

## 8. Technical Appendix 8.10: Outline Habitat Management Plan

### 8.1 Introduction

8.1.1 This outline Habitat Management Plan (oHMP) forms a Technical Appendix to the proposed Achany Extension Wind Farm Environmental Impact Assessment (EIA) Report, **Chapter 8: Ecology**. The oHMP outlines the rationale and proposed implementation strategy for the delivery of on- and off-site habitat restoration within the Glencassley Estate, sufficient to offset predicted significant impacts and provide additional enhancement.

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

#### Rationale

8.1.3 During the development phase of the Proposed Development, the Applicant has minimised any potential ecological impacts; firstly, by designing the wind farm to avoid or limit ecological impacts wherever practicable (see **Chapter 2: Site Selection and Design Evolution**), and secondly, by undertaking to employ industry best environmental-practice during wind farm construction and operation (see Table 8.9, **Chapter 8: Ecology**; and **(Technical Appendix 3.1: Construction and Environmental Management Plan (CEMP))**).

8.1.4 Within the EIA Report assessment in **Chapter 8: Ecology**, it is predicted that 7.04 hectares (Ha) of blanket bog habitat would be permanently lost, 15.71 Ha temporarily lost during construction, and an additional 18.52 Ha indirectly affected and altered during the lifespan of the Proposed Development, which combined (and prior to implementation of further mitigation and enhancement measures), is considered to have a significant effect on the conservation status of blanket mire communities. The following document outlines criteria for identifying and delivering compensatory blanket bog habitat restoration measures both on and off-site in order to minimise effects to non-significant levels. The aim would be to contribute a greater area than that which is predicted to be affected by the Proposed Development, providing additional enhancement to the surrounding landscape including improved connectivity for interest features of the nearby Caithness & Sutherland Peatlands Special Area of Conservation (SAC).

8.1.1 Peat management and reinstatement during and following construction are detailed separately in the outline CEMP (**Technical Appendix 3.1**) and Peat Management Plan (PMP) (**Technical Appendix 11.3**).

### 8.2 Existing Conditions

8.2.1 A Study Area and Baseline Conditions plan is presented in Figure 8.10.1.

8.2.2 The identification of candidate management units and determination of likely habitat types outside the Site boundary and the suitability for restoration has been informed by the following:

- Aerial imagery and Ordnance survey (OS);

- Remote-sensed high resolution habitat maps<sup>1</sup> (focussing on blanket bog and temperate shrub heathland);
- Presence of designated sites;
- Land ownership boundaries;
- Forestry planting areas;
- Detailed discussions with the Glencassley Estate gamekeeper regarding the wider landholding and presence of degraded/modified habitats and historic drainage; and
- Peatland condition features (including historical drainage, peat hags and mapped areas of 'Modified/Drained/Actively Eroding' habitat based on the Peatland Condition Assessment (See **Technical Appendix 8.2: NVC Survey Report**)).

- 8.2.3 A large proportion of the blanket bog within the Site boundary and the wider Glencassley Estate is considered to be modified through grazing and possibly other historic management practices such as burning. Some of the blanket bog (particularly degraded areas of M17b and M3) was also considered likely to be actively eroding (hagg/gully systems with extensive continuous bare peat surfaces) and drained from erosion features. Active erosion was most common in the centre of the Site (See Figure 8.2.3, **Technical Appendix 8.2A: NVC Survey Report**), where erosion features could be large (up to ca. 2m in height) and extensive. Smaller erosion features (ca. 0.5m in height) and micro erosion was common within the vegetation. The Site conditions in these areas are favourable for the active restoration of peatland habitats and are considered likely to regenerate naturally, following active measures to reduce peat erosion (See Section 8.4.6).
- 8.2.4 Large parts of the Glencassley Estate, which is within the River Cassley catchment, have been historically managed by draining wet heath/ blanket bog areas through the use of moorland gripping, which was particularly widespread in the British uplands in the 1950s to the mid-1980s. These practices are likely to have had historical detrimental effects on upland habitats, carbon sequestration and downstream hydrology. The implementation of restoration proposals within these areas would therefore be likely to result in downstream ecological benefits resulting from decreased erosion and runoff into the on-site watercourses and subsequently the River Cassley, part of the River Oykel SAC.
- 8.2.5 Existing conditions in the Study Area are also influenced by deer and it is part of the East Sub-Group of the West Sutherland Deer Management Group (WSDMG), who have produced a strategic working plan, the East Sub-Group Deer Management Plan (ESG DMP). Within the ESG DMP, management objectives amongst others are to have a red deer population to sustain a viable sporting cull and maintain designated sites and wider habitat in favourable condition. Habitat monitoring is also undertaken on the two main habitat types (blanket bog and dwarf shrub heath) to help to ensure sustainable deer management and monitor whether land use objectives are being met. Further details are provided in **Technical Appendix 8.9: Deer Management Plan (DMP)**.

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<sup>1</sup> <https://www.space-intelligence.com/scotland-landcover/>

### 8.3 Objectives of the Outline Habitat Management Plan

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

- Within five years of commissioning of the windfarm, to restore and enhance a blanket bog habitat within the candidate management units. This will increase the quality and extent of blanket bog and compensate for habitat loss incurred as a result of the Proposed Development;
- Management works in these Units will provide foraging conditions for golden plover, greenshank and dunlin, by increasing the extent of wetter habitat through drain blocking; and
- Work in conjunction with the Deer Management Plan (DMP) provided as **Technical Appendix 8.9** to reduce deer grazing pressure during the establishment of recovering habitats and improve the quality of blanket bog in the Study Area.

### 8.4 Peatland/Bog Restoration

8.4.1 The following peatland restoration proposals will provide a variety of benefits to the habitat, the assemblage of species that depend upon it and in terms of associated ecosystem services benefits e.g. the carbon storage and downstream water quantity and quality.

8.4.2 Suitable areas for peatland restoration would comprise historically drained peatland or actively eroding deep peat with only limited vegetation cover. The extent of these areas would be subject to refinement prior to completion of the final Habitat Management Plan (HMP), but restoration would aim to restore peatland/blanket bog habitat within the following identified candidate management units.

#### Candidate Management Units

8.4.3 Based on the Study Area and Baseline plan illustrated in Figure 8.10.1, three candidate management units have been identified as shown on Figure 8.10.2.

- Off-site, candidate Management Units A, B, and C have been identified within Glencassley Estate, which equate to c.307 Ha within which restoration would be undertaken. These potential management units have been subject to extensive historical drainage and grazing for many years.
  - Unit A (c. 43.42 Ha) is situated immediately north-west of Loch Langwell on lower lying ground;
  - Unit B (c. 176.74 Ha) is situated to the east of Allt Dail Faid on gently sloping ground along its western extent and steeper ground along its eastern extent;
  - Unit C (c. 86.73 Ha) is situated further to the north of here and due south-west of Carrachan Dubh.

8.4.4 The three offsite areas (Units A – C) have been identified as comprising predominantly 'Raised and blanket bog; and Temperate Shrub heathland'<sup>1</sup> type habitat, that have the potential for recovery and would respond to a programme of damming and a reduction in deer grazing pressure. The exact areas will need to be agreed in discussion with the landowner/land manager, and with NatureScot prior to any management work commencing.

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**Management Prescriptions**

- 8.4.5 The following measures would be undertaken to encourage the regeneration of blanket bog habitat using best practice techniques (NatureScot, 2020) within three identified candidate management units within the Glencassley Estate in order to increase the quality and extent of blanket bog resource and compensate for habitat loss incurred as a result of the Proposed Development.
- 8.4.6 Restoration would focus on re-wetting historical drainage ditches within modified or degraded blanket bog off-site, which would be achieved through a variety of measures, to be agreed with NatureScot, but which are likely to include the following:
- Off-site candidate areas identified for habitat restoration will be walked and surveyed to help identify/refine areas/sub-catchments for restoration work. Two key criteria will be looked for and mapped: status of blanket bog (notably whether it is likely to be actively peat forming) and drain activity/flow direction within drains.
  - A suitably experienced peatland ecologist would identify the number, location and spacing of artificial dams required, together with the most appropriate method of blocking, following good practice guidelines<sup>2</sup>.
  - In order to create the underlying conditions required for the establishment of typical bog species, restoration works comprising peat dam installation would be undertaken to reverse the effects of negative historical management activities and prevent further habitat degradation. The primary condition required to support blanket bog habitat is water table depth, which is close to the surface throughout the year. The physical intervention ditch-blocking will help to create dams within the existing drains, preventing runoff, stabilising hydrology and enabling the growth of bog-forming species such as Sphagnum mosses.
  - Manage deer grazing pressure within candidate management units through a reduction in deer numbers as agreed with Glencassley Estate. Deer numbers would be managed in accordance with DMP (**Technical Appendix 8.9**). The implementation of the oHMP would take into account the existing management practices undertaken in the Study Area and would work in tandem with these practices.
- 8.4.7 Habitat management measures are site and condition specific and will be confirmed in a detailed HMP, which will be subject to refinement once contractors are on site.
- 8.4.8 The design and implementation of the final HMP would be managed by the Applicant, in consultation with landowners. Detailed method statements would be developed for the specific measures within the final HMP.

**Work Programme**

- 8.4.1 A detailed work programme would be developed and agreed with THC, in consultation with the landowner and NatureScot, as part of the development of the final HMP.

**Funding and Duration**

- 8.4.2 The HMP and implementation would be funded in full by the Applicant and would continue for the lifetime of the Proposed Development.

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<sup>2</sup> NatureScot Peatland Action 'Dam Installation techniques - Peat and Plastic Dams'

## 8.5 Monitoring

- 8.5.1 The standard approach to monitoring water levels would be to install dipwells at a range of locations within identified candidate management units. The number and location of such monitoring points would be recommended by a suitably experienced hydrologist. Monitoring would be carried out for at least one year prior to ditch-blocking works and will continue for at least five years following ditch blocking works.
- 8.5.2 Dependent on the development of accurate remote sensing technology, there could be opportunities<sup>3</sup> to complement monitoring methods, particularly in relation to soil moisture, vegetation classes and properties of the immediate peat surface. The merits of this approach would be considered in consultation with NatureScot and Peatland Action as necessary.
- 8.5.3 Vegetation surveys undertaken by suitably qualified ecological professionals would monitor the success of peatland/bog restoration and highlight the need for any further management measures. Surveys would collect data on the structure and composition of the vegetation, and plant species abundance and diversity from permanent quadrats in the restored areas. Monitoring would commence during the first Summer after completion of restoration works and would be repeated at appropriate frequency during the operational life of the Proposed Development i.e. at least years 1, 3, 5, and 10 following restoration works. The requirement for longer-term monitoring would be subject to ongoing review of the results and agreement with statutory consultees.
- 8.5.4 Monitoring of restoration activities, e.g. ditch blocking to record progress in completion of the physical works to install, maintain and, where necessary, repair those features. This monitoring would be completed by windfarm operations staff over the course of the first five years following completion of the restoration works. Any faults or issues identified during this monitoring would be addressed as soon as possible.
- 8.5.5 The methodology for all monitoring surveys will be informed by evolving survey techniques and future guidance and would be agreed with THC and NatureScot. Reports would be submitted to THC and NatureScot following surveys in each monitoring year. The reports would highlight the management measures completed to date, the results of the surveys and any measures proposed for the next reporting period. The results would be regularly reviewed, in consultation with THC and NatureScot, to ensure the HMP objectives are being met and to determine any appropriate amendments, where practicable.

## 8.6 Amendments

- 8.6.1 This oHMP will be a live document that will be further modified during pre- and post-construction, taking account of any design changes and priorities within the Site, in response to monitoring outcomes within the Study Area, or changes in guidance. New opportunities for habitat management and enhancement may become apparent during this pre- and post- construction period and indeed during the lifetime of the Proposed Development. Approval by THC and NatureScot should be sought for any amendments before revised measures are implemented.

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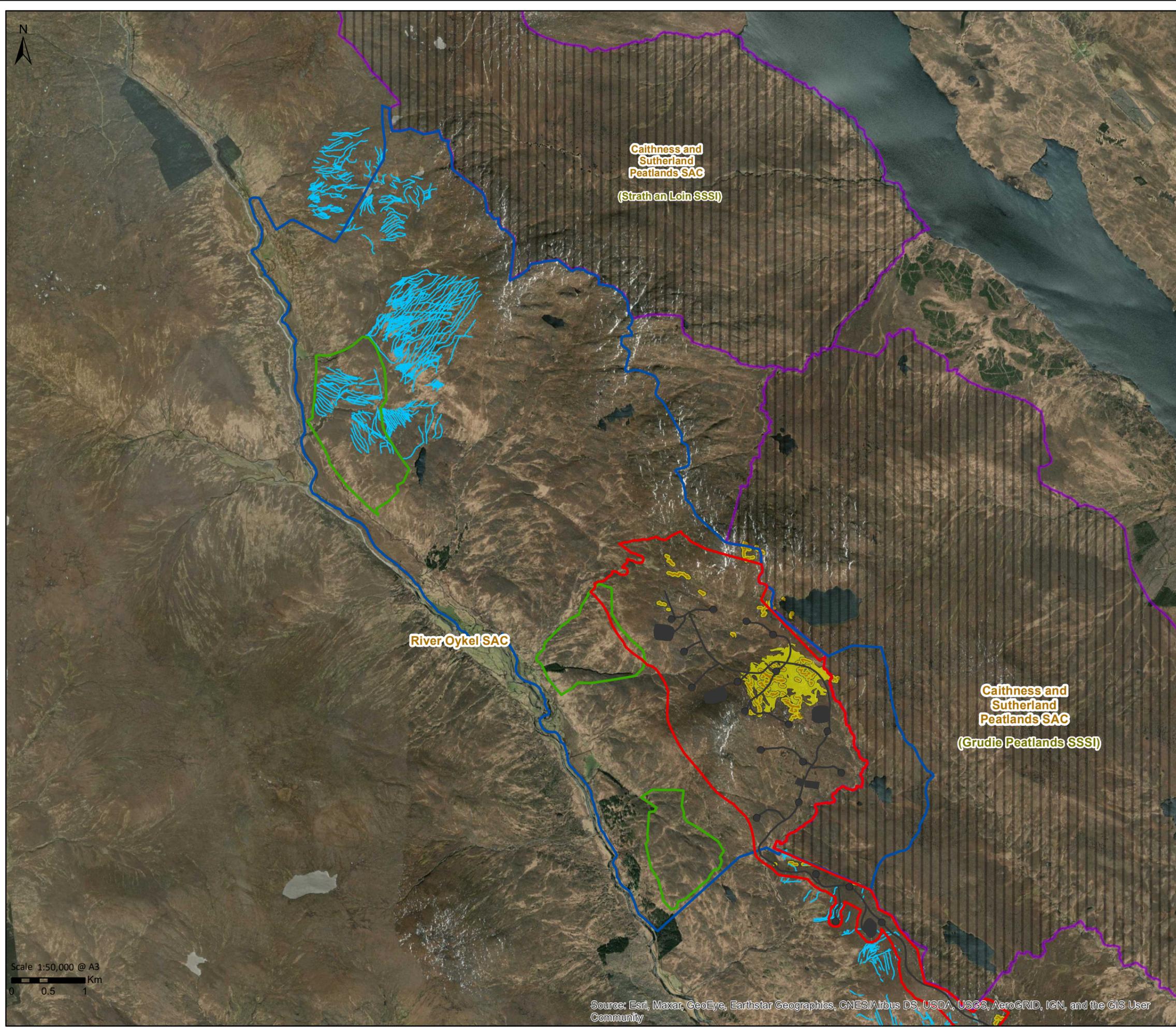
<sup>3</sup> <https://jncc.gov.uk/about-jncc/jncc-blog/archive/monitoring-peatland-using-earth-observation-data/>

## 8.7 References

NatureScot (2020). <https://www.nature.scot/climate-change/nature-based-solutions/peatland-action/peatland-action-project-resources>

Peatland Action (2019). Guidance for land managers – Dam installation and techniques – Peat and plastic dams. <https://www.nature.scot/sites/default/files/2019-03/Guidance-Peatland-Action-installing-peat-dams.pdf>

SNH (2016). Planning for development: What to consider and include in Habitat Management Plans. Guidance, Version 2. March 2016.



**Key**

- Site Boundary
- Scheme layout
- Glencassley Estate landowner boundary
- Forestry planting areas

**Peatland Condition features**

- Modified/Drainage/Actively Eroding
- Drainage ditches
- Peat hags

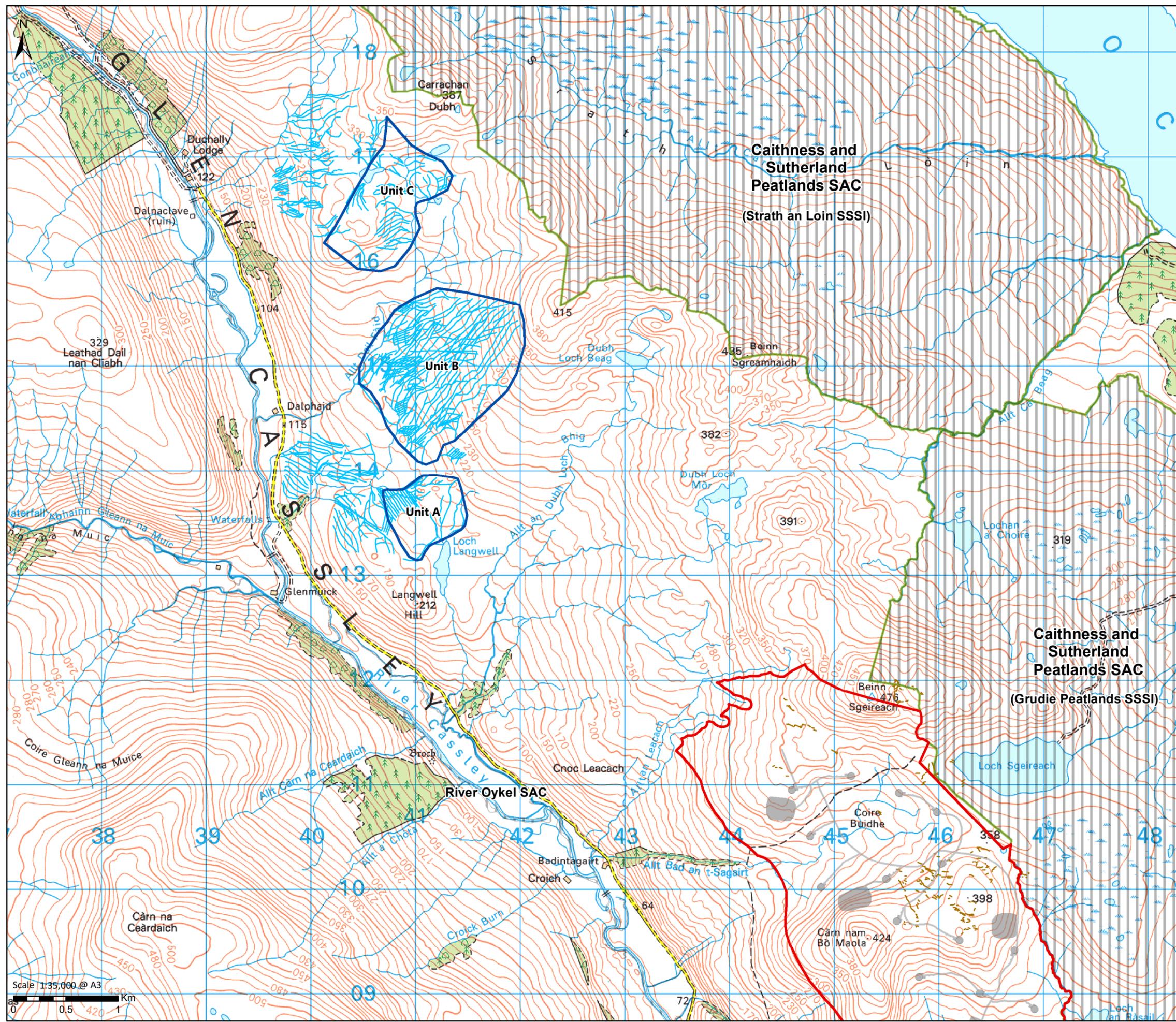
**Designated sites**

- SAC
- Grudie Peatlands SSSI

**Figure 8.10.1**  
**Study Area and Baseline Conditions**

Scale 1:50,000 @ A3  
0 0.5 1 Km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Key**

- Site Boundary
- Scheme layout
- Candidate Management Unit

**Peatland Condition features**

- Drainage ditches
- Peat hags

**Designated Sites**

- SAC
- Grudie Peatlands SSSI

**Figure 8.10.2**  
**Candidate Management Areas**

Achany Extension Wind Farm  
EIA Report - Technical Appendix 8.10:  
Outline Habitat Management Plan

Scale 1:35,000 @ A3  
0 0.5 1 Km