Glendye Wind Farm Overhead Line Grid Connection

Appendix 9.3 – Peatland Condition Assessment

SSEN Transmission & ASH Design + Assessment

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Basis of Report

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1.0 Introduction

1.1 General

SLR Consulting Ltd (SLR) was commissioned by ASH Design + Assessment on behalf of Scottish and Southern Electricity Networks (SSEN) Transmission to prepare a Detailed Peatland Condition Assessment (PCA) for the proposed Glendye Windfarm Grid Connection (the "Proposed Development").

This PCA considers the Proposed Development which is located linearly between NO 78729 85831 and NO 60899 80043, approximately 5 km northwest from the village of Fettercairn and approximately 12 km southwest from the village of Strachan, Aberdeenshire. The Proposed Development is located across areas of open moorland, commercial forestry and improved arable grassland.

The work has been undertaken by a team of Peatland Specialists and Geologists, with over 10 years' experience in undertaking peat assessments and was led by Dr. Chris Marshall, Principal at SLR. Chris holds a BSc (hons) Environmental Geology, an MSc in Geochemistry and a PhD in Earth Sciences, with 10 years of experience in peatland condition, restoration monitoring and assessment, including peer reviewed scientific papers, policy documents, governmental reports and membership of scientific and technical advisory groups.

1.2 The Proposed Development

The Proposed Development forms a new Overhead Line (OHL) to connect the consented Glendye Wind Farm to the National Grid, approximately 5 km northwest from the village of Fettercairn and approximately 12 km southwest from the village of Strachan. The Proposed Development will comprised a single circuit 132 kV steel trident pole arrangement, supporting the OHL running over a distance of approximately 19.2 kilometres in length from the on-site substation at the consented Glendye Wind Farm, to the existing Fetteresso substation, Aberdeenshire. A number of new permanent and temporary access tracks will also be required.

1.3 Scope and Objectives

This detailed PCA outlines the baseline conditions present within the area of the Proposed Development and aims to identify areas of active peatland to ensure disturbance of these areas is minimised where technically feasible, during both detailed design and construction of the Proposed Development. The PCA has been undertaken in accordance with best practice guidance [1,2,3,4,5].

[1] Burden, A., Radbourne, A., Williamson, J., Evans C. (2020) A rapid method for basic peatland condition and national-scale satellite analysis

[2] Bradley, A.V., Mitchell, E., Dryden, I., Fallaize C., Islam, M,T., Large, D.J., Andersen, R., Marshall C., (In press) Analysis of an InSAR "bog breathing" based classification of peatland condition relative to field observations in Cairnsmore NNR, NatureScot Research Report 1269

[3] Crichton Carbon Centre (2015) Annex 1 Field Protocol and Guidance, Developing Peatland Carbon Metrics and Financial Modelling to Inform the Pilot Phase UK Peatland Code' Report to Defra for Project NR0165.

[4] JNCC (1994) Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 8 Bogs. JNCC, Peterborough.

[5] SNH Peatland Condition Assessment https://www.nature.scot/Proposed Developments/default/files/2023-02/Guidance-Peatland-Action-Peatland-Condition-Assessment-Guide-A1916874.pdf [accessed June 2024]

The PCA aims to:

1. Quantify the current condition status of peatland habitats on-Proposed Development.
2. Determine the impact of the Proposed Development on peatland habitats on-Proposed Development.
3. Inform developmental design and evidence application of the mitigation hierarchy as required by the Scottish Government's National Planning Framework 4 (NPF4)[6], and the steps that development proposals must follow to reduce their environmental impact namely:
    - **Avoid:** Remove the impact at the outset;
    - **Minimise**: Reduce the impact;
    - **Restore:** Repair damaged habitats; and
    - **Offset:** Compensate for any remaining impact, preferably on-Proposed Development.

The PCA included the following data collection activities:

- Mapping key peatland condition metrics derived from open access satellite imagery including the distribution and cover of bare peat, non-peat habitats and mineral soil; distribution of drainage (both natural and artificial); erosion features (such as footpaths, hags, gullies, drained pools, and peat landslip scars); and land-use patterns (including burn scars, tracks, and livestock pens). Additionally, the identification of main drainage pathways of the Proposed Development;
- Combining peatland condition metrics with contextual data regarding the management of the Proposed Development, including ecological and peat depth data gathered at the area of the Proposed Development, and external resources (including deer management group data etc); and
- A field-based peatland condition assessment to validate and provide further information on peatland condition across the Proposed Development within a 100 m grid.

The data collected is then used to produce a conceptual model derived from the PCA which will guide and demonstrate:

- How peatland condition is distributed across the Proposed Development, address the likelihood of extensive ‘active’ or near natural peatland being present across the Proposed Development and identify areas of particularly good condition peatland or refugia that should be avoided by design.
- How, through Proposed Development investigation and iterative design, the Proposed Development has been structured and designed to avoid, so far as reasonably practicable, areas of active peatland; and
- Identify areas of peatland with the greatest potential for enhancement and the opportunities and risks associated with peatland restoration at and within the area of the Proposed Development.

[6] The Scottish Government (2023) *National Planning Framework 4*. Edinburgh: The Scottish Government. Available at: www.gov.scot/publications/national-planning-framework-4/

2.0 Basis for Peatland Condition Assessment

2.1 Policy Background

NPF4[6] places significant emphasis on the protection and restoration of peatlands due to their crucial role in carbon storage, biodiversity, and water regulation, with relevant policies including;

- **Policy 1**: Addresses the global climate and nature crises, emphasizing the need to protect, conserve, restore, and enhance biodiversity;
- **Policy 3**: Requires developments to provide significant biodiversity enhancements, including restoring degraded habitats and strengthening nature networks; and
- **Policy 5**: Focuses on protecting carbon-rich soils, restoring peatlands, and minimizing soil disturbance from development.

NPF4 Policy 5d[6], requires that '*where development on peatland, carbon-rich soils or priority peatland is proposed, a detailed Proposed Development specific assessment will be required*'. This should include peat depth surveys (initial, detailed and additional information), Peat Landslide Hazard Risk Assessment (PLHRA), and detailed habitat surveys (National Vegetation Classification (NVC)), including an assessment of condition. As such, under NPF4[6] any development on peatlands must undergo a detailed Proposed Development-specific assessment. For the Proposed Development the following detailed Proposed Development-specific assessment has been undertaken:

- **Peat Depth Surveys**: to determine the extent and depth of peat;
- **Peat Landslide Hazard Risk Assessment (PLHRA)**: to assess the risk of peatland instability;
- **Habitat Surveys, including National Vegetation Classification (NVC):** to assess the types of habitat present; and
- **Peatland Condition Assessment**: to determine the condition of peatland habitat present on Proposed Development and guide adherence to the mitigation hierarchy outlined in NPF4[6], including avoidance of peatland in near natural condition.

PCA in Scotland is generally categorized into four conditions for assessment, although the Peatland Code[7] subdivides these further to link with emission factors:

1. **Near-Natural**: Dominated by peat-forming species with minimal human impact.
2. **Modified**: Shows signs of human impact such as grazing and burning.
3. **Drained:** Affected by artificial drainage, leading to altered vegetation.
4. **Actively Eroding:** Characterised by extensive bare peat surfaces and significant erosion.

Priority Peatland Habitats are also assessed by NatureScot and include blanket bogs, montane bogs, and other peat-forming communities. These habitats are considered crucial for biodiversity and carbon sequestration. The guidance emphasises avoiding impacts on these high-quality habitats and is assessed using JNCC Proposed Development of Special Scientific Interest (SSSI)[4] criteria.

[7] IUCN UK Peatland Programme (2024) *Peatland Code Field Protocol v2.1: Assessing eligibility, determining baseline condition category and monitoring change*. IUCN UK Peatland Programme, Edinburgh

Ideally (a PCA) in a development context should provide enough information on key condition indicators to:

- Provide a baseline of pre-development condition and likely priority peatland status;
- Guide the location of infrastructure and evidence adherence to the mitigation hierarchy; and
- Provide information on opportunities for and types of compensatory restoration and habitat enhancement on Proposed Development.

2.2 Definition of Peat

Peat is defined as an organic soil comprising the partly decomposed plant remains that have accumulated in-situ, rather than being deposited by sedimentation. When peat forming plants die, they do not decay completely as their remains become waterlogged due to regular rainfall. The effect of waterlogging is to exclude air and hence limit the degree of decomposition. Consequently, instead of decaying to carbon dioxide and water, the partially decomposed material is incorporated into the underlying material, and the peat 'grows' in-situ (refer to **Plate 1**, below).

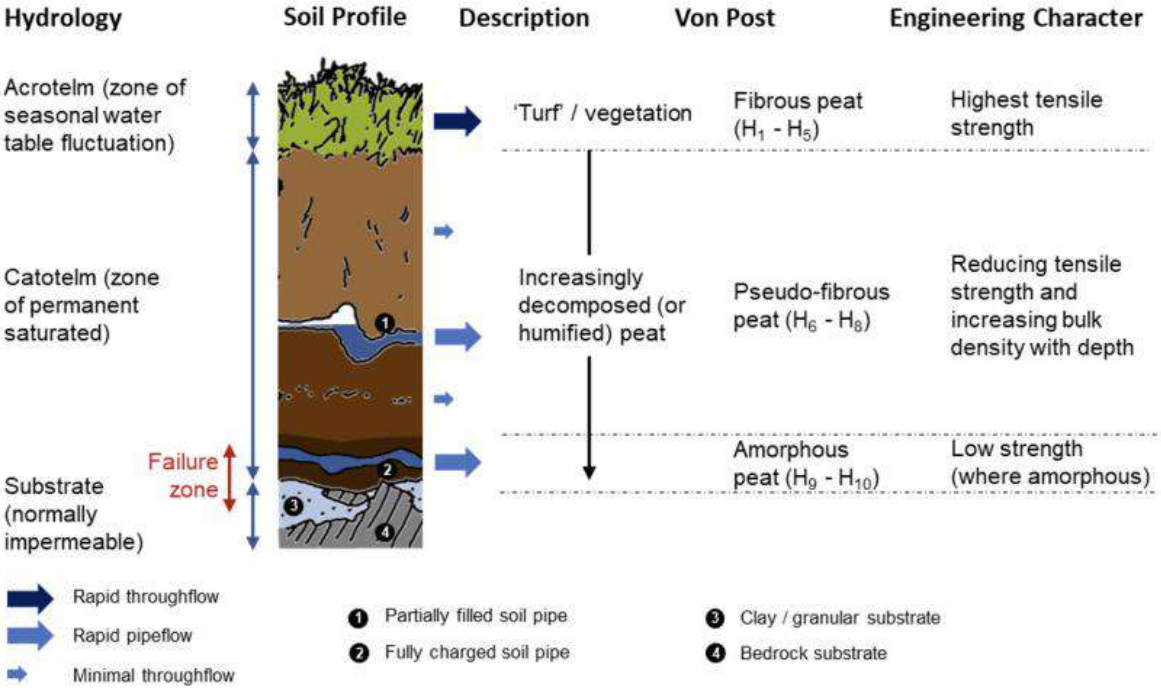
The Scottish Government Peat Landslide Hazard Best Practice Guide (2017)[8] uses the following Joint Nature Conservation Committee (JNCC) report 455 'Towards an Assessment of the State of UK Peatlands'[9] definition for classification of peat deposits:

- Peaty (or organo-mineral) soil: a soil with a surface organic layer less than 0.5 m deep;
- Peat: a soil with a surface organic layer greater than 0.5 m deep which has an organic matter content of more than 60 %; and
- Deep Peat: a peat soil with a surface organic layer greater than 1.0 m deep.

[8] Scottish Government (2017) Peat Landslide Hazard and Risk Assessment: Best Practice Guide for Proposed Electricity Generation Developments

[9] JNCC (2011) Towards an assessment of the state of UK Peatlands NCC Report No. 445, JNCC, Peterborough, ISSN 0963-8091.

Plate 1- Typical Peat Profile[10]



There are two principal types of peat in a near natural peatland (as illustrated above in **Plate 1**):

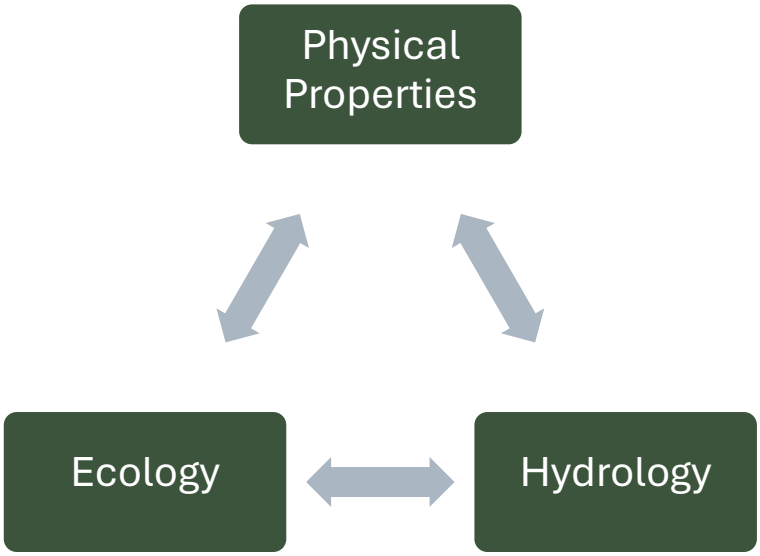
- The upper (acrotelm) layer in which the water table fluctuates, which is fibrous and comprises plant roots etc. The acrotelm is relatively dry and has some tensile strength and its thickness typically ranges from 0.1 m to 0.6 m deep; and
- The lower (catotelm) layer, which is saturated, sitting permanently below the water table. The catotelm layer is highly decomposed, generally becoming more amorphous/liquid in nature and losing structure with increasing depth. The structure of catotelmic peat tends to disrupt completely on excavation and handling.

2.3 Definition of Peatland Condition

Peatland condition reflects a combination of the hydrological, physical (mechanical) and ecological characteristics of a peatland (as diagrammatically represented in **Plate 2**). In a functioning actively accumulating peatland, each factor exists within a state of dynamic equilibrium, acting through a series of negative feedback to buffer against external forces (e.g climate), ensuring the continued growth and development of the peatland. An ecohydrological basis is commonly used to determine peatland condition, although often there is a focus on peatland vegetation due to the expertise of ecological assessors and the difficulty in direct measurement of peatland hydrology and peat condition during a single field campaign.

[10] Mills, A.J. and Rushton, D. 2023. A risk-based approach to peatland restoration and peat instability. NatureScot Research Report 1259.

Plate 2 - Framework for assessing peatland condition



Various peatland condition assessment protocols exist for blanket peatland in Scotland and elsewhere within the UK, focusing on evaluating the health and functionality of peatlands, which are crucial for carbon storage, water regulation, and biodiversity. Common key indicators of peatland condition include the presence of extensive Sphagnum moss, the extent of bare peat, and evidence of grazing or burning. A universally accepted measure of peatland condition does not exist, and is therefore somewhat subjective. Consequently, all peatland condition assessments rely to a certain extent on the interpretation of key metrics by the surveyor. There are also common misconceptions regarding peatland condition, for example;

- Vegetation often lags peatland condition, for example habitat refugia exist on all but the most degraded peatland and therefore low cover of peat-forming plant species such as *Sphagnum spp*. can be expected, even on drained and actively eroding peatlands. Likewise in rewetted peatlands, vegetation often lags hydrology with dry indicator species persisting even after rewetting. The presence of low cover peat forming plant species is not an indicator of active peatland.
- Key positive indicators such as peatland microtopography (including hummocks and hollows) can be present in full, but each component hydrologically isolated from other parts due to deep incision, particularly on upland peats indicating that full functionality is not present.
- Small scale (Quadrat scale) observations are generally unrepresentative of peatland condition at larger scale; therefore whilst useful for identifying plant species and communities present, peatland hydrology and mechanics often operate on multiple scales not captured by this approach. Also due to canopy effects, these measures are often incompatible with remote sensing data, limiting their ability to be upscaled using new technologies for monitoring peatland condition e.g. InSAR[11].

In order to counter this and provide a means of upscaling National Vegetation Classification (NVC)data across the Proposed Development, the PCA uses a combination of desk study with a field based approach, including metrics based on rapid peatland condition assessments, supplemented by specific information required for the JNCC SSSI selection criteria[4] on a

[11] Marshall, C.; Sterk, H.P.; Gilbert, P.J.; Andersen, R.; Bradley, A.V.; Sowter, A.; Marsh, S.; Large, D.J. Multiscale Variability and the Comparison of Ground and Satellite Radar Based Measures of Peatland Surface Motion for Peatland Monitoring. *Remote Sens.* **2022**, *14*, 336. https://doi.org/10.3390/rs14020336

100 m grid. The results can be seen within the following sections of this report, namely a desk study of peatland condition indicators on the Proposed Development and a field validation of peatland condition indicators (not visible from satellite imagery), followed by in-depth analysis of Peatland Condition within the footprint of infrastructure of the Proposed Development.

3.0 Desk Assessment of Peatland Condition

3.1 Proposed Development Characteristics

3.1.1 Topography

Based on the digital terrain model available from the British Geological Survey (BGS) Geoindex[12] the topography across the Proposed Development is generally moderate (approximately 300 m AOD on average); supporting typically moderate sloping ground with some locally steep slopes around hilltops, surface water flow pathways and minor watercourse valleys. Elevations reach a maximum of approximately 460 m AOD at the summit of Goyle Hill and a minimum of approximately 150 m AOD at the point of intersection with the Bervie Water within the footprint of the Proposed Development.

The landscape exhibits moderate slopes across the Proposed Development, with the western extent of the Proposed Development footprint being characterised by plateaus of gently sloping peat deposits and moderately incised river gulleys, including those surrounding the Water of Charr and its tributaries. The eastern extent of the Proposed Development footprint is located generally in forestry and improved grassland, intersected by multiple watercourse gulleys including that of the Bervie Water.

3.1.2 Hydrology

The Proposed Development is located within four main surface water catchment areas:

- River Dee [Grampian] (SEPA ID: 37);
- River North Esk [Tayside] (SEPA ID: 40);
- Bervie Water (SEPA ID: 39); and
- Kincardine & Angus Coastal (SEPA ID: 38).

Much of the western extent of the study area is located within the River Dee catchment, specifically the Water of Dye and Spittal Burn nested catchments. This flows generally north from the study area, hydrologically connected to the Proposed Development through minor tributaries including the Stag Burn and Water of Charr.

A minor area in the western extent, adjacent to the intersection of the Proposed Development and the B974, is located within the Luther Water sub-catchment of the wider River North Esk catchment, located south of the study area.

The centre and eastern extents of the study area are located within the Bervie Water catchment and subsequently the Kincardine & Angus Coastal catchment, specifically the Carron Water sub-catchment. This is hydrologically connected to the Proposed Development solely through the headwaters of the Slack Burn draining approximately 800 m of the Proposed Development, and flowing south from the study area to the confluence with the Divelly Burn.

[12] British Geological Survey (BGS) Onshore Geoindex, available online at https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed September 2025]

3.1.3 Hydrogeology

Information from Scotland's environment map[13] showing BGS Bedrock data indicates the western extent of the Proposed Development (to Goyle Hill) is underlain predominantly by Semipelite and Micaceous Psammites of the Glen Effock Schist Formation. A localised area surrounding poles 127 and 128 is underlain by the Water of Dye Formation, comprised of Granite and Mount Battock Pluton. Much of the centre and eastern extent of the Proposed Development is underlain by deposits of Micaceous Psammite, Pelite and Semipelite of the Glen Lethnot Grit Formation. Furthermore, a minor area of the Proposed Development's eastern extent is noted to be underlain by Metabasaltic rock of the North Esk Formation. Minor, localised intrusions are noted across the Proposed Development, these are comprised of the following geological elements:

- Microgranite, Feldspar-Phyric, Quartz-Feldspar-Porphyry, Microgabro and Porphyritic deposits of the North Britain Siluro-Devonian Calc-Alkaline Dyke Suite;
- Quartzite deposits of the Glen Effock Schist Formation; and
- Quartz-Microgabro deposits of the Central Scotland Late Carboniferous Theolitic Dyke Swarm.

Superficial geological mapping[12] shows that the western extent of the Proposed Development is underlain by peat up to, and including Goyle Hill. The majority of the eastern extent of the Proposed Development is located on ground without significant superficial peat deposits, with minor discrete pockets of peat and glacial till largely underlain by glacial till. The Proposed Development intersects multiple deposits of alluvium along the proposed alignment: these are noted to be strongly confined to areas directly adjacent to watercourses flowing across the study area.

The alluvial superficial deposits are classified as a moderate productivity aquifer with groundwater flow through intergranular mechanisms. The sand and gravel horizons in the alluvium deposits can store groundwater and permit groundwater movement; however, their limited extent can hinder their ability to provide reliable groundwater yields. Local differences in thickness, material type and sorting can also cause a considerable range in hydraulic conductivity. In addition, any groundwater within the alluvial deposits are in hydraulic continuity with nearby watercourses.

The bedrock aquifer is confirmed to be a very low to low productivity aquifer, generally without groundwater except at shallow depth, with groundwater flow occurring almost entirely through fractures and other discontinuities.

Groundwater vulnerability is divided into five classes (1 to 5) with 1 being least vulnerable and 5 being most vulnerable. The potential groundwater vulnerability in the uppermost aquifer beneath the Proposed Development has a vulnerability of Class 4a, 4b and 5. The highest vulnerability is noted where little to no superficial deposits are recorded, and thus in the event of an accidental pollution incident, there is little potential for attenuation of potential pollutants prior to entry to groundwater.

3.1.4 Sensitive Receptors

A review of NatureScot Proposed Development Link confirms that no statutory designated Proposed Developments are located within the study area.

[13] Scottish Environment Protection Agency (SEPA) Scotland's environment web map, available online at https://map.environment.gov.scot/sewebmap/ [Accessed September 2025]

The River Dee Special Area for Conservation (SAC) is located approximately 2.5 km north of the Proposed Development. The SAC have been designated for Atlantic salmon (*Salmo salar*) and freshwater pearl mussels (*Margaritifera margaritifera*), recognised as species of particularly sensitivity to changes in water quality. The SAC is considered to be hydraulically connected to the Proposed Development, located downstream of the Proposed Development Potential effects as a consequence of the Proposed Development on the Proposed Development of Special Scientific Interest (SSSI) and SAC are considered in **Volume 1: Chapter 8: Ecology and Volume 1: Chapter 9: Soils, Geology and Water.**

3.1.5 Groundwater Dependent Terrestrial Ecosystems (GWDTE)

Review of the NVC habitat mapping concluded that GWDTE's are sustained by incident rainfall and local surface water runoff (i.e. they are not groundwater fed), therefore the buffers proposed in SEPAs GWDTE guidance need not apply. Further details on GWDTE are provided within **Volume 1: Chapter 8: Ecology and Volume 1: Chapter 9: Soils, Geology and Water.**

3.1.6 Peatland Classification

Priority peatland mapping[14] indicates that the western extent of the Proposed Development from the consented Glendye on-site substation to Pole 114, alongside areas underlying Pole 112, Pole 111 and Poles 013-009 are potentially Class 1 and 2 priority peatland. These peatlands are considered nationally important carbon-rich soils, supporting deep peat and priority peatland habitat of nature conservation value[15]. Class 4 peatland is indicated to potentially underly much of the eastern extent of the Proposed Development, including Poles 001-008, 014-050, 89-110 and 113. Class 4 is defined as mainly mineral soils, with some peat soil and is unlikely to include carbon-rich soils supporting peatland habitat. This class is noted to lack dominant priority peatland habitat cover, with fragmented occasional areas of habitat and deep peat possibly present. The remaining areas of the Proposed Development are noted to be underlain by mineral soils with no peat deposits and no peatland habitat likely.

3.2 Land Management Context

3.2.1 Agriculture

Large areas of the Proposed Development are comprised of a mixture of rough grazing, semi-improved grassland and improved grassland. In the western extent of the Proposed Development, peat habitat has largely converted to grassland and dry heath. Agriculture appears to be primarily pastoral although abandoned smallholdings are observed across the landscape, with abandoned arable fields at lower altitudes. Sheep can be observed on satellite imagery with feeding infrastructure and ATV access tracks to serve feeding infrastructure at lower areas across the estates.

3.2.2 Deer Management

Deer numbers are currently difficult to determine. It is likely that both red deer and roe deer are present across the Proposed Development however publicly accessible data is unavailable for this region. Large deer numbers were observed on Proposed Development and deer management is undertaken by local estates.

[14] NatureScot, 2016. *Carbon and Peatland 2016 map*. Available at: https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/

3.2.3 Forestry

Aspects of the Proposed Development, particularly in the centre and eastern extent, are located within areas of forestry; however much of these areas are not located on significant peat deposits and lack any overlying peatland habitat and as such have been excluded from further assessment.

3.2.4 Other Management

Wildfire and Managed Burning

Areas of recent prescribed burning were evident in the western extent of the Proposed Development, utilised as a significant land conversion tool to modify overlying vegetation composition to better suit areas utilised for deer stalking and grouse shooting.

Infrastructure Development

Built infrastructure is largely accounted for by tracks serving as access to parts of both the Glen Dye and Fasque estates' land.

Peat Cutting/Turbary

No evidence of peat extraction was identified during baseline field survey.

3.3 Peatland Condition Indicators

3.3.1 Peat Depth

Peat depth is an important aspect of peatland condition as it is an indicator of:

- Whether peat is present or absent, e.g. where the probing recorded peat less than 0.5 m thick, it is considered to be a peaty soil (or organo-mineral soil). Soils with a peaty organic horizon over mineral soil are often referred to as 'peaty soils'. These organo-mineral soils are extensive across the UK uplands, but do not meet recognised definitions of peat as they are either shallower than true peat or have a lower carbon density.
- Long term peatland resilience to external forcing e.g. thicker peats, have consistently sequestered carbon over a longer period than more marginal peat areas.
- Long term degradation, including areas of extensive drainage, are likely to have lost peat from oxidation or erosion, alongside compaction which can reduce peat depths further.

Peat surveys were carried out in accordance with best practice guidance for developments on peatland[15]. Phase 2 probing saw detailed probing undertaken across the Proposed Development layout, focussing on proposed infrastructure locations.

The peat surveys informed the Proposed Development design such that areas of recorded peat could be avoided where technically feasible. Phase 2 probing was typically undertaken on linear infrastructure (permanent / temporary tracks) at 25 m to 50 m spacings, with offset probing locations either side (approximately 10 m to 25 m). Infrastructure was typically probed

[15] NatureScot. (2024). Advising on peatland, carbon-rich soils and priority peatland habitat in development management. [Online]. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management [Accessed September 2025]

at 10 m grid spacings. Further details regarding probing methodologies can be found in **Technical Appendix 9.1: Peat Management Plan.**

Peat was encountered in the western and central areas of the Proposed Development, with deposits generally associated to flatter expanses, breaks in slope and hollows that allow for the accumulation and formation of peatland.

The central and western areas of the Proposed Development are where the majority of the deep peat was recorded. Peat depths of over 3.5 m were mapped west of B974 near to Pole 149. An extensive area of deep peat of over 3 m was recorded to the south of Old Hangy Burn. The central areas of the Proposed Development located near the Waird of Cairn are situated in deep peat, with 2.5 m recorded and over 3 m to the north-east. Deep peat of 2 – 2.5 m to the south-west of Goyle Hill was mapped on the breaks in slope.

Peat is largely absent across the eastern extent of the Proposed Development, with most of this area being situated within sloped, artificially drained plantation forestry. Eastern extents are also located in agricultural land, where the area has been extensively drained.

3.3.2 Peat Depth

Peat is generally defined as a soil with a surface organic layer in excess of 0.5 m. Where the probing recorded less than 0.5 m thick, it is considered to be a peaty soil (or organo-mineral soil). Soils with a peaty organic horizon over mineral soil are often referred to as 'peaty soils'. These organo-mineral soils are extensive across the UK uplands, but do not meet recognised definitions of peat, as they are either shallower than true peat or have a lower carbon density.

As detailed in **Section 2.2**, Peat is generally defined as a soil with a surface organic layer in excess of 0.5 m. Where the probing recorded less than 0.5 m thick, it is considered to be a peaty soil (or organo-mineral soil). Soils with a peaty organic horizon over mineral soil are often referred to as 'peaty soils'. These organo-mineral soils are extensive across the UK uplands, but do not meet recognised definitions of peat as they are either shallower than true peat or have a lower carbon density.

A total of 17,075 peat probes were undertaken across all survey phases[16]. **Table A** summarises the peat probing results below. The average thickness of peat recorded across the Proposed Development was 0.6 m.

4.0 Table A: Summary of Peat Probing Results

Peat Thickness (m)	No. of Probes	Percentage (of total probes undertaken on-Proposed Development)
0 (no peat)	129	0.8
0.01 – 0.49 (peaty soil)	11695	68.5
0.50 – 0.99	1239	7.3
1.00 – 1.49	1265	7.4
1.50 – 1.99	1389	8.1
2.00 – 2.49	788	4.6

[16] Glendye Wind Farm Overhead Line Grid Connection: EIA Report - Appendix 9.2 Peat Management Plan Figure 9.2.1

Peat Thickness (m)	No. of Probes	Percentage (of total probes undertaken on-Proposed Development)
2.50 – 2.99	279	1.6
3.00 – 3.49	165	1.0
3.50 – 3.99	82	0.5
> 4.0	44	0.3

4.1.1 Peat Condition

Peat is described using BS5930[17]and the Von Post classification[18]. Six peat cores were collected by SLR during Phase 2, using a peat auger and used to inform interpretations of the underlying physical peat condition and underlying substrate. Peat samples were undertaken to depths of between 0.8 and 3 metres below ground level (mbgl). The peat cores recorded fibrous to pseudo-fibrous condition.

Table B: Summary of Peat Coring Results

Location ID[19]	Depth (mbgl)	Von Post Degree of Decomposition	Description
HA01:	GL - 1.0	H3, B3	Brown fibrous PEAT
HA02:	GL - 0.8 0.8 - 1.3 1.3 - 2.3 2.3 - 3.0	H2, B4 H3, B3 H4, B3 H5, B3	Brown fibrous PEAT Brown pseudo-fibrous PEAT Brown pseudo-fibrous PEAT Dark brown pseudo-fibrous PEAT
HA03:	GL - 0.5 0.5 - 1.2 1.2 – 1.5	H2, B3 H3, B3 H4, B3	Brown fibrous PEAT Brown fibrous PEAT Brown pseudo-fibrous PEAT
HA04:	GL - 0.8	H4, B2	Dark brown pseudo-fibrous PEAT
HA05:	GL - 0.7 0.7 - 1.2 1.2 - 1.5	H3, B3 H4, B3 H5, B3	Brown fibrous PEAT Brown pseudo-fibrous PEAT Dark brown pseudo-fibrous PEAT
HA06:	GL - 0.8 0.8 - 1.5 1.5 – 2.0	H3, B3 H4, B3 H5, B3	Brown fibrous PEAT Brown pseudo-fibrous PEAT Brown pseudo-fibrous PEAT

In many places within the Proposed Development subsidence has led to compaction and peat loss to a significant extent, leading to replacement with dry heath vegetation and thin organic rich soils. The Proposed Development lies almost entirely within the area of influence of drainage, with multiple drainage lines present.

[17] BS 5930:2015+A1:2020, Code of practice for ground investigations

[18] Von Post, L and Grunland, E., (1926) 'Sodra Sveriges torvillganger 1' Sverges Geol. Unders. Avh., C335, 1-127

[19] Glendye Wind Farm Overhead Line Grid Connection: EIA Report -Appendix 9.3 Peat Management Plan

Overall, the heterogenous nature of peat depth across the Proposed Development indicates a highly modified and disturbed landscape, retaining only small, modified fragments of the original peat bodies as a result of past management for grazing and as grouse moor. This is reflective of a loss of ecosystem services, including the impairment of the peatland's ability to sequester and permanently store carbon.

4.1.2 Near Natural Features

No near natural features were observed from aerial imagery. Areas without evidence of drainage or erosion appear to be primarily modified by rough grazing, with peatland species replaced by grasses and dry heath species.

4.1.3 Artificial Drainage

Peat areas within the Proposed Development contain approximately 18.15 km of artificial drainage in the form of hill drains. These appear to be narrow (<0.5 m) and active.

4.1.4 Peatland Erosion

Peat areas within the Proposed Development contain approximately 1.41 km of bare peat gulleys with exposed bare peat on their base and sides. A further 2.8 km of gulleys and peat banks are hagged with a side face of exposed peat, but with a vegetated base reflecting active erosion and drainage. Vegetated gulleys where peat has been recolonised covers approximately 6.73 km; where active erosion has ceased but drainage remains, these generally form part of larger hagg and micro-erosion complexes. Micro-erosion complexes cover approximately 2.9 ha of the Proposed Development consisting of a mixture of bare peat and vegetated gulleys.

4.1.5 Peatland Tracks

Peat areas within the Proposed Development contain approximately 10.54 km of ATV tracks primarily associated with estate access usage. This is likely to be an underestimate due to the density of tracks observed with aerial imagery. The ATV tracks appear to be acting as shallow drains in many areas of peat, with many clearly infilled or with exposed bare peat. Track impact is therefore considered artificial drainage within this report, although due to the likely shallow nature of the drainage, a reduced impact radius of 10 m is applied.

4.1.6 Other Indicators

Peat areas in the western extent of the Proposed Development have approximately 1.95 Ha of invasive conifer colonisation at low density, but is likely to be causing water level drawdown within areas impacted.

4.2 Peatland Condition Assessment

Key peatland condition metrics have been mapped, through a desk-based review, supported by detailed peat condition surveys undertaken between September 2024 – February 2025. Peatland within the Proposed Development is predominantly comprised (290.10 ha or 52.2%) of peatland in a **Modified Condition.** It is likely that this is highly modified, as peatland species have been replaced by grasses and dominant heather cover, with areas predominantly forming rough and semi-improved grazing. It is likely that these areas have high historic herbivore impacts including trampling, puddling and fertilisation by sheep and deer, which has contributed to the conversion of the peatland to semi-improved grassland and extensive tussocking. In many cases fire has been used to clear peatland areas; however, there is limited

evidence of recent burning management within much of the Proposed Development area, with identified areas of burning limited to the western extent.

Drained Artificial Condition comprises approximately 85.58 Ha (15.3% of the peat areas) in this class. In open areas this is primarily associated with active hill drains and ATV tracking. In afforested areas this is associated with 8.04 Ha of standing Sitka Spruce and Lodgepole Pine with associated furrows, feeder and collector drains.

A further 172.21 Ha (30.9%) of peat areas within the Proposed Development are comprised of peatland in the **Drained Hagg/Gulley Class.** This is associated with predominantly hagged gulleys and vegetated gulleys, however lesser amounts of bare peat gulleys and microerosion can also be observed.

Approximately 9.28 Ha (or 1.6% of peatland present) can be defined as **Actively Eroding**, the most degraded peat condition class with this largely accounted for by hagged gulleys and bare peat gulleys. It is likely that micro-erosion complexes contain actively eroding areas, however these were not quantified within this report.

5.0 Field Based Peatland Condition Assessment

To validate the observations made during the desk-based assessment and provide further detail on ground cover of key peatland species, 201 peatland condition assessment points were visited during the period between September 2024 – February 2025. Whilst this period is characterised by a period of senescence (or dormant period) in vegetation, the survey only considered vegetation cover to Plant Functional Type level, which are distinguishable across the year.

5.1 Ecological Indicators

A key component of an active peatland are the plant species present, with the presence/absence and cover of different plant functional types an indication of the degree the peatland is modified from near natural conditions. The extent of plant functional types such as sphagnum moss is often a good proxy for the height of the water table and therefore to what extent the peatland is still functional (e.g. still sequestering carbon and providing key ecosystem services) or ,in the case of negative indicators e.g. bare peat, heather, purple moor grass, not peatland mosses, the degree to which the peatland is modified.

The extent to which each plant functional type was assessed was at 100 m intervals, with a 5 m radius applied at assessment points, using a modified DAFAR scale (dominant, abundant, locally abundant, scarce and absent), as shown below in Table C. A modified scale was used, as the dominance of a single plant functional type is rare within peatland ecosystems, and therefore increased granularity is not considered useful above 50 % cover. This assessment is also not meant to replace more detailed NVC surveys, but provides a basis to understanding peatland condition within class variability across the Proposed Development.

Table C: Modified DAFAR Scale used in assessment of Ecological Indicator Abundance

Modified DAFAR SCALE	COVER %
D = Dominant	50-100
A = Abundant	30-50
F = Locally Abundant	15-30
O = Occasional	5-15

Modified DAFAR SCALE	COVER %
R = Rare	0-5
A = Absent	0

5.1.1 Sphagnum Cover and Type

Sphagnum cover was absent or rare across 61% of peatland points, with a further 19% of the peatland condition assessment points only recording sphagnum at occasional cover. The remaining 12% of points showed locally abundant to abundant cover, with only 1.8% of points showing abundant cover. Areas of higher sphagnum cover are generally isolated with a slight trend of increasing sphagnum towards the west of the Proposed Development.

Where present, 36% of points surveyed contain only a single *Sphagnum spp.,* with 73% of points dominated by small and thin sphagnum species such as *Sphagnum capillofolium and Sphagnum fallax,* indicative of drier conditions and associated with both dry and wet heath. The remaining 27% of points where sphagnum was present contained both larger peat forming sphagnum species, including *Sphagnum papillosum,* alongside smaller species. Where present, larger species of sphagnum generally exist as isolated pockets within remaining peat areas.

Overall sphagnum cover is absent or lower than that expected, with active peatland across 82% of the Proposed Development dominated by drier species, although pockets of sphagnum capable of peat formation remain in isolated refugia.

5.1.2 Sedge and Grass Cover

Across the western extent of the Proposed Development, sedges such as the cotton grasses (*Eriophorum vaginatum and E. angustifolium*) as well as deer grass *(Tricophorum germanicum)* are present; however these generally occur at sub-optimal frequency (rare to occasional cover) compared to unmodified peatland, and appear to be outcompeted by ericaceous shrubs such as Common Heather (*Calluna vulgaris*) across much of the Proposed Development. Areas of wet grassland dominated by *Molinia caerulea* and non-peatland grass species are present, identified to be closely associated with flushes and minor watercourses. *Molinia caerulea* is generally heavily tussocked reflecting high intensity grazing or past management by fire and dry conditions.

Overall, the limited sedge and grass cover shows that peatland areas have been largely converted to dry heath, with species better adapted to dry conditions and prescribed burning dominating, while grasses are limited to areas with higher nutrient availability. Sedges are infrequent across the Proposed Development, likely reflecting the repeated burning and drainage of the area.

5.1.3 Ericaceous Shrub Cover

Common Heather (*Calluna vulgaris*) is abundant or dominant across 34% of the sampled peatland condition assessment points, with a further 60% at locally abundant to occasional cover. At the remaining 6% of points, Common heather is absent or rare. Common Heather dominates ground cover in areas across the majority of the western extent of the Proposed Development, where dry heath and wet heath vegetation assemblages remain (Photo 1). Dominant heather cover is interrupted mainly by minor watercourses and flushes, where *Molinia caerulea* and other grasses are more abundant as a result of rough grazing and surface water input.

Overall, the presence of heather is considered a negative indicator within peat/heath habitat present on the Proposed Development, indicating loss of peatland function and replacement of peat forming species such as *sphagnum spp*.; however the length and maturity of heather growth indicates some areas are subject to lesser amount of grazing due to deer fencing.

Photo 4: Example of dominant heather and ericaceous shrub cover with evidence of burning damage to underlying peat, found across the western extent of the Proposed Development.

5.1.4 Other Cover

Bare peat is largely absent from the Proposed Development in considerable quantities. plantation forestry predominantly found in the eastern section of the Proposed Development and is largely a monoculture with needle litter and non-peatland mosses dominating. Across the western extent of the Proposed Development, *Juncus* rush species including *Juncus effuses* and *Juncus squarosis* were identified, predominantly within close proximity to flushes in areas of abundant cover, typically surrounded by areas of dominant *Molinia* tussock cover (Photo 2).

Photo 5: Example of other cover species, *Juncus sp*. from western extent of the Proposed Development.

5.2 Peatland Morphology and Hydrology

5.2.1 Peatland Microtopography

Peatland microtopography is generally absent from peatland areas where it has been largely replaced by dry high lawn communities, or lost entirely through extensive grazing. Where present, sporadic hummocks of *Sphagnum capillifolium and Racomitrium lanuginosum* are most commonly found alongside occasional isolated hollows and limited areas of high and low lawn.

The lack of peatland microtopography across the Proposed Development indicates that the peatland is unlikely to be active and also suggets it does not currently have the diversity of function and water levels present within a near natural peatland.

5.2.2 Erosion and Drainage Features

Erosion features on peatland are dominated by gulley systems and microerosion. As mapped previously (**Figure 9.3.2**), these are primarily in the form of vegetated and hagged gulleys and banks and are found across the Proposed Development. Gulleys are found both in areas of remaining peatland vegetation and in areas where dry heath and rough pasture dominate; whereas microerosion is generally limited to remaining peatland habitats located on deeper peat.

Active drainage is found across the Proposed Development as mapped (**Figure 9.3.3**), these tend to be a range of scales and depths and appear to be generally active. ATV tracks appear to be acting as shallow drainage and are extensive and complex across the pole locations of the Proposed Development.

Forestry areas are subject to intensive drainage by furrows, feeder and collector drains as well as the drying impact from evapo-transpirative losses from non-native conifers.

Overall much of the Proposed Development is subject to drainage by erosion features or artificial features, likely impairing peatland function and causing longstanding decline of peatland habitat.

5.2.3 Peatland Restoration

Peatland Restoration is absent across the development footprint.

5.2.4 Surface Wetness

Surface wetness across the Proposed Development was generally dry with pockets of saturated peat where water levels were elevated. As the surveys were conducted in autumn and winter when water levels would be expected to be at their highest, this would indicate water levels are generally suppressed compared to an equivalent near natural peatland.

5.2.5 Surface Peat Density

All areas of the Proposed Development have either hard or firm ground conditions, indicating high peat densities. High peat density is a sign of oxidation and compaction of the peat surface, due to drainage and livestock pressures. It also reduces the resilience of peat to extreme weather events such as drought. Therefore, widespread high-density peats are likely to reflect longstanding loss of peatland function and peat forming conditions.

5.3 Land-use Pressures

5.3.1 Grazing Pressures

Evidence of high grazing pressure by both deer and, to a limited extent sheep, is present across the Proposed Development with numerous instances of scats, footprints and tracks; as well as grazer impacts like tussocking, branching heather growth, replacement of peatland species, puddling and collapsed gulley walls. There were also significant numbers of deer on the Proposed Development during the surveys. Where fencing prevented extensive grazing by deer, peatland habitats are more intact than adjacent areas of deep peat. Overall, it is likely that through fertilisation, trampling and grazing, herbivore impacts are likely to be a significant pressure on the remaining peatland habitats.

5.3.2 Fire Evidence

There is evidence of recent muirburn fires on peatland within the Proposed Development. Also, the high degree of conversion to rough grazing and ubiquitous dominant heather cover indicates that it is highly likely that fire was used historically as a land clearance tool. From aerial imagery analysis, multiple burn scars are apparent across the western extent of the Proposed Development.

5.3.3 Other Pressure

Non-native conifer colonisation of open peat areas was observed close to plantation forestry in the central extent of the Proposed Development, adjacent to Goyle Hill as shown below in **Photo 3.** Establishment of conifer trees is likely to adversely affect peatland function through drainage and evapo-transpirative loss.

Photo 6: Conifer colonisation in background of image, location in the central extent of the Proposed Development adjacent to Goyle Hill.

6.0 Infrastructure Assessment

The following section, alongside the detailed assessment in Annex 1, presents an overview of the peatland impacts of the infrastructure within the Proposed Development.

6.1 Pole Locations

112 Pole locations (001-112) avoid by design peat with overlying peatland habitat completely and are therefore excluded from this analysis.

Two Poles (113 & 114) that do not avoid peat are located entirely in afforested peatland in the drained artificial class. These areas are dominated by monoculture plantation with intensive drainage by furrows, feeder and collector drains. Beneath the canopy the peat surface is comprised of dry dense peat dominated by needle litter and non-peatland mosses. It is considered likely that peat structure is also highly disturbed at this location, due to the ploughing techniques used. A conservative peatland condition assessment of the poles located on peat would be **Modified**/**Drained Artificial** due to the lack of afforested peat within both the Peatland Code and NatureScot Peatland Condition Assessment guidelines[20] and the longstanding land management practices in the area.

Overall, poles on afforested peat are likely to be actively degrading and therefore peatland impacts are likely to be **Low**.

22 pole locations (115-116, 120-123, 126-127, 130-133, 141, 143, 144, 145, 146-149 and 173-174) that do not avoid peat are located in areas characterised by rough grazing or dry heath cover, dominated by non-peat forming mosses and dominant branching common heather cover. These show high burning and herbivore impacts, resulting in the loss of peatland species and therefore are generally characterised by a combination of **Modified/Drained (Artificial and Hagg/Gulley)** conditions. Peats in these areas are dry and highly compacted, subject to widespread burning and grazing and have been subject to longstanding drainage. Due to the large scale loss of peatland vegetation diversity and replacement by non-peat species, it is unlikely that peat accumulation is inactive and that these areas have been, and

are currently, in active decline. Six pole locations (117, 119, 163, 165 and 171-172) were identified in areas further characterised as **Actively Eroding,** alongside being modified and drained, due to the widespread erosional features observed in close proximity to pole locations, including peat haggs, hagged gulleys and bare peat gulleys.

Overall, peatlands subject to rough grazing where in proximity to pole locations, were found to be widely drained and in some places actively degrading; therefore, peatland impacts are likely to be **Low**.

Two pole locations (150, 157) that do not avoid peat are located in areas of dry heath vegetation, with fragmentary areas of peat forming vegetation. These include refugia with higher *Sphagnum* cover and species such as *Sphagnum papillosum* and *Sphagnum pallustre ,*alongside peat forming sedge species including *T. germanicum*. These areas are generally subject to microerosion, hagged gulleys and vegetated gulleys with artificial drainage by active narrow hill drains and shallow surface drainage caused by ATV tracking. Peats in these areas are dry and compacted, indicating drainage has suppressed water tables.

6.2 Peatland Tracks

Tracks serving pole locations 001-112 alongside access tracks connecting to the Proposed Development (east of pole 112), are located on areas without significant deposits of peat and are therefore excluded from further analysis in this assessment.

Tracks serving pole locations 113-115 largely avoid peat and where they overlie peat it is afforested by conifer plantation. These areas are dominated monoculture plantation forestry with intensive drainage by furrows, feeder and collector drains. Beneath the canopy the peat surface is comprised of dry dense peat dominated by needle litter and non-peatland mosses. It is likely that peat structure is also highly disturbed due to the ploughing techniques used.

New temporary tracks servicing poles 115-146 are located in an area with minor pockets of non-peat soils. This area is characterised as widely **Modified** with significant portions of peatland located within areas of **Drained Artificial** and extensive erosional features, creating minor areas further characterised as **Actively Eroding/Drained Hagg & Gulley,** especially between poles 134-138. Uncontrolled conifer growth was noted in the area of the proposed tracks between pole locations 118-122. Sphagnum sp. cover was occasionally noted over this area, observed to be thin non-peat forming species, with drier non-peatland moss cover dominating.

New temporary tracks servicing poles 147-179 are located on an area supporting complex assemblages of erosional and drainage features. Extensive complexes of artificial drainage, such as the area around pole locations 153-156, create characteristic conditions of **Artificial Drained / Modified** with widespread ATV tracks creating shallow surface water flow pathways and further compounding the draining effect. Extensive erosional features present include haggs, hagged gulleys and bare peat gulleys; such as observed in the areas between pole locations 150-153 and 166-172, creating conditions characterised as **Actively Eroding/Drained Hagg & Gulley**. The section of new temporary track from pole 178 aligned south and west is located in an area of significant erosive feature cover; with large areas of gulley erosion, both hagged and bare peat gulleys, interspersed with areas of dry heath vegetation cover, creating conditions characteristic of **Modified & Actively Eroding/Drained Hagg & Gulley.**

New permanent track sections including those connecting to the B974 and the section from pole 180 to the Glendye wind farm on-site substation, are located within areas widely characterised as **Modified,** with the section west from pole 180 located in an area with

complex erosional features, creating minor areas further characterised as **Actively Eroding/Drained Hagg & Gulley.**

A conservative peatland condition assessment of the areas of these forest tracks on peat would be **Drained Artificial,** due to the lack of afforested peat within both the Peatland Code and NatureScot Peatland Condition Assessment guidelines. Overall, the proposed tracks located on afforested peat are likely to be actively degrading and therefore peatland impacts are likely to be **Low**.

6.3 Ancillary Infrastructure

Infrastructure east of pole location 112 are sited on areas without significant deposits of peat and are therefore excluded from further analysis in this assessment.

The consented Glendye wind farm on-site substation location at the western extent of the Proposed Development lies partially on peatland in **Drained Artificial / Drained Hagg & Gulley** condition, adjacent to vegetated gulleys and peat haggs, alongside drains and extensive ATV tracking. Remaining cover is dominated by sedges, sphagnum and non-peatland rushes with species noted including *Sphagnum capillofolium*, *Sphagnum fallax* and *Juncus effuses.* Peat condition is generally compacted with some water ponding identified on the surface likely due to the compaction and hydrophobic qualities of modified peat, indicating prolonged drainage and land management in the area.

Overall, the substation area can be considered to be non-active peatland, although peat forming species are present with active drainage from the adjacent drains and ATV tracks located alongside erosional features. As a result it is considered that peatland impacts from this part of the Proposed Development are **Low.**

Priority Peatland Habitat

NatureScot guidance *'Advising on peatland, carbon-rich soils and priority peatland habitats in development management'* [20]provides information to define habitats likely to be considered 'priority peatland habitat' as shown below in **Table D**.

Based on available habitat and botanical survey data for the Proposed Development, bog habitats are present as hydrologically isolated and highly modified fragments across the Proposed Development, and whilst these are largely avoided, it will not be possible to avoid these habitats entirely, either for poles or other permanent and temporary infrastructure. Therefore, consideration of whether peatland habitat within the Proposed Development meets the threshold for priority habitat is required.

NatureScot's scoping criteria[22] for priority peatland habitat is addressed for the Proposed Development Error! Reference source not found. below. Overall, it is not considered that any of the peatland habitat meets the criteria for priority peatland habitat, on the basis of the observations made and the fragmentary and modified nature of the peatland habitat within the area of the Proposed Development.

[20] NatureScot, 2023. Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Revised November 2023. NatureScot. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management [Accessed 19 Sep. 2025]

Table D – Table of NatureScot Scoping Criteria[22] for Priority Peatland Habitat.

NatureScot Scoping Criteria[22]	Proposed Development Specific Commentary
Montane Bog – Presence of blanket peatland above 600 m	Not applicable, all peatland below 600 m
Blanket Bog >25 ha	The Proposed Development contains approximately 557 Ha of discontinuous blanket bog peatland, largely managed as grouse moor and for grazing.
Does the Proposed Development footprint and/or the wider area of blanket bog of which it is a part, support vegetation capable of forming peat?	The Proposed Development area contains predominantly *Sphagnum capillifolium and S. fallax* at low cover densities. These species are also found in dry and wet heath e.g. non peat forming environments. Small isolated pockets of peat-forming *Sphagnum* are rarely present (such as *Sphagnum papillosum),* except close to Poles 150 & 157. Assemblages are generally low diversity modified dry heath vegetation, which is not peat forming and in many areas comprises dominant *Molinia caerulea* with *Calluna vulgaris*
Does the Proposed Development footprint (with a buffer of 250 m) support two or more of the following?	No, within the Proposed Development the following has been confirmed: • **Low frequency of drains and peat cutting:** No, there is extensive artificial drainage, with peat cuts and hill drains • **Presence of plant species indicating peat formation capability:** rare occurrences of peat forming species such as *Sphagnum palustre, subnitens, papillosum* within wetter areas, such as where hyper-localised wetter conditions persist, otherwise *Sphagnum* is generally absent or rare and where obsereved was dominated by dry heath species such as *Sphagnum capillofolium and fallax.* • **An area of natural surface pattern:** No, microtopography is entirely absent • **Absence of invasion by woodland or scrub:** Heather and dry heath colonisation of deep peat areas are associated with historic burning of the Proposed Development. Localised areas of conifer regeneration and former plantation forestry were identified close to Goyle Hill.
Does the Proposed Development footprint (with a buffer of 250 m) support one or more of the following?	**An abundance of *Sphagnum*-rich ridges:** *Sphagnum* rich ridges absent • Ridges of Sphagnum - Betula nana: None • Hummocks of S. fuscum or S. austinii: No fuscum or austinii noted during NVC or Peatland condition Surveys • Peat mounds: Not present on-Proposed Development • Hollows of Sphagnum or bare peat: Rhynchospora fusca – Sphagnum hollows rarely present

7.0 Proposed Development Conclusions

The areas of the Proposed Development with underlying peat deposits where the Proposed Development is located were found to be extensively drained and modified for land uses including rough grazing and commercial forestry. This has led to a loss of microtopography and peatland plant species diversity associated with active peatland function, with extensive colonisation of non-peatland plant communities forming across the Proposed Development.

Much of the western extent of the Proposed Development was found to contain numerous areas of active erosion, with features such as Haggs, Gulleys and microerosion identified and promoting further draining effects on the peat present. The majority of infrastructure and pole locations are designed to occur on areas lacking significant peat deposits with those unable to avoid peatland located in areas with extensive drainage and degraded condition indicators. The infrastructure and poles that comprise the Proposed Development are overall likely to be of Low impact to peatland condition on Proposed Development and the habitats affected are unlikely to fall under priority peatland habitat guidelines.

Following the above assessment, the following detailed conclusions can be made in relation to the Proposed Development infrastructure:

7.1.1 Poles and Pole Locations

Overall, the impacts of the proposed poles and associated infrastructure is considered to be **low,** due to the extensively drained, modified and actively eroding nature of peat on Proposed Development. The sensitive placement of poles has avoided peat entirely at 121 pole locations. Of the remainder that are proposed on peatland;

- Two are located entirely in afforested areas, with intensively drained and modified peatland conditions present. Due to the extensive drainage network and disturbance of peat across these areas it is likely these peatlands are actively degrading over time.
- 32 poles are located on areas characterised by modified wet grassland and rough grazing conditions, with extensive erosional features creating areas characterised as Actively Eroding/Drained Hagg & Gulley. Historic drainage networks and herbivore fertilisation have removed much of the natural peatland plant communities, leaving them species poor and prone to invasive and heath plant colonisation, with compacted peat likely not accumulating further from current levels.

Two pole locations (150, 157) are located in areas of dry heath with minor fragmented communities of peatland plants, including peat forming sphagnum and sedge species. Where locally abundant sphagnum has been identified, avoidance should be possible either through micrositing by ECoW instruction, or in the case of direct effects to sphagnum species, transplanting turfs to locations with optimal growth conditions.

7.1.2 Tracks

Overall, the impact of proposed tracks in peatland habitats is considered to be **low** due to the extensively drained, modified and actively eroding nature of peatland within the Proposed Development footprint. The sensitive placement of tracks surrounding and connected to 112 pole locations avoid peat entirely. Of the remaining tracks in areas with peat deposits;

- sections of track above 1 m of peat will be floated, where practicable;

- tracks serving two poles are located in areas of afforested peat that is largely modified and artificially drained, lacking peatland species or natural microtopography (and therefore of low nature conservation value); and
- Sections of tracks servicing poles 119-122 are located in areas with discrete peat deposits identified to be extensively modified and actively eroding, with areas of uncontrolled conifer growth present alongside extensive colonisation of non-peatland plant species.

Tracks servicing poles 150, 157 and the consented Glendye wind farm on-site substation are located in areas with occasional fragmented peatland species, including *Sphagnum spp*. These peatland plant species are located in afforested areas with growth conditions likely highly influenced by artificial drainage networks. Where locally abundant sphagnum has been identified, avoidance should be possible either through micrositing by ECoW instruction or in the case of sphagnum, transplanting turfs to locations with optimal growth conditions.

7.1.3 Other Infrastructure

Overall, the impacts of other infrastructure associated with the Proposed Development is considered to be **low**. All other infrastructure east of pole location 112 avoid peat entirely. Of the infrastructure located on peat:

- The consented substation area and any associated connection works is located partially on peatland with fragmented occasional peat forming plant communities. The area is widely affected by nearby extensive erosional features, drains and ATV tracking and colonised by non-peat forming plant species; and
- Infrastructure adjacent to the B974 is located in highly modified areas of the Proposed Development, with drainage and modified dry heath habitat lacking peat forming species.

The Proposed Development is located in an area of peatland heavily affected by grazing, drainage, management by fire and afforestation. The peatland is mostly dry and has high peat density. Peat-forming plants are rare, and the vegetation mainly consists of drought-tolerant species.

Although limited fragments of peatland peat-forming plant communities were encountered, infrastructure has been located in areas with large amounts of negative indicators and few if any positive condition indicators will be affected. Avoidance of the minor areas of positive indicators is possible through micrositing by ECoW instruction, or in the case of sphagnum, transplanting turfs to locations with optimal growth conditions.

As such, the Proposed Development is located generally within a **Drained (Artificial/Hagg Gulley) or Highly Modified** peatland, indicating it is not actively sequestering carbon and as such impacts from the Proposed Development are likely to be **Low**.

. Annex 1 – Infrastructure Overview

Peatland Condition Assessment

Glendye Wind Farm Overhead Line Grid Connection

Scottish & Southern Electricity Networks

SLR Project No.: 428.013097.00001

Infrastructure	Qualitative Description	Soil Type	Peat/Soil Depth	Condition Class	Sphagnum	Type of Sphagnum	More than one type of Sphagnum	Micro-topography	Restoration	Peat Density	Soil Moisture	Burning	Grazing	Erosion	Bare Peat	Molinia	Calluna	ATV Tracks
Substation compound	4 points situated in a square in the west most area of the site. ATV Tracks close nearby, drains intercept into area, surrounded by haggs and vegetated gulleys. Maximum depth is 1m, drained open land.	Deep Peat >1.0m	0.65	Drained Artificial/Modified	Locally abundant	Both	Yes	Low Lawn	No	Firm	Dry	High Evidence	High Evidence	None	Rare	Rare	Rare	Yes
Proposed Permenant Track	First 4 points on the track, directly east from west substation. Proposed track surrounded by a few haggs and drains, one vegetated gulley which drains the area. Maximum peat depth is 1.2m.	Deep Peat >1.0m	0.9	Actively eroding/ Drained hagg gulley/Modified	Locally abundant	Both	Yes	None	No	Firm	Dry	High Evidence	High Evidence	vegetated gulley, microerosion	Rare	Rare	Locally Abundant	No
Proposed Permenant Track 2	Next 3 Points on track, up until beginning of structure no. 182. Track surrounded by a few haggs and a vegetated gulley, point furtherest from structure 182 is intercepted by ATV tracks. Maximum depth is 0.7m, runs parallel to UGC alignment.	Peat >0.5m	0.35	Drained Hagg_Gulley/Modified	Rare	Both	Yes	High lawn	No	Firm	Dry	High Evidence	High Evidence	vegetated gulley, microerosion	Rare	Rare	Locally Abundant	Yes
Structures 182 to 179	Proposed structures and track hosts a maximum depth of 0.7m. Structure 182 is surrounded by a number of haggs and drains. River intercepts track at structure 181.	Organic Rich Soil (<0.5m)	0.26	Drained hagg gulley/Drained Artificial/Modified	Locally abundant	Both	Yes	High lawn, low lawn, sphagnum hollow	No	Firm	Saturated	High Evidence	High Evidence	Vegetated gulley	Absent	Occassional	Locally Abundant	Yes
Proposed Permenant Track 3	First 6 points of the track just south of structure 178. Track runs almost parallel with ATV Tracks and a singular long drain.	Organic Rich Soil (<0.5m)	0.3	Drained hagg gulley/Drained Artificial/Modified	Occasional	Small and Thin	No	Low lawn, high lawn	No	Firm	Dry	High Evidence	High Evidence	None	Absent	Absent	Locally Abundant	Yes
Proposed Permenant Track 4	Next 4 points south of Proposed permenant track 3. Intercepted by several small mini haggs and a few drains. Highly varied condition, likely drained from nearby surface water line.	Deep Peat >1.0m	1.1	Actively eroding/ Drained hagg gulley/Drained Artificial/Modified	Rare	Small and Thin	No	High lawn	No	Firm	Dry	High Evidence	High Evidence	Vegetated gulley with bare peat	Occasional	Rare	Abundant	No
Proposed Permenant Track 5	Next 4 points just after the bend. First point is the first point west from the surface water line just above the proposed track. Final point is situated just below the next surface water line (directly next to a patch of recorded micro erosion). Close to micro erosion patches and surface water lines just north of the track. Few haggs present.	Peat >0.5m	0.6	Actively Eroding/Drained Hagg_Gulley/Modified	Occasional	Both	Yes	High lawn	No	Soft	Saturated	High Evidence	High Evidence	Vegetated gulley	Absent	Rare	Locally Abundant	No
Proposed Permenant Track 6	First and fourth points are both situated north of small patches of micro erosion south of the proposed track line. Track surrounded by multiple haggs, vegetated gulleys and drains. Maximum soil depth is 0.2m.	Organic Rich Soil (<0.5m)	0.15	Actively Eroding	Rare	Small and Thin	No	High lawn	No	Firm	Dry	High Evidence	High Evidence	vegetated gulley, vegetated gulley with bare peat, Bare peat gulley, microerosion	Occasional	Rare	Abundant	No
Proposed Permenant Track 7	Last three points situated on the proposed track. First point coming from the rest of the track is just above a large patch of micro erosion. Maximum peat depth is 1m. Vegetated gulleys present at end of track, drained by vegetated gulleys.	Peat >0.5m	0.7	Drained Hagg_Gulley/Modified	Occasional	Both	Yes	None	No	Firm	Saturated	High Evidence	High Evidence	Vegetated gulley	Absent	Absent	Occassional	No
Structures 178 to 175	Proposed track shows organic soil at a maximum depth of 0.3m. Track is intercepted by surface water line between structures 174 and 175 and intercepted by ATV Tracks at structures 175 and 176. A few haggs and drains can be found near the tracks.	Organic Rich Soil (<0.5m)	0.28	Actively Eroding/Drained Hagg_Gulley/Modified	Locally abundant	Both	No	High lawn, low lawn	No	Firm	Dry	None	High Evidence	None	Absent	Rare	Locally Abundant	Yes
Structures 174 to 171	Proposed structures in an area of deeper peat with a maximum depth of 1.8m. A multitude of ATV tracks are present to the north with some touching at structures 174 and 173. Surface water line intersects between structures 173 and 172. Overall highly modified area of farmland.	Deep Peat >1.0m	1.1	Actively eroding/ Drained hagg gulley/Drained Artificial/Modified	Absent	N/A	No	None	No	Firm	Dry	High Evidence	High Evidence	Microerosion	Absent	Absent	Locally Abundant	Yes
Structures 170 to 167	Track presents with deep peat at a maximum depth of 2.3m. Surrounded by intermittent haggs and a singular drain to the north of the track. An overall highly eroded area.	Deep Peat >1.0m	1.2	Actively eroding/ Drained hagg gulley/Modified	Rare	Small and Thin	Yes	None	No	Firm	Dry	High Evidence	High Evidence	None	Absent	Absent	Abundant	No
Structures 166 to 163	Deep peat present on track at a maximum depth of 2.8m in a peat pocket situated near structure 166 which is also intercepted by another surface water line. Several haggs and drains surround these structures.	Deep Peat >1.0m	1.4	Actively eroding/ Drained hagg gulley/Drained Artificial/Modified	Occasional	Small and Thin	Yes	High lawn, low lawn, sphagnum hollow	No	Firm	Saturated	High Evidence	High Evidence	Microerosion	Absent	Absent	Locally Abundant	Yes
Structures 162 to 159	Track situated on deeper peat at a maximum depth of 1.3m. Track is intersected at structure 159 and 162 by surface water line. Many haggs present near tracks.	Deep Peat >1.0m	1.1	Actively Eroding/Drained Hagg_Gulley/Modified	Occasional	Small and Thin	Yes	None	No	Firm	Saturated	High Evidence	High Evidence	Vegetated gulleys with bare peat	Absent	Absent	Locally Abundant	No
Structures 158 to 155	Structures situated on deep peat with a maximum depth of 1.3m. Track lies just south of elevated surface water line and is surrounded by intermittent drains and haggs. Likely highly saturated.	Deep Peat >1.0m	1	Drained hagg gulley/Drained Artificial/Modified	Occasional	Both	Yes	None	No	Firm	Saturated	High Evidence	High Evidence	Vegetated gulley	Absent	Absent	Locally Abundant	No
Structures 154 to 151	Proposed structures in an area of deeper peat with a maximum depth of 1.1m. A multitude of drains cut across structure 154 north to south. Haggs intersect structures 151 and 153.	Deep Peat >1.0m	1	Actively eroding/ Drained hagg gulley/Drained Artificial/Modified	Occasional	Small and Thin	Yes	None	No	Firm	Dry	High Evidence	High Evidence	Vegetated gulley	Absent	Absent	Locally Abundant	No
Structures 150 to 147	Track located in deep peat up to a maximum depth of 1.4m. Located in a highly modified area. Little variation of peat type.	Deep Peat >1.0m	1.2	Actively eroding/ Drained hagg gulley/Drained Artificial/Modified	Rare	Both	Yes	None	No	Firm	Saturated	High Evidence	High Evidence	None	Absent	Absent	Locally Abundant	No
Structures 146 to 143	Track located across shallow soil with a maximum depth of 0.5m. Highly modified land with a drain cutting across the track between structures 143 and 142.	Organic Rich Soil (<0.5m)	0.36	Modified	Rare	Small and Thin	No	None	No	Firm	Dry	High Evidence	High Evidence	Vegetated gulley	Rare	Absent	Abundant	No
Structures 142 to 139	Structures situated on deep peat with a maximum depth of 1.8m. 2 surface water "lines" cut through track just west of structure 141 and east of structure 142.	Deep Peat >1.0m	1.35	Drained hagg gulley/Drained Artificial/Modified	Rare	Small and Thin	No	Hummock	No	Firm	Dry	High Evidence	High Evidence	Vegetated gulley	Rare	Absent	Locally Abundant	No
Structures 138 to 135	Track situated on shallow peaty soil at a maximum depth of 1m. Vegetated gulleys and haggs present to the south of the structures.	Organic Rich Soil (<0.5m)	0.5	Drained hagg gulley/Drained Artificial/Modified	Rare	Small and Thin	No	None	No	Firm	Dry	High Evidence	High Evidence	None	Rare	Absent	Locally Abundant	No
Structures 134 to 131	Track proposed on pockets of deeper peat at structures 132 and 131 and soil at structures 133 and 134. Maximum peat depth at 1.5m.	Deep Peat >1.0m	1.1	Drained Hagg_Gulley/Modified	Rare	Small and Thin	No	Low lawn, high lawn, Hummock	No	Firm	Saturated	High Evidence	High Evidence	None	Rare	Rare	Occassional	No
Structures 130 to 127	Track proposed in area of relatively deep peat, absence of species variation, highly modified land.	Deep Peat >1.0m	1	Actively Eroding/Drained Hagg_Gulley/Modified	Absent	N/A	No	None	No	Firm	Dry	High Evidence	High Evidence	None	Absent	Rare	Locally Abundant	No
Structures 126 to 123	Area of deep peat, variable species, maximum peat depth of 2.5m. Located in highly modified area. Intercepted by surface water line between structures 123 and 124.	Deep Peat >1.0m	1.7	Actively Eroding/Drained Hagg_Gulley/Modified	Occasional	Small and Thin	Yes	None	No	Firm	Saturated	High Evidence	High Evidence	Vegetated gulley	Absent	Rare	Locally Abundant	No
Structures 122 to 119	Track proposed in area of very deep peat, maximum depth of 2.2m. Although lack of sphagnum in area. Track proposed on drained, modified ground.	Deep Peat >1.0m	2	Actively Eroding/Drained Hagg_Gulley/Modified	Rare	Small and Thin	No	None	No	Firm	Dry	High Evidence	High Evidence	Vegetated gulley	Absent	Rare	Locally Abundant	No
Structures 118 to 115	Track in area of deep peat, maximum depth of 1.9m. Structure 117 with raised track is surrounded by haggs and vegetated gulleys. Track after point 115 becomes forested.	Deep Peat >1.0m	1.65	Actively Eroding/Drained Hagg_Gulley/Modified	Rare	Small and Thin	Yes	None	No	Firm	Dry	High Evidence	High Evidence	Vegetated gulley with bare peat, vegetated gulley	Absent	Rare	Locally Abundant	No

Strongly Neg Indicator	Negative Indicator	Neutral	Positive Indicator	Strongly Pos Indicator

Annex 2 - Figures

Peatland Condition Assessment

Glendye Wind Farm Overhead Line Grid Connection

Scottish & Southern Electricity Networks

SLR Project No.: 428.013097.00001

List of Figures

Scottish & Southern Electricity Networks

TRANSMISSION

Figure 9.3.1b

Figure 9.3.1c

Figure 9.3.1d

Legend

S.37 Overhead Line (OHL) Works

- Proposed OHL Alignment

Ancillary Development

- Proposed Permanent Track
- Proposed Temporary Trackway Panel
- Proposed Temporary New Stone Track
- Existing Track
- Existing Track to be Upgraded
- Proposed ATV Route
- Proposed Permanent Bridge or Culvert

Limit of Deviation

- Proposed OHL and Access Track Limit of Deviation (LoD)

Permitted Development

- Indicative 132 kV Underground Cable Alignment

Existing and Consented Development

- Existing Fetteresso Substation
- Glendye 132 kV Substation
- Glendye Wind Farm Access
- Glendye Wind Farm Turbine

Scale @ A3: 1:65,000

0 0.5 1 2 3 4 km

Project No: LT468/469

Project: Glendye Wind Farm Overhead Line Grid Connection

Title: EIA Report
Appendix 9.3: Peat Condition Assessment
Site Layout
Figure 9.3.1a

Drawn by: QF Date: 08/10/2025

Scottish & Southern Electricity Networks
TRANSMISSION

Legend

S.37 Overhead Line (OHL) Works

- Proposed OHL Pole Location
- Proposed OHL Alignment

Ancillary Development

- Proposed Permanent Track
- Proposed Temporary New Stone Track
- Proposed CSE Hardstanding Area
- Proposed Permanent Bridge or Culvert

Limit of Deviation

- Proposed OHL and Access Track Limit of Deviation (LoD)

Permitted Development

- Indicative 132 kV Underground Cable Alignment

Consented Development

- Glendye 132 kV Substation
- Glendye Wind Farm Access
- Glendye Wind Farm Turbine

Scale @ A3: 1:25,000

0 0.25 0.5 1 1.5 2 km

Project No: LT468/469
Project: Glendye Wind Farm Overhead Line Grid Connection

Title: EIA Report
Appendix 9.3: Peat Condition Assessment
Site Layout
Figure 9.3.1b

Drawn by: QF Date: 08/10/2025

Scottish & Southern Electricity Networks
TRANSMISSION

68 70 72 74

84 82 80

Scale @ A3: 1:25,000
0 0.25 0.5 1 1.5 2 km

Legend

S.37 Overhead Line (OHL) Works

- Proposed OHL Pole Location
- Proposed OHL Alignment

Ancillary Development

- Proposed Permanent Track
- Proposed Temporary Trackway Panel
- Proposed Temporary New Stone Track
- Existing Track
- Existing Track to be Upgraded
- Proposed ATV Route
- Proposed Permanent Bridge or Culvert

Limit of Deviation

- Proposed OHL and Access Track Limit of Deviation (LoD)

Project No: LT468/469
Project: Glendye Wind Farm Overhead Line Grid Connection

Title: EIA Report
Appendix 9.3: Peat Condition Assessment Site Layout
Figure 9.3.1c

Drawn by: QF Date: 08/10/2025