

# **Volume 3B**

## **Habitats and National Vegetation Classification Survey**

### **Baseline Report 2020**

# 1. Introduction

## 1.1 Background

- 2.1.1 The aim of the NVC survey was to identify and map the plant communities within a zone of influence of the proposed development in order to identify vegetation of nature conservation interest or areas with potential groundwater dependency. The Phase 1 habitat survey was undertaken in order to identify and map habitats within the study area that do not readily conform to NVC communities, in particular clear-fell plantation, plantation/rides and disturbed ground.
- 2.1.2 This report details the findings of Phase 1 Habitat and NVC surveys together with an evaluation of the communities described.

## 1.2 The Site and Study Area

- 1.3.1 The site of the Project comprising the Northern area (access track, Solar array and Hydrogen storage and temporary laydown areas and compounds) and the Southern area (the proposed cable route and access track, Battery storage (BESS) compound and temporary laydown) is shown on **Figure 6.1, Volume 3F** of the EIA Report.
- 1.3.1 The main ecological study area (main site) comprises a buffer zone<sup>1</sup> of 100m around the proposed development, extended to 250m around infrastructure including the Hydrogen Storage compound and BESS compound where deeper excavations will be required.
- 1.3.1 The northern section is located in land which rose gently eastwards, from approximately 225m Above Sea Level (ASL) in the west to approximately 255m ASL in the east. Small valleys contained the Drumtee Water and tributaries, which drain the area. The proposed development is located in marginal farmland, used for low level of grazing by sheep. There is also a commercial forestry plantation located along much of the northern edge of the proposed development.
- 1.3.1 The area across which the southern section proposed cable route and access track crosses is typically flat to gently undulating land, which forms part of an extensive, upland plateau. The area is drained by a network of watercourses, which form part of the same river system which drains the main site of the proposed development. The area contains much of the western section of the extensive Whitelee wind farm and land used for commercial forestry, much of which contains a long-term peatland conservation project.

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<sup>1</sup> This survey includes a buffer of 100m radius of all excavations less than 1m in depth and within 250m of all excavations deeper than 1m.

## 2. Methodology

### 2.1 Phase 1 Habitat Survey

- 2.1.3 Phase 1 habitat survey<sup>2</sup> was undertaken of the Southern area of the Site (comprising the proposed cable route and access track, BESS compound, temporary compound and substation) and on the 21<sup>st</sup> August 2020, supplemented by survey on the 25 to 26<sup>th</sup> November 2020. The survey area comprised large areas of coniferous plantation and former coniferous plantation on modified bog that are better suited to broader Phase 1 habitat mapping. Distinct habitats were identified, and any features of interest recorded and included on a Phase 1 habitat map as a target note (TN). These maps were annotated with numbered TNs, which link to a table providing 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<sup>3</sup> scale was used to approximate the cover of plant species. A hand-held GPS was used to accurately locate features of particular ecological interest.
- 2.1.4 Species lists that were compiled were not comprehensive, rather they describe the general composition of each habitat type. Botanical nomenclature follows Stace<sup>4</sup> for vascular plants and Atherton<sup>5</sup> for bryophytes.

### 2.2 NVC Survey

- 2.2.1 NVC survey (Rodwell (ed.), Volumes 2 and 3, 1991 and 1992)<sup>6,7</sup>, was undertaken of the Northern Section of the Site (what was originally identified as the 'Solar search area') on the 24 to 25<sup>th</sup> September 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)<sup>8</sup> 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.
- 2.2.2 Plant species were identified and recorded as per the Extended Phase 1 habitat survey, described above. 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, a quadrat size of three by three metres was used.
- 2.2.3 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.) (1991) is considered in such cases. The edges and transition

<sup>2</sup> JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit.

<sup>3</sup> D – Dominant, A – Abundant, F – Frequent, O – Occasional and R – (locally) Rare.

<sup>4</sup> Stace (2019). New Flora of the British Isles. Fourth Edition

<sup>5</sup> Atherton, I., Bosanquet, S. & Lawley, M. (Eds.) (2010). *Mosses and Liverworts of Britain and Ireland – A Field Guide*. 1st Edition. British Bryological Society publication.

<sup>6</sup> Rodwell (ed.) (1991). Volume 2 – Mires and Heath. Cambridge University Press.

<sup>7</sup> Rodwell (ed.) (1992). Volume 3 – Grassland and Montane Communities. Cambridge University Press.

<sup>8</sup> Averis, A.M., Averis, A.B.G., Birks, H.J.B., Horsfield, D., Thompson, D.B.A. and Yeo, M.J.M. (2004). *An Illustrated Guide to British Upland Vegetation*. JNCC. ISBN 1 86107 553 7.

zones between communities were avoided. Some stands of homogenous vegetation were too small in size for detailed recording using quadrats and could only be recorded by target noting, using the DAFOR scale to estimate the abundance of species.

2.2.4 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.
- <4% cover (many plants): 3.
- <4% cover (several plants): 2.
- <4% cover (few plants): 1.

2.2.5 Quadrat locations were recorded using a hand-held GPS.

## 3. Survey Results

### 3.1 Overview

- Phase 1 habitat survey results [including Target Notes (TNs)] are illustrated in **Figure 3B6.1** of Volume 3B of the EIA Report.
- NVC survey results are illustrated in **Figure 3B6.2** of Volume 3B of the EIA Report.
- GWDTE plan is illustrated in **Figure 3B6.3** of Volume 3B of the EIA Report.
- TN data is presented in Volume 3A; NVC quadrat data (Q1-38) is presented in Volume 3B; an overall species list is provided in Volume 3C; and photographs are provided in Volume 3D of the EIA Report.

2.2.6 For each of the NVC vegetation communities recorded, Table 3.1 shows the equivalent habitats according to Phase 1 habitat classification (JNCC, 2010) for the Northern section of the study area. For instance, typical blanket bog communities such as M19 and M20 have been classed as wet modified bog due to evident impacts from forestry, drainage and grazing upon the mire present.

2.2.7 Many other NVC communities can also conform to different Phase 1 types. For example, M25 mire can be classified as blanket or modified bog, or a marshy grassland depending on peat depth.

2.2.8 With the exception of commercial plantation woodland (including some felled conifer plantation), categories of vegetation within the study area was dominated by mires, with some cover of rush-pasture, acid flushes and grasslands. Some areas of built environment/hardstanding were located within /alongside the proposed cable route.

2.2.9 Some of the vegetation types recorded, such as areas of conifer plantation, clear-felled conifer plantation and built/hardstanding cannot readily be categorised in terms of NVC communities. These areas have been described in Phase 1 habitat survey terms. There are also some habitat areas, which were too small/narrow to map and are referred to using TN.

2.2.10 A list of Phase 1 habitats and, where relevant, NVC equivalent communities are given in Table 3.1.

**Table 3.1 Phase 1/NVC community equivalents**

Phase 1 Equivalent	NVC communities recorded
<b>Wet modified bog (E1.7)</b>	M19a <i>Calluna vulgaris</i> - <i>Eriophorum vaginatum</i> - <i>Erica tetralix</i> sub-community  M20a <i>Eriophorum vaginatum</i> blanket mire – typical sub-community  M25a <i>Molinia caerulea</i> - <i>Potentilla erecta</i> mire
<b>Acid flush (E2.1)</b>	M6d <i>Carex echinata</i> – <i>Sphagnum recurvum/auriculatum</i> mire, <i>J. acutiflorus</i> sub-community
<b>Marshy grassland (B5)</b>	M23a <i>Juncus acutiflorus</i> - <i>Galium palustre</i> rush-pasture  M23b <i>Juncus effusus</i> - <i>Galium palustre</i> rush-pasture

Phase 1 Equivalent	NVC communities recorded
<b>Semi-improved neutral grassland (B2.2)</b>	MG9 <i>Holcus lanatus</i> - <i>Deschampsia cespitosa</i> grasslands
<b>Semi-improved acid grassland (B1.2)</b>	U4b <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland <i>Holcus lanatus</i> - <i>Trifolium repens</i> subcommunity

- 2.2.11 The following sections describe the flora, structure and habitat of habitats and communities within the Northern section (Section 3.2). Here, Phase 1 habitat type and NVC communities and sub-communities are grouped into the categories of mires and flushes, and grassland and marsh. Woodland, and other habitats were only required to be described using Phase 1 habitat survey.
- 2.2.12 For the Southern section (Section 3.3), only Phase 1 habitats are considered, being mainly located in land that had been heavily impacted by forestry activities.

## 2.3 Northern Area (Solar/hydrogen storage areas)

### Mires and Flushes

#### Habitats

- 2.3.1 NVC survey was more effective than Phase 1 habitat survey at sub-dividing and describing the vegetation of more natural mire and flush habitats of the main site (see section 3.2.8 to 3.2.11).
- 2.3.2 Mires in the form of wet modified bog formed approximately 50% of the main site (TN2, 3, 6, 7, 8, 9, 16-21), had a moderate to low level of species abundance and typified much of the flat or gently sloping areas. Acid flush vegetation formed only a minor part of the site.
- 2.3.3 Blanket bog and acid flush habitats were subject to a moderate level grazing by sheep (about 20 sheep were present across the area) as observed during site visits in 2020.
- 2.3.4 There was no evidence of intensive management of blanket bog and flush habitats, such as burning or peat extraction, even though wet modified bog was the dominant habitat. However, a network of small drainage ditches (e.g., TN2 and TN6), which were judged to be old, was present in blanket bog habitat and were main evident in much of the main site. A large drainage ditch was evident in the western part of the site, which probably contributed to the deterioration of bog habitat in this area. Much of the blanket bog in the eastern part of the site contained wide gullies between the higher areas of bog (e.g., TN17). Wet modified bog in the western part of the site often transitioned to rush-pasture (TN3) or acid flush habitats, which then discharged groundwater into watercourses of the site.
- 2.3.5 A modified and in places degraded blanket bog habitat was judged to become wetter and boggy to the east (e.g., TN16), becoming better quality and borderline intact blanket bog (e.g., TN18), with locally rare *Sphagnum magellanicum* and *Sphagnum papillosum* indicating better condition and higher water table.
- 2.3.6 In the south-east of the main site, in an area impacted by forestry operations in the past (not subject to NVC survey) was a moderate-sized area of wet modified bog (TN23-25), typically dominated by hare's-tail cottongrass. The area contained a small relict area of intact blanket bog (TN26) on flat, ground with some *Sphagnum magellanicum*, along with cranberry, and a good abundance of bog pools, with some cover of *Sphagnum cuspidatum*, in very wet and boggy ground.

2.3.7

Flush habitat in the form of acid flush was mapped at the south-western edge of the conifer plantation in the west of the site and in the central part of the site. Acid flush was commonly present on the small scale within the wet modified bog habitat of the main site in old ditches (e.g., TN2) and in poor draining areas of headwaters of small watercourses, which drain the area (TN11 and 12) and often found alongside marshy grassland habitat. Acid flush typically comprised soft rush and *Sphagnum fallax*, although other species were sometime present, e.g., bottle sedge (TN18 and 19).

## NVC

2.3.8

The following describes NVC communities within each broad habitat type (e.g., mires and flushes):

- M25a *Molinia caerulea* - *Potentilla erecta* - *Erica tetralix* sub-community located in the western and central north part of the site (Q1-6, Q17). The vegetation was characterised by a high abundance of purple moor-grass, cross-leaved heath, *Sphagnum capillifolium* and some cover of deergrass and bog asphodel. Cranberry was occasionally present. The M25a community is typically associated with wet modified mires.
- M20a *Eriophorum vaginatum* blanket mire – M20a typical sub-community (Q9-16, Q26-28) was present in the central to western part of the site. The vegetation was rather poorly defined with only main consistent feature being a good abundance of hare's-tail cottongrass, a moderately low cover of *Sphagnum* species (sometimes absent) and notable present of common acid grass species. The M20 community is indicative of wet modified mire. The south-east area of the main site was not subject to NVC survey as it had been heavily impacted by forestry operations. Nevertheless, data (TN23-26) tends to indicate the dominance of M20 mire vegetation in this area.
- M19 *Calluna vulgaris* - *Eriophorum vaginatum* - community typified the eastern part of the site (Q21-25, Q29-38). This included a forestry ride in the north-east of the site. The sub-community most commonly present was M19a *Erica tetralix* sub-community (Q21-25 and Q34-38). Less commonly M19b *Empetrum nigrum* sub-community (Q29-33) was present. Species characteristic of the vegetation comprised a good level of cover by common heather (particularly in higher, better draining areas), crowberry, common blaeberry, *Sphagnum capillifolium*, hare's-tail cottongrass, *Cladonia portentosa* and occasionally *Sphagnum papillosum*, *Sphagnum cuspidatum*, cranberry, round-leaved sundew. Wide gullies in-between the higher areas of more typical M19a vegetation were typically dominated by hare's-tail cottongrass, which was rather M20 like (see above). *Sphagnum magellanicum* was locally rare in the eastern part of the site (TN18), although it was never recorded in a quadrat, and its present tends to suggest the blanket bog was borderline intact in the eastern part of the site.
- Acid flush vegetation was composed of M6 communities, either dominated by sharp-flowered rush (M6d *Juncus acutiflorus* sub-community [Q18]) or soft rush dominated (M6c *Juncus effusus* sub-community [Q19]). The vegetation was wet and botanically unremarkable.

## Grasslands and Marshes

2.3.9

Grassland and marshy grassland habitats were prevalent at the north-west and southern extents of the Northern areas of the main site.

2.3.10

The western edge of the site featured a field of semi-improved neutral grassland, which was used for pasture and subject to intensive agricultural improvement (including drainage).

2.3.11

A field of semi-improved acid grassland used for sheep grazing was present at the north-west of the main site with some intervening areas of marshy grassland (TN1). The marshy grassland habitat was mainly composed of soft rush, with a species diversity that was very varied, with some areas of

semi-improved acid grassland (mapped as a mosaic with marshy grassland where necessary). Other species present included; marsh violet, marsh cinquefoil, marsh bedstraw, greater bird's-foot trefoil, marsh thistle and devil's-bit scabious. South of this area the marshy grassland transitioned to wet modified bog (TN2).

- 2.3.12 In the south-west of the site, wet modified bog discharged into marshy grassland, dominated by soft rush (TN3 and 4), which bordered the watercourse which drained the main site. The watercourse was contained within a small valley, which was dominated by marshy grassland with some semi-improved acid grassland on the upper sides (TN5). The upper reaches of the watercourse were bordered by marshy grassland of mainly soft rush or sharp-flowered rush (TN8 to 15). *Sphagna* was occasionally present in the marshy grassland, which was acid flush like in places.

### NVC

- 2.3.13 Marshy grassland was most commonly composed of M23b *Juncus effusus/acutiflorus* - *Galium palustre* rush-pasture - *Juncus effusus* sub-community (Q7 and Q20). There were, however, some subordinate stands of M23a *Juncus acutiflorus* sub-community located within the M23b stands in the north-west and central sections of the site.
- 2.3.14 Semi-improved acid grassland was mainly composed of U4b *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland (Q8), which was species-poor. Semi-improved neutral grassland located at the western edge of the main site was judged to be MG9 *Holcus lanatus* - *Deschampsia cespitosa* grassland. These communities are associated with agricultural improvements and are typically ecologically unremarkable.

### Woodlands

- 2.3.15 Most of the southern section of the site comprised felled conifer plantation (TN22), comprising relic modified blanket or colonisation by marshy grassland and semi-improved neutral grassland on shallower peats. Much large stumps and brash, along with deep furrows, remained in this area.
- 2.3.16 Plantation woodland of moderate age of Sitka spruce, which was densely planted, formed much of the land (Tentknowe plantation) to the north of the northern section, along with a younger area of Sitka plantation at the north-east of the main site. Trees were planted on bog habitats. The ground flora vegetation is poor due to shading.
- 2.3.17 Recently-planted strips of broad-leaved trees have been created along much of the southern edge of the conifer plantation noted above (TN7-13 and TN15). They were mainly rowan and some downy birch have been planted, mainly on higher, better draining ground close to the sides of the upper reaches of a minor watercourse.
- 2.3.18 Scattered trees, mainly young self-sown Sitka were scattered across much of the eastern section of wet modified bog. Scrubby willows are rarely present (TN19), with some by the edge of pond dug in bog in the east of the main site (TN21).

## 2.4 Southern Area (Cable Route/access track area)

### Mires and flushes

- 2.4.1 The northern and western area of the cable route and access track comprise much wet modified bog on flat-lying land which was formerly used for commercial forestry (TN28 and 29). Considerable signs of former forestry remained and there was much self-seeded spruce colonising the cleared areas. The wet modified bog was typically composed of hare's-tail cottongrass with some common heather in higher areas, which were better draining.



- 2.4.2 The eastern part of the cable route contained a few areas of wet modified bog similar to above but in general it was dominated by conifer plantation. However, there was a moderately-sized relict stand of blanket bog located in the easternmost area (TN31). The bog had not been impacted by forestry activities and remained intact.

### Grasslands and Marshes

- 2.4.3 Marshy grassland was commonplace along the cable route, including both ends of the route, mainly in the form of habitat dominated by soft rush. However, there were some areas of semi-improved neutral grassland located by the northern section of the cable route (TN27).
- 2.4.4 Particularly wet marshy grassland was located along the western part of the cable route, where the route would run from a conifer plantation (poorly drained) to an existing road (TN30).
- 2.4.5 None of the areas of grassland, marshy grassland (and mires) through which the proposed cable route passed were subject to grazing by livestock.

### Woodlands

- 2.4.6 Woodland habitats were present along much of the cable route. In the west of the route, self-seeded conifers and willows were present along the edges of a floating road (TN28).
- 2.4.7 Conifer plantation of spruce and some pine of varied ages were present by central and eastern sections of the proposed cable route. Some recently-felled plantation was also present, which was typically on wet modified bog.

### Other Habitats

- 2.4.8 An excavation by the north section of the cable route includes a stand of wet, marshy grassland and some swamp with bulrush (TN27). It is possible that this area contains standing water (pond) during wet periods. This area was probably too small and geographically isolated to be of significant ecological value.
- 2.4.9 The easternmost part of the cable route adjoins an existing substation for Whitelee windfarm and also a recently-cleared area planned for new construction.

## 4. Evaluation

- 2.4.10 The Northern area comprises primarily wet modified bog of low to moderate plant species diversity on flat, poorly drained ground, bordered by rather rank and floristically unremarkable acid flush and marshy grassland habitats, which drain to small watercourses. Semi-improved acid grassland habitat (and some acid grassland and marshy grassland mosaic) was present on better drained ground at the north-west and southern edges of the main site. Semi-improved neutral grassland was also present at the westernmost section of the main site. These habitats provide marginal grazing for sheep.
- 2.4.11 The southern area of the main site was located on felled conifer plantation on wet modified bog in the early stages becoming colonised by marshy grassland and semi-improved neutral grassland, although there was also some restored wet modified bog in the south-east of the area. This area was not grazed by livestock unlike the open habitats of much of the main site.
- 2.4.12 Scattered, minor areas of intact blanket bog were evident in the eastern and south-east sections of the main site. They were characterised by particularly wet and boggy conditions, with an elevated abundance of *Sphagnum* species, including some occurrence of *Sphagnum magellanicum*.
- 2.4.13 Conifer plantation was present at the northern and north-east of the main site and was ecologically unremarkable.
- 2.4.14 The proposed cable route crosses a mixture of relict, wet modified bog and marshy grassland and then passes through a large area dominated by wet modified bog on land formerly planted with commercial forestry. The eastern section of the proposed cable route passes through an area dominated by commercial forestry with some area of wet modified bog, marshy grassland (typically bordering watercourses) and a relict area of blanket bog close the eastern end of the route. None of the land crossed by the proposed cable route was subject to livestock grazing.

### Annex 1 Habitats

- 2.4.15 A number of NVC communities recorded within the Study Area correlate to various Annex 1 habitat types. However, the fact that an NVC community can be attributed to an Annex 1 type does not necessarily mean all instances of that NVC community constitute Annex 1 habitat. 'Active' peat bogs are generally defined as supporting a significant area of vegetation that is normally peat-forming (supporting *Sphagnum*, *Eriophorum spp.*, or *Molinia caerulea* in certain circumstances, together with *Calluna vulgaris* and other ericaceous species).
- 2.4.16 Recorded vegetation communities have been compared against Joint Nature Conservation Committee (JNCC)<sup>9</sup> Annex 1 habitat listings and descriptions. Of those recorded within the study area, several NVC communities - M19, M20 and M25 mires can correlate directly with Annex 1 type 7130 Banket bog.
- 2.4.17 M19 provides the greatest coverage to the eastern extent of the Northern section. M20 was found to be in a species-poor grassy form in stands within the study area. Both blanket bog communities have been subject to the effects of forest drainage, colonisation of self-seeded conifers, shading effects and sheep grazing, and as such are deemed to be poor or degraded forms of Annex 1 habitats.
- 2.4.18 As detailed above, M25 mire can also fall within the blanket bog Annex 1 type, where there is underlying peat depth of greater than 0.5m and the habitat is wet and contains peat-forming

<sup>9</sup> <https://sac.jncc.gov.uk/habitat/>

species. Much of the M25 within the study area is grazed and has been subject to extensive drainage and this has resulted in a more species poor cover and lower *Sphagnum* and *Eriophorum* cover, and as a result are also deemed to be poor or degraded forms of Annex 1 habitat.

### Groundwater Dependent Terrestrial Ecosystems (GWDTE)

- 2.4.19 SEPA has classified a number of NVC communities as potentially dependent on groundwater (SEPA, 2017). Wetlands or habitats containing these particular NVC communities are to be considered GWDTE unless further information can be provided to demonstrate this is not the case. Many of the NVC communities on the list are very common habitat types across Scotland, and some are otherwise generally of low ecological value.
- 2.4.20 GWDTE sensitivity has been assigned solely on the SEPA listings (SEPA, 2017), comprising NVC communities which may have limited (moderate) dependency on groundwater in certain settings and NVC communities which are likely to be considered (high) sensitive. However, depending on a number of factors such as geology, superficial geology, presence of peat and topography, many of the potential GWDTE communities recorded may be only partially groundwater fed or not be dependent on groundwater at all. Determining the actual groundwater dependency of particular areas or habitat requires further assessment provided in the **Volume 2, Chapter 8: Geology, Hydrology and Hydrogeology** of the EIA Report.

### Summary

- 2.4.21 Table 4.1 provides a summary of the Phase 1 habitats and NVC communities present and summarises their significance at the European level (Annex 1 habitats), national level (Scotland) and regional level (East Ayrshire). The potential presence of Groundwater Dependent Terrestrial Ecosystems (GWDTE) is also listed.
- 2.4.22 No plant species of international, national or regional conservation importance was recorded within the main site or along the proposed cable route. Also, no aggressively invasive plant species were recorded by the surveys, which tends to be the case for upland areas.

Table 4.1 Phase 1/NVC community equivalents and summary environmental assessments

Phase 1 Habitat	NVC Community	Annex 1 habitat <sup>10</sup>	SBL Priority habitat <sup>11</sup>	East Ayrshire Local BAP <sup>12</sup>	Potential GWDTE status <sup>13</sup>
Wet modified bog	M19	Yes	Yes	Yes <sup>14</sup>	No
	M20	Yes	Yes	Yes <sup>10</sup>	No
	M25	Yes	Yes	Yes <sup>10</sup>	Moderate potential
Marshy grassland	M23	No	No	Yes <sup>15</sup>	High potential
Acid flush	M6	No	Yes	Yes <sup>16</sup>	High potential
Semi-improved acid grassland	U4	No	No	No	No
Semi-improved neutral grassland	MG9	No	No	No	Moderate potential

<sup>10</sup> <https://webarchive.nationalarchives.gov.uk/20190405130848/http://jncc.defra.gov.uk/page-1523>

<sup>11</sup> <https://www.nature.scot/scottish-biodiversity-list>

<sup>12</sup> The 2007-2010 Ayrshire Biodiversity Action Plan (<https://www.south-ayrshire.gov.uk/documents/2008%20ayrshire%20bap.pdf>) effectivity covered East Ayrshire in 2020.

<sup>13</sup> <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>

<sup>14</sup> Blanket bog.

<sup>15</sup> Rush-pasture.

<sup>16</sup> Considered as a rush-pasture habitat.

## Annex A

### Target Notes

TN	OS Grid Reference	Target Note
1	NS 50090 47345	At this locality habitat was rather uniform and quite diverse with a typically open growth of soft rush dominated marshy grassland, which was grazed by sheep. Other species were; purple moor-grass, compact rush, marsh willowherb, <i>Sphagnum fallax</i> , <i>Sphagnum palustre</i> , common sorrel, marsh violet, marsh cinquefoil, marsh bedstraw, Yorkshire fog, greater bird's-foot trefoil, marsh thistle, devil's-bit scabious, tormentil and <i>Polytrichum commune</i> . Small area of semi-improved acid grassland located near the locality, with wavy hair-grass, red fescue, sweet vernal-grass, heath rush, purple moor-grass, heath rush, hare's-tail cottongrass, tormentil, heath wood-rush, <i>Sphagnum capillifolium</i> , common heather, and <i>Aulacomnium palustre</i> . Habitat transitions to wet modified bog to south of NS.50105.47305 (just north of and fence and ditch).
2	NS 50088 47194	Area to south of fence and ditch dominated by wet modified bog, although there are subordinate, scattered areas of marsh grassland featuring soft rush. Bog vegetation was mostly wet and tussocky, with a few small pools. Grazed by sheep at times. <i>Sphagna</i> cover was approx 10-20%. Characterised by hare's-tail cottongrass with lesser cover of purple moor-grass, common blaeberry, cross-leaved heath, common heather, <i>Polytrichum juniperinum</i> , <i>Sphagnum fallax</i> , <i>Sphagnum palustre</i> , bog asphodel, cranberry, heath bedstraw, <i>Rhytidiadelphus squarrosus</i> , and sparse occurrence of a <i>Cladonia</i> lichen species. Ditches within the bog contained acid flush of soft rush and <i>Sphagnum fallax</i> .
3	NS 50320 47004	Transition from wet modified bog in the north (see TN2) to marshy grassland dominated by soft rush (and some poor semi-improved grassland), which characterised a small valley to the south.
4	NS 50443 46940	Small valley, grazed by sheep, featuring mainly marshy grassland (varying from rank to open in character), with lesser cover of semi-improved neutral grassland and minor areas of semi-improved acid grassland (on steeper ground). The valley contained a small watercourse with a width of approx. 1-1.5m, with a mostly coarse substrate. The marshy grassland was mostly rough underfoot, wet, and was not diverse, being dominated by soft rush. Common nettles were occasionally present and lesser stitchwort was locally rare.
5	NS 5046547152	Upper section of small valley (see TN4), with marshy grassland and a minor watercourse and whose uppermost sides features wet modified bog, with a local abundance of mat grass and wavy-hair grass at the valley sides, i.e. semi-improved acid grassland.
6	NS 50508 47246	Area of wet modified bog on flat to gently sloping land. Wavy hair-grass was locally frequent. Common heather and cross-leaved heath were almost absent from the bog. <i>Sphagna</i> was uncommon and was limited to <i>Sphagnum fallax</i> . Relict ditches were present, which were mostly full of soft rush and compact rush. Bog was typically damp rather than wet underfoot.
7	NS 50410 47343	Area at the north of wet modified bog (see TN6) by southern edge of conifer plantation featured marshy grassland (soft rush dominated) mainly. Along with a narrow strip of recently planted downy birch and rowan (near the edge of conifer plantation).
8	NS 50402 47351	Recently planted strip of broad-leaved trees (as per TN7) close to the southern edge of a conifer plantation (moderate age) on higher ground dominated by wet modified bog. Broad ditch located between the recent planting and the conifer plantation contained marshy grassland of soft rush, with lesser cover of purple moor-grass, <i>Sphagnum fallax</i> , hare's-tail cottongrass, wavy hair-grass, and sparse common blaeberry and common heather.

TN	OS Grid Reference	Target Note
9	NS 50454 47374	Marshy grassland dominated area in strip of land south of conifer plantation (moderate age). Characterised by stands of soft rush or sharp-flowered rush, with lesser cover of tufted hair-grass and common nettle. Narrow strip of recently planted broad-leaved trees running parallel to the conifer plantation on better draining ground. Some rather bare peaty soil under the trees with a lichen species.
10	NS 50619 47473	Narrow strip of recently planted downy birch and rowan on better draining land located a short distance south of a conifer plantation (moderate age). Lower lying, poorly drained, land in the area was dominated by marshy grassland. The broad-leaved trees had been planted on peaty land, which varied from wet modified bog to dry modified bog.
11	NS 50780 47491	Western extent of recently planted, narrow strip of downy birch and rowan. Lower lying, poorly drained land featured marshy grassland, minor cover of acid flush (with soft rush) and a minor watercourse. The broad-leaved trees were mostly located on wet modified bog.
12	NS 50870 47519	Marshy grassland located by the southern edge of conifer plantation (moderate age) with some stands of acid flush featuring bottle sedge, <i>Sphagnum fallax</i> , <i>Sphagnum capillifolium</i> , <i>Hypnum jutlandicum</i> and <i>Polytrichum commune</i> . Marshy grassland was dominated by soft rush and also included a minor watercourse located in-between the conifer plantation and a narrow strip of recently planted downy birch and rowan.
13	NS 51012 47538	Western extent of a narrow strip of recently planted rowans in an area of mainly marshy grassland and minor areas of semi-improved acid grassland on higher ground. Located a short distance to the south of a conifer plantation (moderate age).
14	NS 51084 47533	Area dominated by marshy grassland composed mainly of soft rush with lesser cover of; marsh cinquefoil, meadow buttercup, Yorkshire fog, common sorrel, marsh thistle, marsh bedstraw, bogbean (in wettest areas), ragged robin (locally rare), marsh willowherb, sneezewort, and tufted hair-grass.
15	NS 51132 47531	Stand of semi-improved neutral grassland (featuring tufted hair-grass) in area dominated by marshy grassland, with some <i>Sphagnum palustre</i> in the wettest areas. Easternmost recent planting, in narrow strips, of broad-leaved trees located a short distance south of a conifer plantation (moderate age).
16	NS 51241 47491	North-west part of extensive area of bog, determined to be mainly wet modified bog, in flat to hummocky ground. Habitat was tussocky and typically soft and damp underfoot. Mainly characterised by hare's-tail cottongrass with lesser cover of; common heather, cross-leaved heath, wavy hair-grass, <i>Pleurozium schreberi</i> , common blaeberry, tormentil, <i>Polytrichum commune</i> , and <i>Sphagna</i> , whose abundance was estimated to be 20% with <i>Sphagnum capillifolium</i> and <i>Sphagnum fallax</i> . Less abundance species were; cranberry, bog asphodel, a <i>Cladonia</i> lichen species, deergrass and <i>Aulacomnium palustre</i> .
17	NS 51548 47641	Bog as per TN16 appeared to become wetter to east, bordering on intact blanket bog. Hummocky and tussocky in character with a similar composition of species to TN16, albeit with crowberry, bog asphodel and <i>Sphagnum capillifolium</i> being occasional to locally frequent. <i>Sphagna</i> abundance was judged to vary considerably from 10 to 40%. Wide, shallow gullies present in-between the higher areas of bog, dominated by hare's-tail cottongrass.
18	NS 51678 47729	Acid flush stand in lower ground with bottle sedge, <i>Sphagnum fallax</i> . The area was mostly dominated by wet modified bog characterised by hare's-tail cottongrass. Round-leaved sundew was locally rare in the bog. <i>Sphagnum magellanicum</i> was rarely present, tending to indicate areas of intact blanket bog.
19	NS 51819 47758	Wide, wet ditch with acid flush with some bottle sedge near old fence, which included a willow bush. Area is mostly dominated by wet modified bog characterised by hare's-tail cottongrass. Bog was borderline intact blanket bog in places. <i>Sphagna</i> level varied considerably from 20 to 40%. Cowberry was occasionally present. More prevalent species included cranberry, wavy hair-grass and <i>Aulacomnium palustre</i> .

TN	OS Grid Reference	Target Note
20	NS 51871 47731	Stand of common cottongrass is particularly wet area of wet modified bog.
21	NS 52019 47750	Large pond dug in peatland habitat bordered by scattered willow shrubs.
22	NS 51089 47155	Extensive area of felled, mature conifer plantation. Mostly comprised heavily furrowed land, which has become colonised by a mixture of marshy grassland (soft rush mainly), semi-improved neutral grassland (mainly tufted hair-grass) and minor cover of common acidic grass species. Some of the furrows were wet and contained occasional cover of <i>Sphagnum fallax</i> .
23	NS 51191 47201	North-west margin of an area of wet modified bog, with a stand of young self-sown spruce. Comprised species-poor vegetation dominated by tussocky growth of hare's-tail cottongrass. Land was formerly furrowed and planted with spruce, which have been felled, leaved occasional large stumps and some piles of brash. Ground was damp and mostly firm underfoot.
24	NS 51237 47239	Similar habitat to TN23 with occasional stands of common heather in addition to hare's-tail cottongrass. Some cover of <i>Sphagnum fallax</i> in-between tussocks.
25	NS 51310 47256	Wet modified bog, becoming softer and wetter to east. Some brash present as the area was planted by conifers that were cleared, before they reached maturity. The vegetation comprised; hare's-tail cottongrass (A), <i>Pleurozium schreberi</i> (O), common blaeberry (O), common bent (F) and cross-leaved heath (R).
26	NS 51381 47239	Flat area containing area of blanket bog, bordered by wet modified bog, with a good cover of bog pools (about 20% of area), which was approximately 60m in diameter. Very wet and boggy underfoot. Comparable vegetation to TN25, along with <i>Sphagnum magellanicum</i> (O), common cottongrass (O), cross-leaved heath (O), crowberry (O), cranberry (O). Some pools contained <i>Sphagnum cuspidatum</i> with <i>Sphagnum fallax</i> at their edges. There were some areas of brash located within the bog, indicating there had been some attempt to plant it with spruce in the past.
27	NS 50692 46638	Man-made excavation a few metres west of an access road (floating road), containing an approximately 40 x 5m sized area of wet, marshy grassland and a minor area of swamp, with bulrush. Semi-improved neutral grassland was locally commonplace in this area by both side of the road.
28	NS 50660 46491	Access road (floating road) bordered on both sides by wet modified bog, which was furrowed for conifer planting. Trees that were planted have been felled leaving some stumps and brash. Some young self-sown spruce is present across much of the area and common present by the sides of the road (along with some willow scrub).
29	NS 50949 45531	Proposed cable route crosses west to east across flat area of wet modified bog, similar to TN28, also with network of shallow drained ditches evident. The habitat was mainly dominated by tussocky hare's-tail cottongrass, with higher areas frequently containing a good cover of common heather. In places, to the west of this area, comparable vegetation to TN25, with signs of wetter more restored bog with presence of <i>Sphagnum magellanicum</i> (O), cross-leaved heath (O), crowberry (O), cranberry (O). Some pools contained <i>Sphagnum cuspidatum</i> . The habitat varied from firm to soft underfoot and was typically damp and boggy to the west of the section. There were some areas of brash located within the bog, indicating there had been some attempt to plant it with spruce in the past.
30	NS 51689 45325	Flat and particularly wet area of marshy ground between south edge of moderately mature, conifer plantation (poorly drained) and access road. Marsh mainly comprised stands of soft rush stands and some <i>Sphagnum fallax</i> .
31	NS 54999 45053	Blanket bog bordered to south and east by conifer plantation and marshy grassland to north and the Rough Hill Burn watercourse. Bog is flat lying but rough with mounds of <i>Sphagnum capillifolium</i> commonplace, along with abundant common heather.

## Annex B

### NVC Quadrat Data

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

	Q1	Q2	Q3	Q4	Q5
<i>Molinia caerulea</i>	7	5	6	6	5
<i>Erica tetralix</i>	4	4	5	5	4
<i>Vaccinium myrtillus</i>	4	4		4	5
<i>Narthecium ossifragum</i>	7		4	4	5
<i>Deschampsia flexuosa</i>	2	4	2	3	4
<i>Trichophorum germanicum</i>	5	4	4	4	5
<i>Sphagnum capillifolium</i>	5	8	8	7	5
<i>Sphagnum fallax</i>				3	
<i>Galium saxatile</i>	2	2		2	
<i>Hypnum jutlandicum</i>	3				
<i>Eriophorum vaginatum</i>	4		5	5	5
<i>Eriophorum angustifolium</i>	2		3		
<i>Potentilla erecta</i>	1	1		3	3
<i>Polytrichum commune</i>	2		4		
<i>Polytrichum juniperinum</i>		4			
<i>Pleurozium schreberi</i>		3			
<i>Vaccinium oxycoccos</i>		4	4	5	
<i>Calluna vulgaris</i>				4	
	NS5004747180	NS5005247144	NS5010347143	NS5016147148	NS5019947120

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

	Q6
<i>Molinia caerulea</i>	7
<i>Vaccinium myrtillus</i>	5
<i>Deschampsia flexuosa</i>	4
<i>Trichophorum germanicum</i>	4
<i>Sphagnum capillifolium</i>	5
<i>Hypnum jutlandicum</i>	3
<i>Eriophorum vaginatum</i>	4
<i>Potentilla erecta</i>	2
<i>Polytrichum commune</i>	4
<i>Polytrichum juniperinum</i>	4
<i>Pleurozium schreberi</i>	4
<i>Vaccinium oxycoccos</i>	2
<i>Aulacomnium palustre</i>	1
<i>Rhytidiadelphus squarrosus</i>	4
<i>Festuca rubra</i>	2



NS5032047190

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

	Q7
<i>Juncus effusus</i>	9
<i>Cirsium palustre</i>	4
<i>Rumex acetosa</i>	7
<i>Deschampsia cespitosa</i>	4
<i>Calliergon cuspidatum</i>	4

NS5039647218

**U4b *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland**

	Q8
<i>Nardus stricta</i>	7
<i>Deschampsia flexuosa</i>	7
<i>Pleurozium schreberi</i>	6
<i>Potentilla erecta</i>	2
<i>Galium saxatile</i>	4
<i>Eriophorum angustifolium</i>	4
<i>Luzula multiflora</i>	2
<i>Dryopteris dilatata</i>	1

NS5041947221

**M20a *Eriophorum vaginatum* blanket mire - M20a typical sub-community**

	Q9	Q10	Q11	Q12	Q13
<i>Molinia caerulea</i>	4	5	4	4	
<i>Erica tetralix</i>	4				
<i>Vaccinium myrtillus</i>	5	4	4	4	3
<i>Narthecium ossifragum</i>	4				4
<i>Deschampsia flexuosa</i>	4	4	4	4	5
<i>Trichophorum germanicum</i>	4	3			
<i>Sphagnum capillifolium</i>	5	7	5	6	7
<i>Sphagnum fallax</i>	4	3		4	7
<i>Galium saxatile</i>				1	2
<i>Hypnum jutlandicum</i>	3		4	3	
<i>Eriophorum vaginatum</i>	6	7	7	8	7
<i>Eriophorum angustifolium</i>	3		2		
<i>Potentilla erecta</i>	1	2	4		4

	Q9	Q10	Q11	Q12	Q13
<i>Polytrichum commune</i>		2	3	4	4
<i>Polytrichum juniperinum</i>		4		3	
<i>Pleurozium schreberi</i>	4	5	5	5	7
<i>Vaccinium oxycoccos</i>				1	
<i>Aulacomnium palustre</i>	4			2	
<i>Juncus squarrosus</i>			2		
<i>Luzula multiflora</i>				1	
<i>Calluna vulgaris</i>					4
	NS5045347226	NS5047747218	NS5049547229	NS5050847246	NS5055347228

**M20a *Eriophorum vaginatum* blanket mire - M20a typical sub-community**

	Q14
<i>Eriophorum vaginatum</i>	8
<i>Pleurozium schreberi</i>	8
<i>Molinia caerulea</i>	4
<i>Polytrichum commune</i>	4
<i>Deschampsia flexuosa</i>	5
<i>Festuca rubra</i>	4
<i>Galium saxatile</i>	3
	NS5061147280

**M20a *Eriophorum vaginatum* blanket mire - M20a typical sub-community**

	Q15
<i>Eriophorum vaginatum</i>	8
<i>Pleurozium schreberi</i>	7
<i>Vaccinium myrtillus</i>	4
<i>Sphagnum fallax</i>	4
<i>Polytrichum commune</i>	4
<i>Deschampsia flexuosa</i>	4
<i>Danthonia decumbens</i>	3
<i>Potentilla erecta</i>	3
<i>Cirsium palustre</i>	1
<i>Galium saxatile</i>	3
	NS5080747350

**M20a *Eriophorum vaginatum* blanket mire - M20a typical sub-community**

	Q16
<i>Eriophorum vaginatum</i>	8
<i>Erica tetralix</i>	2
<i>Vaccinium myrtillus</i>	3
<i>Sphagnum fallax</i>	7
<i>Polytrichum commune</i>	4
<i>Deschampsia flexuosa</i>	3
<i>Hypnum jutlandicum</i>	4
<i>Potentilla erecta</i>	3
<i>Aulacomnium palustre</i>	2
<i>Galium saxatile</i>	4
	NS5087547390

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

	Q17
<i>Molinia caerulea</i>	6
<i>Eriophorum vaginatum</i>	4
<i>Erica tetralix</i>	4
<i>Calluna vulgaris</i>	3
<i>Trichophorum germanicum</i>	3
<i>Vaccinium myrtillus</i>	4
<i>Sphagnum capillifolium</i>	4
<i>Sphagnum fallax</i>	3
<i>Narthecium ossifragum</i>	2
<i>Deschampsia flexuosa</i>	4
<i>Hypnum jutlandicum</i>	2
<i>Potentilla erecta</i>	2
<i>Polytrichum juniperinum</i>	4
	NS5088947411

**M6d *Juncus acutiflorus* sub-community**

	Q18
<i>Juncus acutiflorus</i>	9
<i>Juncus effusus</i>	4
<i>Sphagnum fallax</i>	8
<i>Viola palustris</i>	3
<i>Polytrichum commune</i>	2
<i>Rumex acetosa</i>	2
<i>Calliergon cuspidatum</i>	2
	NS5029147292

**M6c *Juncus effusus* sub-community**

	Q19
<i>Juncus effusus</i>	9
<i>Sphagnum fallax</i>	8
<i>Sphagnum palustre</i>	5
<i>Rumex acetosa</i>	3
<i>Galium saxatile</i>	1
	NS5060947177

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

	Q20
<i>Juncus effusus</i>	9
<i>Juncus acutiflorus</i>	4
<i>Cirsium palustre</i>	4
<i>Cardamine flexuosa</i>	3
<i>Rumex acetosa</i>	4
<i>Calliergon cuspidatum</i>	1
<i>Galium palustre</i>	2
	NS5066247146

**M19 *Calluna vulgaris* - *Eriophorum vaginatum* mire - M19a *Erica tetralix* sub-community**

	Q21	Q22	Q23	Q24	Q25
<i>Calluna vulgaris</i>	5	4		5	4
<i>Empetrum nigrum</i>			4		
<i>Erica tetralix</i>	2	2	4	4	4
<i>Vaccinium myrtillus</i>	4	5	5	5	2
<i>Narthecium ossifragum</i>			3		
<i>Deschampsia flexuosa</i>	4	4	4	3	4
<i>Trichophorum germanicum</i>			2		
<i>Sphagnum capillifolium</i>	4	4	5	7	5
<i>Sphagnum fallax</i>					4
<i>Hypnum jutlandicum</i>	4	4	5	4	3
<i>Eriophorum vaginatum</i>	4	4	5	4	5
<i>Eriophorum angustifolium</i>	1				
<i>Potentilla erecta</i>	3	2			3
<i>Polytrichum commune</i>					2
<i>Polytrichum juniperinum</i>	2		3	3	2
<i>Pleurozium schreberi</i>	4	4	4	5	4
<i>Vaccinium oxycoccos</i>					1
<i>Aulacomnium palustre</i>			2		1
	NS5107147358	NS5110847411	NS5114347459	NS5118447478	NS5121747488

**M20a *Eriophorum vaginatum* blanket mire – M20a typical sub-community**

	Q26	Q27	Q28
<i>Eriophorum vaginatum</i>	8	7	8
<i>Vaccinium myrtillus</i>	2	4	5
<i>Sphagnum capillifolium</i>	4	4	
<i>Sphagnum fallax</i>	4	4	4
<i>Pleurozium schreberi</i>	5	4	7
<i>Deschampsia flexuosa</i>	5	3	4
<i>Potentilla erecta</i>	1		
<i>Polytrichum juniperinum</i>	2	4	
<i>Polytrichum commune</i>	2		
<i>Hypnum jutlandicum</i>	2	4	2
<i>Galium saxatile</i>			1
<i>Dryopteris dilatata</i>	1		

	NSS128447495	NS5129047521	NSS132947517		
	Q29	Q30	Q31	Q32	Q33
<i>Calluna vulgaris</i>	4	4	5	3	5
<i>Empetrum nigrum</i>	3	2	4	4	5
<i>Erica tetralix</i>	3	1	1		5
<i>Vaccinium myrtillus</i>	5	4	4	4	2
<i>Deschampsia flexuosa</i>	4	5	1	2	1
<i>Trichophorum germanicum</i>					1
<i>Sphagnum capillifolium</i>	6	5	5	8	8
<i>Sphagnum papillosum</i>				2	
<i>Sphagnum cuspidatum</i>				1	
<i>Sphagnum fallax</i>	2		2	3	
<i>Hypnum jutlandicum</i>	5	4	4		
<i>Eriophorum vaginatum</i>	4	3	4	4	6
<i>Eriophorum angustifolium</i>				1	
<i>Potentilla erecta</i>		1		1	
<i>Polytrichum commune</i>					
<i>Polytrichum juniperinum</i>	2			5	3
<i>Pleurozium schreberi</i>	4	4	1		
<i>Vaccinium oxycoccus</i>				1	
<i>Drosera rotundifolia</i>				1	
<i>Galium saxatile</i>	1				
<i>Cladonia portentosa</i>		2	5		1
	NSS140447510	NS5146747558	NS5156147665	NS5166147691	NS5174347715

**M19 *Calluna vulgaris* - *Eriophorum vaginatum* mire - M19a *Erica tetralix* sub-community**

	Q34	Q35	Q36	Q37	Q38
<i>Calluna vulgaris</i>	5	4	4	7	4
<i>Empetrum nigrum</i>	4	7			
<i>Erica tetralix</i>	1	4	3	4	4
<i>Vaccinium myrtillus</i>	4	2	4	4	5
<i>Deschampsia flexuosa</i>	3	1	5	4	4
<i>Narthecium ossifragum</i>	4	4			
<i>Sphagnum capillifolium</i>	5	6	5	8	4
<i>Sphagnum fallax</i>	4		3	4	
<i>Hypnum jutlandicum</i>	4	3	2		5
<i>Eriophorum vaginatum</i>	5	5	6	4	5
<i>Potentilla erecta</i>			1		1
<i>Polytrichum juniperinum</i>		4	3		
<i>Pleurozium schreberi</i>	2	4	5	7	5
<i>Vaccinium oxycoccos</i>		1	2	4	
<i>Galium saxatile</i>			2		
<i>Aulacomnium palustre</i>			1		
	NS5140447510	NS5146747558	NS5156147665	NS5166147691	NS5174347715

## Annex C

### Species List

Common Name	Scientific Name
<b>TREES and SHRUBS</b>	
Downy birch	<i>Betula pubescens</i>
Common heather	<i>Calluna vulgaris</i>
Crowberry	<i>Empetrum nigrum</i>
Cross-leaved heath	<i>Erica tetralix</i>
Sitka spruce	<i>Picea sitchensis</i>
Lodgepole pine	<i>Pinus contorta</i>
Eared willow	<i>Salix aurita</i>
Grey willow	<i>Salix cinerea</i> agg.
Rowan	<i>Sorbus aucuparia</i>
Common blaeberry	<i>Vaccinium myrtillus</i>
Common cranberry	<i>Vaccinium oxycoccos</i>
Cowberry	<i>Vaccinium vitis-idaea</i>
<b>GRASSES</b>	
Common bent	<i>Agrostis capillaris</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Crested dog's-tail	<i>Cynosurus cristatus</i>
Heath Grass	<i>Danthonia decumbens</i>
Tufted hair-grass	<i>Deschampsia cespitosa</i>
Wavy hair-grass	<i>Deschampsia flexuosa</i>
Red fescue	<i>Festuca rubra</i>
Yorkshire fog	<i>Holcus lanatus</i>
Perennial rye-grass	<i>Lolium perenne</i>
Purple moor-grass	<i>Molinia caerulea</i>
Mat grass	<i>Nardus stricta</i>
Annual meadow-grass	<i>Poa annua</i>
<b>SEDGES</b>	
Bottle sedge	<i>Carex rostrata</i>
Common cottongrass	<i>Eriophorum angustifolium</i>
Hare's-tail cottongrass	<i>Eriophorum vaginatum</i>
Deergrass	<i>Trichophorum germanicum</i>
<b>RUSHES</b>	
Compact rush	<i>Juncus conglomeratus</i>
Sharp-flowered rush	<i>Juncus acutiflorus</i>
Soft rush	<i>Juncus effusus</i>
Heath rush	<i>Juncus squarrosus</i>
Heath woodrush	<i>Luzula multiflora</i>
Bulrush	<i>Typha latifolia</i>
<b>HERBS</b>	
Sneezewort	<i>Achillea ptarmica</i>
Wavy bittercress	<i>Cardamine flexuosa</i>
Marsh thistle	<i>Cirsium palustre</i>
Round-leaved sundew	<i>Drosera rotundifolia</i>
Marsh willowherb	<i>Epilobium palustre</i>



Common Name	Scientific Name
Marsh bedstraw	<i>Galium palustre</i>
Heath bedstraw	<i>Galium saxatile</i>
Greater bird's-foot-trefoil	<i>Lotus pedunculatus</i>
Ragged robin	<i>Lychnis flos-cuculi</i>
Bogbean	<i>Menyanthes trifoliata</i>
Bog asphodel	<i>Narthecium ossifragum</i>
Tormentil	<i>Potentilla erecta</i>
Marsh cinquefoil	<i>Potentilla palustris</i>
Meadow buttercup	<i>Ranunculus acris</i>
Creeping buttercup	<i>Ranunculus repens</i>
Common sorrel	<i>Rumex acetosa</i>
Lesser Stitchwort	<i>Stellaria graminea</i>
Devil's-bit scabious	<i>Succisa pratensis</i>
Clover species	<i>Trifolium</i> sp.
Common nettle	<i>Urtica dioica</i>
Marsh violet	<i>Viola palustris</i>
<b>FERNS AND ALLIED PLANTS</b>	
Broad buckler-fern	<i>Dryopteris dilatata</i>
<b>BRYOPHYTES</b>	
<i>Aulacomnium palustre</i> moss	
<i>Calliergon cuspidatum</i> moss	
<i>Hypnum jutlandicum</i> moss	
<i>Mnium hornum</i> moss	
<i>Polytrichum commune</i> moss	
<i>Polytrichum juniperinum</i> moss	
<i>Plagiothecium undulatum</i> moss	
<i>Pleurozium schreberi</i> moss	
<i>Rhytidiadelphus squarrosus</i> moss	
<i>Sphagnum capillifolium</i> moss	
<i>Sphagnum cuspidatum</i> moss	
<i>Sphagnum fallax</i> moss	
<i>Sphagnum magellanicum</i> moss	
<i>Sphagnum palustre</i> moss	
<i>Sphagnum papillosum</i> moss	
<b>LICHENS</b>	
<i>Cladonia portentosa</i>	

# Annex D

## Photographs



Grassland and modified bog at western extent of Northern Section.



Rank marshy grassland in a small valley at the western section of the main site with semi-improved acid grassland on higher ground.





Wet modified bog towards extent of Northern section of main site, with common heather on higher ground and runnels in lower ground, typically dominated by hare's-tail cottongrass.



Wet modified bog within the eastern extent of the Northern section of the main site, with rather rank, common heather.





Small pocket of blanket bog at eastern extent of main site (Fenwick Moor PWS), which was boggy with presence of *Sphagnum magellanicum*.



Eastern extent of northern section of main site (Fenwick Moor PWS) in area dominated by wet modified bog, with runnels, of mostly hare's-tail cottongrass, in-between higher area of bog with much common heather. *Cladonia* lichen also evident.





Wet modified bog at the south-east extent of northern section of the main site - land that was formerly planted with conifers, with some stumps and brash remaining. Self-seeded spruce was regular.



Small pocket of particularly boggy blanket bog, with some bog pools, at the south-east extent of the northern section of main site on land that was formerly planted with conifers, with some brash remaining.





Section of proposed cable routes through Whitelee HMA cuts crosses area of wet modified bog formerly planted with conifers, which had been cleared, leaving some stumps and brash.



Central section of proposed cable route crosses plateaux with conifer plantation and modified bog.





Small valley with marshy grassland, much of which formerly planted with conifers, at eastern extent of proposed cable route. Conifer plantation dominated the surrounding area.



Site being cleared in November 2020 at the eastern section of the proposed cable route in land of mainly marshy grassland and conifer plantation.





Proposed BESS temporary compound location – vehicles and plant machinery.