species which rely on this habitat will also benefit from the expansion in the area of blanket bog on site.

During baseline surveys, areas of blanket bog within the Site were noted to be in favourable condition (**EIAR Technical Appendix 6.2**). However, locations with degraded peat have been identified within the lower parts of the site and within proximity as well as away from proposed infrastructure. The types of degradation vary, but most commonly occur as a result of over grazing. As described below, restoration management will focus on several of these areas within the Site in order to compensate for the loss or modification of blanket bog within the Site and provide significant biodiversity enhancement. The area denoted Habitat Management Area (HMA) is presented in **Drawing 2**.

As part of the development of the detailed BEP, the HMA will be further ground-truthed and specific details of the extent and grades of peat erosion will be categorised.

#### 4.6.2 Acid grassland

The Proposed Development Site has an area of U6 acid grassland of 3.72 ha within the Site boundary and 10.77 ha within the Study Area. A permanent loss of approximately 0.01 ha of U6 grassland (and the potential modification of a further 0.08ha) is predicted, resulting from the Proposed Development. Although a SBL watching brief habitat, the remaining U6 grassland on deep peat could potentially be converted into blanket bog, an SBL priority habitat. The measures used to do this are described in Table 2. This will in the longer term expand the area of blanket bog within the Site and therefore increase the expanse of priority habitat to more than it is currently.

During baseline surveys, areas of acid grassland (U6) within the Study area were noted to be in favourable condition. However, according to the peat depth survey, areas of this habitat are located within deeper peat (i.e., > 50 cm deep peaty substrate) and there is much sphagnum moss present within this grassland, particularly within the U6 community at the bottom of the eastern slopes. This is an indication that this community has replaced some sort of bog or wet heath due to heavy grazing by sheep. As described below, restoration management will focus on several of these areas within the Site and surrounding Study Area in order to compensate for the loss or modification of blanket bog within the Site and provide significant biodiversity enhancement. The area denoted HMA is presented in Drawing 2.

As part of the development of the detailed BEP, the HMA will be further ground-truthed and specific details of the extent of suitable acid grassland will be determined.

#### 4.6.3 Habitat Management Area

The Habitat Management Area measures approximately 92.71 ha and is located within the Study Area (156.37ha) for the Proposed Development. It combines M18 and M19 communities and U6 acid grassland where it is found on areas of deeper peat (up to 1.45 m). Areas of blanket bog within the Study Area were noted during the peat probing surveys as being eroded and forming peat hags which could be restored. U6 acid grassland on deep peat (>0.5 m) with much sphagnum mosses are an indication that the community was once bog and could therefore be restored to such.

Broad principles for the restoration management are provided below but will largely follow the IUCN guidelines as detailed in “Conserving Bogs: The Management Handbook” (Thom *et al.*, 2019). A detailed specification for the works, tailored to the specific conditions within individual management areas, will be agreed with the BEP Group following grant of the application for the Proposed Development.

In NatureScot (2023) guidance on assessing impact on priority peatland habitat the guidance suggests that ten times the lost area needs to be restored to compensate for the loss (i.e., as mitigation), then another 10% for enhancement. The total area of blanket bog to be lost during construction (including direct loss plus potentially indirect degradation) amounts to 1.68 ha. Therefore, the NS guidance would suggest that it is appropriate to restore 16.8 ha of blanket bog habitat to provide compensation for the loss, plus 0.168 ha to provide suitable enhancement. The restoration/enhancement area within the Habitat Management Area is 92.71 ha which is more than 55 times the area of blanket bog (priority peatland habitat) to be lost. However, not all of the habitat within the HMA is suitable for restoration and enhancement. As part of the development of the detailed BEP, the HMA will be further ground-truthed and specific details of the extent and grades of peat erosion will be categorised along with the extent of suitable acid grassland habitat. Nonetheless, it is reasonable to consider that the extent of the identified HMA and the proposed restoration and enhancement methods are suitable for providing restoration and enhancement of priority peatland habitat in line with the NS guidance and in accordance with NPF4 Policy 3.

It must also be noted that the Proposed Development comprises construction of a single wind turbine and BESS, within the site area of a two-turbine wind energy development which benefits from an extant planning permission.

#### 4.6.4 Management Prescriptions within the HMA

Enhancement of the HMA will focus on stabilising bare peat, including exposed hag faces, and stemming water flow from within the peat macrotope. This will be achieved through a variety of measures, which will be agreed with the BEP Group, but which are likely to include the following measures as outlined in Table 1:

**Table 1: Management Prescriptions within the HMA**

<b>Location</b>	Areas of blanket bog within the Site and wider landholding (see Drawing 2).
<b>Timing</b>	During and post construction.
<b>Constraints</b>	Breeding birds
<b>Management prescriptions</b>	<p>Bare peat in flat or gently sloping (&lt;35°) areas:</p> <ul style="list-style-type: none"> <li>• Use of geotextiles to stabilise the surface, where seeding is considered unlikely to achieve this on its own.</li> <li>• Seeding with blanket mire species of regional genetic provenance. The potential need for a nurse crop will be agreed with the BEP Group after grant of planning permission.</li> <li>• Localised exclusion of sheep through fencing until the habitat is considered to have recovered sufficiently to tolerate impacts from sheep.</li> </ul> <p>Hags:</p> <ul style="list-style-type: none"> <li>• Re-profiling to reduce slopes to &lt;35° using low ground pressure diggers, with excavated material placed at the bottom of the slope.</li> <li>• Seeding and/or surface stabilisation with geotextiles of bare peat surfaces similar to the approach for bare peat above.</li> <li>• Localised exclusion of sheep through fencing until the habitat is considered to have recovered sufficiently to tolerate impacts from sheep.</li> </ul> <p>Gullies and ditches:</p> <ul style="list-style-type: none"> <li>• Use of dams (where appropriate) to block gullies and ditches where practicable (i.e., approaches taken are dependent on width and depth as well as the nature of the erosion, such as whether the mineral layer is exposed).</li> <li>• Re-profiling to reduce slopes to &lt;35° using low ground pressure diggers, with excavated material placed at the bottom of the slope.</li> <li>• Seeding and/or surface stabilisation with geotextiles of bare peat surfaces similar to the approach for bare peat above.</li> <li>• Localised exclusion of sheep through fencing until the habitat is considered to have recovered sufficiently to tolerate impacts from sheep.</li> </ul> <p>The habitat management prescriptions will be described in more detail as part of the iterative process of the full BEP being formally agreed with the BEP Group.</p>
<b>Restoration</b>	<ul style="list-style-type: none"> <li>• Excavated peat and turves will be used to re-instate disturbed blanket bog and areas of deep peat, as described in the Outline PMP (<b>EIAR Technical Appendix 11.2</b>).</li> <li>• The contractor will programme restoration to avoid back-tracking over habitat and peat restoration areas.</li> <li>• Tree planting, grazing and muirburn shall be prohibited from restoration areas; as will be the application of treatments that would alter soil acidity.</li> </ul>
<b>Enhancement Measures</b>	<ul style="list-style-type: none"> <li>• Scrub and bracken control.</li> <li>• Modification of grazing regime using temporary fencing as required.</li> </ul>
<b>Monitoring</b>	The objective of the monitoring will be to determine the effectiveness of the management and assess the need to alter management prescriptions, e.g. mechanical

<b>Monitoring</b>	<p>control of undesirable species, such as tall rushes, stabilisation of still eroding areas with geotextiles, or the need for seeding to assist revegetation.</p> <p>During the first five years of operation of the Proposed Development, vegetation monitoring will consist of simple, assessments, which will be undertaken on a regular basis. This will include recording the percentage cover of indicator species, such as Sphagnum mosses, from within fixed quadrats. This will provide information on the nature of change, including vegetation establishment and development, as well as any ongoing problems of erosion.</p> <p>This in turn will inform the prescribed management approach such that methods can be altered quickly, if necessary. After year five, the need for continued monitoring will be evaluated in consultation with the BEP Group and a subsequent monitoring schedule agreed accordingly.</p>
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#### 4.6.5 Acid grassland

Enhancement of the HMA will focus on removing/reducing grazing pressure and seeding with bog mosses in areas of U6 acid grassland on deep peat (>0.5m). This will be achieved through a variety of measures, which will be agreed with the BEP Group, but which are likely to include the following measures as outlined in Table 2:

**Table 2: Proposed Protection and Enhancement Measures for Dry Heath**

<b>Location</b>	Areas of retained dry heath within the Site and wider landholding. See Drawing 2.
<b>Timing</b>	During and post construction.
<b>Constraints</b>	Breeding birds.
<b>Management prescriptions</b>	<ul style="list-style-type: none"> <li>Seeding areas of U6 acid grassland with bog species of regional genetic provenance will enhance their biodiversity. The potential need for a nurse crop will be agreed with the BEP Group after grant of planning permission.</li> <li>Localised exclusion of sheep through fencing until the habitat is considered to have established sufficiently to tolerate impacts from sheep.</li> </ul>
<b>Restoration</b>	<ul style="list-style-type: none"> <li>Tree planting, grazing and muirburn shall be prohibited from restoration areas; as will be the application of any treatments that would alter soil acidity.</li> </ul>
<b>Enhancement Measures</b>	<ul style="list-style-type: none"> <li>Scrub and bracken control.</li> <li>Modification of grazing regime using temporary fencing.</li> </ul>
<b>Monitoring</b>	<p>The objective of the monitoring will be to determine the effectiveness of the management and assess the need to alter management prescriptions, e.g. mechanical control of undesirable species, such as tall rushes, grazing management or the need for seeding to assist revegetation.</p> <p>During the first five years of operation of the Proposed Development, vegetation monitoring will consist of simple, assessments, which will be undertaken on a regular basis. This will include recording the percentage cover of indicator species, such as Sphagnum mosses, from within fixed quadrats.</p> <p>This will provide information on the nature of change, including vegetation establishment and development, as well as any ongoing problems of erosion. This in turn will inform the prescribed management approach such that methods can be altered quickly, if necessary. After year five, the need for continued monitoring will be evaluated in consultation with the BEP Group and a subsequent monitoring schedule agreed accordingly.</p>

## 4.7 Additional Biodiversity Enhancement

### 4.7.1 Control of Scrub

Scrub can be a valuable habitat in itself and should only be controlled where it is encroaching on a habitat of higher ecological value such as blanket bog and heath.

Scrub clearance if required should be completed outwith the breeding bird season (e.g., carried out between September and February).

Cut plants at the base and remove from the site. For small areas of scrub, hand tools such as saws and axes should be used. For larger areas, brush cutters may be more suitable. Use of large machinery should be avoided due to risk of damaging habitats.

Treat cut stumps with a suitable herbicide.

### 4.7.2 Temporary fencing

The LBAP Habitat Action Plan 'Ungrazed Areas' (Shetland Islands Council, 2023) notes that ungrazed areas can support locally important hawkweeds and provide an important habitat for invertebrates and bird species. Temporary fencing is to be installed as required to prevent grazing animals accessing restored habitat areas, and in any additional areas identified by the ECoW where reducing grazing pressure is likely to result in an increase in biodiversity.

### 4.7.3 Other Wildlife Friendly Features

SIC has a Biodiversity Action Plan for bumblebees produced by the Shetland Amenity Trust (no date) which notes that there are four species of bumblebee known to occur in Shetland. These are:

- Northern white-tailed bumblebee (*Bombus magnus*) - common to gardens and crofting land;
- Small heath bumblebee (*Bombus jonellus*) - the subspecies 'vogti' is endemic to Shetland. It is a scarce species and closely associated with heather moorland;
- 'Shetland' bumblebee (*Bombus muscorum*) - a common bumblebee found in a variety to habitats; and
- Garden bumblebee (*Bombus hortorum*) - scarce in Shetland, commonly found around gardens and crops.

Habitats within the Site and wider landholding will support bumblebees and a variety of other invertebrate species. It is recommended that 'bug hotels', comprising wooden frames or pallets securely stacked on top of each other and their voids filled with a variety of materials, are installed within the Site. The bug hotels will support tunnel nesting insects including solitary bees, hunting wasps and large number of invertebrate species which will use the features for shelter and hibernation. Further details on the construction of these features are included within the NatureScot 'Developing with Nature' guidance (NatureScot, 2023). The design, number and location of the bug hotels is to be included within the detailed BEP.

## 4.8 Comparison with the Extant Planning Permission

The restoration and enhancement measures proposed in this BEP align with NatureScot guidance in that the amount of peatland habitat to be restored is ten times the area to be lost plus 10% for enhancement i.e. the area of blanket bog expected to be directly lost due to the Proposed Development is 1.64 ha (both directly and indirectly) with the goal of the BEP to restore and enhance approximately 18 ha. This restoration will aim to connect up the areas of degraded mire by filling in the boundaries, drains and hags that separate a single contiguous area of active peat and create additional blanket bog from areas of acid grassland on deeper peat, thereby not only restoring and enhancing but enlarging the area of priority habitat.

The Proposed Development will also add additional biodiversity enhancement through the use of temporary fencing for reduced grazing, scrub and bracken control and bug hotels to support bumblebees and a variety of other invertebrates.



The extant planning permission, if enacted, would result in a direct loss of 0.25 ha of wet modified bog with further indirect losses and no committed restoration measures or enhancement (noting that the planning permission was granted within a different policy framework).

Therefore, the Proposed Development would result in positive biodiversity enhancement, whereas that which was previously proposed in comparison, and for which planning permission is in place, would result in a biodiversity loss.



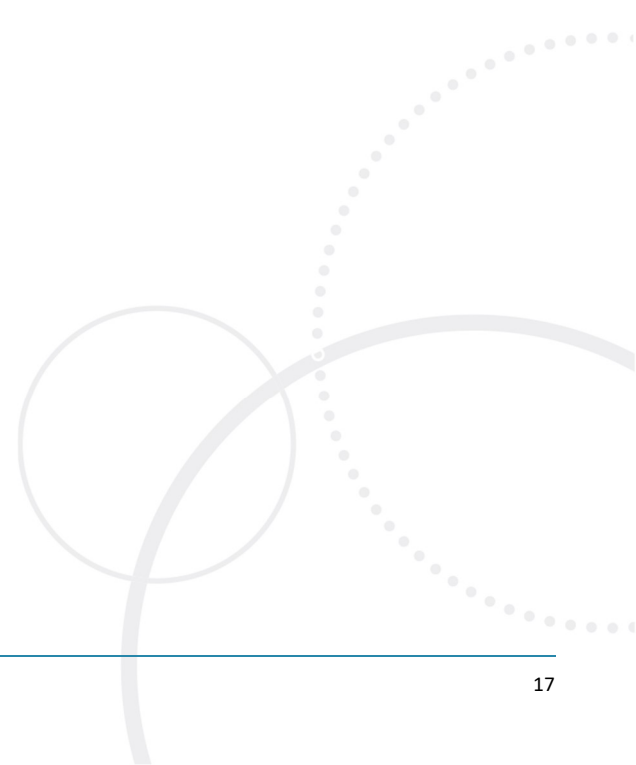
## 5. References

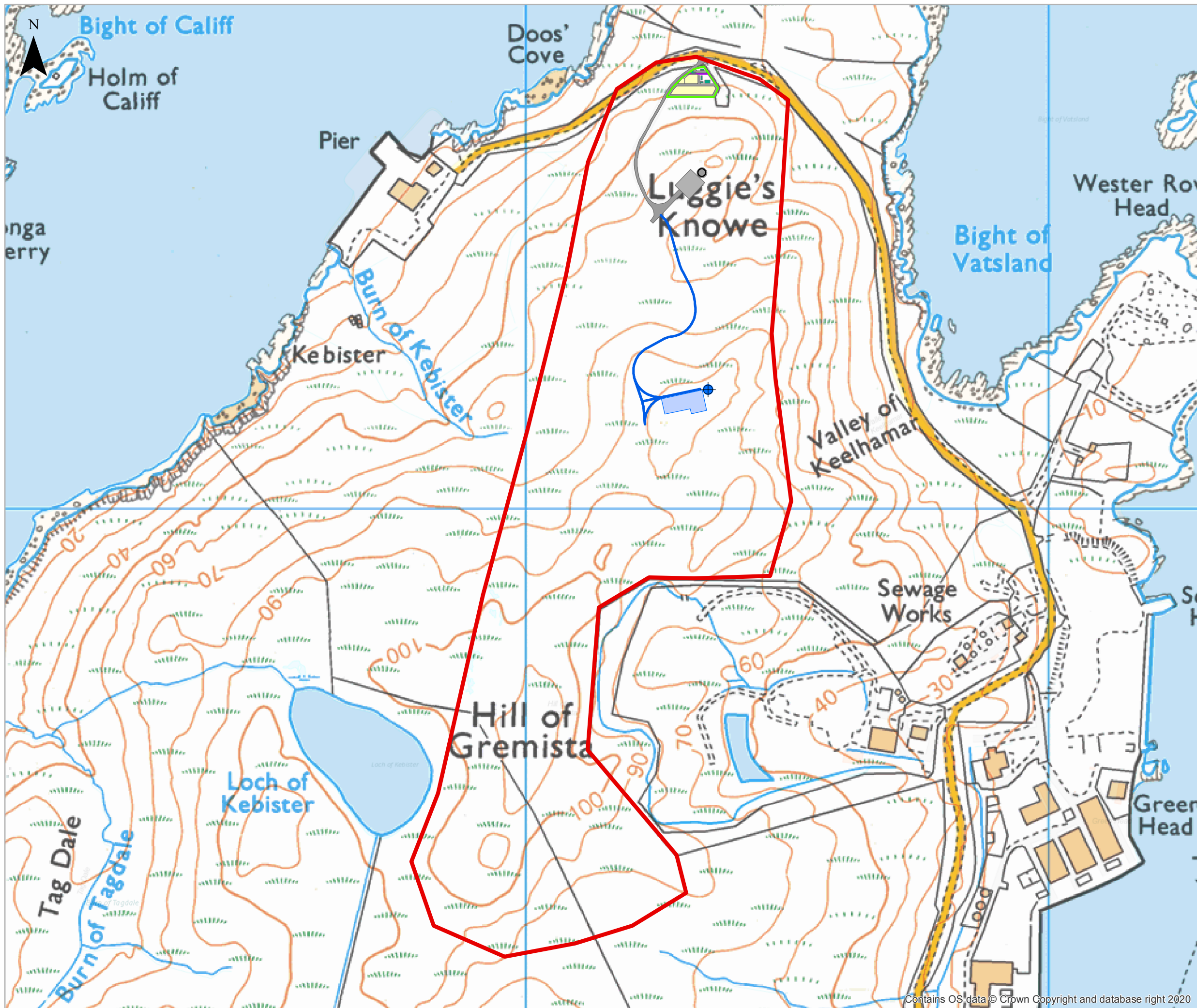
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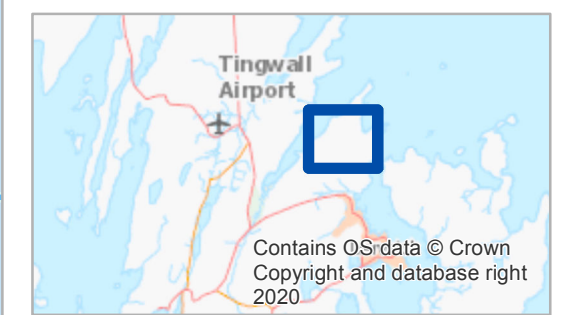
# Drawings

## Drawing 1: Site Location



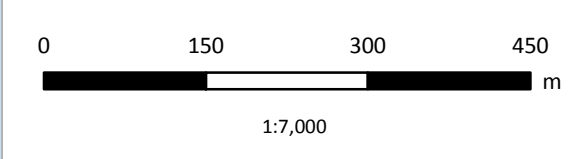


- KEY**
- Site Boundary
  - + Proposed Turbine
  - Proposed Hardstanding
  - Proposed Access Track
  - Proposed Battery Storage Location
  - Substation and Switchgear
  - Battery Storage Tracks
  - Battery Storage Area
  - Battery Storage Fence
  - Operational Turbine
  - Operational Hardstanding & Access Track



Coordinate System: British National Grid  
 Projection: Transverse Mercator

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**Drawing 1**  
**Site Location & Layout**

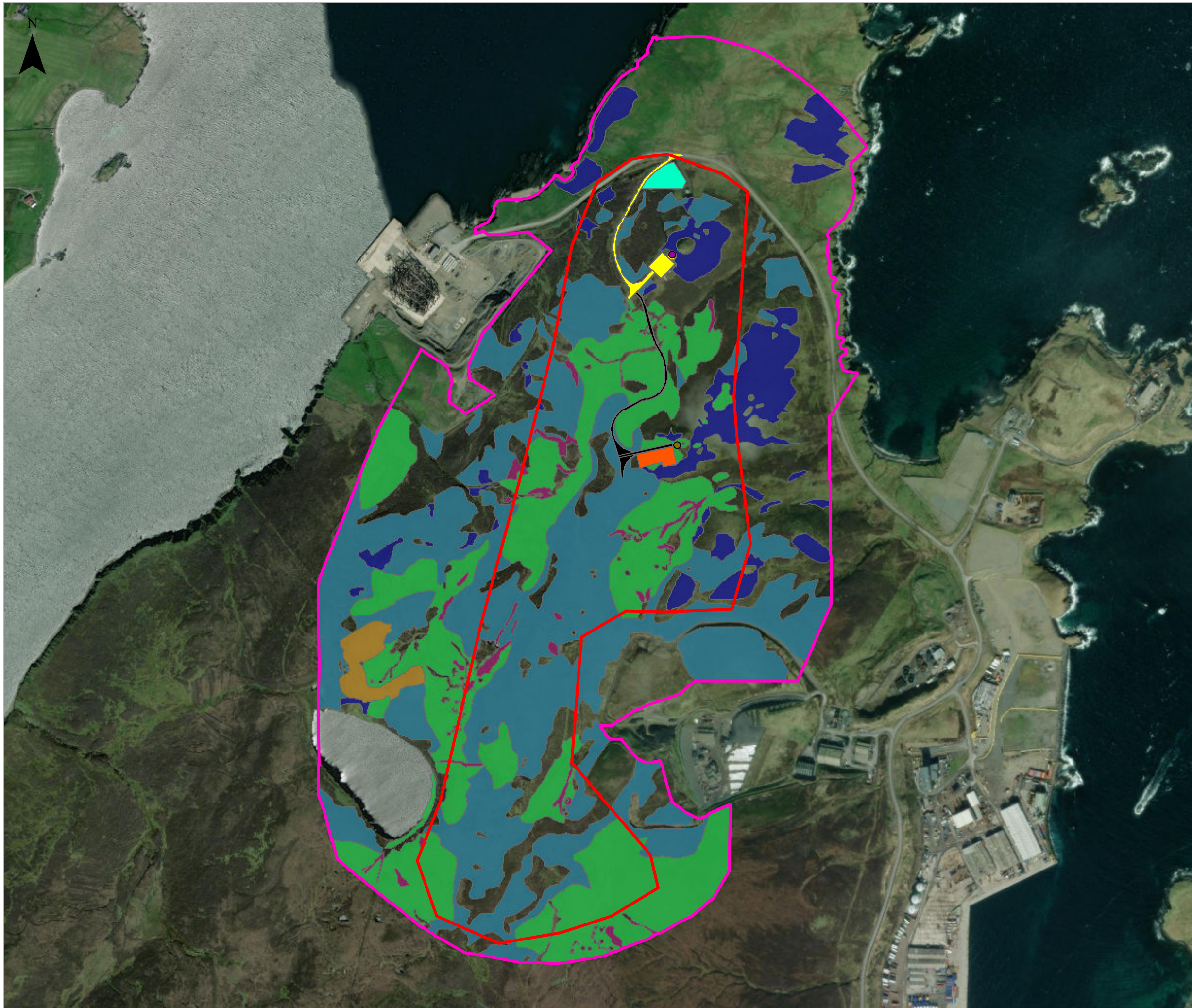
Date: 15/09/2023	Lead: HL	Review: DB	Version: V1
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## Drawing 2: Blanket Bog and Acid Grassland Areas



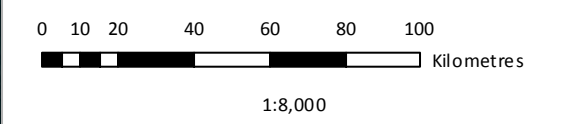


- KEY**
- Site boundary
  - 250 m buffer
  - Operational turbine
  - Operation access track and hardstanding
  - Proposed laydown
  - Proposed access track and hardstanding
  - Proposed track
  - Proposed turbine
  - Proposed battery storage location
- NVC code - Habitat Management Area**
- M18 - *Erica tetralix* - *Sphagnum papillosum* wet mire
  - M19a - *Calluna vulgaris* - *Vaccinium myrtillus* heath
  - M19b - *Calluna vulgaris* - *Eriophorum vaginatum* blanket mire
  - M19b - *Calluna vulgaris* - *Eriophorum vaginatum* blanket mire - acid grasses
  - U6 - *Juncus squarrosus* - *Festuca ovina* grassland



Coordinate System: British National Grid  
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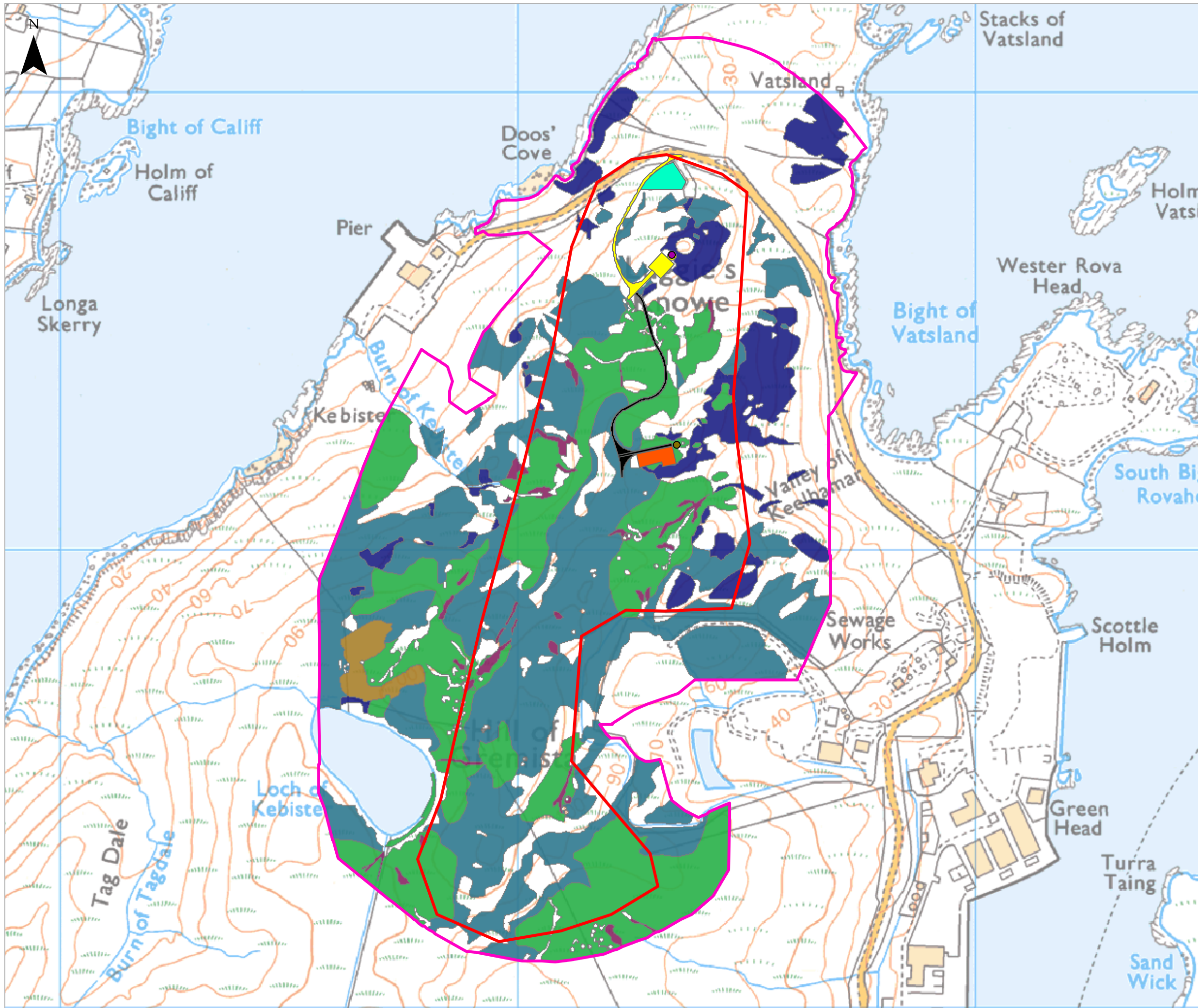
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**Drawing 2:  
 Blanket bog and acid grassland**

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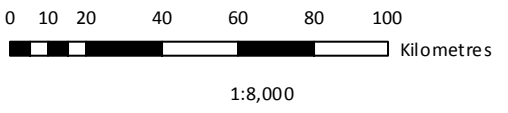


- KEY**
- Site boundary
  - 250 m buffer
  - Operational turbine
  - Operation access track and hardstanding
  - Proposed laydown
  - Proposed access track and hardstanding
  - Proposed track
  - Proposed turbine
  - Proposed battery storage location
- NVC code - Habitat Management Area**
- M18 - Erica tetralix - Sphagnum papillosum wet mire
  - M19a - Calluna vulgaris - Vaccinium myrtillus heath
  - M19b - Calluna vulgaris - Eriophorum vaginatum blanket mire
  - M19b - Calluna vulgaris - Eriophorum vaginatum blanket mire - acid grasses
  - U6 - Juncus squarrosus - Festuca ovina grassland



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**Drawing 2:  
 Blanket bog and acid grassland**

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