

VOLUME 4: APPENDIX V1-7.3: HABITAT TECHNICAL REPORT

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UKHab and National Vegetation Classification (NVC)

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REPORT

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1 INTRODUCTION

1.1 Background

- 1.1.1 RPS Consulting Services Ltd. (RPS) was commissioned by ASH Design + Assessment Ltd (ASH) to undertake UKHab and National Vegetation Classification (NVC) survey of the habitats along the length of the Proposed Development. The Proposed Development with relevant survey buffers is provided in **Volume 2: Figure V1-7.4 – Habitat Survey Area**.
- 1.1.2 Surveys of a large proportion of the Proposed Development and surrounding ground has previously been undertaken in association with the existing, proposed and consented developments in the area, these include:
- Strathy North Wind Farm (2009);
 - the Strath Halladale to Dallangwell 132 kV trident 'H' wood pole OHL (connecting the operational Strathy North Wind Farm to the existing Connagill 275/132 kV substation) (2012-2013);
 - Strathy South Wind Farm (2011, 2012, 2019, 2024)
 - Strathy Wood Wind Farm (2013) including the existing access track upgrade;
 - Melvich Wind Energy Hub (2022)
 - Kirton Energy Park (2022);
 - the proposed Strathy Wood Grid Connection (2009, 2022); and,
 - the now withdrawn Armadale Wind Farm grid connection (2022).
- 1.1.3 Given the slow change of habitats, particularly those of the upland environment, this information was determined to still be relevant to the assessment for the Proposed Development as agreed with NatureScot in consultation completed in 2023.
- 1.1.4 Despite the extent of existing data that has been collected in the area further survey work has been completed, which has sought to:
- Ensure that previous data collected remained relevant through ground truthing habitats previously identified in proximity to the Proposed Development (completed in 2022).
 - Ensure full coverage of the Proposed Development, including an appropriate 100 m buffer (completed in 2024).
- 1.1.5 This Appendix provides a summary of the methods used, the findings of the surveys, and provides an overview of the vegetation communities present within the survey area and the associated areas that these occupy. Detailed descriptions of the UKHab habitats present have not been provided in this report and readers are directed to the relevant UKHab guidance V2.0¹ where descriptions of associated habitat characteristics and associated species are provided. Detailed descriptions of the NVC communities identified are provided, along with how these might differ from the typical habitats (where relevant) as described in standard text and guidance, due to local pressures and influences in the local environment.

¹ UKHAB Ltd (2023). UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>).

2 METHODOLOGY

- 2.1.1 Consideration was given to each data source used to inform the design and assessment of the Proposed Development. The below section provides methodologies used in considering the existing data, collection of additional field survey data to supplement this when gap-analysis was completed to ensure a complete and robust data set is presented, and to ground-truth existing data to ensure it remains relevant to support the Proposed Development's planning submission.

2.2 Desk Study

- 2.2.1 Prior to field surveys the below actions were completed to provide a background to the habitats likely to be present within the survey area:
- A search for details of Priority habitats and species as listed within the Highland Biodiversity Action Plan² (HBAP) was undertaken.
 - A search of the Scottish Biodiversity List (SBL) (2020) was undertaken for details of habitats considered to be of principal importance for biodiversity conservation.

2.3 Field Survey

- 2.3.1 Combined UKHab and NVC surveys were completed of the OHL and associated infrastructure plus a surrounding 100 m buffer to capture all immediate vegetation communities as well as any ground water dependent terrestrial ecosystems (GWDTEs) in the wider area including habitat condition. This followed the GWDTEs guidance from the Scottish Environmental Protection Agency (SEPA)³ and Natural England condition assessment guidance⁴. GWDTEs are a range of wetland habitats influenced and depend on groundwater flows and / or chemistries³.
- 2.3.2 UKHab and NVC nomenclature was used in the field as this was determined to be more relevant to the range of habitats present within the survey area, some of which did not conform with an NVC community. Notes were made surrounding the condition of the NVC communities recorded along with how they may differ from those described in standard text. The survey area is shown in **Volume 2: Figure V1-7.4**.
- 2.3.3 The surveyor walked the entire survey area to visit all apparently different vegetation communities, and each 'stand' (apparent community or sub-division of the polygon) was sampled by recording the vascular plants, bryophytes and lichens present and their relative dominance noted. Consequently, qualitative rather than quantitative data was recorded on community composition (i.e. domin scale quadrat data was not recorded). Aggregate species were treated as such (e.g. *Euphrasia* agg., *Taraxacum officinale* agg.) without identifying them to species level.
- 2.3.4 Vegetation was classified and areas mapped using the standard NVC nomenclature (Rodwell, 1998-2000) to community level, and wherever possible sub-community level. Each definable area was individually mapped onto 1:10 000 Ordnance Survey (OS) mapping; these areas are referred to throughout the report as 'polygons'. Due to the complex nature of vegetation communities, there were numerous polygons in which several different communities were present forming a mosaic, each too small to be mapped individually. In these areas, the compositions of the communities within the mosaic were noted, including percentage cover values, and the dominant community

² HBAP (2021-2026). Highland Biodiversity Action Plan (at <https://www.hIGHLANDenvironmentforum.info/wp-content/uploads/2022/01/Highland-Nature-Biodiversity-Action-Plan-2021-2026-compressed-.pdf>).

³ SEPA, (2017). Land Use Planning System SEPA Guidance Note 31 - Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, s.l.: SEPA.

⁴ Natural England (2024) <https://publications.naturalengland.org.uk/publication/6049804846366720?cache=1697011896.649729>

identified. Some locations within the survey area did not fit into the standard NVC nomenclature or the proposed revisions to the existing communities. Where this occurred, the vegetation was given a prefix for the community and the assemblage of species noted.

- 2.3.5 To aid in the identification of NVC communities quadrats were used to record the plant species present in representative areas of habitat. The quadrat boundary (2 x 2 m) was temporarily marked using cord, oriented so corners were at south-west, north-west, north-east and south-east points. The non-quantitative DAFOR scale was also used, highlighting those key species present and those which define NVC community compositions (Rodwell, 1998-2000).
- 2.3.6 Plant species were identified and recorded using The Wildflower Key (Rose & O'Reilly, 2006), Colour Identification Guide to Grasses, Sedges, Rushes, and Ferns (Rose, 1989) for higher plants and the Mosses and Liverworts of Britain and Ireland (Atherton, *et al.*, 2010) for bryophytes.
- 2.3.7 Areas such as forestry, which did not conform with NVC communities, were noted using the UKHab survey nomenclature (UKHab, 2023) with the dominant species within the stand noted.

2.4 Ground-Truthing Assessment

- 2.4.1 In 2022, indicative structure locations along the OHL alignment being considered at that time (but largely reflective of the proposed OHL alignment) were mapped and buffered by 100 m. At each of these locations, outdated data available regarding the NVC communities present from previous surveys, including any mosaic compositions, were reviewed for their accuracy. When historical vegetation data was found to be inaccurate from vegetation data recorded on the ground in 2022, this was then updated accordingly.

2.5 Personnel and Weather Conditions

- 2.5.1 Surveys to ground-truth existing habitat survey information were first completed by experienced habitat surveyors (Carroll Ecology) through the week commencing 24th October 2022.
- 2.5.2 Further survey work was subsequently conducted across the wider area of the Proposed Development alignments to ensure full coverage where habitats might be affected. Survey work was conducted by experienced and competent botanists; Darren Graham (Full Member of the Chartered Institute for Ecology & Environmental Management (CIEEM) and Field Identification Skills Certificate (FISC) Level 4) and Roanne Lilley (Associate Member of CIEEM).
- NVC survey of the alternative alignment study area
 - 19th – 26th June 2023,
 - 18th – 22nd September 2023,
 - 12th – 14th January 2024
 - Additional NVC surveys following gap analysis of design freeze to ensure all areas of the Proposed Development had field-based data to support the impact assessment.
 - 2nd December 2024
- 2.5.3 All surveys were conducted in mild conditions with limited or no rainfall. No snow or frost was lying on the ground which might have limited the identification of specific species.

2.6 Survey Limitations

- 2.6.1 Whilst some habitat surveys were completed out with the preferred season for vegetation assessments, the upland nature of the site and the peatland communities present continue to exhibit key identifying features at this time of the year. Consequently, it is considered that this has not affected the robustness of the surveys completed.
- 2.6.2 No other limitations were identified which may affect the results of the survey and the quality of the data collected.

3 RESULTS

3.1 NVC and UKHab Survey

- 3.1.1 Survey results from the NVC and UKHab surveys are presented in **Volume 2: Figure V1-7.7.1** and a map of potential GWDTEs present along the proposed access tracks are presented in **Figure V1-7.7.2: GWDTE Habitat Survey Results**.
- 3.1.2 **Pre-existing data:** Ground truthing assessments conducted in 2022 revealed no alterations to the vegetation communities present, or the vegetation compositions of those which were previously mapped as mosaics. Given this, the habitat data collected previously for the area remains relevant and suitable to support the development.
- 3.1.3 **Table 1** below provides the NVC communities and associated UKHab Code identified within the Limits of Deviation (LoD) of both the Proposed and Alternative alignments. For reference, LoDs for each infrastructure type are as follows:
- Overhead Line (OHL): 100m corridor (50m buffer from OHL line)
 - Underground Cable (UGC): 100m corridor (50m buffer from UGC line)
 - Cable Sealing End (CSE) compound: 100m buffer from CSE compound polygon
 - Permanent and Temporary Access Tracks: 50 m corridor (25 m buffer from track lines)
 - Temporary OHL diversion: 100 m corridor (50 m buffer from OHL line)

Table 1 - UKHab and NVC Survey Results

UKHab Code	UKHab Habitat Type	Condition	NVC Community / Habitat ^A	Area of Habitat in LoD for Proposed Alignment (ha)	Area of Habitat in LoD for Alternative Alignment (ha)
f1	Bog	Moderate	M15 - <i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath		
			M15b - <i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, typical sub-community		
			M15c - <i>Scirpus cespitosus</i> - <i>Erica tetralix</i> wet heath, <i>Cladonia</i> spp. sub-community		
			M17 - <i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire		
			M17a - <i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Drosera rotundifolia</i> - <i>Sphagnum</i> spp. sub-community	49.00	54.09
			M17b - <i>Scirpus cespitosus</i> - <i>Eriophorum vaginatum</i> blanket mire, <i>Cladonia</i> spp. sub-community		
			M18- <i>Erica tetralix</i> - <i>Sphagnum papillosum</i> raised and blanket mire		
			M19- <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire		
			M20 - <i>Eriophorum vaginatum</i> mire		
			M20b - <i>Calluna vulgaris</i> – <i>Cladonia</i> sub community		

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UKHa b Code	UKHab Habitat Type	Condition	NVC Community / Habitat [^]	Area of Habitat in LoD for Proposed Alignment (ha)	Area of Habitat in LoD for Alternative Alignment (ha)
			M25 - <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire		
			M25a - <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, <i>Erica tetralix</i> sub-community		
			M25b - <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, <i>Anthoxanthum odoratum</i> sub-community		
f2	Fen, Marsh and Swamp	Good	M1 - <i>Sphagnum denticulatum</i> bog pools		
			M4 - <i>Carex rostrata</i> - <i>Sphagnum recurvum</i> mire		
			M6 - <i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire		
			M6c - <i>Carex echinata</i> - <i>Sphagnum recurvum/auriculatum</i> mire, <i>Juncus effusus</i> sub-community	3.98	6.70
			M23a - <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community		
			M23b - <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>Juncus effusus</i> sub-community		
g1	Acid Grassland	Moderate	U20 - <i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community		
			U20a - <i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community, <i>Anthoxanthum odoratum</i> sub-community		
			U20b - <i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community, <i>Vaccinium myrtillus</i> - <i>Dicranum scoparium</i> sub-community		
			U2a - <i>Deschampsia flexuosa</i> grassland	12.38	13.79
			U4 - <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland		
			U4b - <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland, <i>Holcus lanatus</i> - <i>Trifolium repens</i> sub-community		
			OV23a - <i>Lolium perenne</i> - <i>Dactylis glomerata</i> community, typical sub-community		
g3/4	Neutral Grassland	Moderate	MG10 - <i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture		
			MG9 - <i>Holcus lanatus</i> - <i>Deschampsia cespitosa</i> grassland	9.40	9.40

UKHa b Code	UKHab Habitat Type	Condition	NVC Community / Habitat [^]	Area of Habitat in LoD for Proposed Alignment (ha)	Area of Habitat in LoD for Alternative Alignment (ha)
			MG5- <i>Cynosaurus cristatus</i> - <i>Centaurea nigra</i> grassland		
			MG5c- <i>Cynosaurus cristatus</i> - <i>Centaurea nigra</i> grassland		
			MG6b - <i>Lolium perenne</i> - <i>Cynosurus</i> <i>cristatus</i> grassland, <i>Anthoxanthum</i> <i>odoratum</i> sub-community		
			OV23a - <i>Lolium perenne</i> - <i>Dactylis</i> <i>glomerata</i> community, typical sub- community		
h1	Dwarf Shrub Heath	Moderate	H10 - <i>Calluna vulgaris</i> - <i>Erica cinerea</i> heath	63.22	74.26
			H12 - <i>Calluna vulgaris</i> - <i>Vaccinium</i> <i>myrtillus</i> heath		
h3	Dense Scrub	Moderate	W1 - <i>Salix cinerea</i> - <i>Galium palustre</i> woodland		
			W23 - <i>Ulex europaeus</i> - <i>Rubus</i> <i>fruticosus</i> scrub	0.49	0.62
			W23a - <i>Ulex europaeus</i> - <i>Rubus</i> <i>fruticosus</i> scrub, <i>Anthoxanthum</i> <i>odoratum</i> sub-community		
r1	Standing Open Water and Canals	N/A	N/A	0.01	0.01
r2	Rivers and Lakes	N/A	N/A	0.29	0.29
u1	Built-Up Area and Gardens	N/A	N/A	2.67	3.12
w1	Broadleaved , Mixed and Yew Woodland	Moderate	W4b - <i>Betula pubescens</i> - <i>Molinia</i> <i>caerulea</i> woodland, <i>Juncus effusus</i> sub-community	2.26	2.26
w2	Coniferous Woodland	Moderate	N/A	3.73	3.73

Table Notes:

[^] Communities / habitats listed may form part of a mosaic within a polygon. Where this has occurred, for the purpose of this summary table only the dominant community has been included within the aggregate cover shown.

3.2 NVC Community Descriptions

UKHab Habitat: f1 – Bog:

M15 - *Scirpus cespitosus*-*Erica tetralix* wet heath

- 3.2.1 This vegetation type consisted of a wide variation of species dominance and other associated flora. Purple moor-grass *Molinia caerulea*, deer grass *Scirpus cespitosus*, cross-leaved heath *Erica tetralix* and common heather *Calluna vulgaris* were all dominant and of high frequency. Purple moor-grass was the most abundant; in other stands deer grass was very prominent and both, in some instances shared dominance with common heather. Other abundant species

included tormentil *Potentilla erecta*, and in moister stands, heath milkwort *Polygala serpyllifolia*, bog asphodel *Narthecium ossifragum* and common cotton grass *Eriophorum angustifolium*. In contrast hair's tail cotton grass *E. vaginatum* was rare. Frequent to occasional *Sphagnum* spp. were recorded, these included acute-leaved bog-moss *Sphagnum capillifolium* and lustrous bog-moss *S. subnitens*. Blunt-leaved bog-moss *Sphagnum palustre*, flexuous bog-moss *S. flexuosum* and cow-horn bog-moss *S. auriculatum* were recorded in wetter stands.

- 3.2.2 M15 and its associated subcommunities were characteristic of moist and generally acid and oligotrophic peats and peaty mineral soils. Grazing and burning was evident having effects on the floristics and structure of this community, and draining and peat-cutting were also evident in areas. **Therefore, this community was assessed as of moderate condition.**
- 3.2.3 M15 vegetation (Averis, *et al.*, 2004) is considered to be potentially moderately groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

M15b - *Scirpus cespitosus*-*Erica tetralix* wet heath, typical sub-community

- 3.2.4 The dominant species identified within this sub-community were very variable. Deer grass, common heather and purple moor-grass shared dominance. Cross-leaved heath was abundant and bog myrtle *Myrica gale*, bog asphodel and common cotton grass were all occasionally recorded. Mat-grass *Nardus stricta* and heath rush *Juncus squarrosus* were frequently recorded. Rare occurrences of sedge species included carnation sedge *Carex panicea* and star sedge *C. echinate*. Bryophyte coverage included frequent papillose bog-moss *Sphagnum papillosum*. However, *Sphagnum* spp. coverage was only occasional to rare and mosses such as woolly fringe-moss *Racomitrium lanuginosum* and broom forkmoss *Dicranum scoparium* dominated and provided the remaining coverage.

M15c - *Scirpus cespitosus*-*Erica tetralix* wet heath, *Cladonia* spp. sub-community

- 3.2.5 Within this vegetation sub-community, common heather was dominant alongside abundant tormentil. Heath milkwort and bog asphodel were occasional and common cotton grass and bog myrtle rarely occurred. *Sphagnum* spp. were rarely represented and Cypress-leaved plait-moss *Hypnum cupressiforme* and woolly fringe-moss were frequently recorded. *Cladonia* spp. were abundant, particularly reindeer lichen *Cladonia impexa*.

M17 - *Scirpus cespitosus*-*Eriophorum vaginatum* blanket mire

- 3.2.6 This community was dominated by mixtures of monocotyledons, ericoid sub-shrubs and *Sphagnum* spp. It occurred as extensive, relatively uniform tracts, or as hummock and hollow complexes. Among the bulkier vascular species, the most dominant species were deer grass, hair's-tail cotton grass, purple moor-grass, common heather and cross-leaved heath. Bog myrtle was occasional. Common cotton grass and bog asphodel were both very frequent and round leaved sundew *Drosera rotundifolia* was abundant in wetter areas. Tormentil was abundant which helped to distinguish this community from other *Sphagnetalia* mires (M18-M21). Other occasionally recorded species at low frequencies throughout included common lousewort *Pedicularis sylvatica*, fir clubmoss *Huperzia selago*, sheep's fescue *Festuca ovina* and star sedge. Blaeberry *Vaccinium myrtillus*, crowberry *Empetrum nigrum* ssp. *nigrum* and cloudberry *Rubus chamaemorus* were all rarely recorded.
- 3.2.7 Acute leaved bog-moss and papillose bog-moss were dominant and in some instances accompanied by occasional soft bog-moss *S. tenellum* and lustrous Bog-moss, forming carpets. Woolly fringe moss was an abundant moss throughout, but became most abundant on hummock tops and in degraded mires.
- 3.2.8 This blanket bog community and its associated subcommunities were scattered across the entire survey area north to south. These communities are characteristic of blanket bog vegetation of the more oceanic parts of Britain, occurring extensively on waterlogged ombrogenous peat. The peats show varying humification but are typically highly acidic, with a surface pH usually not above 4 and often less. Grazing and burning was evidently having effects on the floristics and structure of this community, and draining and peat-cutting were also evident in areas. **This community and associated subcommunities were assessed as of moderate condition.**

M17a - *Scirpus cespitosus*-*Eriophorum vaginatum* blanket mire, *Drosera rotundifolia*-*Sphagnum* spp. sub-community

3.2.9 The M17a sub-community was distinguished by the presence of extensive wet lawns of *Sphagnum* spp. and the frequency of round leaved sundew. The larger areas of M17a are located on lower lying ground with smaller fragments occupying depressions, level areas and gentle inclines on the slopes above. The vascular vegetation cover is a relatively even assemblage of the grasses and sedges and mosses already listed above. Common heather is only rarely prominent in the vegetation, over areas of a few square metres.

3.2.10 Grazing was evidently having effects on the floristics and structure of this community, and draining and peat-cutting were also evident in areas.

M17b - *Scirpus cespitosus*-*Eriophorum vaginatum* blanket mire, *Cladonia* spp. sub-community

3.2.11 Within the survey area where lower lying areas transitioned to steeper ground the M15 NVC community transitions to resemble the M17b sub-community. This sub-community consisted of species including dominant common heather, deer grass and purple moor-grass. Abundant species included bog asphodel, woolly fringe moss and reindeer lichen. Those species that frequently occurred included heath rush, hair's tail cotton grass and tormentil. Here bell heather *Erica cinerea* occurred more occasionally compared to the lower lying areas where it rarely occurred. This is likely due to drier and well drained peats situated around exposed rock on the higher ground. Other occasional species included heath milkwort. Rarely occurring species included round leaved sundew, red bog-moss *Sphagnum rubellum*, red stemmed feather moss *Pleurozium schreberi* and black sedge.

3.2.12 Some grazing and in places trampling by deer was evident throughout the M17b sub-community. There were no obvious signs of burning.

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

3.2.13 The M18 community, known as *Erica tetralix*-*Sphagnum papillosum* raised and blanket mire, is characterized by a sparse low sward dominated by cross-leaved heath and a variety of *Sphagnum* mosses, including *Sphagnum papillosum*. This community typically develops in saturated peat conditions, where the mire surface may exhibit a crinkled topography of hummocks and hollows, each supporting distinct assemblages of bryophytes and vascular plants. In addition to the dominant species, the community often includes other plants such as ling heather *Calluna vulgaris*, common cotton-grass and hare's tail cotton-grass alongside a rich carpet of mosses and lichens. The M18 is indicative of high quality peatland habitats where grazing pressures are low and anthropogenic drainage is limited. **This community was assessed as of good condition.**

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

3.2.14 The M19 community, known as *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire, is characterized by a dense, tussocky sward dominated by ling heather and hare's tail cotton-grass over a layer of pleurocarpus mosses. The vegetation is interspersed with other species such as common cotton-grass and blaeberry. Some limit *Sphagnum* moss species are present. Some indications of deer pressures were noted through areas of bare peat and the structure of the heather present. **The community was assessed as of moderate condition.**

M20 - *Eriophorum vaginatum* mire

3.2.15 M20 blanket mire comprises species poor ombrogenous bog vegetation dominated by hare's tail cotton-grass. The dominance of hare's tail cotton-grass and absence of cloudberry is characteristic of M20 species poor communities. However, common cotton-grass, purple moor-grass, and ericoid sub-shrubs were occasional and red bog-moss and papillose bog-moss were frequent. Broom fork-moss was rare. This community is characteristic of ombrogenous peats on bogs where management has greatly affected the vegetation; grazing by deer and past burning have degraded this community. **This community was assessed as of moderate condition.**

M20b - *Eriophorum vaginatum* mire, *Calluna vulgaris* – *Cladonia* sub community

3.2.16 The M20b subcommunity differs from the M20 community described above by exhibiting a greater species diversity than the pure hare's tail cotton-grass sward. The lichen *Cladonia arbuscula* is conspicuously present as is the great abundance of graminoids including wavy hair-grass, mat-grass *Nardus stricta* and bent grass species *Agrostis* spp..

M25 - *Molinia caerulea*-*Potentilla erecta* mire

- 3.2.17 This habitat was dominated by purple moor-grass with occasional wavy hair-grass. The associated flora was relatively poor, and was restricted to occasional tormentil, devil's-bit scabious *Succisa pratensis*, barren strawberry *Potentilla sterilis* and heath rush. Ericoid sub-shrubs were occasional, particularly heather and cross-leaved heath. Bog myrtle was also extensively spread throughout the area. This mire is a community typical of moist, but well aerated, acid to neutral peats and peaty mineral soils in the wet and cool western lowlands of Britain. It occurs over gently-sloping ground, marking out seepage zones and flushed margins of sluggish streams, water-tracks and topogenous mires, but also extends onto the fringes of ombrogenous mires. Although both climate and soils influence the composition of the vegetation, treatments such as burning, grazing and drainage are likely to be largely responsible for the development of this community over ground that would naturally carry some other kind of mire or wet heath vegetation.
- 3.2.18 Grazing pressure by deer would seem to be the driving factor behind the development of this community within the survey area. Although this community is of poor species diversity there is potential for this habitat to recover. This vegetation community and its associated sub-communities were scattered across the entire alignment north to south. **This community and associated sub-communities were assessed as of moderate condition.**
- 3.2.19 M25 vegetation (Averis, *et al.*, 2004) is considered to be potentially moderately groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

M25a - *Molinia caerulea*-*Potentilla erecta* mire, *Erica tetralix* sub-community

- 3.2.20 M25a was relatively common and scattered across the survey area. It was found on slopes and as a network of wet grassland adjacent to watercourses. On the slopes the M25a sub-community followed the movement of water down slopes and often had trickling water within it. The M25a was dominated by purple moor-grass with cross-leaved heath and heather as occasional sprigs. Other graminoids present included frequent common bent *Agrostis capillaris*, red fescue *Festuca rubra*, hare's-tail cotton grass and common cotton grass. There was also occasional bulbous rush *Juncus bulbosus*, carnation sedge and deer grass. Tormentil and bog asphodel were constant and abundant in the M25a sub-community. There was also occasional species such as heath bedstraw, devil's-bit scabious, marsh violet and heath milkwort. The sub-community exhibited a patchy moss layer with common haircap and red bog-moss.

M25b - *Molinia caerulea*-*Potentilla erecta* mire, *Anthoxanthum odoratum* sub-community

Scattered occurrences of the M25b sub-community were evident throughout the survey area as the purple moor-grass dominated M25 had an increase and abundance of sweet vernal grass, hare's-tail cotton grass and graminoids, particularly common bent and red fescue, but also sweet vernal-grass. Otherwise, the species assemblage was similar to the M25a sub-community.

UKHab habitat: f2 – Fen, Marsh and Swamp:

M1- *Sphagnum denticulatum* bog pools

- 3.2.21 The M1 community is typically found in wet depressions within extensive areas of blanket mire of the survey area. This community is characterised by the presence of *Sphagnum denticulatum*, which forms a distinctive carpet in these bog pools, often accompanied by other *Sphagnum* species. Other species present include common cotton grass, bulbous rush *Juncus bulbosus* and bog asphodel. These bog pools are indicators of high quality habitats where the water table is able to remain close to or at the surface of the peatland habitat.

M4 - *Carex rostrata*-*Sphagnum recurvum* mire

- 3.2.22 Within a small section of f2 fen, marsh and swamp habitat located within the survey area east of the Strathy North Substation a homogenous stand of vegetation that most closely resembled the M4 - *Carex rostrata*-*Sphagnum falax* mire community was identified. This mire typically consisted of sedges over a carpet of semi-aquatic *Sphagnum* spp. bottle sedge *Carex rostrata* was dominant, but was also accompanied by abundant white sedge *C. curta*, woollyfruit sedge *C. lasiocarpa*, bog sedge *C. limosa* or black sedge *C. nigra*. Common cotton grass, *soft rush* were occasional within the taller stands of vegetation. There was an extensive wet carpet of *Sphagnum* spp. flexuous bog-moss and feathery bog-moss were frequent and abundant and cow-horn bog-

moss was also abundant. Blunt-leaved bog-moss was occasional, with rare records for lustrous bog-moss and papillose bog-moss. Common haircap was very frequent forming scattered patches.

M6 - *Carex echinata*-*Sphagnum recurvum/auriculatum* mire

- 3.2.23 Various sections of f2 fen, marsh and swamp habitat located within the survey area. The vegetation consisted of a range of species including dominant common cotton grass *Eriophorum angustifolium*, star sedge *Carex echinata*, abundant cross-leaved heath *Erica tetralix*, soft rush *Juncus effusus*, bulbous rush *Juncus bulbosus*, jointed rush *Juncus articulatus* and heath rush *Juncus squarrosus*. Other abundant species included lesser spearwort *Ranunculus flammula*, common haircap moss *Polytrichum commune*, cow-horn bog moss *Sphagnum denticulatum* flat topped bog moss *Sphagnum fallax* and *flexuosum* bog-moss *Sphagnum flexuosum*. Frequently occurring species included bog pondweed, bog asphodel, round-leaved sundew, devil's bit scabious, purple moor-grass and common cotton grass. Some grazing of the habitat by sheep and deer was evident.
- 3.2.24 M6 vegetation (Averis, *et al.*, 2004) is considered to be potentially highly groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

M6c - *Carex echinata*-*Sphagnum recurvum/auriculatum* mire, *Juncus effusus* sub-community

- 3.2.25 This vegetation sub-community was dominated by soft rush whilst sedges were less frequent and abundant. Frequent vascular associates were few but there was some *Agrostis canina* ssp. *canina*, tormentil *Potentilla erecta*, and heath bedstraw *Galium saxatile*. Star sedge, purple moor-grass *Molinia caerulea* and marsh violet *Viola palustris* were fairly abundant. The *Sphagnum* carpet was generally extensive with *S. recurvum* being dominant. *Polytrichum commune* remained frequent and sometimes abundant. This sub-community is found throughout the range of M6.

M23a- *Juncus effusus/acutiflorus*-*Galium palustre* rush-pasture, *Juncus effusus* sub-community

- 3.2.26 The M23a community is characterised by tall, lush swards dominated by soft rush *Juncus effusus* and sharp-flowered rush *Juncus acutiflorus*, often intertwined with a variety of mesotrophic herbs. Key identifying species include marsh bedstraw, meadow sweet *Filipendula ulmaria*, and a mix of grasses such as Yorkshire fog *Holcus lanatus* and purple moor-grass. This sub-community typically exhibits a richer diversity of forbs compared to the *Juncus effusus* sub-community (M23b), which tends to be less species-rich and may have a more grassy or weedy appearance, often dominated by species like marsh thistle *Cirsium palustre* and common sorrel *Rumex acetosa*.
- 3.2.27 M23a vegetation (Averis, *et al.*, 2004) is considered to be potentially highly groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

M23b - *Juncus effusus/acutiflorus*-*Galium palustre* rush-pasture, *Juncus effusus* sub-community

- 3.2.28 There were several stands of M23b scattered throughout the survey area. The M23b sub-community was dominated by soft rush and was very wet underfoot. There was frequent marsh violet along with tormentil and marsh bedstraw *Galium palustre*. Creeping bent *Agrostis stolonifera*, star sedge, common sedge and common bent were all occasional. The moss layer was sparse, and lacked bog-mosses, but common haircap was occasional and locally abundant.
- 3.2.29 M23b vegetation (Averis, *et al.*, 2004) is considered to be potentially highly groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

g1 – Acid Grassland

U20 - *Pteridium aquilinum*-*Galium saxatile* community

- 3.2.30 The U20 community and its associated sub-communities were bracken-dominated vegetation occurring in scattered instances along the entire survey area. The bracken appears to be

spreading into acid grassland habitats and much of it still has a grassy flora beneath the bracken canopy. The ground flora is dominated by common bent and sweet vernal-grass. Bracken is a common and widespread habitat in the UK, it is not a priority habitat, has low species diversity, and low intrinsic nature conservation value. **U20 vegetation communities were assessed as of moderate condition.**

U20a - *Pteridium aquilinum*-*Galium saxatile* community, *Anthoxanthum odoratum* sub-community

- 3.2.31 This sub-community was frequent in small stands across all the units. Herb species within this community were low in abundance but did include some species including common milkwort *Polygala vulgaris* and tormentil. Common species included sweet vernal grass and Yorkshire fog.

U20b - *Pteridium aquilinum*-*Galium saxatile* community, *Vaccinium myrtillus*-*Dicranum scoparium* sub-community

- 3.2.32 This sub-community assemblage was similar to U20 and U20a but differed slightly due to the higher abundance of blaeberry and broom-forkmoss.

U2a- *Deschampsia flexuosa* grassland

- 3.2.33 The U2a community, is characterised by a tussocky sward dominated by fine-leaved, dark-green clumps of wavy hair-grass. This grassland typically exhibits a quilted appearance due to the smooth, rounded tufts of the dominant species. Key identifying species within this community include sheep's fescue *Festuca ovina*, creeping bent *Agrostis capillaris*, and tormentil, alongside the presence of heath bedstraw. The sparse mat of bryophytes often includes mosses like haircap mosses *Polytrichum spp.* and pleurocarpus mosses such as *Dicranum scoparium*. U2a grassland was commonly found in acidic, well-drained soils of the survey area.

U4 - *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland

- 3.2.34 The U4 grassland is a form of predominately upland grassland of well-drained, acidic and base-poor mineral soils throughout the wet and cool regions of north-west Britain where it dominates extensive areas of pastureland (Rodwell *et al* 1992; Cooper 1997). Throughout this geographic range the community can often be found forming a distinctive component of larger mosaics of other grasslands, heaths, and mires. U4 grassland communities were identified on the presence of an often close-cropped, grass-rich sward dominated by various combinations of common bent, red fescue and sweet vernal grass, with heath bedstraw and tormentil consistent associates.
- 3.2.35 A well-developed moss layer was characteristic, but in the U4b sub-community described below it was limited by the dense, relatively productive sward of grasses. U4 is found in small instances along the length of the study area. It covers small discrete patches in mosaics with mire, heath and other grassland communities. Some U4 grasslands often occupy the best-drained situations that are subject to grazing by sheep. **U4 vegetation communities were assessed as of moderate condition.**

U4b - *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland, *Holcus lanatus*-*Trifolium repens* sub-community

- 3.2.36 The U4b sub-community occurred in small, scattered instances within the survey area, especially at lower altitudes. The vegetation is relatively productive, broad-leaved grass sward with dominant mixtures of common bent, red fescue and Yorkshire fog. In season, the flowers of frequent to abundant white clover *T. repens* serve as another point of distinction. Dependent on relatively fertile conditions to maintain its productivity, this community is generally confined to the floodplain of the larger watercourse and the more accessible lower slopes above. Small patches of grassland amongst heath are usually referable to the U4a subcommunity whereas U4b forms more continuous extents that may have been derived by means other than grazing alone in the past. The swards within the study area are dominated by mixtures of common bent, red fescue, sheeps fescue, sweet vernal and Yorkshire fog; in some stands Yorkshire fog is very abundant and dominates the sward. White clover is frequent and abundant locally. Associates include frequent to occasional: mouse ear *Cerastium fontanum*, crested dogs-tail *Cynosurus cristatus*, perennial ryegrass *Lolium perenne*, ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, meadow buttercup *R. acris*, creeping thistle *Cirsium arvense*, field woodrush *Luzula campestris*, germander speedwell *Veronica chamaedrys*, softrush, tufted hairgrass and yarrow *Achillea millefolium*.

g3 – Neutral grassland

MG5 & MG5c *Cynosurus cristatus*-*Centaurea nigra* grassland, *Danthonia decumbens* sub-community

- 3.2.37 The MG5 community is characterised by a lush, herb-rich sward that typically flourishes in unimproved or lightly grazed pastures and meadows. This community is dominated by grasses such as crested dog's-tail and common knapweed (*Centaurea nigra*), along with a variety of forbs including ribwort plantain, and white clover *Trifolium repens*. The dense turf often supports a limited presence of bryophytes, such as *Brachythecium rutabulum* and *Scleropodium purum*, due to the competition from the vigorous herbaceous layer.
- 3.2.38 The MG5c sub-community, known as the *Danthonia decumbens* sub-community, is distinguished by the presence of heath-grass (*Danthonia decumbens*) alongside the typical species found in MG5. This sub-community occurred in drier, more acidic conditions and often featured a less lush sward compared to the main MG5 community. Key identifying species in MG5c include heath-grass, tormentil, and devil's-bit scabious, which contribute to a more open and less dense vegetation structure.

MG9 - *Holcus lanatus*-*Deschampsia cespitosa* grassland

- 3.2.39 MG9 grassland is highly characteristic of permanently moist, gleyed and periodically inundated circumneutral soils. It can exist on level to moderately sloping ground in areas of pasture or meadow, but can also be found along woodland rides and fen / wetland margins. MG9 usually contains a coarse and tussocky sward dominated by tufted hairgrass (Rodwell *et al.*, 1992; Cooper, 1997).
- 3.2.40 The community has a relatively open sward (maintained by grazing) and a moderate richness of associates. The vegetation is dominated by tufted hairgrass, and Yorkshire fog is locally abundant between the tussocks. Within the sward established by these two grasses, other species are occasional to locally frequent, including meadow / creeping buttercup, cuckoo flower *Cardamine pratensis*, field horsetail *Equisetum arvense*, bog stitchwort *Stellaria uliginosa*, common ragwort *Senecio jacobaea*, rough meadow grass *Poa trivialis*, soft rush, sheep's sorrel, marsh thistle *Cirsium palustre* and water forget me not *Myosotis scorpioides*. Small stands of rosebay willowherb *Chamerion angustifolium* are occasionally scattered within the community. The MG9 vegetation within the study area appears to be subject to a moderate level of grazing which evidently maintains a relatively open sward. **MG9 vegetation communities were assessed as of moderate condition.**
- 3.2.41 MG9 vegetation (Averis, *et al.*, 2004) is considered to be potentially moderately groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

MG10 - *Holcus lanatus*-*Juncus effusus* rush-pasture

- 3.2.42 MG10 is a form of rush-pasture characteristic of areas with strongly impeded drainage over a wide range of usually acid to neutral mineral soils on level to gently sloping ground (Rodwell *et al.* 1992; Cooper, 1997). This community requires consistently high soil moisture (Rodwell *et al.* 1992). Although found on various soil types including brown earth and calcareous earth throughout its range, this habitat can also have close associations with various types of mire vegetation and can form significant parts of rush dominated mire mosaics in areas of suitably moist soil levels. MG10 was characterised by an assemblage in which tussocks of soft rush were abundantly present in species-poor swards of frequent Yorkshire fog, creeping bent, rough meadow grass *Poa trivialis* and occasional forbs including meadow / creeping buttercup, cuckoo flower *Cardamine pratensis* and white clover. Mosses such as rough-stalked feather-moss *Brachythecium rutabulum*, pointed spear moss *Calliergonella cuspidata*, common feather-moss *Kindbergia praelonga* and Springy turf-moss *Rhytidiadelphus squarrosus* often form occasional diffuse wefts over the damp soil and among the larger plants.
- 3.2.43 MG10 vegetation (Averis, *et al.*, 2004) is considered to be potentially moderately groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

MG6b - *Lolium perenne-Cynosurus cristatus* grassland, *Anthoxanthum odoratum* sub-community

- 3.2.44 MG6b grassland is present in a small area just east of Strathy North Substation. While the grassland is only of moderate species-richness, the composition is largely referable to NVC community MG6b. This is characteristic grassland of long leys or permanent pasture. Phosphate levels are often low, and these grasslands can be good candidates for restoration to more species rich swards. The grasses within this community varied, with frequent common bent, sweet vernal-grass, Yorkshire fog and crested dog's tail and in some stand's cocksfoot, red fescue, creeping bent and meadow foxtail *Alopecurus pratensis*. **MG6b vegetation was assessed as of moderate condition.**

OV23a - *Lolium perenne-Dactylis glomerata* community, typical sub-community

- 3.2.45 This grassland community is dominated by Yorkshire fog, common bent and cock's foot. The grassland also comprised of species including abundant creeping thistle, ribwort plantain and white clover. Those species that occasionally occurred included common hawkweed *Hieracium lachenalia*, perennial rye grass, common ragwort and sweet vernal grass. Spear thistle *Cirsium vulgare* was rarely recorded. Signs of grazing were evident, and sheep were present in the area. **OV23a vegetation was assessed as of moderate condition.**

h1 – dry shrub heath

H10 / H10a - *Calluna vulgaris-Erica cinerea* heath

- 3.2.46 H10 is a dry heath community that occurs widely throughout the more oceanic sections of Scotland and around the east-central part of the Highlands. It is a community characteristic of acid to circumneutral and generally free-draining soils and is typically dominated by common heather. Bell heather is frequent but generally subordinate to common heather. H10 is commonly found in zonation's and mosaics with grasslands, other heath types and mire communities (Rodwell *et al* 1991; Elkington *et al* 2001).
- 3.2.47 H10 was recorded scattered throughout the survey area, with some of the areas being able to be categorised to the H10a sub-community. The vegetation was dominated by a canopy of common heath and bell heather, with heath bedstraw, tormentil and a carpet of pleurocarpous mosses. Less frequent additional associates included common bent, mat-grass, green-ribbed sedge *Carex binervis* and deer fern *Blechnum spicant*. **H10 vegetation was assessed as of moderate condition.**

H12 - *Calluna vulgaris-Vaccinium myrtillus* heath

- 3.2.48 H12 heath is a typical sub-shrub community of acidic to circumneutral, free-draining mineral soils throughout the cold and wet sub-montane zone, generally between 200 m and 600 m. H12 is generally dominated by common heather although a more open cover of degenerate common heather can often also be present. Blaeberry is constant though it is usually subordinate to common heather. The ground layer is generally characterised by bulky mosses (Rodwell *et al* 1991; Elkington *et al* 2001). H12 heaths are rather uniform and they cover extensive areas throughout large parts of Scotland.
- 3.2.49 H12 heath was present in rare occurrences across the survey area, particularly on sloping ground. The community was dominated by common heather, with blaeberry and cowberry *Vaccinium vitis-idaea* also abundant. The community is maintained by grazing, occupying land that would naturally have been woodland (mainly pine and birch). **H12 vegetation was assessed as of moderate condition.**

h3 - Dense Scrub

W1 - *Salix cinerea-Galium palustre* woodland

- 3.2.50 The ground flora within this community was more species-rich than the W4 woodland with neutral grassland species and ground flora with some typical woodland characteristics. This is typically a community of wet mineral soils on the margins of standing or slow-moving water and in moist hollows. It often occurs as a narrow fringe or as scattered fragments around ponds and lakes as in this case. The canopy is dominated by older, slightly moribund trees covered in fruticose lichens of

the genera *Ramalina* and *Usnea*. The ground layer comprised a range of grasses, rough meadow-grass, cock's-foot, tufted hair-grass and common bent were frequent with wavy hair-grass and purple moor-grass becoming increasingly dominant on the edges and outwith the willow carr area. The herb layer comprised frequent meadow and creeping buttercup, common knapweed, ribwort plantain, common mouse-ear and red clover *Trifolium pratense*. Wood anemone *Anemone nemorosa* was rare. The moss layer contained the woodland mosses glittering wood-moss *Hylocomium splendens* and common tamarisk-moss *Thuidium tamariscinum*. Springy turf-moss an acid grassland indicator, was also present. **W1 vegetation was assessed as of moderate condition.**

- 3.2.51 W1 vegetation (Averis, *et al.*, 2004) is considered to be potentially highly groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

W23 - *Ulex europaeus*-*Rubus fruticosus* scrub

- 3.2.52 The W23 community was dominated by gorse and had a sparse and species poor ground flora which in some instances was totally absent. This community is present on acidic and free draining soils on gentle to steep, rocky slopes at lower altitudes. The vegetation often develops after woodland clearance of, or on, abandoned pasture (Rodwell *et al* 1991; Averis *et al* 2004).
- 3.2.53 Within the survey area this community is indicated where dominant gorse and / or broom *Cytisus scoparius* form a relatively continuous canopy that may be open in places in a complex mosaic over the underlying vegetation. The underlying field layer is usually heathy where the canopy is more open and the bushes scattered; otherwise there is a U4a or U4b depending upon the intensity of grazing, or an absence of vegetation beneath the densest areas of canopy. Bramble *Rubus fruticosus*, and more locally wild raspberry *R. idaeus*, can be occasional and are distinctive associates, especially in comparison to the surrounding habitats where these species are scarce. **W23 vegetation and its associated subcommunity was assessed as of moderate condition.**

W23a - *Ulex europaeus*-*Rubus fruticosus* scrub, *Anthoxanthum odoratum* sub-community

- 3.2.54 W23a was dominated by European gorse and was present along field margins, riverbanks, as well as the edge of access tracks. The majority of these scrub areas were homogenous stands of gorse, with an occasional scattering of bramble and grasses sweet-vernal grass, crested dog's-tail, Yorkshire fog and red fescue at the fringes.

w1 Broadleaved, Mixed and Yew Woodland

W4b - *Betula pubescens*-*Molinia caerulea* woodland, *Juncus effusus* sub-community

- 3.2.55 W4 is a community of moist, moderately acidic, though not necessarily highly oligotrophic, peaty soils. It is characteristic of thin or drying ombrogenous peats which are isolated from the influence of base-rich or eutrophic groundwaters, but is also found on peaty gleys flushed by rather base- and nutrient-poor water (Rodwell *et al* 1991; Hall *et al* 2004). Silver birch is the most common woody species, and is usually dominant. The great abundance of purple moor-grass is the most distinctive feature of the field layer, and other species may be limited to areas between *Molinia* tussocks. A number of bryophytes can be found within W4; *Sphagnum* spp. are usually present (Rodwell *et al* 1991; Hall *et al* 2004).
- 3.2.56 Within the survey area, W4 occurs mainly as small, scattered and fragmented stands, and does not form any large expanses of woodland. For the most part it is found in mosaics with drier *Betula* woodlands. W4 woodland within the study area was generally recorded to community level only, owing to the nature of the small stands and its often species-poor nature.
- 3.2.57 A few very small stands of the wetter W4b *Juncus effusus* sub-community are present within the survey area. These stands mostly have dominant birch, but in one stand grey willow *Salix cinerea* is the canopy dominant. The field layer is usually rushy with stands dominated by soft rush. Other associates present include black, bottle, and star sedges, tormentil and boy myrtle. The moss layer includes extensive carpets of flat-topped bog-moss, with some blunt leaved bog moss.
- 3.2.58 W4 vegetation (Averis, *et al.*, 2004) is considered to be potentially highly groundwater dependent. Therefore, as a precaution, stands of this vegetation are considered to be potential GWDTE (see **Volume 2: Figure V1-7.7.2**).

4 DISCUSSION & RECOMMENDATIONS

- 4.1.1 Although the majority of the surveys were undertaken outwith the main vegetation growing season with exception, all surveys were able to robustly assess the UKHab habitats and NVC communities present across the survey area of the Proposed Development.
- 4.1.2 As would be expected, the Proposed Development passes over upland habitats typical of the landscape; dominated by mire and wet heath habitats which will be classified as Annex 1 Habitats as defined under the EU Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. Similarly, a number of NVC communities have highlighted that there is the potential for a number of habitats present to be reliant on ground water influences and consideration has been given to siting infrastructure away from these locations during the routeing process.
- 4.1.3 Consideration more widely is given to the method of construction of the grid connection to limit impacts to the sensitive peatland habitats present across much of the area. These include methods of access to tower locations and areas that would be required and reinstated post construction of the Proposed Development, to limit habitat loss and degradation.
- 4.1.4 Habitats of particular value and sensitivity have been identified by their inclusion on Annex I of the EU Habitats Directive (European Union, 2022), their status as potential GWDTEs according to SEPA (2017) and their inclusion on the SBL (NatureScot, 2020) together with an overall assessment of their replaceability and sensitivity based on professional judgement. The most valuable habitat types within the survey area are shown in **Table 2**.

Table 2 - Sensitive habitats within the survey area

Broad Habitat		NVC communities	Annex I	Potential GWDTE	SBL
f1 - bog	-	M15, M15b, M15c M25, M25a, M25b M17, M17a, M17b, M18, M19, M20	Y	Y	Y
g1 – acid grassland	-	U20, U20a, U20b, U4 U4b, U2a,	Y	N/A	Y
g3/4 - neutral grassland	-	MG9, MG10 Ov23a, MG5, MG6b	Y	Y	Y
h1 - Dwarf Shrub Heath	-	H10, H12	Y	N/A	Y
f2 - fen, marsh and swamp	-	M6, M23a, M23b M1, M4	Y	Y	Y
h3 - dense scrub	-	W1 W23a	Y	Y	Y
r1 - Standing Open Water and Canals		N/A	Y	N/A	Y
r2 – rivers and lakes		N/A	Y	N/A	Y
w1 - broadleaved mixed & yew woodland	-	W4b	Y	Y	Y

Ground water dependency: **Amber** – Moderate, **Red** – High

- 4.1.5 SEPA's Guidance Note (SEPA, 2017) recommends that NVC communities with the potential be reliant on ground water influences should be treated as GWDTE unless information can be provided to demonstrate otherwise. The guidance does recognise that some of these communities are common across Scotland and that these communities may be considered GWDTEs only in

certain hydrogeological settings or may have limited dependency on groundwater in certain hydrogeological settings.

- 4.1.6 It is therefore recommended that a site-specific hydrological assessment is carried out and, if appropriate, potential GWDTE categories revised according to the results. Information surrounding hydrological assessments completed in association with the Proposed Development and GWTDE are included in **Volume 1: Chapter 9: Soils, Geology and Water**.

4.2 Sensitive Habitat Avoidance / Mitigation

- 4.2.1 The following outline measures are proposed to avoid and / or mitigate impacts on the sensitive habitats identified in **Tables 1 and 2**.

General

- 4.2.2 Works should be overseen by an Environmental Clerk of Works (EnvCoW) who would monitor compliance with all mitigation measures identified for the construction phase of the project and recommendations to assist in safeguarding any sensitive habitats. Key roles and responsibilities with respect to protection of habitats would include:
- Supervision of vegetation stripping and excavation works in proximity to sensitive habitats in accordance with approved plans (e.g. peat management plan).
 - Oversight of and storage of soils / vegetation and along the access track route.
 - Oversight of management of construction site run-off along the access track route.
 - Oversight of storage / use of hazardous substances along the access track route.
 - Supervision of reinstatement of habitats following construction.
 - Establish a vegetation monitoring plan to ensure all affected sensitive habitats recover following completion of the construction works.
 - Support from other environmental professionals as required e.g. Ecological Clerk of Work (ECoW)
- 4.2.3 The EnvCoW will have the power to implement additional mitigation measures, if required in order to protect an ecological / environmental receptor. This will include the power to stop any works which are in breach of any agreed mitigation or working methods.

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