



Lorg Wind Farm

Technical Appendix 11B

Phase 1 Habitat Survey and National Vegetation Classification and Peatland Condition Report





Report for

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Executive summary

Purpose of this report

This report has been produced in order to record the baseline condition of habitats and vegetation to allow assessment of potential effects due to construction, operation and decommissioning of Lorg wind farm (herein after referred to as 'the Site'). The development is located mainly in Dumfries and Galloway and partly in East Ayrshire.

A Phase 1 habitat survey and National Vegetation Classification survey (NVC) were mainly carried out in summer and autumn 2013 and 2015, and updated in the summer of 2020, over an area covering ca. 16.2 km². The surveyed area includes a 250m wide buffer zone surrounding the site of the planned wind farm (the site boundary of which covers approximately 11km²).

The Site contained moderate coverage of mire habitats and plant communities, which covered approximately 435ha (28% of the total area surveyed) of which about 76% was blanket mire and the remainder was soligenous mire. Blanket mire comprised five separate NVC mire communities (M17, M18, M19, M20 and M25) that have some correspondence with habitats listed on annex 1 of the Habitats Directive (Depressions on Peat Substrates, Northern Atlantic Wet Heaths with *Erica tetralix* and Blanket Bog). Soligenous mire (M4 and M6 communities) also overlaps with habitats listed on annex 1 of the Habitats Directive (Transition Bogs and Quaking Mires).

Grasslands were abundant, covering approximately 792ha (51% of the survey area) and comprised rush-pasture (M23) and acid grassland NVC plant communities (U2, U4, U5 and U6). U5 and U6 plant communities were common. Rush-pasture vegetation (M23) was also common, covering a total area of 257ha (17% of the total area surveyed). In comparison, there was sparse cover of neutral grassland plant community MG9 (1ha). Stands of bracken-dominated vegetation (U20 community) were present on some steep sloping, well-drained slopes covering approximately 54ha (3.5% of the total area surveyed). A minor coverage of wet heath (2.7ha) was also present. The remaining areas of the surveyed area comprised conifer plantation and recently felled, conifer plantation. These were almost completely located at the margins of the surveyed area.

In general, the habitats and vegetation communities of the Site were not botanically rich, and the only species of higher conservation value recorded was spignel (occasionally found in lower lying areas of rush-pasture). The botanical character of the Site was most likely influenced by high levels of sheep grazing and drainage associated with agricultural improvement.

There was locally high cover of plant communities that are potentially dependent upon groundwater (classified by the Scottish Environment Protection Agency [SEPA] as Groundwater Dependent Terrestrial Ecosystems [GWDTEs]). These included M6 and M23 NVC communities that are potentially highly groundwater dependant and M15, M25, U6 and MG9 NVC communities that are potentially moderately groundwater dependant.

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1. Introduction

1.1 Purpose of this report

- 1.1.1 WSP E&I Solutions UK (WSP) (formerly Wood Group UK Ltd) was commissioned in 2020 by RWE Renewables UK (RWE) to undertake a Phase 1 habitat survey and a National Vegetation Classification (NVC) survey of the planned Lorg wind farm (the 'Site') comprising fifteen turbines, located in Dumfries and Galloway and East Ayrshire.
- 1.1.2 The Site lies approximately 11km north-east of Carsphairn, 15 km south-west of Sanquhar and 10.5km south of New Cumnock. The Phase 1 habitat survey and NVC survey area is defined by the location of the wind turbines. Details regarding proposed locations of wind turbines were available at the time of the surveys but did not include detailed designs for access tracks within the Site, buildings, kiosks, buried cable routes and grid connections.
- 1.1.3 Surveys have been updated from those undertaken in 2013 and reported in 2015 (Amec Foster Wheeler, 2015).
- 1.1.4 To allow analyses of potential impacts of the Proposed Development, Phase 1 habitat survey and NVC survey extended out 250m from the Site boundary of the wind farm (which covers ca. 11 km²) as it had in the previous surveys. The area that extends out from the Site boundary is referred to as the 'buffer zone' in this report. The total area subject to Phase 1 habitat survey and NVC survey in 2020 was ca. 16.2 km².
- 1.1.5 Phase 1 habitat survey provides an overall picture of habitats of the Site. The NVC methodology focusses principally on natural vegetation but does also include intensively managed, pasture. This report tends to focus on the NVC survey results rather than Phase 1 habitat survey as the former provides a more exact description of the Site compared to the latter. The NVC does not include plantation woodland (including recently clear-felled areas). Plantation woodland was uncommon within the survey area but was fairly commonplace within the buffer zone. This is not considered to be a significant limitation to this NVC survey.

1.2 Background

- 1.2.1 In 2020 WSP (then Wood) were commissioned by RWE to prepare an updated Environmental Impact Assessment (EIA) for Lorg Wind Farm, which would comprise fifteen turbines. Planning permission was given to the original design of Lorg Wind Farm, which then comprised nine turbines. This update to the 2015 NVC survey report provides a refreshed dataset to support an EIA for the re-designed development.

2. Methods

- 2.1.1 The ecological surveys covered in this report were undertaken following current guidelines for ecological impact assessment [CIEEM (2018) and NatureScot (2020)].
- 2.1.2 WSP surveyed the same Study Area previously in 2013. Therefore, the surveyor had a good understanding of the Site and the vegetation communities likely to be encountered. The survey report and maps from 2012 were consulted prior to field visits (Massey, 2012). The 2012 NVC mapping was also consulted during field surveying in September 2020.
- 2.1.3 Surveys were undertaken by David Knox BSc (Hons) MEnvSt MCIEEM, who has appropriate qualifications, training and experience of the methods, particularly for renewal energy projects such as the Lorg Wind Farm.
- 2.1.4 For the sake of clarity this report uses common species names and only uses scientific species names for species groups where this is the convention, e.g. bryophytes.

2.2 Phase 1 Habitat Survey

- 2.2.1 A Phase 1 habitat survey (JNCC, 2010) of the Study Area was undertaken from 6 - 9 July 2020. Distinct habitats were identified, and any features of interest recorded and included on a Phase 1 habitat map (**Figure 3.1**) and as target notes (TN) (**Appendix B**). TN provide greater detail on specific habitats and plant communities of particular interest or features too small to clearly map but which merit mentioning. Where possible, the DAFOR scale was used to approximate the cover of plant species. Hand-held GPS devices were used to accurately locate features of particular ecological interest.
- 2.2.2 Habitats and species of principal importance were recorded specifically, where encountered, as TN, as were legally controlled invasive plant species as listed in Schedule 9 (Part 2) of the Wildlife and Countryside Act, 1981 (as amended), and the Noxious Weeds Act.
- 2.2.3 Species lists that were compiled were not comprehensive, rather they describe the general composition of each habitat type. Botanical nomenclature follows Stace (2019) for vascular plants and Atherton *et al.* 2010) for bryophytes.
- 2.2.4 There was no requirement to undertake an 'Extended' Phase 1 habitat survey at the Lorg Wind Farm Site in 2020 as detailed protected species surveys were carried out separately to the habitat survey by WSP.

2.3 NVC Survey

- 2.3.1 NVC survey (Rodwell (ed.), Volumes 1 to 4, 1991 to 1995) was undertaken of the Study Area from 6 - 9 July 2020. The NVC methodology provides a detailed classification and survey of a wide range of natural plant communities (and some man-made plant communities, e.g. pastureland) that occur within Great Britain. In addition, Averis *et al.* (2004) provides a good overview of the NVC of upland areas and clarifies the NVC system, which is especially useful for renewable energy projects in mainly upland settings, such the proposed Lorg Wind Farm.
- 2.3.2 Where evident stands of vegetation comprising small-scale mosaics of two (and less commonly up to four) vegetation communities/sun-communities were mapped.

- 2.3.3 Plant species were identified and recorded as per the Phase 1 habitat survey, described above.
- 2.3.4 NVC communities and sub-communities were determined by recording the amount of cover of each plant species within a set sample area (a quadrat). Quadrat size was set at two by two metres for all open plant communities. In the case of communities dominated by tall, rank vegetation (e.g. tall grasses), a quadrat size of three by three metres was used.
- 2.3.5 The number of quadrats that were required to define plant communities was dependent on the general extent of the communities and the variability of the communities. Quadrats were set out in homogeneous areas of each plant community determined by visual assessment. Species-rich or species-poor stands of vegetation, which were atypical of the communities, were not recorded. Mire vegetation can be problematic to sample accurately due to the potential presence of complex micro-topographic and micro-hydrological features (e.g. large tussocks, runnels, bog pools and peat hags). Guidance of Rodwell (ed.) (1991b) is considered in such cases. The edges and transition zones between communities were avoided.
- 2.3.6 Where possible the cover of each plant species in quadrats set out in homogenous area of vegetation was estimated using the Domin scale:
- 91-100% cover - 10;
 - 76-90% cover - 9;
 - 51-75% cover - 8;
 - 34-50% cover - 7;
 - 26-33% cover - 6;
 - 11-25% cover - 5;
 - 4-10% cover - 4;
 - Many plants - 3;
 - Several plants - 2; and
 - Few plants - 1.
- 2.3.7 If necessary, TN were made to supplement those taken during Phase 1 habitat survey. Records were made of the locations of quadrats (prefixed Q), located using hand-held GPS devices, notes on the heights of species and notes on soil drainage, slope, aspect, grazing levels, land management, and other potentially relevant data.
- 2.3.8 For areas of open, standing water habitat it was not possible to use quadrats for NVC survey due to health and safety considerations. Instead, vegetation was recorded by taking TN.
- 2.3.9 Data analysis was completed with reference to the NVC Volumes (1991 to 1995) and Averis *et al.* (2004). NVC plant communities and sub-communities that most resemble communities recorded were mapped on to 1:10,000 OS base maps and aerial photographs.

Groundwater Dependand Terrestrial Ecosystems (GWDTE)

- 2.3.10 Where wetlands were identified, following the Functional Wetland Typology (SNIFFER, 2009a and 2009b), an assessment was made as to whether they were likely to be potential GWDTEs as defined in SEPA Guidance Notes (SEPA, 2017a; SEPA, 2017b).

2.4 Peatland Condition Assessment (PCA)

- 2.4.1 As large areas of the Site (particularly the eastern section) was on peatland, the Peatland Condition Assessment (PCA) was consulted during the surveys and consideration given to the condition of the peatland based on this guide (Peatland Action, 2016). A Peatland Condition Assessment walkover survey of the Site and buffer zone was undertaken 20 - 21 June 2022.
- 2.4.2 PCA bases the condition of blanket bog on indicators such as bog-moss cover, extent of bare peat and evidence of grazing and burning (Peatland Action, 2016). The PCA recognises four categories of peatland condition:
- Near-Natural - peat forming bog-mosses dominant, with no recent fires, little or no grazing pressure and little or no bare peat, heather is not dominant.
 - Modified - Bare peat is in small patches, fires may be recent, grazing impacts are evident, bog-mosses are absent or rare, extensive cover of heather or purple moor-grass.
 - Drained - within 30 m either side of an artificial drain or a revegetated hagg or gully system.
 - Actively Eroding - actively eroding hagg/gully system, extensive continuous bare peat surfaces.
- 2.4.3 The PCA Support Tool also gives descriptions of peatlands as being in good, intermediate or bad condition (Glenk *et al*, 2017). The criteria for these are shown in **Table 2.1**.

Table 2.1 Peatland Condition Assessment Support Tool categories

Signs	Good	Intermediate	Bad
Water	Plenty of water, visible on the surface.	Surface water is rarely visible.	Deep gullies have formed from wind and water erosion.
Vegetation	Small grasses, bog-mosses (<i>Sphagnum</i> spp.) common and very wet.	Taller plants, such as cottongrasses (<i>Eriophorum</i> spp.) and heather.	Rarely any plants grow on the areas that are exposed. Patches of grasses or heather are still found on 'islands' in between exposed bare peat.
Bare peat	Little to no bare peat patches.	Bare peat patches are occasional, burning may occur.	Bare peat areas will continue to expand, leaving less plant cover as protection on the surface. Peat will continue to be lost until the solid rock is exposed.
Water quality	Water flowing from good quality peatland is clear.	Water flowing from peatland likely to be slightly brown, especially after heavy rainfall.	Bad water quality, it can be dark brown from the peat content.
Wildlife	Good for wildlife.	Wildlife less abundant than in good condition.	Home too little wildlife.
Resultant activity level	Active.	Stopped growing, inactive.	Inactive.

2.5 Ecological Evaluation

- 2.5.1 The status of all vegetation communities / sub-communities and plant species recorded within the survey area has been determined, to identify any species protected by European or UK legislation, including:
- *The Conservation (Natural Habitats, &c) Regulations 1994 (as amended in Scotland)* (The Habitats Regulations); and
 - *The Wildlife & Countryside Act (WCA) 1981* (as amended).
- 2.5.2 Records of notable vegetation communities / sub-communities and plant species were also made including any in the following:
- Annex 1 habitats¹;
 - The Scottish Biodiversity List²;
 - Dumfries and Galloway Biodiversity Action Plan (BAP)³; and
 - East Ayrshire Biodiversity Action Plan (BAP)⁴.
 - The potential presence of Groundwater Dependent Terrestrial Ecosystems (GWDTE) is given⁵.
- 2.5.3 In addition to indicating the presence of plant species of higher conservation value, NVC survey is an effective method for surveying aggressively invasive species, e.g. Japanese knotweed (*Fallopia japonica*).

2.6 Survey Limitations

- 2.6.1 There were no issues with land access during Phase 1 habitat survey and NVC survey. However, steep ground in the central section of the Site (ca. 15 ha in total), which forms some of the eastern slopes of Ewe Hill, was too steep and rocky to allow access for detailed survey. Consequently, these areas were mapped from a safe distance using professional judgement. This is not considered to be a significant constraint to the survey as wind farm developments generally avoid such terrain.
- 2.6.2 Much of the buffer zone comprised conifer plantation (including some recently clear-felled areas). This is not considered to be a constraint to the survey. These areas were mapped using Phase 1 habitat survey.
- 2.6.3 There were no seasonally associated limitations to the Phase 1 habitat survey and NVC survey.
- 2.6.4 Due to the abundance of mosaics of various vegetation communities/sub-communities the area coverages given in this report are estimates.

¹ <https://webarchive.nationalarchives.gov.uk/20190405130848/http://jncc.defra.gov.uk/page-1523>

² <https://www.nature.scot/scottish-biodiversity-list>

³ Dumfries and Galloway LBAP https://www.dumgal.gov.uk/media/19945/Local-Biodiversity-Action-Plan/pdf/Local_Biodiversity_Action_Plan.pdf

⁴ The 2007-2010 Ayrshire Biodiversity Action Plan (<https://www.south-ayrshire.gov.uk/documents/2008%20ayrshire%20lbap.pdf>) effectivity covered East Ayrshire in 2020.

⁵ <https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf>

3. Results

3.1 General Description

- 3.1.1 The Phase 1 habitat survey and NVC maps of the main Study Area is presented respectively in **Figure 3.1** and **Figure 3.2**, NVC data (quadrats, Q1-53) are set out in **Appendix A**. Target notes (TN1-124) are set out in **Appendix B**. An overall species list is given in **Appendix C**.
- 3.1.2 Land use within the Site in 2020 remained unchanged since the original Phase 1 habitat survey and NVC survey were undertaken in 2013. The majority of the Site comprised marginal pasture used for sheep grazing and also some cattle grazing. Land used for commercial forestry formed much of the buffer zone around the central and eastern sections of the Site.
- 3.1.3 Lorg farmhouse (apparently unused and moderately dilapidated in 2020) was located close to the centre of the Site, by the Water of Ken, and included some more intensively managed pastureland by the Water of Ken.
- 3.1.4 The Phase 1 habitat survey and NVC Study Area covered ca. 16.2 km² and is located in an area, which is predominantly upland in character. The area ranges from about 260 m Above Mean Sea Level (AMSL) at its south margin by the Water of Ken (which flows south-westward through a north-east to south-west trending valley that subdivides the survey area) to 642 m AMSL (Alhang Hill), located at the western section of the Site. The north-west section of the survey area is higher and hillier in character (see above) compared to the south-east section, which is plateaux-like and reaches 550m AMSL at its south-east margin. An estimated 20% of the survey area, mainly located in the north-west, is very steep with some crags and gullies. The most prominent are located on the eastern slopes of Ewe Hill.
- 3.1.5 The Site was dominated by open habitats used for sheep and beef cattle farming and was fenced along the edge of the survey area. However, there was some enclosed pastureland in lower lying areas by the Water of Ken and the Lorg Burn. Extensive conifer plantations were located close to much of the periphery of the central and eastern sections of the Site. Much of the conifer plantations located to the north-east and south of the Site have been clear-felled.

3.2 Field Survey

- 3.2.1 Survey data allow correlations to be made with Phase 1 habitats and NVC vegetation communities/sub-communities and these are summarised in **Table 3.1**.

Table 3.1 Phase 1 Habitats, NVC Communities and Sub-communities Present

Phase 1 Habitat Type	NVC Community	NVC Sub-communities	Target Notes and Quadrats
Unimproved acid grassland	U2 <i>Deschampsia flexuosa</i> grassland	U2b <i>Vaccinium myrtillus</i> sub-community	101 (Q53), 103.
Semi-improved acid grassland	U4 <i>Festuca ovina</i> – <i>Agrostis capillaris</i> – <i>Galium saxatile</i> grassland	U4b <i>Holcus lanatus</i> – <i>Trifolium repens</i> sub-community U4d <i>Luzula multiflora</i> – <i>Rhytidiadelphus loreus</i> sub-community	34, 54 (Q37), 56 (Q38), 57 (Q39), 63, 66, 113, 115, 116, 121, 122.
Unimproved acid grassland	U5 <i>Nardus stricta</i> – <i>Galium saxatile</i> grassland	U5a Species-poor sub-community U5c <i>Carex panicea</i> - <i>Viola riviniana</i> sub-community	2, 4, 11 (Q9), 12 (Q10), 13, 29, 32 (Q22), 33 (Q23), 42 (U5), 67 (Q42), 71, 74.
Unimproved acid grassland	U6 <i>Juncus squarrosus</i> – <i>Festuca ovina</i> grassland	U6a <i>Sphagnum</i> sub-community U6d <i>Agrostis capillaris</i> – <i>Luzula multiflora</i> sub-community	16 (Q13), 20 (Q16), 21, 23 (Q18), 24 (Q19), 41 (Q28), 43, 46 (Q33), 47 (Q34), 48, 49 (Q35), 50, 69 (Q44), 79 (Q46), 80, 81, 82 (Q47), 82 (Q47), 88, 89, 108-121, 123, 125-127, 129, 130, 134, 136.
Bracken	U20 <i>Pteridium aquilinum</i> – <i>Galium saxatile</i> community	U20a <i>Anthoxanthum odoratum</i> sub-community	51, 61 (Q41).
Semi-improved neutral grassland	MG9 <i>Holcus lanatus</i> - <i>Deschampsia cespitosa</i> grassland	Too limited to determine	94.
Acid/neutral flush	M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire	(M4 has no sub-communities)	9 (Q7), 44, 70, 76, 93, 105, 106.
Acid/neutral flush	M6 <i>Carex echinata</i> – <i>Sphagnum fallax/denticulatum</i> mire	M6c <i>Juncus effusus</i> sub-community M6d <i>Juncus acutiflorus</i> sub-community	10, 26, 27, 29-31, 39 (Q26), 40 (Q27), 44, 58, 60 (Q40), 64, 72 (Q45), 78, 81, 83, 84, 86-88, 90 (Q48), 91, 92, 97-99, 105-107.
Wet dwarf-shrub heath	M15 <i>Trichophorum cespitosum</i> – <i>Erica tetralix</i> wet heath	M15d <i>Vaccinium myrtillus</i> sub-community	1 (Q1), 4.
Blanket bog	M17 <i>Trichophorum cespitosum</i> – <i>Eriophorum vaginatum</i> blanket mire	M17c <i>Juncus squarrosus</i> – <i>Rhytidiadelphus loreus</i> sub-community	5 (Q3), 6, 10 (Q8), 15 (Q12), 17, 19 (Q15), 21, 25 (Q20), 45 (Q32), 47, 49, 68 (Q43), 73, 75-77, 89, 91, 99, 100 (Q52), 102, 105, 107-109, 117-120, 123, 124.

Blanket bog	M18 <i>Erica tetralix</i> – <i>Sphagnum papillosum</i> blanket mire	M18a <i>Sphagnum magellanicum</i> – <i>Andromeda polifolia</i> sub-community	44 (Q30 & Q31).
Blanket bog	M19 <i>Calluna vulgaris</i> – <i>Eriophorum vaginatum</i> blanket mire	M19a <i>Erica tetralix</i> sub-community	7 (Q5), 14 (Q11), 18 (Q14), 22 (Q17), 38 (Q25), 43, 95 (Q51), 96, 104.
Wet modified bog	M20 <i>Eriophorum vaginatum</i> mire	M20a species-poor sub-community	44, 91 (Q49), 92.
Marsh/marshy grassland	M23 <i>Juncus effusus</i> / <i>acutiflorus</i> – <i>Galium palustre</i> rush-pasture	M23a <i>Juncus acutiflorus</i> sub-community	3 (Q2), 10, 25, 28 (Q21), 29-31, 52, 53 (Q36), 55, 56, 58, 63-65, 77, 78, 85, 106-108, 119, 120.
Wet modified bog	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	M25b <i>Anthoxanthum odoratum</i> sub-community	5 (Q4), 8 (Q6).

Mire communities

- 3.2.2 Mire⁶ was commonly present in the Site and covered ca. 435 ha (ca. 28% of the total survey area). Communities and sub-communities include blanket mire (ombrogenous⁷ mire) and soligenous⁸ mires (often called flushes). Blanket mire and soligenous mire formed ca. 75 % and 25 % of the total mire cover, respectively. Wet modified bog formed ca. 7 % of the blanket bog present, with the remainder being intact blanket bog. Rush-pasture (marsh/marshy grassland), which is often closely associated with soligenous mire is covered in Section 4.5. One of the acid grassland communities (U6) is considered to be indicative of land that was formerly peatland habitat, although it is not possible to say what character the former peatland was, e.g. blanket mire or heath.
- 3.2.3 Mire communities were particularly common in the south-east of the Site. In comparison, mire is much less common in the north-west of the area. Mire was largely absent from lower lying areas, although there was some soligenous mire in the north section of the valley that contains the Water of Ken (TN60). Bog pools were rarely present in mires and botanically unremarkable (e.g. TN5, TN38 and TN81).
- M4 *Carex rostrata* - *Sphagnum fallax* Blanket Mire Community**
- 3.2.4 M4 soligenous mire community had a low level of abundance being limited to a few scattered occurrences⁹ covering ca. 13.5 ha, which is ca. 3 % of mire present.
- 3.2.5 The largest area of M4 mire, waterlogged and often quaking underfoot, was located by the headwaters of the Altry Burn in the south-east of the Site (TN106) and was found as a mosaic with M6 mire and stands of M23 rush-pasture, where the land was not so waterlogged.
- 3.2.6 M4 mire was well developed in an area marked as Altry Loch (TN70) on the Ordnance Survey base map. The area has become colonised by a community composed principally

⁶ The word mire is used in preference to bog as per Rodwell (1991b).

⁷ Ombrogenous mires are mainly fed by rainwater.

⁸ Soligenous mires are attributed to persistent, surface water flows (i.e. flushing).

⁹ TN9, TN44, TN70, TN76, TN93, TN105 and TN106.

- of; bottle sedge, common sedge and *Sphagnum fallax*. Roughly comparable-sized area of similar mire vegetation were also recorded fairly close by to Altry Loch, on the eastern slope of Altry Hill (TN76) and by Craigstewart Hill (TN9).
- 3.2.7 A minor area of M4 mire (in a mosaic with M6 mire) was located at Coranbrae Hill at the south-east the Site (TN105) by a shallow gully on a north facing slope.
- 3.2.8 M4 mire was uncommon in the western section of the Site being occasionally present in poorly drained, flat lying land (colls) dominated by blanket mire vegetation (TN44 and TN93).
- 3.2.9 Areas of M4 mire in the east of the Site were located within or very close to M17 blanket mire and it is likely that these communities, along with associated M6 communities, were linked hydrologically. No plant species of high conservation interest were recorded in stands of M4 mire in the survey area.

M6 *Carex echinata* - *Sphagnum fallax/denticulatum* Blanket Mire Community

- 3.2.10 This soligenous mire community had a reasonably high coverage and was locally common across much of the Site covering ca. 92.8 ha, which is ca. 21 % of mire present. M6 mire was not as waterlogged as the M4 mire community (see above) and was characterised by typically soft and wet mire characterised by star sedge, *Sphagna* (e.g. *Sphagnum fallax*, *Sphagnum palustre* and *Sphagnum fimbriatum*), *Polytrichum commune*, tormentil, marsh violet and common cottongrass. *Sphagna* present in the mire were typical of vegetation subject to moderate nutrient enrichment and species associated with acidic conditions are uncommon, e.g. *Sphagnum capillifolium* (TN39 and TN40). Stands of the community that contain a high cover of sharp-flowered rush (e.g. TN60 and TN90) were M6d *Juncus acutiflorus* sub-community. At some localities soft rush was dominant in the mire vegetation, indicating the presence of M6c *Juncus effusus* sub-community (TN39, TN86 and TN87). In some areas M6 mire was present as a mosaic, most commonly with M23 rush-pasture vegetation (e.g. TN58, TN64 and TN78) and less frequently with M4 mire community (TN105 and TN106) or U6 acid grassland community (TN88).
- 3.2.11 M6 mire was typically located in lower lying areas, such as slopes, valley bases and lower-lying depressions. It was uncommon in the north-west of the Site, being mainly restricted to a mosaic with M23 rush-pasture community by the headwaters of the Lorg Burn (e.g. TN31) and the small area of enclosed land to the south-east of Lorg farm house (TN64). However, blanket mire communities at the north-west margin of the survey area (e.g. TN44) likely discharged their surface waters westwards leading to the development of an extensive area of M6 mire bordering the western edge of the Site. M6 mire was locally abundant to the north side of the upper reach of the Water of Ken (e.g. TN60), although it was more often found in this riparian corridor as a subordinate in mosaic with M23 rush-pasture (e.g. TN58). M6 mire was most common in the south-east of the survey area by the lower slopes of Altry Hill and also likely feeds the headwaters of the Altry Burn (e.g. TN106) and the Pullmulloch Burn (e.g. TN97).
- 3.2.12 It was likely that M6 mire has developed in such terrain due to persistent flushing of acidic waters from adjacent (and upslope) areas of blanket mire communities (see below) or less commonly stands of M23 rush-pasture or U5 and U6 grassland communities. Although M6 mire community was widespread and moderately common in the survey area, the community did not cover extensive areas in comparison to blanket mire and rush-pasture. No plant species of high conservation interest were recorded in stands of M6 mire.

M17 *Trichophorum germanicum* - *Eriophorum vaginatum* Blanket Mire Community

- 3.2.13 Deergrass dominated blanket mire was generally widespread in the higher ground of the Site (covering a total of 204ha, which is ca. 47 % of mire present). In general, the vegetation was wet, but the ground is not particularly soft underfoot. As well as a high cover of deergrass the community was characterised by low cover of common species associated with acidic conditions, e.g. heath rush, wavy hair-grass, sweet vernal-grass, tormentil, common heather, hare's-tail cottongrass and common cottongrass. *Sphagna* cover was moderate to low in the vegetation and comprises *Sphagnum capillifolium* and/or *Sphagnum papillosum*. Less commonly bog asphodel is sparsely present. In general, M17 blanket mire was differentiated from M19 blanket mire as the former was dominated by deergrass, typically less species-rich and in particular had a lesser cover of cottongrasses, common heather and common blaeberry. Quadrat data infer that M17c *Juncus squarrosus* - *Rhytidadelphus loreus* sub-community was prevalent and no other sub-communities are determined to be present. No species of high conservation interest were found to be present in areas of M17 blanket mire.
- 3.2.14 M17 blanket mire was most common in the south-east of the Site and in particular by Altry Hill (e.g. TN5 and TN75). In this area there was some evidence of erosion of blanket mire, which may have been associated with peat cutting in past time (e.g. TN6). Some areas of Altry Hill close to the extensive stand of M17 blanket mire featured moderately small stands of U6 acid grassland (e.g. TN69), which may have originally been blanket mire but have changed over time due to agricultural management such as livestock grazing, drainage and possible burning. South of Altry Hill M17 blanket mire was locally common by the headwaters of the Altry Burn and Pullmulloch Burn (e.g. TN10) located by a coll. There was also a small, isolated area of M17 blanket mire at the north-east margin of the site (TN102). The south-east edge of the Site featured a moderately large stand of M17 blanket bog. These areas of blanket bog communities occasionally also supported soligenous mires (M4 and M6, e.g. TN70, TN105 and TN106).
- 3.2.15 The highest areas of the north-west of the Site contained scattered stands of M17 blanket mire (e.g. TN19 and TN25) typically present in lower lying areas within which the headwaters of minor watercourses are located. Many of the blanket mire areas discharged their surface waters to rush-pasture and soligenous mire stands (e.g. TN27) located down slope relative to M17 blanket mire. The most notable area of M17 blanket mire in this section of the Site was located at the western margin of the area (e.g. TN45) and formed a small-scale complex of mire, alongside M18 and M19 blanket mire communities (see below). Peat hags were present in this area indicating some peat erosion. U6 acid grassland community was by far more widespread in the north-west of the Site compared to M17 blanket mire (and even more common than M18 and M19 communities). It is likely that U6 acid grassland has developed in areas formerly occupied by peatland habitats (mire and/or heath) and the prevalence of U6 acid grassland in this area probably reflects past agricultural management.

M18 *Erica tetralix* - *Sphagnum papillosum* Blanket Mire Community

- 3.2.16 This small area of blanket bog habitat comprised a blanket mire community containing a greater cover of *Sphagna*, mainly composed of a 'carpet' of *Sphagnum capillifolium* and *Sphagnum papillosum*, along with low, but constant, cover of common and hare's-tail cottongrasses. It is sparsely present within the Site with ca. 2ha total cover, which is ca. 0.4 % of mire present. M18 community was marginally more species-rich compared to M17 and M19 blanket mire communities. Deergrass and crowberry were only occasionally present and have very low levels of cover. M18 blanket mire was present (TN44) in the small-scale complex of blanket mire communities located at the north-west of the Site by a coll. This included low cover of *Sphagnum magellanicum*, which is a species indicative of

intact blanket mires. Data infer the presence of M18a *Sphagnum magellanicum* - *Andromeda polifolia* sub-community.

- 3.2.17 M18 blanket mire is frequently associated with water saturated peats and this applies to the community recorded during this survey.

M19 *Calluna vulgaris* - *Eriophorum vaginatum* Blanket Mire Community

- 3.2.18 M19 was a relatively commonplace blanket mire community with the Site¹⁰ (with a total cover of 97.3 ha, which is ca. 22% of the total mire present), which tends to be more species-rich than M17 blanket mire. Characteristic species of this blanket mire vegetation were; common heather, *Sphagnum capillifolium*, common blaeberry, crowberry, common and hare's-tail cottongrasses, heath rush, wavy hair-grass and a variety of common mosses, e.g. *Pleurozium schreberi* and *Hypnum jutlandicum*. Deergass was locally rare and, at most, frequent in the vegetation (e.g. TN 96). No species tend to dominate the vegetation, which was wet, but not particularly boggy. No species of high conservation value was recorded. Blanket mire within the eastern side of the site was somewhat eroded in character (e.g. TN95), with evidence of historical drainage across this part of the Site (See Peatland Condition assessment, Section 3.3 and **Figure 3.3**). Data suggest that M19a *Erica tetralix* sub-community was the only sub-community present. Tall stands of common heather can be particularly characteristic of the community but this was absent in the Site, probably due to persistently high levels of sheep grazing and possibly also poaching.

- 3.2.19 M19 blanket mire dominated much of the land at the south-east of the Site (by High Countam Hill) (e.g. TN95). Away from this area, M19 community was limited to small isolated, stands, such as near the summit of Altry Hill (TN7), by Ewe Hill (TN38), by similar isolated stands of M17 blanket mire to the south section of Lorg Hill (TN14 and TN18) and as a small-scale mosaic of M19 and U6 acid grassland at the north-west margin of the Site by a small complex of mire communities (TN43).

M20 *Eriophorum vaginatum* Mire Community

- 3.2.20 Mire vegetation mostly dominated by hare's-tail cottongrass, with a low cover of a limited number of other mire species, was uncommon in the Site, covering 9.7 ha (which is ca. 2 % of total mire present). In Phase 1 habitat survey terms the vegetation is wet modified bog. The sub-community present was M20a species-poor variant (TN91). M20 mire was mainly present in the western section of the Site by flat lying ground by two colls (TN44 and TN91), although there was some occurrence of M20 in the east of the Site. Typically, M20 mire vegetation contained some soligenous mire vegetation in ditches and/or flushes.

M25 *Molinia caerulea* - *Potentilla erecta* Mire Community

- 3.2.21 Mire characterised by abundant stands of purple moor-grass (TN5 and TN8) was moderately uncommon within the Site, covering 16.5 ha (which is ca. 4 % of total mire present). In Phase 1 habitat survey terms the vegetation is wet modified bog. Other species present included; mat grass, sweet vernal-grass, wavy hair-grass, heath rush and tormentil. M25 mire was located in the south-east, north-east and central section of the Site. There was also an area of such vegetation close to the summit of Altry Hill (TN8). Data suggest the presence of M25b *Anthoxanthum odoratum* sub-community.

- 3.2.22 M25 mire vegetation is characteristic of areas of shallow wet peaty soils on concave slopes and the bases of valleys. This was generally the case for the Site. Flushing of acid surface waters from vegetation lying upslope was probably a key process in the development of the community in the Site and the key events probably instigating its original formation are

¹⁰ TN7, TN14, TN18, TN22, TN38, TN43, TN95, TN96 and TN104.

burning and drainage of blanket mire communities (such as those summarised above) and wet heath. Furthermore, it is possible that areas of M25 mire could have originally been wet woodland in past times.

Rush-pasture communities

- 3.2.23 Rush-pasture vegetation (marsh/marshy grassland) was abundant across much of the Site, covering a total area of ca. 257 ha (ca. 17 % of the survey area). Rush-pasture was particularly common by the land that borders the Water of Ken, the Lorg Burn and tributaries (in the north-west of the Site), the Altry Burn (in the south of the survey area, and less commonly by the Pullmulloch Burn in the north-east of the area.
- 3.2.24 Overall, rush-pasture vegetation comprised a fairly homogenous community in terms of species and structure, being typically rather rank and composed of common vascular plant species and sparse cover of common bryophytes, e.g. *Calliergonella cuspidatum* (TN63 and TN65). Sharp-flowered rush dominated the sward (TN3, TN28, TN53, TN72 and TN77). Data indicate that the dominant rush pasture sub-community was M23a *Juncus acutiflorus* sub-community.
- 3.2.25 Scattered occurrences of spignel were recorded in lower lying areas of rush-pasture (TN58, TN63 and TN65). The species is considered to be nationally scarce (see Section 5). One area (TN3) contains sparse cover of meadow oat-grass, probably indicative of localised enrichment of lime in the soil. The species by itself has no special nature conservation interest, although it is likely to be quite rare in the context of the local area.
- 3.2.26 Occasionally, M23 rush-pasture vegetation formed mosaics with soligenous mire communities M6 and/or M4 soligenous mires, such as by the northern side of the Water of Ken, the headwaters of the Lorg Burn in the north-west of the area (TN29, TN30 and TN31) and by enclosed land at Lorg farm house (TN64).

Grassland communities

- 3.2.27 Grassland vegetation, excluding rush-pasture was common and extended over approximately 792 ha (ca. 51 % of the Site). Grasslands were less common in the south-east of the Site where there was a high coverage of mire. Unimproved acid grassland covered ca. 633ha of the Site (ca. 87 % of total grassland cover), semi-improved acid grassland covered ca. 95 ha (ca. 12 % of total grassland cover), and semi-improved neutral grassland has a cover of ca. 1ha (ca. 1 % of total grassland cover).

U2 *Deschampsia flexuosa* Grassland Community

- 3.2.28 Unimproved acid grassland characterised by wavy-hair grass had a total coverage of ca. 32.3 ha, which was ca. 4 % of grassland present. The grassland community was characteristic of the some of the buffer zone in the south-west of the Site forming much of the steep slope below Ewe Hill and was uncommon within the Site, being sparsely located at the eastern section (e.g. TN101 and TN102). Other species often present in the sward were; heath rush, common sedge, tormentil and *Pleurozium schreberi*. This community was indicative of unimproved acid grassland habitat, unlike much of the U4 and U5 grassland communities (see below), which tend to reflect vegetation that has been subject to more agricultural management (semi-improved in Phase 1 habitat survey terminology).

U4 *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* Grassland Community

- 3.2.29 Semi-improved acid U4 grassland community (covering ca. 95.1ha, which is ca. 12 % of grassland present) has botanical characteristics that are rather similar to U5 grassland

- community (see below), but is differentiated by the lower cover, or absence, of mat grass (*Nardus stricta*) in the sward (TN34, TN54, TN56, TN57, TN63, TN66, TN115, TN116, TN119, TN120 and TN122). Overall, the community was reasonably diverse in character compared to most other grasslands of the survey area and this can be ascribed to agricultural management such as grazing, drainage and perhaps even some occasional artificial fertilization in past times. One species particularly characteristic of the U4 community) is common bent.
- 3.2.30 The most common sub-community present is determined to be U4b *Holcus lanatus* - *Trifolium repens*. One example of this is the grassland by old river deposits close to the Water of Ken near Lorg farmhouse (e.g. TN57). Indicator species include; red clover, Yorkshire fog, common sorrel and yarrow. Typically, this sub-community is found in areas that were probably subject to higher levels of grazing and/or other agricultural management. However, there were also some stands of a sub-community of U4 grassland that contained moderate cover of tormentil, wild thyme and common cat's-ear. Small stands of this sub-community were present near the Water of Ken (TN56) to the south of Lorg farmhouse. This is considered to potentially be U4d *Luzula multiflora* - *Rhynchospora loreus* sub-community.
- 3.2.31 U4 grassland community was largely present in the lower lying areas of the Site and formed pasture close to the valley of the Water of Ken by Lorg farmhouse (e.g. TN57), although isolated areas of the community also occur in the uplands of the north-west of the Site (e.g. TN34). Only at one locality within the Site, near Lorg farmhouse, did U4 community exist as a mosaic with M23 rush-pasture community (TN63).

U5 *Nardus stricta* - *Galium saxatile* Grassland Community

- 3.2.32 U5 is an unimproved acid grassland community that was reasonably extensive within the Site (covering a total area of ca. 289.6 ha, which is ca. 36 % of grassland present) (TN2, TN11-13, TN32, TN33, TN42, TN51, TN67, TN74). The grassland was widespread on the steep slopes of the valleys that contain the Water of Ken, Lorg Burn and Altry Burn. The steep and rugged section of the survey area, by the eastern slopes of Ewe Hill, were mapped as U5 grassland alone, or as a mosaic of U5 and M23a rush-pasture sub-community.
- 3.2.33 U5 community was characterised by moderate to high abundance of mat grass at the expense of other common acid grass species, e.g. wavy hair-grass and sheep's fescue. Heath rush, carnation sedge, heath bedstraw, common blaeberry and purple moor-grass often form components of the sward. By far the most frequently encountered sub-community is the species-poor variety U5a (e.g. TN11, TN12 and TN32). There were scattered occurrences of vegetation that had likely affinity to U5c *Carex panacea* - *Viola riviniana* sub-community, located in the north-west of the survey area (TN42) by the north slopes of Ewe Hill. This is indicated by some cover of common *Carex* species. On the southern slope of Ewe Hill (TN33) there was a moderate sized area that could have had affinity to U5d *Calluna vulgaris* - *Danthonia decumbens* sub-community. Stands of great wood-rush were located on the upper slopes of U5 grassland community (TN13), close to where the slope becomes less steep.
- 3.2.34 In general, U5 grassland community and sub-communities were widespread in upland areas of the Site that were subject to high levels of grazing and are also indicative of shallow mineral soils with peaty upper horizons, which are damp. These general patterns were borne out in the survey area at Lorg.

U6 *Juncus squarrosus* - *Festuca ovina* Grassland Community

- 3.2.35 U6 is an unimproved acid grassland community typically containing high to moderately high cover of heath rush that was frequently found in the upland sections of the Site (covering 374.6 ha, which is ca. 47 % of grassland present). The vegetation type was particularly common in the highest sections of the north-west of the Site (TN16, TN20, TN23, TN24, TN37, TN41, TN43, TN46-50, TN69, TN79-82, TN88, TN89, TN109-111). There were also some occurrences in the north-west of the Site where U6 forms mosaics with mire vegetation (TN21, TN43, TN111, TN121, TN123 and TN124). In comparison, there were only scattered occurrences of U6 in the south-east of the Site by Altry Hill (TN69). Scattered small stands of great wood-rush were recorded in an area of U6 grassland community on the southern slopes of Ewe Hill (TN36).
- 3.2.36 U6 grassland community was generally rather species poor and species other than heath rush had fairly low to very low cover. Typical species were; wavy hair-grass, sweet vernal-grass, purple moor-grass, heath bedstraw and *Rhynchospora squarrosus*. The most common sub-community was U6d *Agrostis capillaris* - *Luzula multiflora*. However, a small stand of U6a *Sphagnum* sub-community was evident on the lower south-east facing slopes of Alwhat in the north-west of the Site (TN46).
- 3.2.37 U6 grassland community was generally found on flat or gently sloping ground (e.g. plateaux) in areas typically underlain by damp peaty soils. These general observations correlate well with locations of U6 community in the survey area.

MG9 *Holcus lanatus* - *Deschampsia cespitosa* Grassland Community

- 3.2.38 Neutral grassland was rarely present in the Site (covering ca. 1ha, which is ca. 0.1 % of the survey area) and comprised enclosed pasture east of the Water of Ken (TN94) near the centre of the Site. The pasture was well grazed in 2020. The vegetation was unremarkable and comprised semi-improved neutral grassland community MG9 *Holcus lanatus* - *Deschampsia cespitosa* grassland community.

Heath communities

- 3.2.39 Heath vegetation was uncommon within the Site in 2013 and 2020, covering a total area of about 2.7ha (ca. 0.2% of the survey area) and was essentially unchanged since the previous survey of 2013. The largest areas of heath were located on the broad south-west trending ridge of Altry Hill in the south of the Site (TN1 and TN4) and had the character of wet heath. The sub-community present was determined to be M15d *Vaccinium myrtillus* sub-community
- 3.2.40 A minor stand of dry heath was present by the north side of the Water of Ken by the centre of the survey area and comprised common heath and bell heather, the latter species being locally rare within the survey area. The area of heath was too small to correlate accurately with the NVC system.
- 3.2.41 No species of high conservation status were recorded in heath vegetation.
- 3.2.42 The low abundance of heath vegetation within the Site probably reflects the abundance of deep peaty soils, which are prone to waterlogging and were characterised by mire vegetation. Persistently high levels of sheep grazing were likely disadvantageous to the presence of heath vegetation.

Bracken

- 3.2.43 In 2020 bracken-dominated vegetation remained mostly unchanged from 2013, covering approximately 54 ha (ca. 3.5 % of the survey area). This included continuous stands of bracken and areas comprising small stands of bracken, often with mosaics of acid grassland and areas of rush-pasture vegetation. Bracken vegetation was mainly located to the west side valley that contains the Water of Ken (TN61) and the smaller valley of its tributary, the Lorg Burn, in the centre of the Site (TN51). Scattered bracken was also common on the cliffs and gullies on the east side of Ewe Hill by the centre of the Site. Bracken was rarely present in the south-east of Site, being limited to some scattered stands by the lower reaches of Altry Burn.
- 3.2.44 Bracken vegetation comprised U20 *Pteridium aquilinum* - *Galium saxatile* community, and the U20a *Anthoxanthum odoratum* sub-community was prevalent, which contained much cover of common, acidic grasses. In general, bracken vegetation was species poor, even though some stands had been 'opened up' to some extent by livestock grazing.

Broad-leaved Woodland

- 3.2.45 Woodland of semi-natural and plantation origin was rarely present in the survey area, being limited to scattered occurrences of native trees and shrubs by a few small gorge-like sections of watercourses, which include the Water of Ken (TN59) and lower reach of the Altry Burn at the south of the Site and the Lorg Burn by the centre of the Site (TN51). Woodland vegetation was too limited in cover to map and classify using the NVC system and map using the Phase 1 habitat survey methodology. Native trees and shrubs were present in these areas because they are largely inaccessible to livestock and wild deer. Characteristic species were native oak species, rowan, downy birch, eared willow often underlain by stands of lemon-scented fern. Some of these areas could support less common bryophyte species. Areas of relict woodland were typically located in terrain which was too difficult to access due to steep slopes and rocky cliffs. This was not considered to be a constraint to the survey.

Miscellaneous

- 3.2.46 Commercial conifer plantation formed a considerable part of the buffer zone around the central and eastern sections of the Site with a total cover of ca. 152 ha (ca. 9 % of the survey area). Recently felled, conifer plantation was also present in the buffer zone of the Site, covering ca. 40 ha (ca. 2.5 % of the survey area).
- 3.2.47 Unclassifiable vegetation comprising young woodland planting and an overgrown garden were located by Lorg farmhouse (TN62), with blackcurrant bushes, and a few trees of beech and native oak.
- 3.2.48 Minor stands of greater wood-rush were occasionally present within stands of acid grassland of the Site (e.g. TN13 and TN35). Excluding woodland, greater wood-rush dominated vegetation is not classified by the Phase 1 habitat survey and NVC methodologies.

3.3 Peatland Condition Assessment

- 3.3.1 **Table 3.2** gives the condition of the peatland within the Study Area according to the four PCA categories. The PCA is shown in **Figure 3.3**.
- 3.3.2 The least modified blanket bog community, which was considered closest to 'Near-Natural' (albeit still modified), was the M18. The M18 community comprised a blanket mire

- community mainly composed of a 'carpet' of *Sphagnum capillifolium* and *Sphagnum papillosum*, along with low, but constant, cover of common and hare's-tail cottongrasses. This also included low cover of *Sphagnum magellanicum*, which is a species indicative of intact blanket mires. Although some grazing impacts were evident the bog-moss carpet was fairly intact.
- 3.3.3 Most of the rest of the blanket bog recorded was considered to be Modified through drainage, grazing and possibly other historic management practices such as burning, this included much of the M17, M19 and M20.
- 3.3.4 There were multiple drainage ditches present in the eastern section of the Study Area. Some of the drainage ditches appeared to be effectively draining the bog, although some appeared to be less effective. Some of the blanket bog (particularly degraded areas of M17c and M19) was also considered likely to be Actively Eroding and Drained through erosion features.
- 3.3.5 Using the 'PCA support tool' the blanket bog in the Study Area was considered mostly to be of intermediate condition, with areas of 'bad quality' where the erosion was most pronounced (particularly M17c and M19) and small areas of 'good quality' where there was a higher water table and sphagnum carpets (but no surface water pools, hummocks or natural surface pattern).
- 3.3.6 Using the evidence provided here, and the 'PCA Support Tool', much of the blanket bog across the Study Area could be judged to have stopped being active and so is likely to be a carbon source, rather than a carbon sink. However, this is a broad-brush, subjective tool, and doesn't take into account subtleties and variation within the blanket bog. Certainly, the Actively Eroding blanket bog is thought to be a carbon source rather than a sink and unlikely to be active. However, there is a degree of uncertainty as to the activity level of more modified blanket bog. It is therefore considered that the blanket bog in the Study Area is likely to have areas that are active or partially active (e.g. the M18 and some smaller areas of M17 and M19).

Table 3.2 Evaluation of the peatland condition within the Study Area

Peatland Condition Categories	Comment	NVC Communities	Example Photos
<p>Near-Natural: Peat forming bog-mosses dominant, with no recent fires, little or no grazing pressure and little or no bare peat, heather is not dominant.</p>	<p>A small patch of Near Natural (Modified) Blanket Bog was recorded within the Site. Smaller intact areas of peat-forming bog mosses were recorded alongside actively eroding areas suffering sheep/cattle poaching.</p>	M18	
<p>Modified: Bare peat is in small patches, fires may be recent, grazing impacts are evident, bog-mosses are absent or rare, extensive cover of heather or purple moor-grass.</p>	<p>Fires were not a recent feature of the Study Area. Extensive bare peat patches were not evident, but the structure of the vegetation demonstrated modification through grazing. For example, there were extensive areas dominated by deergrass.</p>	M4, M17, M19, M20	

Drained:

Within 30m either side of an artificial drain or a revegetated hagg or gully system.

Drainage ditches were common in the east of the Study Area. Drainage was also from the erosion feature within the blanket bog.

M17 and M19



Actively Eroding:

Actively eroding hagg/gully system, extensive continuous bare peat surfaces.

Fires were not a recent feature of the Study Area. Extensive bare peat patches were not evident, but the structure of the vegetation demonstrated modification through grazing. For example, there were extensive areas dominated by deergrass.

M4, M17, M19, M20

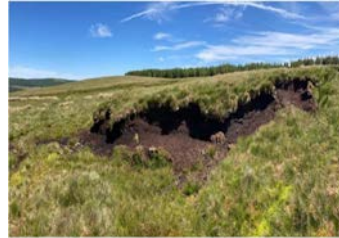







Table 3.3 Evaluation of the peatland quality within the Study Area

Signs	Good	Intermediate	Bad	Study Area	Photos
Water	Plenty of water, visible on the surface.	Surface water is rarely visible.	Deep gullies have formed from wind and water erosion.	Bog pools were rarely present and botanically unremarkable. Standing water found in erosion channels.	
Vegetation	Small grasses, bog-mosses common and very wet.	Taller plants, such as cotton-grasses and heather.	Rarely any plants grow on the areas that are exposed. Patches of grasses or heather are still found on 'islands' in between exposed bare peat.	The majority of the Study Area had cotton-grasses, deergrass, heather limited due to grazing pressure, smaller areas bare peat erosion channels evident. Intermediate.	 
Bare peat	Little to no bare peat patches.	Bare peat patches are occasional, burning may occur.	Bare peat areas will continue to expand, leaving less plant cover as protection on the surface. Peat will continue to be lost until the solid rock is exposed.	Bare peat patches were occasional; burning may have occurred historically. Intermediate.	 

Water quality

Water flowing from good quality peatland is clear.

Water flowing from peatland likely to be slightly brown, especially after heavy rainfall.

Bad quality, it can be dark brown from the peat content.

Limited evidence of water flowing directly from peatland areas. Drainage channels occluded.



3.4 Evaluation

- 3.4.1 No national or local priority species of plants were recorded during field surveys, although reference to the Dumfries and Galloway BAP indicates the presence within the Study Area of typically common plant species that are particularly characteristic of blanket mires, upland heaths, rush-pastures and acid grasslands.
- 3.4.2 Spignel was occasionally present in lower lying areas of rush-pasture of the Site. The species is not a UK or local BAP priority species. It is, however, described by Stace (2010) as nationally scarce, being recorded in not more than 100 different 10x10 km grid-squares in the British Isles since 1987, in upland areas between Central Scotland and North Wales.
- 3.4.3 **Table 3.3** summarises the conservation status of the NVC Communities. **Figure 3.4** illustrates potential GWDTEs recorded within the Site. As the Site is located in both Dumfries and Galloway and East Ayrshire council areas, the table considers the presence of NVC communities present in these areas.

Table 3.3 Conservation Status of the NVC Communities Present

Phase 1 Habitat	NVC Community	Annex 1 Habitat	Scottish Biodiversity List*	Dumfries and Galloway BAP	East Ayrshire BAP	Potential GWDTE
Blanket Bog	M17 <i>Trichophorum cespitosum</i> – <i>Eriophorum vaginatum</i> blanket mire	Overlaps with Blanket Bog (Active)	Blanket Bog (1)	Blanket Bog	Blanket Bog	No
Blanket Bog	M18 <i>Erica tetralix</i> – <i>Sphagnum papillosum</i> blanket mire	Overlaps with Blanket Bog (Active)	Blanket Bog (1)	Blanket Bog	Blanket Bog	No
Blanket Bog	M19 <i>Calluna vulgaris</i> – <i>Eriophorum vaginatum</i> blanket mire	Overlaps with Blanket Bog (Active)	Blanket Bog (1)	Blanket Bog	Blanket Bog	No
Blanket Bog	M20 <i>Eriophorum vaginatum</i> mire	Overlaps with Blanket Bog (Active)	Blanket Bog (1)	Blanket Bog	Blanket Bog	No
Blanket Bog	M25 <i>Molinia caerulea</i> – <i>Potentilla erecta</i> mire	Overlaps with Blanket Bog (Active)	Blanket Bog (1)	Blanket Bog	Blanket Bog	Moderate
Acid Flush	M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire	Transition Bogs and Quaking Mires	Upland flushes, fens and swamps (3)	Not specifically covered	NA	No
Wet Dwarf-shrub Heath	M15 <i>Trichophorum cespitosum</i> – <i>Erica tetralix</i> wet heath	Northern Atlantic Wet Heaths with <i>Erica tetralix</i>	Upland Heathland (1 + 2)	Upland Heathland	NA	Moderate
Acid Flush	M6 <i>Carex echinata</i> – <i>Sphagnum fallax/denticulatum</i> mire	No	Upland flushes, fens and swamps (3)	Not specifically covered	Blanket Bog	High
Marshy Grassland	M23 <i>Juncus/effusus/acutiflorus</i> - <i>Galium Palustre</i> rush-pasture	No	Purple Moor-grass and Rush Pastures (Lowland) (1)	Purple Moor-grass and Rush Pasture	Purple Moor-grass and Rush Pasture	High
Semi-improved Acid Grassland	U4 <i>Festuca ovina</i> – <i>Agrostis capillaris</i> – <i>Galium saxatile</i> grassland	No	No	Acid Grassland	Acid Grassland	No

Acid Grassland	U2 <i>Deschampsia flexuosa</i> grassland	No	No	Acid Grassland	NA	No
Semi-improved Acid Grassland	U5 <i>Nardus stricta</i> – <i>Galium saxatile</i> grassland	No	<i>Nardus stricta</i> – <i>Galium saxatile</i> grassland (3)	Acid Grassland	Acid Grassland	No
Acid Grassland	U6 <i>Juncus squarrosus</i> – <i>Festuca ovina</i> grassland	No	<i>Juncus squarrosus</i> – <i>Festuca ovina</i> grassland (3)	Acid Grassland	Acid Grassland	Moderate
Poor semi-improved Grassland	MG9 <i>Holcus lanatus</i> – <i>Deschampsia cespitosa</i> grassland	No	No	Neutral Grassland	NA	Moderate
Continuous Bracken	U20 <i>Pteridium aquilinum</i> – <i>Galium saxatile</i> community	No	No	No	No	No

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Appendix A

Quadrat Data

Grassland	Q9	Q10	Q22	Q23	Q29	Q37	Q38	Q39	Q42	Q53
<i>Festuca ovina</i>	4	4	4	5	4	7	-	4	4	-
<i>Festuca rubra</i>	-	-	-	-	-	-	5	-	-	-
<i>Nardus stricta</i>	9	9	5	5	9	-	3	4	6	-
<i>Molinia caerulea</i>	-	-	8	4	-	-	-	-	6	-
<i>Anthoxanthum odoratum</i>	4	4	4	-	3	3	4	5	4	3
<i>Agrostis capillaris</i>	-	-	-	-	-	4	4	5	4	-
<i>Deschampsia flexuosa</i>	4	4	4	4	-	4	3	-	4	7
<i>Cynosurus cristatus</i>	-	-	-	-	-	5	-	4	-	-
<i>Poa annua</i>	-	-	-	-	-	4	-	-	-	-
<i>Holcus lanatus</i>	-	-	-	-	-	-	-	4	-	-
<i>Juncus squarrosus</i>	-	-	4	5	4	-	-	-	2	7
<i>Juncus conglomeratus</i>	-	-	-	-	-	-	-	-	2	-
<i>Trichophorum germanicum</i>	-	-	3	-	-	-	-	-	-	-
<i>Carex panicea</i>	4	4	-	3	1	-	-	-	-	-
<i>Carex binervis</i>	5	5	-	-	3	-	-	-	-	-
<i>Carex nigra</i>	-	-	-	-	2	-	-	-	2	4
<i>Carex pulicaris</i>	-	-	-	-	1	-	-	-	-	-
<i>Vaccinium myrtillus</i>	2	4	3	3	4	-	-	-	3	-
<i>Potentilla erecta</i>	6	5	6	4	4	-	4	-	-	6
<i>Galium saxatile</i>	4	2	4	1	-	-	-	-	-	-
<i>Rhytiadelphus squarrosus</i>	5	-	2	2	-	-	1	4	-	-
<i>Hypnum jutlandicum</i>	-	-	-	-	-	-	-	-	-	-

<i>Dicranium scoparium</i>	-	-	1	-	-	-	-	-	-	-
<i>Luzula multiflora</i>	-	-	3	1	1	-	1	-	1	2
<i>Thymus polytrichus</i>	-	-	-	-	-	-	7	-	-	-
<i>Hypochaeris radicata</i>	-	-	-	-	-	-	4	-	-	-
<i>Trifolium repens</i>	-	-	-	-	-	5	-	5	-	-
<i>Cirsium palustre</i>	-	-	-	-	-	-	-	4	-	-
<i>Ranunculus repens</i>	-	-	-	-	-	2	-	-	-	-
<i>Cerastium fontanum</i>	-	-	-	-	-	1	-	-	-	-
<i>Euphrasia sp.</i>	-	-	-	-	-	-	1	-	-	-
<i>Rumex acetosa</i>	-	-	-	-	-	-	-	3	-	-
<i>Achillea millefolium</i>	-	-	-	-	-	-	-	1	-	-
<i>Blechnum spicant</i>	-	-	-	-	-	-	-	-	1	-
<i>Pleurozium schreberi</i>	-	-	-	-	-	-	-	-	-	3
Community / Sub-community	U5a	U5a	U5a	U5d	U5c	U4	U4d	U4b	U5	U2b

Grassland	Q13	Q16	Q18	Q24	Q28	Q33	Q34	Q35	Q44	Q46	Q47
<i>Juncus squarrosus</i>	9	9	1	9	9	5	4	9	9	9	9
<i>Nardus stricta</i>	4	4	4	4	-	-	-	-	-	-	4
<i>Galium saxatile</i>	6	4	3	3	4	6	-	5	4	4	5
<i>Deschampsia flexuosa</i>	7	4	4	4	4	5	-	4	4	4	3
<i>Anthoxanthum odoratum</i>	5	5	5	4	5	5	-	4	5	4	4
<i>Agrostis capillaris</i>	-	-	4	5	2	-	-	-	-	-	-
<i>Molinia caerulea</i>	-	-	4	4	3	4	-	-	4	-	4
<i>Festuca ovina</i>	-	-	-	-	-	4	-	-	4	4	-
<i>Vaccinium myrtillus</i>	-	3	-	4	-	2	-	-	-	-	-

<i>Eriophorum angustifolium</i>	-	-	-	-	-	-	5	-	-	-	-
<i>Eriophorum vaginatum</i>	-	-	-	-	-	-	3	-	-	-	-
<i>Hypnum jutlandicum</i>	3	-	-	-	-	-	-	-	-	-	-
<i>Luzula multiflora</i>	3	1	-	-	-	-	2	1	1	-	2
<i>Rhytidiadelphus squarrosus</i>	3	-	2	3	4	-	-	-	-	-	3
<i>Polytrichum commune</i>	-	4	-	4	-	3	3	-	1	-	4
<i>Potentilla erecta</i>	-	-	-	1	-	-	4	1	-	-	-
<i>Rumex acetosella</i>	-	-	-	-	-	-	-	-	1	-	-
<i>Pleurozium schreberi</i>	-	-	-	-	-	2	-	-	-	-	-
<i>Carex nigra</i>	-	-	-	-	-	-	1	-	-	-	-
<i>Sphagnum capillifolium</i>	-	-	-	-	-	-	4	-	-	-	-
<i>Sphagnum palustre</i>	-	-	-	-	-	-	-	-	-	-	-
<i>Trichophorum germanicum</i>	-	-	-	-	-	-	4	-	-	-	-
Community / Sub-community	U6d	U6	U6d	U6	U6d	U6	U6a	U6d	U6	U6	U6d

Wet heath	Q13
<i>Deschampsia flexuosa</i>	7
<i>Trichophorum germanicum</i>	5
<i>Calluna vulgaris</i>	5
<i>Molinia caerulea</i>	4
<i>Eriophorum angustifolium</i>	4
<i>Juncus squarrosus</i>	4
<i>Vaccinium myrtillus</i>	4
<i>Potentilla erecta</i>	4
<i>Sphagnum capillifolium</i>	4
<i>Sphagnum palustre</i>	3

<i>Luzula multiflora</i>	1
Community / Sub-community	M15d

Mire/Flush	Q3	Q8	Q12	Q15	Q20	Q32	Q43	Q49	Q52
<i>Trichophorum germanicum</i>	9	9	9	9	4	9	7	-	5
<i>Calluna vulgaris</i>	-	5	-	-	-	5	3	2	4
<i>Vaccinium myrtillus</i>	-	5	4	-	-	-	4	-	5
<i>Erica tetralix</i>	-	3	-	-	-	-	-	-	-
<i>Eriophorum angustifolium</i>	-	-	-	-	4	4	4	3	4
<i>Eriophorum vaginatum</i>	-	-	-	-	5	-	7	8	3
<i>Sphagnum capillifolium</i>	-	6	-	-	5	-	6	5	5
<i>Sphagnum papillosum</i>	-	-	-	-	4	-	4	-	-
<i>Narthecium ossifragum</i>	-	-	4	4	-	-	-	-	-
<i>Molinia caerulea</i>	4	-	-	-	-	-	-	-	-
<i>Galium saxatile</i>	5	-	-	-	-	-	-	-	-
<i>Juncus squarrosus</i>	4	-	4	4	-	-	4	5	5
<i>Deschampsia flexuosa</i>	4	2	5	4	4	4	4	4	5
<i>Anthoxanthum odoratum</i>	2	-	3	4	3	-	3	3	2
<i>Agrostis capillaris</i>	-	-	-	-	4	-	-	-	-
<i>Festuca ovina</i>	-	-	-	-	-	-	-	4	4
<i>Nardus stricta</i>	2	-	-	-	-	-	-	-	-
<i>Potentilla erecta</i>	1	-	2	3	2	4	-	3	3
<i>Luzula multiflora</i>	1	-	-	-	-	1	-	2	-
<i>Hypnum jutlandicum</i>	-	4	4	-	-	-	3	-	2
<i>Polytrichum commune</i>	-	-	-	3	4	-	4	-	3
<i>Pleurozium schreberi</i>	-	-	-	-	-	-	-	-	2
<i>Aulacomnium palustre</i>	-	-	-	-	-	-	1	-	1
Community / Sub-community	M17c	M17c	M17c	M17c	M17c	M17c	M17c	M20a	M17c

Mire/Flush	Q5	Q11	Q14	Q17	Q25	Q51
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<i>Trichophorum germanicum</i>	-	-	-	-	4	-
<i>Calluna vulgaris</i>	-	4	4	-	5	5
<i>Vaccinium myrtillus</i>	1	3	4	3	4	1
<i>Erica tetralix</i>	-	-	-	-	-	4
<i>Empetrum nigrum</i>	3	-	7	3	3	3
<i>Eriophorum angustifolium</i>	2	4	4	-	-	5
<i>Eriophorum vaginatum</i>	7	6	6	8	4	5
<i>Sphagnum capillifolium</i>	7	4	5	5	5	6
<i>Sphagnum papillosum</i>	6	4	-	-	-	-
<i>Narthecium ossifragum</i>	-	2	-	-	-	-
<i>Galium saxatile</i>	2	4	-	4	-	-
<i>Juncus squarrosus</i>	3	4	4	4	4	4
<i>Deschampsia flexuosa</i>	2	5	5	5	4	5
<i>Anthoxanthum odoratum</i>	-	4	-	4	-	-
<i>Nardus stricta</i>	-	-	-	-	-	-
<i>Potentilla erecta</i>	-	-	-	-	2	4
<i>Luzula multiflora</i>	-	-	-	-	-	-
<i>Hypnum jutlandicum</i>	1	3	-	4	-	-
<i>Polytrichum commune</i>	3	-	-	-	-	4
<i>Polytrichum juniperinum</i>	-	-	3	-	-	-
<i>Pleurozium schreberi</i>	4	4	4	-	-	3
<i>Aulacomnium palustre</i>	-	-	1	-	-	-
<i>Rhytidiadelphus squarrosus</i>	-	2	-	-	-	-
Community / Sub-community	M19	M19a	M19	M19a	M19a	M19a

Rush-pasture	Q2	Q21	Q36
<i>Juncus acutiflorus</i>	10	10	9
<i>Juncus conglomeratus</i>	-	-	4
<i>Potentilla erecta</i>	8	-	3
<i>Holcus lanatus</i>	4	-	3

<i>Festuca ovina</i>	-	-	1
<i>Rumex acetosa</i>	4	4	2
<i>Anthoxanthum odoratum</i>	-	3	-
<i>Molinia caerulea</i>	-	-	4
<i>Ranunculus repens</i>	1	-	1
<i>Ranunculus acris</i>	1	-	-
<i>Ranunculus flammula</i>	1	-	-
<i>Luzula multiflora</i>	1	2	-
<i>Cirsium palustre</i>	1	4	2
<i>Avenula pratensis</i>	2	-	-
<i>Potentilla erecta</i>	-	1	-
<i>Taraxacum sp.</i>	1	-	-
<i>Polytrichum commune</i>	-	-	-
<i>Galium saxatile</i>	-	3	-
<i>Galium palustre</i>	1	-	-
<i>Agrostis capillaris</i>	-	1	1
<i>Deschampsia flexuosa</i>	-	-	-
<i>Rhytidiadelphus squarrosus</i>	-	2	-
<i>Viola palustris</i>	-	-	-
Community / Sub-community	M23a	M23a	M23a

Bracken	Q41
<i>Pteridium aquilinum</i>	9
<i>Agrostis capillaris</i>	5
<i>Juncus conglomeratus</i>	3
<i>Poa nemoralis</i>	7
<i>Poa annua</i>	3
<i>Galium saxatile</i>	3
<i>Rhytidiadelphus squarrosus</i>	3
<i>Anthoxanthum odoratum</i>	3



Bracken	Q41
Community / Sub-community	U20a

Appendix B

Target Notes

TN#	Quadrat#	OS GR	Target Note
1	Q1	NX.66633.99405	Lower slope of broad ridge with moderate sized stand of homogenous wet heath vegetation. Many small drains present, often with soft rush. M15 <i>Trichophorum germanicum</i> wet heath, M15d <i>Vaccinium myrtillus</i> sub-community.
2	-	NX.66882.99651	Small stand of unimproved acid grassland about 40m diameter (too small to map) on broad ridge at western edge of large area of rush-pasture. Grassland well drained and well grazed by livestock. Composed of mat grass, sheep's fescue, sweet vernal-grass, wavy-hair grass, heath rush, common sorrel, carnation sedge, soft rush, <i>Rhytidiadelphus squarrosus</i> and tormentil. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland.
3	Q2	NX.66944.99727	Extensive area of rush dominated vegetation (marshy grassland) on moderately gently sloping ridge. Sheep tracks present. Locally common species, meadow oat-grass sparsely present. Species outside quadrat; tufted hair-grass, marsh willowherb, <i>Sphagnum palustre</i> , white clover, meadow buttercup and marsh hawk's-beard. M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community.
4	-	NX.67169.99930	Stand of low to moderately well-grazed vegetation. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> unimproved acid grassland mainly with minor areas of M15 <i>Trichophorum germanicum</i> wet heath.
5	Q3, Q4	NS.67220.00160	Mire vegetation on flat ground by Whig's Hole. Comprises deergrass dominated stands and subordinate sized stands of purple moor-grass dominated mire (blanket bog). Mapped as deergrass-dominated mire. Wet ground but not boggy underfoot. Low level of sheep grazing. Small bog pool in deergrass mire at NX.67249.00161 with <i>Sphagnum capillifolium</i> , <i>Sphagnum cuspidatum</i> , <i>Polytrichum juniperinum</i> and <i>Rhytidiadelphus loreus</i> . M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community and M25 <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, M25b <i>Anthoxanthum odoratum</i> sub-community.
6	-	NS.67590.00271	Lower lying area of mire (blanket bog), either due to erosion or peat cutting (or both). Locally frequent carpets of <i>Sphagnum capillifolium</i> and <i>Sphagnum papillosum</i> with stands of common cottongrass, common heather, bog asphodel and common blaeberry. Minor occurrence of <i>Sphagnum fimbriatum</i> . M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire.
7	Q5	NS.67645.00178	Flat lying area of mire (blanket bog) with hummocks, composed mainly of hare's-tail cottongrass (<i>Eriophorum vaginatum</i>) with <i>Sphagnum capillifolium</i> , <i>Sphagnum papillosum</i> and common cottongrass characteristic of lower lying areas in between hummocks. Wet underfoot but not notably boggy. M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire.
8	Q6	NX.67810.99978	Localised area of purple moor-grass mire (wet modified bog) that was too small to map on gentle slope in area dominated by deergrass blanket mire (TN6). Sparse mounds of <i>Sphagnum capillifolium</i> . Area

TN#	Quadrat#	OS GR	Target Note
			appears to be well drained. M25 <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire, M25b <i>Anthoxanthum odoratum</i> sub-community.
9	Q7	NX.67877.99907	Minor stand of soligenous mire (acid/neutral flush), too small to map, at Craigstewart Hill in area dominated by deergrass blanket mire (TN6). Outside quadrat; marsh thistle and marsh hawk's-beard. M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire.
10	Q8	NX.68308.99765	Blanket mire (blanket bog) by met mast locality. Wet but not boggy. Network of very wet, boggy vegetation by runnels draining blanket mire and composed of M6 soligenous mire (e.g. TN9), M23 rush-pasture (e.g. TN3), and some stands of bottle sedge. Blanket mire described by Q8. Outside quadrat; <i>Dicranium</i> species and <i>Racomitrium lanuginosum</i> . M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.
11	Q9	NS.67222.01170	Moderately homogenous, extensive stand of semi-improved acid grassland on steep slope. Sheep grazing levels vary locally with more grazed areas marginally more enriched and difficult to survey due to shortness of sward. Sparse stands of soft rush downslope. Species outside quadrat; common heather (low growing) and annual meadow-grass. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland, U5a species-poor sub-community.
12	Q10	NS.67131.01321	Unimproved acid grassland. Upslope of TN11 with lower level of grazing on moderately steep slope. Heath rush appears to be commonplace further upslope of locality. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland, U5a species-poor sub-community.
13	-	NS.67154.01364	Moderate-sized stands in area dominated by U5 grassland (TN 12)(unimproved acid grassland) of greater wood-rush with lesser cover of common bent, heath rush, common blaeberry and wavy-hair grass. In area where slope becomes less steep to the north (upslope).
14	Q11	NS.67205.01593	Flat lying, summit area of hill with hummocky blanket mire (blanket bog). Wet but not boggy underfoot. Outside quadrat; deergrass and minor wet area with <i>Sphagnum cuspidatum</i> . M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, M19a <i>Erica tetralix</i> sub-community.
15	Q12	NS.67123.01602	Moderately small area of deergrass mire (blanket bog) near flat lying summit of hill. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.
16	Q13	NS.67070.01561	Minor stand of well drained, heath rush dominated vegetation (unimproved acid grassland) by summit of hill on flat lying area. Outside quadrat; common sedge and common cottongrass. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
17	-	NS.66997.01566	Minor stand of deergrass blanket mire (blanket bog) by fence with small stands of <i>Sphagnum capillifolium</i> . Two small pools with common cottongrass. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire.

TN#	Quadrat#	OS GR	Target Note
18	Q14	NS.66892.01650	Lower lying saddle area on ridge of hill with stand of blanket mire (blanket bog) that is hummocky and damp, but not boggy underfoot. Outside of quadrat; there is deergrass and tormentil. M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire.
19	Q15	NS.66833.01731	Small stand of blanket mire (blanket bog) by ridge of hill. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.
20	Q16	NS.66681.01832	Heath rush dominated vegetation (unimproved acid grassland) by ridge on gentle slope. Outside quadrat; tormentil and glaucous sedge (<i>Carex flacca</i>). U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
21	-	NS.66440.02050	Small area by ridge composed of a mosaic of heath rush grassland (blanket bog) and deergrass blanket mire (blanket bog). Open vegetation on peaty soil. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland (unimproved acid grassland) and M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog).
22	Q17	NS.66324.02174	Minor area of blanket mire (blanket bog) by ridge, too small to map with some small pools. Hummocky vegetation. M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, M19a <i>Erica tetralix</i> sub-community.
23	Q18	NS.66124.02366	Heath rush vegetation (unimproved acid grassland) with some influence of deergrass mire. In damp area by ridge between Meikledodd Hill and Lorg Hill. Outside quadrat; <i>Hypnum jutlandicum</i> and <i>Polytrichum commune</i> were recorded. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
24	Q19	NS.65937.02735	Unimproved acid grassland on gently slope of Meikledodd Hill. Some erosion of peaty soil evident. Outside quadrat; <i>Pleurozium schreberi</i> and heath wood-rush (<i>Luzula multiflora</i>). U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
25	Q20	NS.65566.02507	Mosaic vegetation by coll of mainly M23a <i>Juncus acutiflorus</i> sub-community (marshy grassland), and U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland (unimproved acid grassland). Q20 sampled subordinate area of mire (blanket bog) composed of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.
26	-	NS.65588.02419	Washed out deposit of peat in low lying area to south-east of coll (TN25). Saturated area of soligenous mire (acid flush), too small to map. Dominated by <i>Sphagnum cuspidatum</i> . Has affinity to M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
27	-	NS.65601.02401	Minor area of soligenous mire (acid flush) by depression probably caused by erosion in past. About 5m in diameter. Composed mainly of stands of soft rush, star sedge (<i>Carex echinata</i>) and <i>Polytrichum commune</i> . M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
28	Q21	NS.65670.02333	Rush dominated vegetation (marshy grassland) likely feeds headwaters of Lorg Burn to south-east. Q21 is of rush-pasture

TN#	Quadrat#	OS GR	Target Note
			vegetation. Mosaic of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community, and M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
29	-	NS.65723.02296	Mosaic of rush-pasture (marshy grassland) and soligenous mire (acid flush), with minor stands of unimproved acid grassland, by drainage ditches near headwaters of Lorg Burn. Rush-pasture with; sharp-flowered rush and compact rush. Soligenous mire features; compact rush, deergrass, marsh violet and <i>Sphagnum capillifolium</i> and <i>Sphagnum papillosum</i> . Minor stand of bottle sedge also present. Grassland of; mat grass, purple moor-grass, rough meadow-grass and sweet vernal-grass with tormentil and heath milkwort. Mosaic of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community, and M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community. Grassland is U5 <i>Nardus stricta</i> - <i>galium saxatile</i> grassland.
30	-	NS.65762.02191	Mosaic of rush-pasture (marshy grassland) and soligenous mire (acid flush) stand by headwaters of Lorg Burn. Sharp-flowered rush with <i>Sphagnum fallax</i> , <i>Sphagnum palustre</i> and <i>Sphagnum capillifolium</i> . Also, lesser spearwort, common lousewort and common butterwort. Mosaic of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community, and M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
31	-	NS.65880.01987	South-east continuation of TN30 vegetation in mosaic with rush-pasture vegetation (marshy grassland) of sharp-flowered rush with common lousewort, marsh thistle, marsh hawks-beard, start sedge, Yorkshire fog, eyebright species, wavy bittercress, bog asphodel and common cottongrass. Mosaic of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community, and M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
32	Q22	NX.66012.99981	Unimproved acid grassland by mid slope of hill near fence at south-west of survey area. Moderately well grazed by sheep and well drained. Heath rush becomes more common upslope to north. U5 <i>Nardus stricta</i> - <i>galium saxatile</i> grassland, U5a species-poor sub-community.
33	Q23	NS.66040.00175	Upslope of TN32, unimproved acid grassland little grazed by sheep and well drained. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland, U5d <i>Calluna vulgaris</i> - <i>Danthonia decumbens</i> sub-community.
34	-	NS.66030.00225	Minor area of well grazed, semi-improved acid grassland by fence on south-east facing slope below Ewe Hill. Sheep's fescue locally abundant with lesser cover of carnation sedge, purple moor-grass, green-ribbed sedge, common blaeberry and greater wood-rush. Small stands also of soft rush. Estimated to be stand of U4 <i>Festuca ovina</i> - <i>Agrostic capillaris</i> - <i>Galium saxatile</i> grassland.
35	-	NS.66018.00297	Minor stands of greater wood-rush with some cover of common bent and green-ribbed sedge in an area of mainly U4 <i>Festuca ovina</i> - <i>Agrostic capillaris</i> - <i>Galium saxatile</i> grassland (semi-improved acid grassland).

TN#	Quadrat#	OS GR	Target Note
36	-	NS.65992.00396	Greater wood-rush stand in area dominated by unimproved acid grassland, U6 grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
37	Q24	NS.65806.00521	Summit of Ewe Hill. Well drained. Mats of <i>Polytrichum commune</i> common by fence. Unimproved acid grassland, U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
38	Q25	NS.65738.00737	Small area of blanket mire (blanket bog) by coll. Damp but not boggy underfoot. Large bog pool by coll about 25 x 5m across, over 0.3m deep. With bottle sedge, sharp-flowered rush, common and hare's-tail cottongrasses and <i>Sphagnum cuspidatum</i> . Small bog pool present nearby, located at NS.65683.00795. M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, M19a <i>Erica tetralix</i> sub-community.
39	Q26	NS.65870.00920	Minor stand of soligenous mire (acid flush) about 25m in diameter, too small to map. Rank soft rush and compact rush with <i>Sphagnum fallax</i> at margins. Outside quadrat, <i>Sphagnum capillifolium</i> . M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire. M6c <i>Juncus effusus</i> sub-community.
40	Q27	NS.65990.00910	Remains of old ditches colonised by soligenous mire (acid flush) in area dominated by U6 unimproved acid grassland. Outside quadrat, deergrass, <i>Sphagnum capillifolium</i> and <i>Sphagnum papillosum</i> were recorded. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
41	Q28	NS.65602.01014	Moderately gentle slope in well drained area of unimproved acid grassland. Vegetation is homogenous largely but some locally abundant stands of mat grass present. Outside quadrat, carnation sedge was recorded. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
42	Q29	NS.65314.01201	Moderately gentle slope characterised by unimproved acid grassland. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland, U5c <i>Carex panicea</i> - <i>Viola riviniana</i> sub-community.
43	-	NS.65188.01235	Flat coll area comprising a mosaic of heath rush, unimproved acid grassland and blanket mire (blanket bog) that is locally very boggy and composed essentially of cottongrasses, <i>Sphagnum fimbriatum</i> and <i>Sphagnum capillifolium</i> . Mosaic of U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community, and M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire.
44	Q30, Q31	NS.65101.01260	North-west of TN43, area is an area of blanket mire (blanket bog) with a good abundance of <i>Sphagna</i> . Minor peat hags present, indicative of peat erosion. Mainly M18 <i>Erica tetralix</i> - <i>Sphagnum papillosum</i> blanket mire, M18a <i>Sphagnum magellanicum</i> - <i>Andromeda polifolia</i> sub-community. Also, some minor areas of M20 mire (wet modified bog) with wet areas containing M4 and M6 acid flushes.
45	Q32	NS.65051.01416	Areas of higher ground of blanket bog atop peat hags. Cross-leaved heath also present outside quadrat. Wet but firm underfoot. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.

TN#	Quadrat#	OS GR	Target Note
46	Q33	NS.65043.01602	Gentle slope to north of coll of unimproved acid grassland rising north-west. Ground is wet but not notably boggy underfoot. A few ditches present. Vegetation hummocky in character. Outside quadrat; deergrass and common blaeberry were recorded. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6a <i>Sphagnum</i> sub-community. Area surrounding TN46 and Q33 locality was dominated by U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
47	Q34	NS.65224.02200	Rounded hill summit area dominated by heath rush, unimproved acid grassland. Sparse stand of deergrass mire (M17) present at NS.65252.02204, too small to map. Outside quadrat; <i>Pleurozium schreberi</i> and bog asphodel. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
48	-	NS.64806.02128	Alwhat Hill similar to TN47, although stands of mat grass are present forming unimproved acid grassland. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
49	Q35	NS.65540.01913	Brown Hill, gentle ridge form summit area with vegetation/habitat similar to TN47 dominating, although there is a small stand of M17 mire and U4 grassland to north-west of TN49 locality. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
50	-	NS.65882.01519	Mid to lower slopes of Brown Hill with two isolated stands of soft rush and compact rush (marshy grassland) in area dominated by vegetation comparable to TN47 to 49. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
51	-	NS.66052.01468	Area of shallow soil and rocks by confluence of watercourses (Lorg Burn and tributary). Bracken-dominated stand of habitat/vegetation with mat grass (abundant) with purple moor-grass, green-ribbed sedge, tormentil, sheep's fescue, common bent and carnation sedge. Young rowans by gorge-like section of watercourse (Lorg Burn). U20 <i>Pteridium aquilinum</i> community.
52	-	NS.66193.01448	Rush-pasture (marshy grassland) and acid flush vegetation of sharp-flowered rush and locally frequent purple moor-grass by lower slopes of valley by Lorg Burn. Along with, marsh thistle, tormentil, Yorkshire fog, marsh violet, common sorrel and marsh hawk's-beard. Gorge-like sections of watercourse with young eared willows and stands of lemon-scented fern. Potentially good site for bryophytes. Dominated by M23 <i>Juncus effusus/acuteiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acuteiflorus</i> sub-community.
53	Q36	NX.66390.99764	Rush-pasture vegetation (marshy grassland) to east of road to Lorg farm house. Outside quadrat; star sedge, marsh bedstraw, meadow buttercup and <i>Rytidiadelphus squarrosus</i> . M23 <i>Juncus effusus/acuteiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acuteiflorus</i> sub-community.
54	Q37	NX.66400.99878	Minor area of semi-improved acid grassland (too small to map) just west of road to Lorg farm house. Difficult to survey due to heavily grazed sward. Located in area of thin stony, well-drained soil. Outside quadrat; greater plantain and lemon-scented fern.

TN#	Quadrat#	OS GR	Target Note
			Estimated to be U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> – <i>Galium saxatile</i> grassland.
55	-	NX.66421.99905	Drain in rush-pasture vegetation (marshy grassland) with lemon-scented fern. In area of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture.
56	Q38	NS.66521.00002	Semi-improved acid grassland colonised coarse river deposits to west of river. Difficult to survey due to heavily cropped sward by sheep. Outside quadrat, <i>Racomitrium lanuginosum</i> , yarrow and white clover. Some minor stands of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture and scattered bracken in the area. U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland, U4d <i>Luzula multiflora</i> - <i>Rhytidadelphus loreus</i> sub-community.
57	Q39	NS.66938.00671	Semi-improved acid grassland close to river, well grazed by sheep. Outside quadrat; tufted hair-grass, lady's bedstraw, autumn hawkbit, common bird's-foot-trefoil, tormentil, mouse-eared hawkweed and wild thyme. U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland, U4b <i>Holcus lanatus</i> - <i>Trifolium repens</i> sub-community.
58	-	NS.67163.00756	Area to north of Water of Ken, mainly dominated by rush-pasture (marshy grassland) with localised influence of soligenous mire (acid/neutral flush). Vegetation mainly composed of sharp-flowered rush and occasional spignel. Heath spotted-orchid in area. Mire influenced areas with <i>Sphagnum palustre</i> and occasional round-leaved sundew. M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community, with influence of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
59	-	NS.67209.00779	Gorge-like section of river with relict area of heath by rocky promontory to west. Too small to map. Composed of common heather, bell heather and the gorge contains scattered young rowan, eared willow, bracken and has good potential for bryophytes.
60	Q40	NS.67328.00952	Moderately flat area of soligenous mire (acid/neutral grassland) to north of Water of Ken with bracken and acid grassland further upslope to north. Outside quadrat; bog asphodel and round-leaved sundew. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
61	Q41	NS.67365.00962	Continuous bracken habitat/vegetation on the west side of the Water of Ken. Well drained. Homogenous vegetation. About 1 to 1.5m tall and moderately open. U20 <i>Pteridium aquilinum</i> – <i>Galium saxatile</i> community, U20a <i>Anthoxanthum odoratum</i> sub-community.
62	-	NS.66837.00869	Old garden and tree plantings at Lorg farm house with moderately mature ash (<i>Fraxinus excelsior</i>), native oak (<i>Quercus</i> sp.), beech (<i>Fagus sylvatica</i>), downy birch (<i>Betula pubescens</i>), rowan and exotic shrub. Introduced scrub of blackcurrant species, with stands of common nettle and lady fern.
63	-	NS.66790.01007	Moderately large area comprising a mix of semi-improved acid grassland (with some neutral influence) and marshy grassland to north-west of Lorg farm house enclosed by wall. Well grazed by sheep. Low knolls and flat areas with network of large ditches. Scattered eared willows by walls. Minor stands of common nettle, compact rush and spear thistle. Rush-pasture and semi-improved grassland mosaic dominates area. Latter composed of red fescue (O), tufted hair-grass

TN#	Quadrat#	OS GR	Target Note
			(O), broad-leaved dock (O), common bent (O), common sorrel (F), Yorkshire fog (A), sweet vernal-grass (F), yarrow (R), annual meadow-grass (F), <i>Rhytidadelphus squarrosus</i> (F), lesser stitchwort (R), sheep's sorrel (O), white clover (F), autumn hawkbit (R) and creeping buttercup (O). Rush-pasture of; articulated rush (A), compact rush (O), <i>Polytrichum commune</i> (O), <i>Sphagnum fallax</i> (A), spignel (F), <i>Calliergon cuspidatum</i> (O), Yorkshire fog (O), <i>Sphagnum palustre</i> (O) and marsh violet (F), mouse-ear hawkweed (R) and Foxglove (R). Network of ditches about 0.5m deep with common lousewort with <i>Sphagnum fallax</i> , lesser spearwort and compact rush. Minor acid flushes also present in poor drained areas, containing bog asphodel. Mosaic of U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland and M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture.
64	-	NS.66894.00837	Moderately large area of marshy grassland to south-east of Lorg farm house, mostly enclosed by wall. Flat area with only a small knoll to the south. Network of ditches present. Rank rush-pasture dominates area, and comprised; compact rush (D), tufted hair-grass (O), broad-leaved dock (F), common sorrel (F) and marsh bedstraw (O). Relicts of soligenous mire at western edge by power line to Lorg farm house. Common cottongrass (A), <i>Sphagnum palustre</i> (A), <i>Sphagnum capillifolium</i> (O), tormentil (A), articulated rush (F), red fescue (F), star sedge (F) and mat grass (O) and common heather (R). Acidic areas with purple moor-grass (A), heath rush (F), tormentil (F), wavy hair-grass (A), heath bedstraw, star sedge (F) and mat grass (R). Minor areas of semi-improved acid grassland vegetation also present composed of; red fescue (O), crested dog's-tail (O), common bent (A), Yorkshire fog (A), sweet vernal-grass (O), articulated rush (F), white clover (F), creeping buttercup (F), common sorrel (F), compact rush (O), common mouse-ear (O), meadow buttercup (R) and autumn hawkbit (O). Mosaic of mainly M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture with M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
65	-	NX.66351.99487	Rush-pasture (marshy grassland) on gentle slope down to east bank of river. Sharp-flowered rush (A), spignel (O), creeping buttercup (R), bugle (R), Yorkshire fog (O), tormentil (F), marsh violet (O), common lousewort (R), lemon-scented fern (R), <i>Calliergon cuspidatum</i> (R) and common sorrel (R). <i>Sphagnum fallax</i> occasional but frequent in places. Likely to be M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community.
66	-	NS.66884.00188	Semi-improved acid grassland on flat ground with high level of grazing and enrichment. Located to west of fence with steep slope to east. Composed of stands of matt grass dominated vegetation and more varied grassland of crested dog's-tail, red fescue, mat grass, marsh thistle, white clover, creeping buttercup, yarrow, sheep's sorrel, sweet vernal-grass and tormentil. Difficult to classify due to shortness of sward. Mosaic of U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> and U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grasslands.
67	Q42	NS.66908.00122	Steep slope of unimproved acid grassland to east of TN66. Well grazed by sheep and cattle with some poaching. Outside quadrat, common heather (low growing and rare). <i>U5 Nardus stricta</i> - <i>Galium saxatile</i> grassland.
68	Q43	NS.67636.00455	Western side of summit ridge of Altry Hill with blanket mire (blanket bog). Gentle slope to north. Some depressions, often with greater wood-rush stands.

TN#	Quadrat#	OS GR	Target Note
			M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.
69	Q44	NS.67704.00414	Summit of Altry Hill with unimproved acid grassland. Scattered hummocky of <i>Sphagnum capillifolium</i> and <i>Polytrichum commune</i> . Outside quadrat, common sedge (occasional). U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
70	-	NS.67828.00686	Stand of soligenous mire (quaking mire)(acid flush) marked on map as Altry Loch. Long since succeeded to mire of; bottle sedge (A), common sedge (A), <i>Sphagnum fallax</i> (A), wavy-hair grass (R), compact rush (R) and common cottongrass (O). M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire.
71	-	NS.67920.00901	U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> unimproved acid grassland by summit of Sour Snout.
72	Q45	NS.68066.00912	Extensive acid flush on east facing slope down to watercourse. Sheep tracks and drains evident. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
73	-	NS.68282.01355	Lower section of gentle ridge below Sour Snout with much blanket mire (blanket bog). Deergrass (A), purple moor-grass (O), heath rush (O), tormentil (R), common heather (O), <i>Sphagnum capillifolium</i> (O), <i>Sphagnum papillosum</i> (O), common blaeberry (R), round-leaved sundew (R), common cottongrass (R), <i>Dicranium scoparium</i> (R) and common sedge (R). Wet but not boggy underfoot. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidiadelphus loreus</i> sub-community.
74	-	NS.68224.01212	West side of steep river valley, unimproved acid grassland dominated by mat grass. U5 <i>Nardus stricta</i> - <i>Galium saxatile</i> grassland.
75	-	NS.67950.00400	Area dominated by M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog).
76	-	NS.67899.00379	Stand of soligenous mire (acid flush) comparable to TN70 in area dominated by deergrass mire (M17). Carpet of <i>Sphagnum fallax</i> at western edge (upslope). M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire.
77	-	NS.67547.00053	Minor stand of rush-pasture (marshy grassland) with abundant sharp-flowered rush in area largely comprising M17 blanket mire. Small peat hags present in mire. M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23a <i>Juncus acutiflorus</i> sub-community.
78	-	NX.66879.99586	Western edge of extensive area of rush-pasture (marshy grassland) with occasional areas of <i>Sphagna</i> -rich vegetation. M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture with minor areas of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
79	Q46	NS.64497.01973	Alwhat Hill. Heath rush, unimproved acid grassland. Outside quadrat, common blaeberry (R). U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
80	-	NS.64343.01988	Vegetation similar to TN79 but more rank. Locally frequent stands of mat grass forming unimproved acid grassland. Likely to be U6 <i>Juncus</i>

TN#	Quadrat#	OS GR	Target Note
			<i>squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
81	-	NS.64373.01720	Complex area of acid flush and unimproved acid grassland to north of coll. Ditch and fenced-off bog pool. Purple moor-grass with star sedge, <i>Sphagnum fallax</i> , <i>Sphagnum palustre</i> , common sedge and <i>Polytrichum commune</i> . Minor stands of compact rush. Mosaic of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> and U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-communities.
82	Q47	NS.64444.01611	North side of coll. Similar to TN80 but marginally boggy. Outside quadrat, common cottongrass (R). U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
83	-	NS.64378.01597	<i>Sphagna</i> and <i>Polytrichum commune</i> forming soligenous mire (acid flush), locally abundant in lower lying areas with heath rush grassland in between. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
84	-	NS.64271.01587	Ditch with acid flush of <i>Sphagnum fallax</i> and sharp-flowered rush in area dominated by heath rush grassland. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
85	-	NS.64175.01602	Two small bands of soft rush (marshy grassland) in low lying area. Soft rush (D), sheep's sorrel (A), common sedge (F), sweet vernal-grass (O), rough meadow-grass (O), marsh bedstraw (O) and marsh willowherb (R). M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, M23b <i>Juncus effusus</i> sub-community.
86	-	NS.64116.01589	Soft rush stand (acid flush) with star sedge, <i>Polytrichum commune</i> , and <i>Sphagnum palustre</i> . Wet and boggy underfoot. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6c <i>Juncus effusus</i> sub-community.
87	-	NS.64069.01557	Stand of acid/neutral flush of compact rush (A) with <i>Sphagnum fallax</i> (A), common sedge (F), <i>Polytrichum commune</i> (F), marsh violet (O), common sorrel (F), bottle sedge (O), Yorkshire fog (O) and sweet vernal-grass (O). Many ditches in area, aligned downslope. Small scattered stands of greater wood-rush present. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6c <i>Juncus effusus</i> sub-community.
88	-	NS.63805.01434	By Alhang Burn. Mostly heath rush vegetation (U6) which is unimproved acid grassland. Small flushes at locality (too small to map) with <i>Sphagnum papillosum</i> (F), mat grass (A), sheep's fescue (O), common sedge (A), viviparous fescue, <i>Polytrichum commune</i> (F) and common cottongrass (O). U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community, with minor stands of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire.
89	-	NS.63623.01558	Unimproved acid grassland. Gentle slope with mostly heath rush vegetation (U6d sub-community) and small stands of mire (too small to map) composed of deergrass (A), <i>Sphagnum papillosum</i> (O), <i>Sphagnum capillifolium</i> (O), heath rush (F), common bent (R), wavy-hair grass (O), tormentil (A), <i>Dicranium scoparium</i> (O), <i>Racomitrium lanuginosum</i> (O), crowberry (<i>Empetrum nigrum</i>)(F) and common blaeberry (F).

TN#	Quadrat#	OS GR	Target Note
			U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community, with minor stands of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire.
90	Q48	NS.63477.01464	Band of soligenous mire (acid flush) at base of slope. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
91	Q49	NS.63382.01428	Area of blanket mire (wet modified bog) in flat area with ditches at margins with M6 soligenous mire. Ditches within blanket mire with carpet of <i>Sphagna</i> and rushes. M20 <i>Eriophorum vaginatum</i> blanket mire, M20a species-poor sub-community.
92	-	NS.63353.01411	Soligenous mire stands (acid flush) in area of M20 blanket mire (see TN91) colonising ditches. Composed of; star sedge, <i>Sphagnum fallax</i> , <i>Polytrichum commune</i> , compact rush and common cottongrass. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
93	Q50	NS.63294.01555	Area of soligenous mire (acid flush) by coll. Wet underfoot. M4 <i>Carex rostrata</i> - <i>Sphagnum fallax</i> mire.
94	-	NS.66797.00516	Small improved pasture fields (semi-improved neutral grassland) in flat land to south of river. Well grazed and ungrazed fields present. Composed of tufted hair-grass, Yorkshire fog, common sorrel, red fescue and common bent. MG9 <i>Holcus lanatus</i> - <i>Deschampsia cespitosa</i> grassland.
95	Q51	NS.68213.00000	Rather eroded blanket mire (blanket bog) near minor watercourse in small valley. Wet and typically firm underfoot. Mostly hummocky. Outside quadrat, bog asphodel. M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, M19a <i>Erica tetralix</i> sub-community.
96	-	NS.68259.99986	Blanket mire (blanket bog) with deergrass (F) and common heather (F), common cottongrass (F), hare's-tail cottongrass (F), <i>Sphagnum capillifolium</i> (O), with lesser cover of; bog asphodel, common blaeberry, cross-leaved heath, crowberry, wavy hair-grass and sweet vernal-grass. M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, M19a <i>Erica tetralix</i> sub-community.
97	-	NS.68388.00087	Old channel, 3-4m wide, in area locally dominated by soligenous mire (acid/neutral flush). Composed mainly of compact rush and <i>Sphagnum fallax</i> with <i>Sphagnum cuspidatum</i> in the wettest area. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community.
98	-	NS.68456.00220	Habitat/vegetation similar to TN97.
99	-	NS.68585.00511	Minor stands of acid/neutral flush of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire and heath rush vegetation (U6) in area of mainly M17 blanket mire. M6 and U6 are both too small to map.
100	Q52	NS.68641.00635	Area of blanket mire (blanket bog) with deep wet ditches on gentle slope. Hummocky micro-topography. Outside quadrat, bog asphodel. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytidadelphus loreus</i> sub-community.
101	Q53	NS.68658.00737	Unimproved acid grassland vegetation, locally common by gently slope at north-east of survey area and bordered to east by conifer plantation.

TN#	Quadrat#	OS GR	Target Note
			U2 <i>Deschampsia flexuosa</i> grassland, U2b <i>Vaccinium myrtillus</i> sub-community.
102	-	NS.68685.01077	Gentle slope with isolated stand of blanket mire (blanket bog)) vegetation comparable to TN100 but with sparse stands of purple moor-grass. Common heather much more abundant inside fence with conifer plantation to east. M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire, M17c <i>Juncus squarrosus</i> - <i>Rhytiadelphus loreus</i> sub-community.
103	-	NX.68714.99761	Slow flowing, minor watercourse with soligenous mire (acid/neutral flush). Surrounding area typically composed of TN101 comparable vegetation, U2 <i>Deschampsia flexuosa</i> unimproved acid grassland, U2b <i>Vaccinium myrtillus</i> sub-community.
104	-	NX.68843.99403	Gentle slope at south-east margin of survey area. Peat hag with drainage ditch is a prominent feature. Comparable to TN96 mire vegetation, M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire, M19a <i>Erica tetralix</i> sub-community.
105	-	NX.67781.99238	Shallow gully in gentle slope at south-east of survey area (Coranbae Hill), about 15m wide (too small to map), in area dominated by M17 deergrass mire (blanket bog). Gully contains soligenous mire vegetation communities, mainly composed of small stands of acid flush composed, bottle sedge, compact rush, <i>Sphagnum fallax</i> carpet with common cottongrass, <i>Polytrichum commune</i> , common sedge and heath rush. M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire and M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire.
106	-	NX.68111.99701	Headwaters of Altry Burn characterised by a flat area at the base of valley with stands of soligenous mire vegetation (acid flush) and rush-pasture vegetation (marshy grassland). Mire is soft (quaking) and very wet in places. Mire vegetation featured, bottle sedge (A), <i>Sphagnum fallax</i> (A), <i>Polytrichum commune</i> (F), star sedge (F), common cottongrass (F) and round-leaved sundew (O). A mosaic of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire and M4 <i>Carex rostrata</i> – <i>Sphagnum fallax</i> mire, with minor stands of M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture.
107	-	NS.64919.01287	Low lying section containing headwaters of Spout Burn. Comprises wet, often boggy, ground formed from a mosaic of acid flush comprising M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire, M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush pasture (marshy grassland) and relicts of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog), which was typically eroded.
108	-	NS.64681.01724	South-east slope of Alwhat Hill, moderate slope. U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland (U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community) becoming dominant upslope (to north-west) and M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog) commonplace to south along with some influence of a mosaic (too small to map) of M6 <i>Carex echinata</i> - <i>Sphagnum fallax/denticulatum</i> mire and M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture vegetation (marshy grassland) in a series of west-east-trending ditches.
109	-	NS.64619.01679	Moderately small stands of mosaic of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog) and U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland (U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community) to east of coll. Area is wet and mostly firm underfoot.

TN#	Quadrat#	OS GR	Target Note
110	-	NS.64590.01560	Largely flat lying area to east of coll. Mainly comprising U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
111	-	NS.64485.01470	Gently sloping slope of Alhang hill near coll. Damp underfoot but rarely boggy. Comprising a mosaic of U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland and M19 <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog).
112	-	NS.64286.01226	North side of the summit area of Alhang hill. Dominated by well grazed U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland. Minor stands of U5 <i>Nardus stricta</i> unimproved acid grassland and stands of greater wood-rush.
113	-	NS.64094.00888	Very steep south facing slope of Alhang hill. Comprising extensive mosaic of U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland and U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> semi-improved acid grassland. The area is generally well grazed with many sheep tracks and a few sheep fanks present.
114	-	NS.64239.00897	Section of steep, south and south-west facing slopes of Alhang hill. Comprises mosaic of U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland. U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
115	-	NS.64471.00899	Area characterised by mosaic of unimproved acid grassland U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> (U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community) and semi-improved acid grassland U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> acid grasslands (U6 is more common than U4).
116	-	NS.64536.00742	Coll comprising flat to gentle undulating ground. Dominated by U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland community with minor stands of U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> semi-improved acid grassland. Some sheep fanks present.
117	-	NS.64572.00688	Flat to undulating small area featuring M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog) community. Eroded peaty banks evident and some wet low-lying areas. The vegetation is wet and typically firm underfoot. Minor stands of U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland present.
118	-	NS.64675.00983	Area at lower, east slope of Alhang hill featuring a mosaic of M17 blanket mire (blanket bog) and U6 unimproved acid grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community.
119	-	NS.64630.01150	Area of lower, east slope of Alhang hill. Ground slopes moderately steeply and is typically wet and often boggy underfoot. Comprises mosaic of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog) and semi-improved acid grassland U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> and unimproved acid grassland U6 community. M23 (marshy grassland) community in area contains good cover of soft rush and is M23b <i>Juncus effusus</i> sub-community. Proportion of communities estimated to be 60% M17, 20% U4, 15% U6 and 5% M23.
120	-	NS.64843.01160	Gentle east facing slope in area of wet, boggy ground. Comparable to TN119.
121	-	NS.63102.01871	Mosaic vegetation of U6 unimproved acid grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community, and M6 <i>Carex echinata</i> -

TN#	Quadrat#	OS GR	Target Note
			<i>Sphagnum fallax/denticulatum</i> mire, M6d <i>Juncus acutiflorus</i> sub-community. Scattered stands of U4 semi-improved acid grassland in better drained areas.
122	-	NS.63179.02008	Marshy grassland comprising M23 <i>Juncus effusus/acutiflorus</i> - <i>Galium palustre</i> rush pasture dominated section, mainly composed of sharp-flowered rush (M23a). Subordinate cover of U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> semi-improved acid grassland and grips with M23b (soft rush dominated).
123	-	NS.63326.02133	Mosaic of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog), M17c <i>Juncus squarrosus</i> - <i>Rhytidadelphus loreus</i> sub-community, and U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> unimproved acid grassland, U6d <i>Agrostis capillaris</i> - <i>Luzula multiflora</i> sub-community Minor stands of greater wood-rush present.
124	-	NS.63465.02510	Mosaic of M17 <i>Trichophorum germanicum</i> - <i>Eriophorum vaginatum</i> blanket mire (blanket bog) and unimproved acid grasslands of U6 <i>Juncus squarrosus</i> - <i>Festuca ovina</i> and U5 <i>Nardus stricta</i> grasslands on moderate slope with locally abundant stands of soft-rush dominated marshy grassland community M23b (especially upslope). Estimated proportion of 40% M23, 30% M17, 10% U6 and 20% U5. Spare, minor stands of greater wood-rush present. Sheep fanks present indicate presence of deep peaty soil. M17 mire is more prevalent to east of corridor (upslope).

Appendix C

Botanical Species List

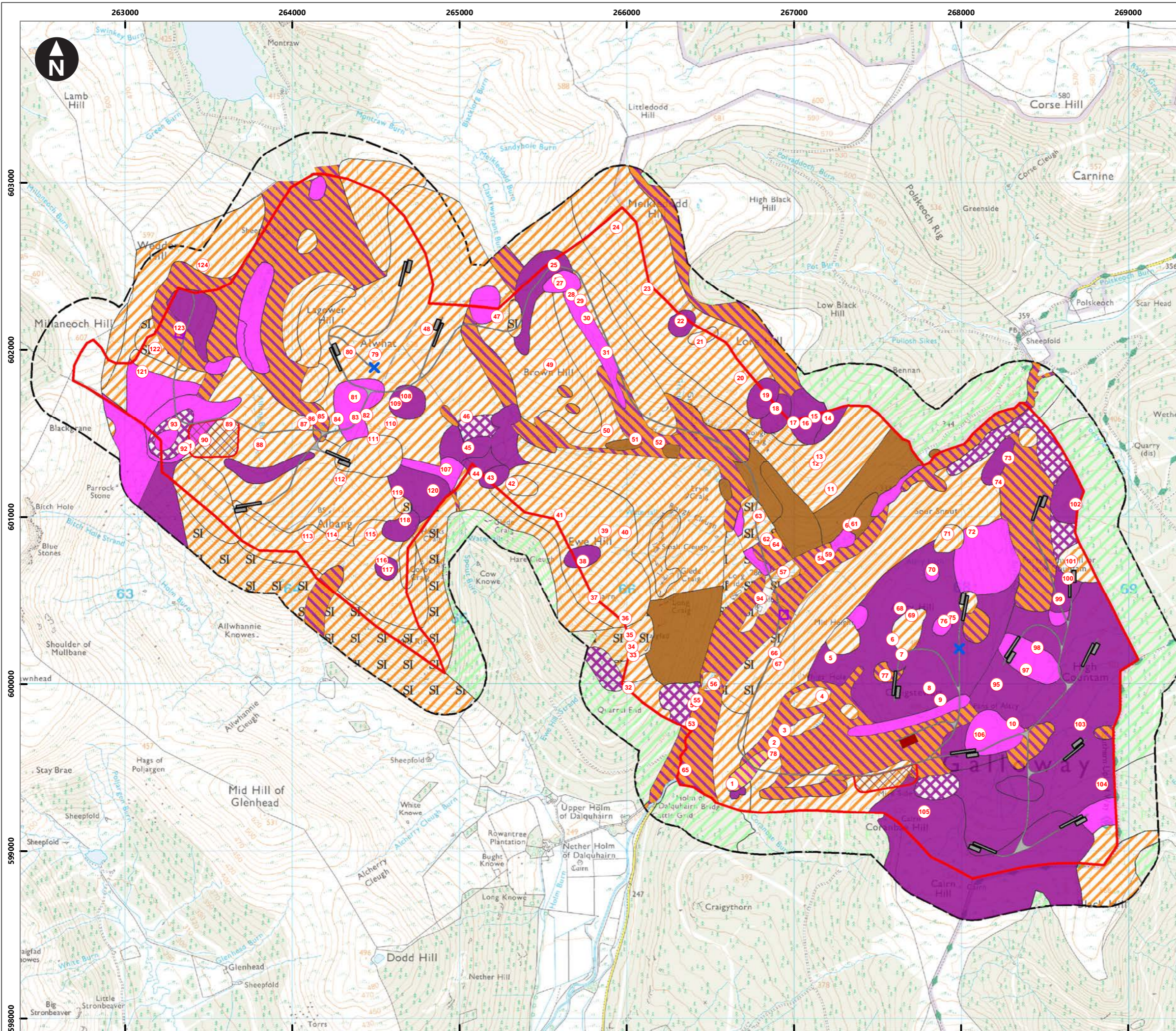
Common Name	Scientific Name
TREES, SHRUBS and CLIMBERS	
Downy birch	<i>Betula pubescens</i>
Common heather	<i>Calluna vulgaris</i>
Crowberry	<i>Empetrum nigrum</i>
Bell heather	<i>Erica cinerea</i>
Cross-leaved heath	<i>Erica tetralix</i>
Beech	<i>Fagus sylvatica</i>
Native oak species	<i>Quercus</i> sp.
Blackcurrant	<i>Ribes</i> sp.
Eared willow	<i>Salix aurita</i>
Rowan	<i>Sorbus aucuparia</i>
Common blaeberry	<i>Vaccinium myrtillus</i>
Cowberry	<i>Vaccinium vitis-idaea</i>
GRASSES	
Common bent	<i>Agrostis capillaris</i>
Meadow oat-grass	<i>Avenula pratensis</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Crested dog's-tail	<i>Cynosurus cristatus</i>
Tufted hair-grass	<i>Deschampsia cespitosa</i>
Wavy hair-grass	<i>Deschampsia flexuosa</i>
Sheep's fescue	<i>Festuca ovina</i>
Fed fescue	<i>Festuca rubra</i>
Viviparous fescue	<i>Festuca vivipara</i>
Yorkshire fog	<i>Holcus lanatus</i>
Purple moor-grass	<i>Molinia caerulea</i>
Mat grass	<i>Nardus stricta</i>

Common Name	Scientific Name
Annual meadow-grass	<i>Poa annua</i>
Wood meadow-grass	<i>Poa nemoralis</i>
Rough meadow-grass	<i>Poa trivialis</i>
SEDGES	
Green-ribbed sedge	<i>Carex binervis</i>
Star sedge	<i>Carex echinata</i>
Glaucous sedge	<i>Carex flacca</i>
Common sedge	<i>Carex nigra</i>
Carnation sedge	<i>Carex panicea</i>
Flea sedge	<i>Carex pulicaris</i>
Bottle sedge	<i>Carex rostrata</i>
Common cottongrass	<i>Eriophorum angustifolium</i>
Hare's-tail cottongrass	<i>Eriophorum vaginatum</i>
RUSHES	
Sharp-flowered rush	<i>Juncus acutiflorus</i>
Articulated rush	<i>Juncus articulatus</i>
Compact rush	<i>Juncus conglomeratus</i>
Soft rush	<i>Juncus effusus</i>
Heath rush	<i>Juncus squarrosus</i>
Heath wood-rush	<i>Luzula multiflora</i>
Greater wood-rush	<i>Luzula sylvatica</i>
HERBS	
Yarrow	<i>Achillea millefolium</i>
Daisy	<i>Bellis perennis</i>
Common mouse-ear	<i>Cerastium fontanum</i>
Marsh thistle	<i>Cirsium palustre</i>
Spear thistle	<i>Cirsium vulgare</i>
Marsh hawk's-beard	<i>Crepis paludosa</i>
Heath spotted-orchid	<i>Dactylorhiza maculata</i>
Foxglove	<i>Digitalis purpurea</i>

Common Name	Scientific Name
Round-leaved sundew	<i>Drosera rotundifolia</i>
Marsh willowherb	<i>Epilobium palustris</i>
Eyebright species	<i>Euphrasia</i> sp.
Meadowsweet	<i>Filipendula ulmaria</i>
Marsh bedstraw	<i>Galium palustre</i>
Heath bedstraw	<i>Galium saxatile</i>
Lady's bedstraw	<i>Galium verum</i>
Mouse-eared hawkweed	<i>Hieracium pilosella</i>
Autumn hawkbit	<i>Scorzoneroideis autumnalis</i>
Spiguel	<i>Meum athamanticum</i>
Bog asphodel	<i>Narthecium ossifragum</i>
Common lousewort	<i>Pedicularis sylvatica</i>
Mouse-ear hawkweed	<i>Pilosella officinarum</i>
Common butterwort	<i>Pinguicula vulgaris</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Greater plantain	<i>Plantago major</i>
Heath milkwort	<i>Polygala serphyllifolia</i>
Tormentil	<i>Potentilla erecta</i>
Meadow buttercup	<i>Ranunculus acris</i>
Lesser spearwort	<i>Ranunculus flammula</i>
Creeping buttercup	<i>Ranunculus repens</i>
Common sorrel	<i>Rumex acetosa</i>
Sheep's sorrel	<i>Rumex acetosella</i>
Broad-leaved dock	<i>Rumex obtusifolius</i>
Devil's-bit scabious	<i>Succisa pratensis</i>
Lesser stitchwort	<i>Stellaria graminea</i>
Wild thyme	<i>Thymus polytrichus</i>
White clover species	<i>Trifolium repens</i>
Marsh violet	<i>Viola palustris</i>
FERNS AND ALLIED PLANTS	

Common Name	Scientific Name
Lady fern	<i>Athyrium filix-femina</i>
Hard fern	<i>Blechnum spicant</i>
Lemon-scented fern	<i>Oreopteris limbosperma</i>
Bracken	<i>Pteridium aquilinum</i>
BRYOPHYTES	
	<i>Aulacomnium plaustre moss</i>
	<i>Calliergon cuspidatum</i>
	<i>Dicranium scoparium moss</i>
	<i>Hylocomium splendens</i>
	<i>Hypnum jutlandicum moss</i>
	<i>Plagiothecium undulatum moss</i>
	<i>Pleurozium schreberi moss</i>
	<i>Polytrichum commune moss</i>
	<i>Polytrichum juniperinum</i>
	<i>Racomitrium lanuginosum moss</i>
	<i>Rhytidiadelphus loreus moss</i>
	<i>Rhytidiadelphus squarrosus moss</i>
	<i>Sphagnum capillifolium moss</i>
	<i>Sphagnum cuspidatum</i>
	<i>Sphagnum fallax</i>
	<i>Sphagnum fimbriatum</i>
	<i>Sphagnum magellanicum</i>
	<i>Sphagnum palustre moss</i>
	<i>Sphagnum papillosum moss</i>

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Key

- Site boundary
- 250m buffer
- Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area
- Coniferous woodland - plantation
- Recently-felled woodland-coniferous
- Acid grassland - unimproved
- Acid grassland - semi-improved
- Marsh/marshy grassland
- Continous Bracken
- Wet dwarf shrub heath
- Blanket bog
- Wet modified bog
- Flush and spring - acid/neutral flush
- Target note

0 0.5 1km
Scale at A3: 1:22,228

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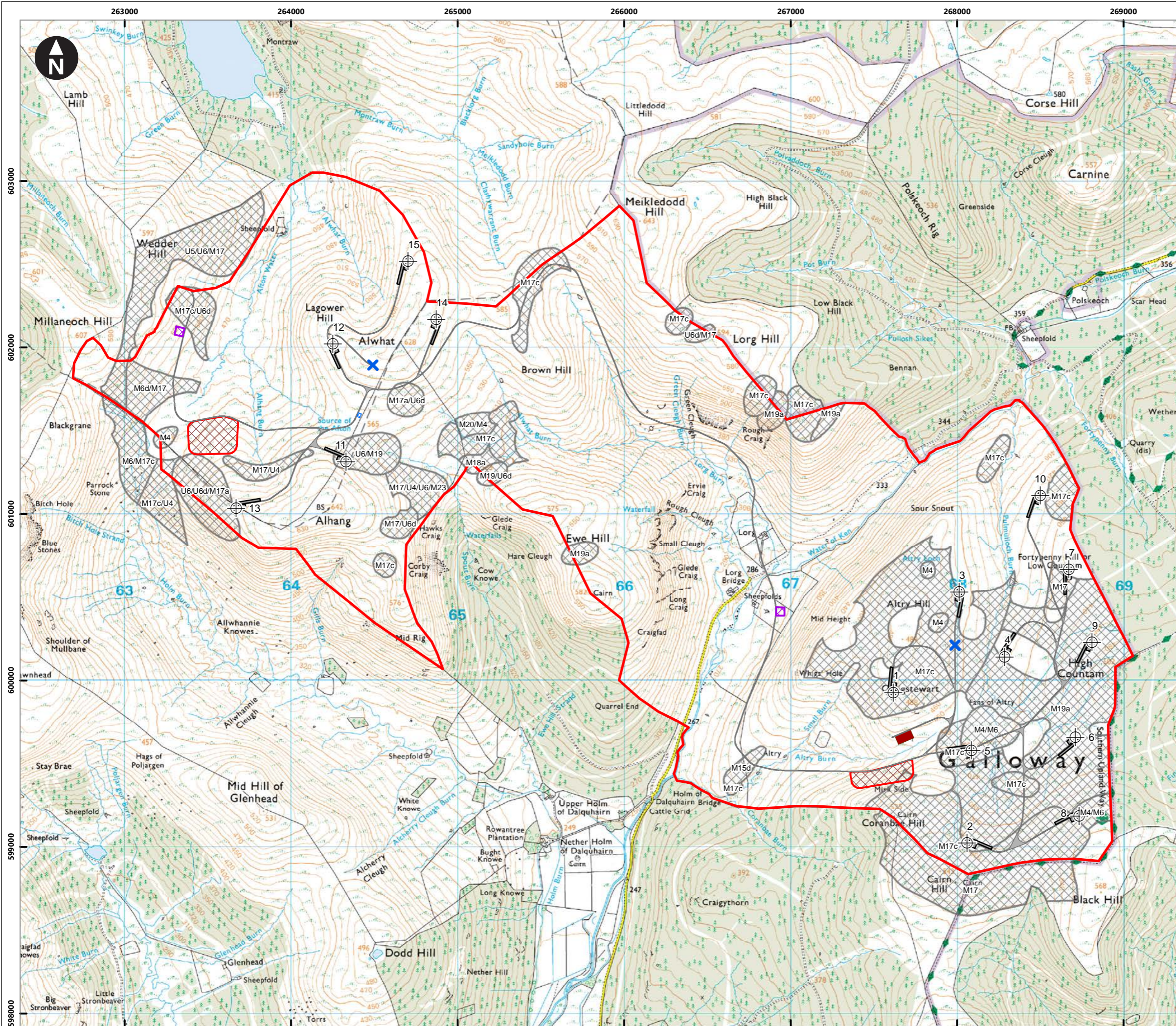
Client
RWE

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Phase 1 Habitat Survey and National
Vegetation Classification and Peatland
Condition Report

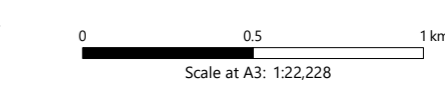
Figure 3.1
Phase 1 habitat plan

October 2022

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- Key
- Site boundary
 - Turbine location
 - Met mast location
 - Western control building
 - Temporary compound
 - Crane pads
 - Access tracks
 - Substation
 - Borrow pit search area
 - NVC areas



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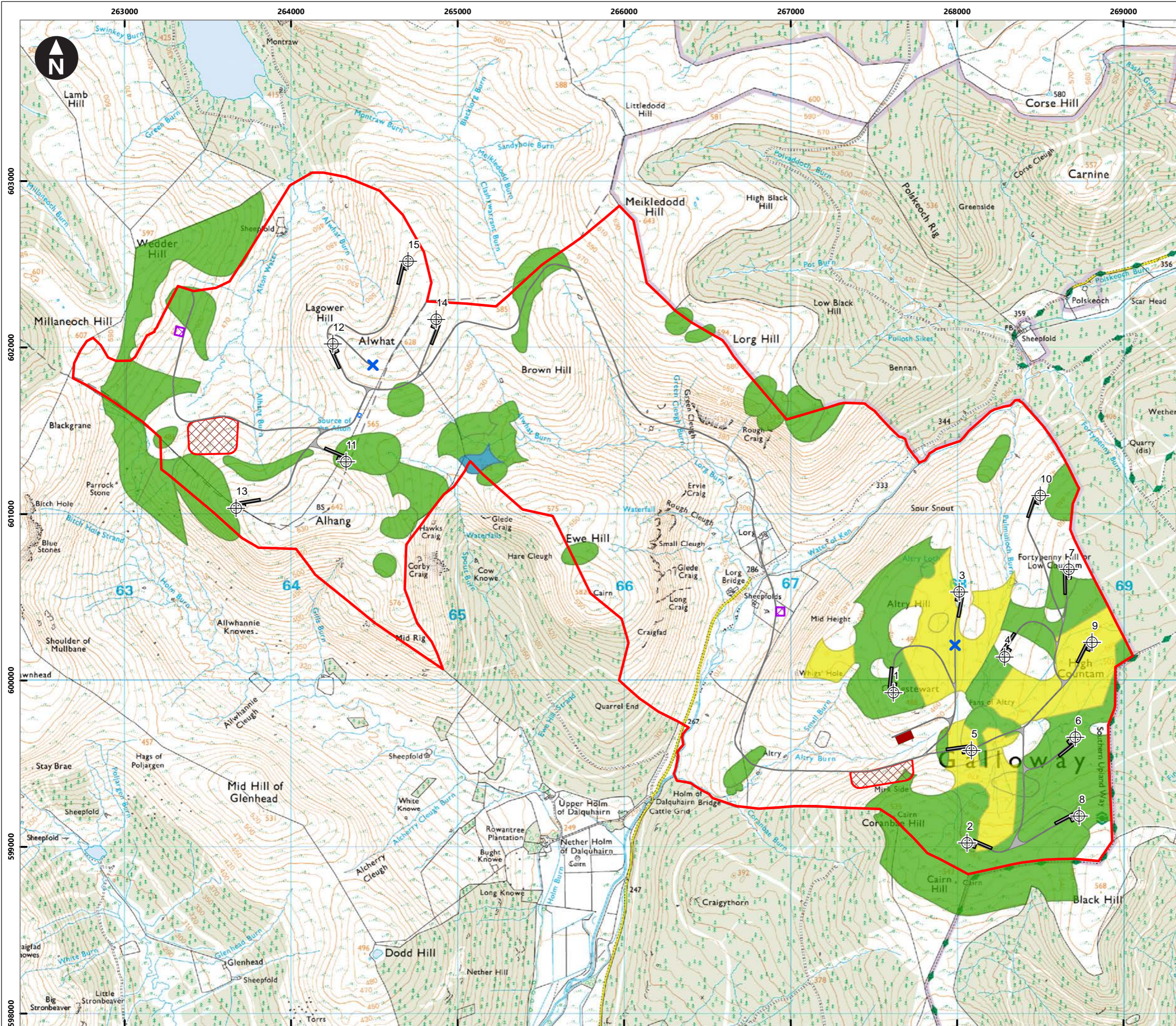


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Figure 3.2
NVC map

October 2022



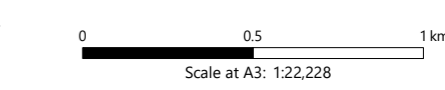


Key

- Site boundary
- + Turbine location
- X Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area

Peatland Condition Features

- Modified
- Modified (drainage)
- Modified (near natural)



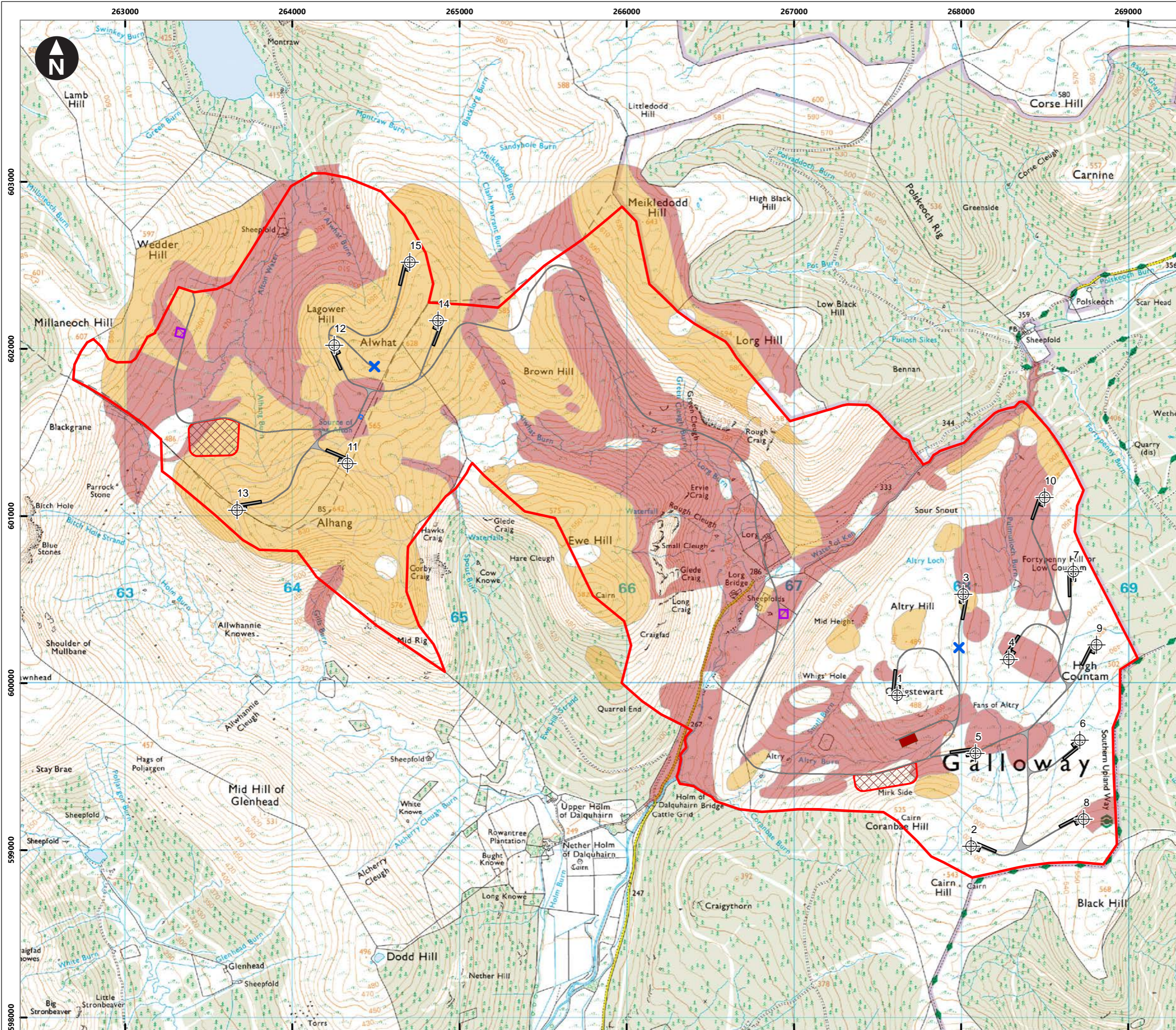
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Figure 3.3
Peatland condition plan

October 2022



Key

- Site boundary
- + Turbine location
- × Met mast location
- Western control building
- Temporary compound
- Crane pads
- Access tracks
- Substation
- Borrow pit search area

GDWTE

- High
- Moderate

0 0.5 1km
Scale at A3: 1:22,228

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**Figure 3.4
Potential GDWTEs Plan**