Appendix 8.1: Habitats

Creachan Wind Farm EIA Report

Appendix 8.1: Habitats

PREPARED FOR

RWE

DATE
December 2025

REFERENCE
0730493



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Creachan Wind Farm EIA Report
DOCUMENT SUBTITLE	Appendix 8.1: Habitats
PROJECT NUMBER	0730493
DATE	December 2025
VERSION	0.2
AUTHOR	Robert Potter
CLIENT NAME	RWE Renewables UK

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
0	1	RP	ALB	PW	August 2025	First draft
	2	RP	RWE		December 2025	Final draft

SIGNATURE PAGE

Creachan Wind Farm EIA Report

Appendix 8.1: Habitats

0730493



R[redacted] P[redacted]
ERM Senior Ecologist



P[redacted] W[redacted]
Technical Director



A[redacted] B[redacted]BSc MSc MCIEEM
ERM Principal Biodiversity Specialist



S[redacted] P[redacted]
ERM Partner

Environmental Resources Management Ltd
2nd Floor
144 West George Street
Glasgow
G2 2HG

T +44 0141 221 9997

© Copyright 2025 by The ERM International Group Limited and/or its affiliates ('ERM'). All Rights Reserved.
No part of this work may be reproduced or transmitted in any form or by any means, without prior written permission of ERM.

CONTENTS

EXECUTIVE SUMMARY 1

1. INTRODUCTION 2

1.1 SITE DESCRIPTION 2
1.2 BACKGROUND 2
1.3 PURPOSE OF THE REPORT 2

2. METHODS 4

2.1 FIELD SURVEY 4
2.1.1 Phase 1 Habitat Survey 4
2.1.2 National Vegetation Classification 4
2.1.3 Nomenclature 5
2.1.4 Limitations 5
2.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS 6

3. RESULTS 8

3.1 HABITAT SURVEY 8
3.1.1 A - Woodland and scrub 11
3.1.2 B - Grassland and marsh 13
3.1.3 C - Tall herb and fern 16
3.1.4 D - Heathland 17
3.1.5 E - Mire 21
3.1.6 G - Open water 26
3.1.7 I - Rock exposure and waste 27
3.1.8 J - Other habitat 27
3.2 NON-NATIVE INVASIVE SPECIES 27
3.3 NOTABLE PLANT SPECIES 27

4. SUMMARY 28

4.1 PROTECTED AND PRIORITY HABITATS 28
4.1.1 Annex I Habitats 28
4.1.2 SBL Priority Habitats 28
4.1.3 Highland Nature LBAP Habitats 29
4.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS 29

ANNEX A: FIGURES
ANNEX B: TARGET NOTES
ANNEX C: NVC SPECIES LISTS

LIST OF TABLES

TABLE 3.1: LIST OF PHASE 1 HABITATS AND THEIR CONSTITUENT NVC COMMUNITIES 7
TABLE 4.1:SUMMARY OF NVC COMMUNITIES AND HABITAT IMPORTANCE 30

ACRONYMS AND ABBREVIATIONS

Acronym	Description
BAP	Biodiversity Action Plan
BSBI	Botanical Society of Britain and Ireland
CIEEM	Chartered Institute of Ecology and Environmental Management
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
ERM	Environmental Resources Management
EU	European Union
GB	Great Britain
GWDTE	Groundwater-dependent Terrestrial Ecosystems
ha	hectares
JNCC	Joint Nature Conservation Committee
km	kilometres
LBAP	Local Biodiversity Action Plan
m	metres
NS	NatureScot
NVC	National Vegetation Classification
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
WTZ	Wind Turbine Zone

EXECUTIVE SUMMARY

This report describes the findings of a habitat and vegetation survey undertaken to inform the Ecological Impact Assessment (EcIA) of the proposed Creachan Wind Farm.

The Development Site was dominated by extensive areas of blanket bog that was most extensive within the original Wind Turbine Zone (WTZ) and lower elevations of the wider Development Site. In these areas, modified bog and wet heath were also present; and dry heath was present in higher, steeper and drier slopes. Montane heaths occupy hilltops and ridges in the north and west of the Development Site. There were also extensive stands of conifer plantation woodland to the north and east of the WTZ.

Broad habitats and vegetation communities recorded include areas of ecological importance that may be representative of Annex I habitats, Scottish Biodiversity List (SBL) priority habitats, and other locally important habitats identified in the Highland Nature Biodiversity Action Plan (LBAP).

A number of protected or priority plants were recorded encountered at the Development Site including common juniper, dwarf birch, aspen, small cranberry and field gentian.

NVC communities that may constitute Groundwater Dependent Terrestrial Ecosystems (GWDTE) that were recorded within the Development Site included U5c, U6, U16, M6, M10, M15, M16, M23, M29 and M32. Further consideration of GWDTE is described in the relevant Environmental Impact Assessment Report (EIAR).

1. INTRODUCTION

This appendix describes the methods and results of a habitat and vegetation survey undertaken in connection with the proposed Creachan Wind Farm. The following terminology is used throughout:

- **Wind Turbine Zone (WTZ)**: the area of land within the Development Site, within which the turbines were originally proposed to be sited[1] (as shown on **Figure 1, Annex A** to this TA);
- **Development Site**: all land within the proposed red line boundary that will support the Proposed Development including the WTZ (as shown on **Figure 1, Annex A** to this TA);
- **Proposed Development**: the whole physical process involved in relation to Creachan Wind Farm including all necessary infrastructure and temporary works areas; as well as areas required for landscaping and habitat restoration, creation and enhancement; and
- **Habitat Survey Area (HSA)**: accessible areas within the Development Site (excluding the WTZ) (as shown on **Figure 1, Annex A** to this TA).

1.1 SITE DESCRIPTION

The Development Site lies in Ross and Cromarty in the Highland Region of Scotland, approximately 13 km north-west of Alness. It is approximately 2,558 ha in size and ranges in altitude from approximately 340 m to about 840 m at the summit of Carn Chuinneag in the north-west. Habitats are typical of the Scottish uplands including blanket bog, heathland, grassland, mire and plantation woodland; as well as a small loch and numerous watercourses.

1.2 BACKGROUND

The Phase 1 habitat survey and National Vegetation Classification (NVC) survey of the WTZ was completed by MacArthur Green in July 2023; and relevant findings of this separate survey have been incorporated into this TA.

The Phase 1 habitat survey and National Vegetation Classification (NVC) survey of the Habitat Survey Area was completed by ERM between September and November 2024.

This report incorporates the findings of both surveys, which in combination generally cover the whole Development Site as shown on **Figure 1, Annex A.**

1.3 PURPOSE OF THE REPORT

The purpose of the habitat and vegetation survey was to establish a suitable baseline upon which to inform the Ecological Impact Assessment (EcIA) of the Proposed Development. Therefore, this TA presents the findings of both Phase 1 habitat surveys and National Vegetation Classification (NVC) surveys carried out at the Development Site in order to identify

[1] As a result of the design evolution, the footprint of the turbine area and associated infrastructure HSA significantly reduced since the original plans and it is referred to into the EIA as the 'Main Development Area', as shown on all EIA chapter figures.

habitats of ecological importance[2,3,4] and priority peatland habitat[5]; as well as wetland habitats that could be considered a Groundwater Dependent Terrestrial Ecosystem (GWDTE)[6].

[2] Jackson, D.L. & McLeod, C.R. (eds). (2000) *Handbook on the UK status of EC Habitats Directive interest features: provisional data on the UK distribution and extent of Annex I habitats and the UK distribution and population size of Annex II species (Revised 2002).* Joint Nature Conservation Committee (JNCC) Report No. 312 [online]. Available at: <https://hub.jncc.gov.uk/assets/08ea8367-c479-4d68-9638-ce09fda79598> (last accessed July 2025).
[3] NatureScot. (2020) *Scottish Biodiversity List* [online]. Available at: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list> (last accessed July 2025).
[4] Highland Nature. (2021) *Highland Nature: Biodiversity Action Plan 2021 – 2026.* Highland Nature Biodiversity Partnership [online]. Available at: <https://www.highland.gov.uk/> (last accessed July 2025).
[5] NatureScot (2023) *Advising on peatland, carbon-rich soils and priority peatland habitats in development management* [online]. Available at: <https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management> (last accessed July 2025).
[6] SEPA. (2024) *Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems*. Scottish Environment Protection Agency [online]. Available at: <https://www.sepa.org.uk/media/i2cnr03k/guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx> (last accessed July 2025).

2. METHODS

2.1 FIELD SURVEY

2.1.1 PHASE 1 HABITAT SURVEY

The Phase 1 habitat survey was completed in accordance with the Joint Nature Conservation Committee (JNCC) Handbook for Phase 1 habitat survey[7]. Phase 1 is a well-established standard system for classifying and mapping wildlife habitats on a broad scale. It is based principally on vegetation, with some reference to abiotic features (e.g. soils and topography), especially where vegetation is not the most dominant component of the habitat. As such, it is particularly useful at identifying and characterising the presence of natural and semi-natural habitats; as well as other broad habitat types not covered by detailed botanical classification systems (e.g. NVC).

The Phase 1 habitat survey of the WTZ was completed by MacArthur Green Principal Ecologist Brian Henry MCIEEM and MacArthur Green Senior Field Ecologist Jason MacKay MCIEEM during July 2023. The Phase 1 habitat survey of accessible areas within the HSA was completed by ERM Senior Ecologist Robert Potter ACIEEM between September and November 2024.

2.1.2 NATIONAL VEGETATION CLASSIFICATION

The detailed botanical survey was completed in accordance with Rodwell (2006)[8] to classify and map plant communities in line with the NVC; and concurrently with the Phase 1 habitat survey. The NVC is a more detailed survey than Phase 1 based on the frequency and abundance of plant species and based on community descriptions and published floristic tables[9]. As such, each habitat type can include a number of different NVC communities; as well as the same NVC community occurring in several different habitat types.

Prior to undertaking field surveys, homogenous stands of vegetation were initially identified and mapped as polygons on GIS using high resolution aerial imagery. These polygons were then 'ground-truthed' in the field by an experienced botanical specialist.

During field surveys, NVC communities (and sub-communities) were identified by surveyors based on their knowledge of (and experience using) keys, community descriptions and published floristic tables[10,11,12,13]. A species list for each vegetation type was recorded that estimated the abundance of vascular plants, bryophytes and macro-lichens using the Domin scale, to aid classification of NVC communities (and sub-communities) through direct comparisons with published floristic tables.

[7] JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Available at: https://hub.jncc.gov.uk/assets/9578d07b-e018-4c66-9c1b-47110f14df2a (Accessed September 2024)
[8] Rodwell, J.S. (2006) NVC Users' Handbook. Available at: https://hub.jncc.gov.uk/assets/a407ebfc-2859-49cf-9710-1bde9c8e28c7 (Accessed September 2024)
[9] Rodwell, J.S. (ed.) (1991-2000). British Plant Communities. Five volumes. Cambridge University Press.
[10] Averis, A., Averis, B., Birks, J., Horsfield, D., Thompson, D. & Yeo, M. (2004) An Illustrated Guide to British Upland Vegetation. Available at: https://hub.jncc.gov.uk/assets/a17ab353-f5be-49ea-98f1-8633229779a1 (Accessed September 2024)
[11] Hall, J.E., Kirby, K.J. & Whitbread, A.M. (revised 2004) National vegetation classification field guide to woodland. Available at: https://hub.jncc.gov.uk/assets/673dc337-e58f-4f6b-ac7b-717001983c2e (Accessed September 2024)
[12] Elkington, T., Dayton, N., Jackson, D.L. & Strachan, I.M. (2002) National Vegetation Classification field guide to mires and heaths. Available at: https://hub.jncc.gov.uk/assets/1d0037bd-6c77-4677-8040-2f6e1d852eb1 (Accessed September 2024)
[13] Cooper, E.A. (1997) Summary descriptions of National Vegetation Classification grassland and montane communities. JNCC, Peterborough.

Due to fine-scale vegetation patterning and variability, and numerous zones of transition between similar vegetation types, many polygons contained complex mosaics of two or more NVC communities. Where polygons have been mapped as mosaics, an approximate percentage cover of each NVC community within the mosaic is estimated so that the dominant community (and character) of the vegetation can still be ascertained.

A series of target notes were recorded to describe examples of each vegetation type (i.e. NVC community or sub-community, or Phase 1 habitat if not covered by the NVC). These were recorded either where the NVC community was first encountered, or at locations where a representative example of the vegetation was identified. In addition, target notes were recorded as point features where plant communities were too small to map as polygons (e.g. springs, flushes, *etc*.).

2.1.2.1 NOTABLE PLANT SPECIES

Target notes were also made of the location of any notable plant species recorded during the habitat survey. Notable species included protected or priority species[14,15,4] of plant as well as those regarded as notable based on surveyor experience and the BSBI Taxon Designations spreadsheet[16] encountered during field surveys.

2.1.3 NOMENCLATURE

Both standard vernacular and binomial scientific names (bracketed and italicised) are given the first time a vascular plant species is mentioned in the text. Thereafter, vernacular names only are used. Scientific names are used for bryophyte and lichen species as, whilst some vernacular names are now in existence for these taxa, they are not in general usage. The standard checklists for naming vascular plants[11] and bryophytes[17] are employed.

2.1.4 LIMITATIONS

The habitat and vegetation surveys of the WTZ were undertaken by MacArthur Green in July 2023; and of the wider HSA by ERM between September and November 2024. Whilst methodologies were aligned in relation to both the Phase 1 habitat survey and NVC survey, minor variations may exist as a result of differing approaches to data capture and professional judgement. For example, translations between Phase 1 habitats and NVC communities, transitions between vegetation types, classification of certain sub-communities and characterisation of mosaics; as well as overall estimates for NVC communities within mosaics. The identification of habitats of ecological importance is largely influenced by NVC data that, whilst influenced by surveyor experience, relates to specialist knowledge obtained from established keys, community descriptions and published floristic tables. Therefore, this is not regarded as a significant limitation.

The findings of the habitat and vegetation survey completed by MacArthur Green were provided to ERM as a summary email containing geo-referenced shapefiles. No report or other habitat or community descriptions were provided. Each survey polygons contain relevant NVC

[14] UK Statutory Instrument. (1994) Great Britain Parliament. *The Conservation (Natural Habitats, &c.) Regulations 1994*. No 2716 [online]. Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents> (last accessed July 2025).
[15] Act of Parliament. (1981) Great Britain Parliament. *Wildlife and Countryside Act 1981.* Chapter 69 [online]. Available at: <https://www.legislation.gov.uk/ukpga/1981/69> (last accessed July 2025).
[16] BSBI Taxon lists. Available at: https://bsbi.org/taxon-lists (Accessed September 2024)
[17] Blockeel, T.L, Bell, N.E., Hill, M.O., Hodgetts, N.G., Long, D.G., Pilkington, S.L. & Rothero, G.P. (2020) A new checklist of the bryophytes of Britain and Ireland. Journal of Bryology online, March 2021.

communities, which were translated to identify Phase 1 habitats and potential GWDTE. Where Phase 1 habitats and NVC communities were recorded in both the WTZ and HSA, it is assumed vegetation compositions broadly aligned. There were three Phase 1 habitats (A1.1.1 Broadleaved woodland – semi-natural; C3.2 Other tall-herb and fern – non-ruderal; G1.4 Standing water – dystrophic) and four NVC types recorded in the WTZ that were not recorded in the HSA, comprising two new NVC communities and two additional sub-communities (W17, U16, M20a, M6b). Only general descriptions are provided for these additional NVC communities and sub-communities, largely taken from Hall et al. (2004)[18], Averis et al. (2004)[19], Elkington et al (2004)[11] and Cooper et al (2004)[12] due to the absence of any site-specific observations in these areas.

NatureScot indicate that the optimal period for detailed habitat assessment surveys is between April and September (inclusive)[20], when vascular plants are more readily identifiable. The habitat and vegetation survey of the HSA commenced in September 2024, during the optimal period, and continued until November 2024. Surveys took longer to complete than anticipated due to the upland nature of the Development Site. Whilst the habitat and vegetation survey extended into the sub-optimal period, this does not equate to being unsuitable as the overall species composition could still be recognised; along with the broad habitat type and presence of any prevailing bryophytes and macro-lichens. Therefore, this is not regarded as a significant limitation to identifying either Phase 1 habitats or NVC.

A precautionary approach was taken to surveying in higher altitude areas, predominantly the land between Carn Chuinneag and Carn an Lochan, to minimise disturbance to sensitive peatland habitats and to mitigate health and safety risks associated with surveying steep, unstable or remote terrain.

Whilst Phase 1 Habitat and NVC Surveys covered the entire Development Site, in areas deemed inaccessible or ecologically sensitive, specifically the land between Carn Chuinneag and Carn an Lochan, surveys were supplemented through detailed satellite imagery analysis and visual assessments from adjacent vantage points. As no development is proposed within the Carn Chuinneag and Carn an Lochan areas, and due to the steep topography and presence of montane bog, peatland restoration is considered unfeasible and unnecessary, and follow-up NVC surveys were not undertaken, as they were not required to inform the Environmental Impact Assessment (EIA).

NVC surveys were not conducted along the Existing Forestry Access Track, as, following the completion of the Phase 1 habitat survey the majority of habitats were characterised as conifer plantation, which do not support plant communities associated with any NVC community.

2.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS

The Scottish Environment Protection Agency (SEPA) has classified a number of NVC communities that, if present, may indicate a wetland or habitat to be potentially dependent on

[18] Hall, J.E., Kirkby, K.J., Whitbread, A.M. (2004) *National Vegetation Classification: Field guide to woodland*. Joint Nature Conservation Committee [online]. Available at: <https://jncc.gov.uk/our-work/nvc/> (last accessed July 2025).
[19] 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*. Joint Nature Conservation Committee [online]. Available at: <https://jncc.gov.uk/our-work/nvc/> (last accessed July 2025).
[20] NatureScot Ecological survey calendar. Available at: https://www.nature.scot/doc/ecological-survey-calendar (last accessed July 2025).

groundwater[6]. Wetlands and habitats containing these NVC communities are considered to be GWDTEs unless further information can be provided to demonstrate this is not the case.

Using the findings of the habitat and vegetation survey described in **Section 2.1**, potential GWDTEs were identified solely against the NVC communities described in current SEPA guidance. Further consideration and interpretation of the hydrogeological settings in relation to the potential GWDTEs identified in this report are described in **Chapter 13, EIAR Volume 1** and **Appendix 13.5 GWDTE Assessment, Volume 3**.

3. RESULTS

3.1 HABITAT SURVEY

In summary, extensive areas of blanket bog were present on level and gently sloping ground, as well as wet and dry heath on steeper slopes. Montane heaths occur on the highest and most exposed slopes and summits around Carn Chuinneag, with scree and rock exposures over steep ground. Grassland habitats were relatively uncommon, with stands of acid grassland limited to the east of Cnoc na Tuirbhe. Marshy grassland was locally present in areas of impeded drainage around Black Water and neutral grassland localised where grazing livestock had been present. Bracken was largely restricted to steep, dry slopes above Salachie Burn at the north-east of the Development Site. Springs and flushes potentially influenced by groundwater were locally present, typically occurring as linear features as a result of downslope seepages and natural contours. Conifer plantation was extensive in the southern extent of the Development Site, either side of the Abhainn Glac an t-Seilich, with broadleaved semi-natural woodland locally present near the Black Water.

Detailed findings of the habitat and vegetation survey are described below, arranged by NVC communities within each broad Phase 1 habitat type. With very few exceptions (highlighted in individual NVC descriptions), all vegetation types were recorded to NVC sub-community. Descriptions of full NVC communities that precede those of constituent sub-communities are intended to characterise the vegetation type as a whole, highlighting the species common to all sub-communities, before considering those additional species that characterise and identify each sub-community. As required, each community description refers to species composition and abundance, distribution, landscape context, habitat mosaics, management, condition and ecology. Note that terms such as 'abundant', 'frequent' and 'occasional' are used only to give a general impression of species abundance.

A summary of each Phase 1 habitat and its corresponding NVC communities is presented in **Table 3.1**; and shown on **Annex A, Figure 1** and **Annex A, Figure 2** respectively. In addition, target notes with accompanying photographs are presented in **Annex B**; and a full species lists for each NVC sub-community with abundance values determined by the DOMIN scale are included in **Annex C**.

TABLE 3.1: LIST OF PHASE 1 HABITATS AND CORRESPONDING NVC COMMUNITIES

Phase 1 habitat	NVC Communities	Absolute Area (ha)	Relative Area (%)
A1.1.1 Broadleaved woodland – semi-natural	W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland	5.2	0.2
	Unknown along Existing Forestry Access Track		
A1.2.2 Coniferous woodland – plantation	None	362.2	14.1
A1.3.2 Mixed woodland – plantation	W11 *Quercus petraea-Betula pubescens-*	0.6	<0.1

Phase 1 habitat	NVC Communities	Absolute Area (ha)	Relative Area (%)
	Oxalis acetosella woodland		
B1.1 Acid grassland – unimproved	U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland	8.2	0.3
	U5 *Nardus stricta-Galium saxatile* grassland		
	U6 *Juncus squarrosus-Festuca ovina* grassland		
B1.2 Acid grassland – semi-improved	U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland	25.7	1.0
B5 Marsh/marshy grassland	M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture	2.2	0.1
	M25 *Molinia caerulea-Potentilla erecta* mire		
	Small sedge mire (not in NVC)		
C1.1 Bracken – continuous	U20 *Pteridium aquilinum-Galium saxatile* community	Small part of polygon mosaic.	Small part of polygon mosaic.
C3.2 Other tall herb and fern – non-ruderal	U16 *Luzula sylvatica-Vaccinium myrtillus* tall-herb community	Small part of polygon mosaic.	Small part of polygon mosaic.
D1.1 Dry dwarf shrub heath – acid	H10 *Calluna vulgaris-Erica cinerea* heath	324.9	12.7
	H12 *Calluna vulgaris-Vaccinium myrtillus* heath		
	H13 *Calluna vulgaris-Cladonia arbuscula* heath		
	H14 *Calluna vulgaris-Racomitrium lanuginosum* heath		
	H16 *Calluna vulgaris-Arctostaphylos uva-ursi* heath		
	H17 *Calluna vulgaris-Arctostaphylos alpinus* heath		

Phase 1 habitat	NVC Communities	Absolute Area (ha)	Relative Area (%)
	H21 *Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium* heath		
	H22 *Vaccinium myrtillus-Rubus chamaemorus* heath		
D2 Wet dwarf shrub heath	M15 *Trichophorum germanicum-Erica tetralix* wet heath	295.0	11.5
D4 Montane heath/dwarf herb	U10 *Carex bigelowii-Racomitrium lanuginosum* moss-heath	Small part of polygon mosaic.	Small part of polygon mosaic.
E1.6.1 Blanket bog	M2 *Sphagnum cuspidatum/fallax* bog pool community	1184.1	46.1
	M17 *Trichophorum germanicum-Eriophorum vaginatum* blanket mire		
	M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire		
E1.7 Wet modified bog	M3 *Eriophorum angustifolium* bog pool community	232.4	9.1
	M15 *Trichophorum germanicum-Erica tetralix* wet heath		
	M16 *Erica tetralix-Sphagnum compactum* wet heath		
	M17 *Trichophorum germanicum-Eriophorum vaginatum* blanket mire		
	M20 *Eriophorum vaginatum* blanket and raised mire		
	M25 *Molinia caerulea-Potentilla erecta* mire		
E1.8 Dry modified bog	M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire	16.6	0.6
	M20 *Eriophorum vaginatum* blanket and raised mire		

Phase 1 habitat	NVC Communities	Absolute Area (ha)	Relative Area (%)
E2.1 Flush and spring – acid/neutral flush	M6 *Carex echinata-Sphagnum fallax/auriculatum* mire	21.5	0.8
	M29 *Hypericum elodes-Potamogeton polygonifolius* soakway		
E2.2 Flush and spring – basic flush	M10 *Carex dioica-Pinguicula vulgaris* mire	Small part of polygon mosaic.	Small part of polygon mosaic.
E2.3 Flush and spring – bryophyte-dominated spring	M32 *Philonotis fontana-Micranthes stellaris* spring	Small part of polygon mosaic.	Small part of polygon mosaic.
E4 Bare peat	None	0.7	<0.1
G1.3 Standing water – oligotrophic	None	11.3	0.4
G1.4 Standing water – dystrophic	None	0.2	<0.1
G2 Running water	None	Small part of polygon mosaic.	Small part of polygon mosaic.
I1.2.1 Scree – acid/neutral	None	50.8	2.0
I1.4 Other exposure	None	9.6	0.4
J3.6 Buildings	None	0.3	<0.1
J4 Bare ground	None	15.7	0.6

3.1.1 A - WOODLAND AND SCRUB

3.1.1.1 A1.1.1 BROADLEAVED WOODLAND – SEMI-NATURAL

Three areas of semi-natural broadleaved woodland were recorded within the Development Site. This included one small area occurring in the WTZ as a mosaic with blanket bog, dry heath and tall-herb vegetation, which was characterised by NVC community W17. In addition, two small stands were identified in the southern extent of the Development Site, either side of the Black Water, where no NVC could be assigned.

W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland

The W17 woodland is a community of moist, often thin, acid soils in the cool, wet north-west of Britain. Local differences in climate and topography have a strong influence on the vegetation and frequently interact with grazing to determine the distinctive floristics of the sub-communities. In this community sessile oak (*Quercus petraea*) and downy birch (*Betula pubescens*) usually dominate, interspersed with rowan (*Sorbus aucuparia*) and, in some

places, holly (*Ilex aquifolium*). The field layer is characterised by ericoids, particularly heather (*Calluna vulgaris*), or dense mats of blueberry (*Vaccinium myrtillus*). Bryophytes are also particularly abundant within this community, typically occurring as variegated mats and patches over the ground, covering stumps and boulders, and muffling the bases of trees.

One small area of W17 was recorded within the WTZ, along the edge of a stream and gully. This area comprises a small stand of rowan and a species of birch (*Betula* sp.), with a field layer dominated by heather.

3.1.1.2 A1.2.2 CONIFEROUS WOODLAND – PLANTATION

There were several areas of plantation conifer woodland recorded within the Development Site. The majority was located in the southern extent of the Development Site, on sloping ground above the Abhainn Glac an t-Seilich and either side of existing forestry tracks. In these areas, plantation woodland was typically dominated by Sitka spruce (*Picea sitchensis*) and lodgepole pine (*Pinus contorta*) that could not be assigned to any NVC community with little discernible ground flora.

A single stand of plantation woodland was present in the northern extent of the Development Site between Salachie (ruin) and Carn Dubh. This woodland comprised three distinct blocks of Scots pine (*Pinus sylvestris*), lodgepole pine and Sitka spruce. Areas of Sitka spruce and lodgepole pine could not be assigned to any NVC community with little discernible ground flora. The area of Scots pine consisted of a sparse, open cover of semi-mature trees with stunted growth due to very wet, boggy ground. This vegetation type is not recognised in the NVC as it is intermediate in character between a woodland and a mire.

3.1.1.3 A1.3.2 MIXED WOODLAND – PLANTATION

One area of planted mixed woodland was recorded at the west of the Development Site, between Diebidale and Coire nam Meann. This corresponds with NVC community W11, with W11d specifically recorded on site.

The woodland was accessible to browsing deer, and indeed Sika (*Cervus nippon*) were observed on several occasions in and around this woodland. This limits tree regeneration and means most trees were mature.

W11 *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland

The sessile oak-downy birch-wood-sorrel (*Oxalis acetosella*) woodland comprised a canopy co-dominated by downy birch and Scots pine, with occasional grey willow (*Salix cinerea*). The grassy field layer included frequent to occasional sweet vernal-grass (*Anthoxanthum odoratum*), common bent (*Agrostis capillaris*), velvet bent (*A. canina*), wavy hair-grass (*Avenella flexuosa*) and creeping soft-grass (*Holcus mollis*). Forb species comprised occasional wood-sorrel, heath bedstraw (*Galium saxatile*), common dog-violet (*Viola riviniana*) and tormentil (*Potentilla erecta*). Bryophytes were sparse but included occasional *Hylocomium splendens.* A further species identified the single sub-community present:

- W11d *Stellaria holostea-Hypericum pulchrum* sub-community. Neither greater stitchwort (*Stellaria holostea)* nor slender St. John's-wort (*Hypericum pulchrum*) were present here; however, the sub-community was identified by the occasional presence of heath speedwell (*Veronica officinalis*).

3.1.2 B - GRASSLAND AND MARSH

3.1.2.1 B1.1 ACID GRASSLAND – UNIMPROVED

Unimproved acid grassland was relatively uncommon on the Development Site, with a patchy distribution, and always in complex mosaics with various mires and heaths. It was dominated by a variety of grass species and ranged from species-poor to moderately herb-rich, and from dry habitats to mildly flushed ones. The NVC communities U4, U5 and U6 were present in these areas.

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

The sheep's-fescue (*Festuca ovina*)-common bent-heath bedstraw grassland had a restricted distribution at the north-west of the Development Site, occurring on well-drained mineral soils and found in mosaics with wet and dry heaths, blanket bog and various flushes. These stands were dominated by mixtures of frequent to abundant common bent, sweet vernal-grass and sheep's fescue, with frequent to occasional tormentil and heath bedstraw. One sub-community was identified associated with unimproved soil that aligns with B1.1:

- U4a Typical sub-community. The Typical sub-community has no distinguishing species of its own but rather is characterised by the combination of species listed above. Additional species found in this sub-community during the survey included occasional common dog-violet, ribwort plantain (*Plantago lanceolata*), heath-grass (*Danthonia decumbens*), heath rush (*Juncus squarrosus*), mat-grass (*Nardus stricta*), heath wood-rush (*Luzula multiflora*) and velvet bent.

U5 *Nardus stricta-Galium saxatile* grassland

The mat-grass-heath bedstraw grassland was uncommon but distinctive on the Development Site, marking out damper areas of impoverished mineral and peaty soils than the U4 type. It had a patchy distribution at the north and west of the Development Site, with smaller, isolated occurrences in the south and east of the WTZ. It was identified by the abundance of mat-grass, which is the commonest species, with lesser quantities of common bent and sweet vernal-grass. Both heath bedstraw and tormentil were occasional in these stands, and there was also occasional heath rush. In addition, bilberry was occasional in most stands and the moss *Hylocomium splendens* was frequent. Further species identified the three sub-communities encountered:

- U5a Species-poor sub-community. The Species-poor sub-community has few distinguishing species apart from those characterising the community as a whole, but there was additionally frequent to occasional wavy hair-grass and frequent to abundant cowberry (*Vaccinium vitis-idaea*). The bryophyte *Pleurozium schreberi* was also frequent.
- U5b *Agrostis canina-Polytrichum commune* sub-community. The velvet bent-*Polytrichum commune* (moss) sub-community additionally contained frequent velvet bent and wavy hair-grass, as well as occasional heath wood-rush and *Polytrichum commune.*
- U5c *Carex panicea-Viola riviniana* sub-community. The carnation sedge (*Carex panicea*)-common dog-violet sub-community is associated with mildly flushed soils and is therefore more species-rich as a result, with a number of species characteristic

of more mesotrophic conditions. On site these included occasional carnation sedge, flea sedge (*Carex pulicaris*), meadow buttercup (*Ranunculus acris*), ribwort plantain, autumn hawkbit (*Scorzoneroides autumnalis*), white clover (*Trifolium repens*), jointed rush (*Juncus articulatus*), devil's-bit scabious (*Succisa pratensis*) and crested dog's-tail (*Cynosurus cristatus*).

U6 *Juncus squarrosus-Festuca* ovina grassland

Heath rush-sheep's-fescue grassland was a rare community on the Development Site, with just a handful of occurrences in linear wet channels in or close to the WTZ, in mosaics with blanket bog and acid flush vegetation, all of U6a subcommunity. It was dominated by abundant heath rush, with grasses here subordinate and including occasional velvet bent and wavy-hair grass. Forbs were represented by occasional heath bedstraw and tormentil, and bilberry was also occasional. The haircap moss *Polytrichum commune* was abundant in the ground layer, where frequent *Hylocomium splendens* and occasional *Plagiothecium undulatum* were also found. One additional species in particular identified the sole sub-community present:

- U6a *Sphagnum* sub-community. In the *Sphagnum* (bog-moss) sub-community, there was frequent to abundant *Sphagnum fallax.*

3.1.2.2 B1.2 ACID GRASSLAND – SEMI-IMPROVED

In parts of the Development Site with more heavily modified, fertile soils, acid grassland had more species associated with higher levels of improvement. This tended to be in areas that had obviously been more subjected to livestock grazing and dunging, and was restricted to the northern part of the Development Site. One NVC community was present.

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

This was U4 grassland with the typical species as listed in the previous section, but represents a different sub-community associated with semi-improved soils that aligns with B1.2:

- U4b *Holcus lanatus-Trifolium repens* sub-community. In the Yorkshire-fog (*Holcus lanatus*)-white clover sub-community, Yorkshire-fog was absent here, but the sub-community was identified by the presence of frequent white clover, as well as occasional yarrow (*Achillea millefolium*) and crested dog's-tail. The vegetation was further characterised by frequent meadow buttercup and occasional common sorrel (*Rumex acetosa*).

3.1.2.3 B2.2 NEUTRAL GRASSLAND – SEMI-IMPROVED

Neutral grassland had a limited representation on the Development Site, with a single occurrence at the north-west of the Development Site on modified soils in livestock-grazed settings. A single NVC community represented this habitat.

MG6 *Lolium perenne-Cynosurus cristatus* grassland

Perennial rye-grass (*Lolium perenne*)-crested dog's-tail grassland comprised a short, grazed sward of mixtures of grasses, with abundant crested dog's-tail and frequent common bent and sheep's-fescue. Forbs included frequent white clover, and occasional ribwort plantain, daisy (*Bellis perennis*), yarrow and autumn hawkbit. MG6 recorded on site was represented by a single sub-community, identified by further species:

- MG6b *Anthoxanthum odoratum* sub-community. Sweet vernal-grass was absent here, but a number of other species associated with this sub-community were encountered, allowing positive identification. These included occasional meadow buttercup, common sorrel and the moss *Rhytidiadelphus squarrosus.*

3.1.2.4 B5 MARSH/MARSHY GRASSLAND

Marsh/marshy grassland encompasses a range of vegetation types occurring in damp conditions and with a tall sward made up of grasses, rushes, sedges or tall forbs. On the Development Site this was an uncommon habitat, marking out isolated locations subjected to the effects of impeded drainage, ponding, or soligenous conditions with some influence from groundwater flows. There is great variety in the composition of this habitat, reflected here in the presence of two different NVC communities, plus an additional vegetation type not included in the current classification.

M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture

Soft/sharp-flowered rush (*Juncus acutiflorus*)-common marsh-bedstraw (*Galium palustre*) rush-pasture was confined to a very few locations at the north-west and south-east of the Development Site in areas of impeded drainage on circumneutral soils. It was dominated by a tall, dense sward of soft-rush, with most other species unable to compete and no more than occasional. These included Yorkshire-fog, marsh thistle (*Cirsium palustre*), lesser spearwort (*Ranunculus flammula*), common sorrel, cuckooflower (*Cardamine pratensis*), creeping buttercup (*Ranunculus repens*), meadow buttercup and marsh willowherb (*Epilobium palustre*). This habitat was represented by a single sub-community recorded on site:

- M23b *Juncus effusus* sub-community. The soft-rush sub-community is defined by the dominance of soft-rush. In addition, there was frequent bog stitchwort (*Stellaria alsine*).

M25 *Molinia caerulea-Potentilla erecta* mire

Purple moor-grass (*Molinia caerulea*)-tormentil mire was limited to a single occurrence at the north-west of the Development Site in a mosaic with wet and dry heath. It was dominated by a tussocky sward of purple moor-grass, with occasional tormentil and devil's-bit scabious. One sub-community relating to B5 was recorded:

- M25b *Anthoxanthum odoratum* sub-community. The sweet vernal-grass sub-community is a grassy form of mire found in drier situations on shallow, mineral-based soils. In addition to the species above, there was occasional sweet vernal-grass, Yorkshire-fog, common bent, velvet bent and heath-grass, and the forb marsh violet (*Viola palustris*) was also occasional.

Small sedge mire (not in NVC)

Small sedge mires are not recognised in the current NVC but are described in a later publication[7]. Examples of this vegetation vary in their composition, but they share the characteristic of a canopy of small sedges without a ground layer of *Sphagnum* and *Polytrichum* mosses (cf. acid flush), and they are best classified within the marshy grassland category as they have affinities with rush- and grass-dominated communities that belong to this habitat; and normally occur in mosaics with mires.

Three stands were recorded, all at the north-west of the Development Site, and, whilst their composition varied, all contained carnation sedge, common yellow-sedge (*Carex demissa*) and star sedge (*C. echinata*). In addition, one of these stands held occasional dioecious sedge (*C. dioica*), tawny sedge (*C. hostiana*) and common sedge (*C. nigra*). This stand also had a more closed sward, with grasses filling in the rest of the canopy, including velvet bent, sweet vernal-grass, heath-grass and Yorkshire-fog. In both examples there was additionally frequent jointed rush. These areas are fairly species-rich in mesotrophic forbs as typically flushed with mildly base-rich water. Forbs encountered here included frequent to occasional devil's-bit scabious, lesser spearwort, autumn hawkbit, ribwort plantain, meadow buttercup, white clover, self-heal (*Prunella vulgaris*) and tormentil.

3.1.3 C - TALL HERB AND FERN

3.1.3.1 C1.1 BRACKEN – CONTINUOUS

Dense stands of bracken (*Pteridium aquilinum*) were uncommon on site, restricted to steep, well-drained slopes on the west side of the Garbh Allt at the far north of the Development Site. In this area, they occurred as minority components of mosaics with dry heath, characterised by the NVC community U20.

U20 *Pteridium aquilinum-Galium saxatile* community

The bracken-heath bedstraw community was dominated by a canopy of tall bracken. The understorey was sparse, with few species able to compete, but the bryophytes *Rhytidiadelphus loreus* and *Hylocomium splendens* were frequent to occasional. All U20 on site was U20b:

- U20b *Vaccinium myrtillus-Dicranum scoparium* sub-community. The bilberry-*Dicranum scoparium* (moss) sub-community is a heathy form. The understorey was made up of species of dry heaths, including frequent bilberry and cowberry, as well as occasional heather and crowberry (*Empetrum nigrum*). The moss *Pleurozium schreberi* was also occasional.

3.1.3.2 C3.2 OTHER TALL HERB AND FERN – NON-RUDERAL

This habitat was recorded in the WTZ in a mosaic with blanket bog, dry heath and broadleaved woodland; and characterised by the NVC community U16.

U16 *Luzula sylvatica-Vaccinium myrtillus* tall-herb community

The great wood-rush (*Luzula sylvatica*)-bilberry tall-herb community only occurred in the WTZ; therefore no detailed description is available. This community is normally dominated by great wood-rush, with wavy hair-grass, bilberry and heath bedstraw as the usual associates, and a ground layer of pleurocarpus mosses[7,10]. All U16 recorded was identified to the U16c sub-community:

- U16c Species-poor sub-community. The Species-poor sub-community consists of stands overwhelmingly dominated by great wood-rush, with very few an d very low cover of other species[7,10].

3.1.4 D - HEATHLAND

3.1.4.1 D1.1 DRY DWARF SHRUB HEATH – ACID

Dry heaths are a common habitat on site and occurred as either continuous stands or in mosaics with wet heath and blanket bog. They were dominated by dwarf shrubs, particularly heather, and were encountered on more well-drained parts of the Development Site such as steeper slopes and higher plateaux, on thin soils and shallow peats. They were found in a wide range of topographical situations, aspects and altitudes; and represented by the NVC communities H10, H12, H13, H14, H16, H17, H21 and H22.

H10 *Calluna vulgaris-Erica cinerea* heath

The heather-bell heather (*Erica cinerea*) heath was one of two common sub-montane dry heath communities on the Development Site, commonly occurring in mosaics with wet heath and blanket bog across the northern part of the Development Site. It had abundant to dominant heather, and there was usually frequent bell heather and, beneath the dwarf shrubs, occasional tormentil. The range of other associates varied between stands, and included occasional wavy-hair grass, bilberry and the moss *Hypnum jutlandicum.* Two sub-communities were present:

- H10a Typical sub-community. The Typical sub-community was the most common and abundant, occurring at lower elevations at the far north of the Development Site. As well as the species listed above it held occasional green-ribbed sedge (*Carex binervis*), purple moor-grass and heath wood-rush.
- H10b *Racomitrium lanuginosum* sub-community. The *Racomitrium lanuginosum* (moss) sub-community occurred at higher elevations in the central-northern part of the Development Site where the field layer was more sparse. In these areas, there was frequent deergrass (*Trichophorum germanicum*); as well as occasional crowberry and carnation sedge. The distinctive ground layer had frequent *Racomitrium lanuginosum*, as well as occasional *Cladonia floerkeana* (lichen) and other species of *Cladonia.*

H12 *Calluna vulgaris-Vaccinium myrtillus* heath

Heather-bilberry heath was the other principal type of sub-montane dry heath on site, with a patchy but restricted distribution throughout the Development Site, including the WTZ, apart from the highest elevations and the most continuous areas of bog. It too had an almost continuous canopy of dwarf shrubs, with heather dominant to abundant, this time accompanied by frequent bilberry. Other vascular associates were occasional at most, and included wavy hair-grass, with additional species representing the various sub-communities. Characteristic of this community was a carpet of large pleurocarpus mosses beneath the dwarf shrubs, including frequent to abundant *Pleurozium schreberi* and *Hylocomium splendens.* The H12 recorded was represented by three sub-communities:

- H12a *Calluna vulgaris* sub-community. The heather sub-community is the typical and widespread form of dry heather moor. It was species-poor, containing few other associates apart from those listed above. There was occasional hard-fern (*Blechnum spicant*) and wood-sorrel (*Oxalis acetosella*).
- H12b *Vaccinium vitis-idaea-Cladonia portentosa* sub-community. In the cowberry-*Cladonia portentosa* sub-community, cowberry itself was present in some stands but

absent from others. In the latter instance the vegetation was still identified by a ground layer of frequent to abundant *Cladonia* spp. Lichens, as well as frequent crowberry and occasional deergrass. In addition, the moss *Rhytidiadelphus loreus* was frequent here.

- H12c *Galium saxatile-Festuca ovina* sub-community. The heath bedstraw-sheep's-fescue sub-community is a grassier assemblage, and here incorporated occasional sheep's-fescue, common bent, velvet bent and heath-grass. Tormentil was frequent in these stands.

H13 *Calluna vulgaris-Cladonia arbuscula* heath

Heather-*Cladonia arbuscula* (lichen) heath is a montane heath found on slopes and plateaux at high altitudes in the west of the Development Site, as well as at scattered locations in the WTZ. Here, heather was dominant in a short, wind-clipped, prostrate form, accompanied by frequent stiff sedge (*Carex bigelowii*), and occasional montane crowberry (*Empetrum nigrum* ssp. *hermaphroditum*), fir clubmoss (*Huperzia* selago) and bilberry. The ground layer comprised *Cladonia arbuscula* and other *Cladonia* spp. lichens, as well as occasional *Racomitrium lanuginosum.* All H13 recorded on site was identified to the H13a sub-community*:*

- H13a *Cladonia arbuscula-Cladonia rangiferina.* This sub-community is typically of lower altitudes, and consisted of no more than the species listed above.

H14 *Calluna vulgaris-Racomitrium lanuginosum* heath

Heather-*Racomitrium lanuginosum* (moss) heath is another type of montane heath found on higher elevations in the west of the Development Site. It was similar to the H13 community, with frequent heather in prostrate form, but here the ground layer was dominated by a carpet of *Racomitrium lanuginosum* with just occasional *Cladonia* spp. Lichens; along with some wavy hair-grass and fir clubmoss. All H14 recorded on the Development Site was identified to the H14b sub-community:

- H14b *Empetrum nigrum* ssp. *hermaphroditum* sub-community. As well as the species above, this sub-community had frequent to abundant montane crowberry (the defining species of this sub-community), which exceeded that of the heather in places.

H16 *Calluna vulgaris-Arctostaphylos uva-ursi* heath

Heather-bearberry (*Arctostaphylos uva-ursi*) heath was a rare vegetation type, occurring on steep slopes at higher elevation around Cairn Diebidale at the west of the Development Site, in mosaics with other dry heaths in and around scree and boulder fields. Both heather and bell heather were abundant here, but the vegetation was characterised by occasional bearberry amongst the other dwarf shrubs. All H16 recorded on the Development Site was identified to the H16c sub-community.:

- H16c *Cladonia* ssp. sub-community. The *Cladonia* spp. sub-community had abundant *Cladonia* spp. lichens as well as occasional deergrass.

H17 *Calluna vulgaris-Arctostaphylos alpinus* heath

On exposed summits at moderate to high altitudes at the north and west of the Development Site there were occasional stands of heather-alpine bearberry (*Arctostaphylos alpinus*) heath amongst other forms of dry heath. In common with many other types of heath, the most abundant species was heather, here growing in a tight, low, wind-clipped mat, but it was

accompanied here by prostrate sprigs and low shrubs of bearberry and alpine bearberry. Cladonia species lichens were dotted here and there amongst the carpet of dwarf shrubs. All H17 recorded on the Development Site was identified to the H17b sub-community, as a result of the presence of a few other species:

- H17b *Empetrum nigrum* ssp. *nigrum* sub-community. The crowberry sub-community represents the less montane form of this vegetation type, and here included frequent deergrass and bell heather, as well as occasional *Hypnum jutlandicum* (moss). Crowberry itself was absent from these stands.

H21 *Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium* heath

The heather-bilberry-*Sphagnum capillifolium* (bog-moss) community is a damp heath that occurred patchily on slopes at low to moderate altitudes across the northern part of the Development Site, as well as a single occurrence in the WTZ, usually in mosaics with wet and dry heaths. It had a similar array of species as other sub-montane heaths, with heather dominant, and bilberry and crowberry occasional. The moss *Hylocomium splendens* was also occasional beneath the dwarf shrubs, but the vegetation was mainly distinguished by a more or less continuous carpet of the bright red bog-moss *Sphagnum capillifolium*, which is a unique feature of these types of damp heaths. All H21 recorded on the Development Site was identified to the H21a sub-community:

- H21a *Calluna vulgaris-Pteridium aquilinum* sub-community. The heather-bracken sub-community is indistinctive, and here comprised nothing more than the species mentioned above. Bracken was not found in stands of this vegetation here.

H22 *Vaccinium myrtillus-Rubus chamaemorus* heath

Bilberry-cloudberry (*Rubus chamaemorus*) heath is a montane damp heath similar to the H21 community but occurring at higher altitudes. On site it was encountered on relatively steep slopes across the central northern part of the Development Site in mosaics with other types of montane heaths, where it occupied more shaded, less exposed situations. The main species here were frequent heather and montane crowberry, with occasional bilberry, hare's-tail cottongrass (*Eriophorum vaginatum*) and, characteristic of this community, cloudberry. Bryophytes were conspicuous, particularly frequent to occasional *Sphagnum capillifolium, Pleurozium schreberi, Hylocomium splendens* and *Rhytidiadelphus loreus.* All H22 recorded on the Development Site was identified to the H22b sub-community:

- H22b *Plagiothecium undulatum-Anastrepta orcadensis* sub-community. Neither *Plagiothecium undulatum* (moss) nor *Anastrepta orcadensis* (liverwort) were encountered here, but the sub-community was recognised by abundant to dominant *Cladonia* spp. lichens forming a ground carpet.

3.1.4.2 D2 WET DWARF SHRUB HEATH

Wet heath was one of the most common and widespread habitats on site, especially on gentle slopes on shallow peat at lower altitudes where it occurred in mosaics with dry heath and blanket bog; as well as being locally present on higher elevations. The field layer was diverse, characterised by the NVC community M15.

M15 *Trichophorum germanicum-Erica tetralix* wet heath

Deergrass-cross-leaved heath (*Erica tetralix*) wet heath is a varied community that encompasses a wide range of vegetation, with marked differences between sub-communities and sometimes even between individual stands of the same sub-community. It was one of the most widespread and abundant communities on the Development Site, including within the WTZ. The most common and abundant species overall were heather, cross-leaved heath, deergrass and tormentil. In addition, purple moor-grass, bog asphodel (*Narthecium ossifragum*), common cottongrass (*Eriophorum angustifolium*) and the bog-moss *Sphagnum capillifolium* were locally abundant in some stands but absent from others. The M15 recorded on site was represented by four sub-communities:

- M15a *Carex panicea* sub-community. The carnation sedge sub-community is the wettest type, and indeed is more of a flush than a heath. Stands tended to be limited in extent and associated with specific wet linear features within larger expanses of heath and bog. It was distributed widely, though patchily, across much of the Development Site, including the WTZ. Carnation sedge and common yellow-sedge were frequent here, and in addition there was occasional glaucous sedge (*Carex flacca*). The sedge species were accompanied by occasional round-leaved sundew (*Drosera rotundifolia*) and common butterwort (*Pinguicula vulgaris*).
- M15b Typical sub-community. The Typical sub-community was the most common and abundant form, with a distribution across most of the northern part of the Development Site, including a more patchy occurrence in the WTZ. Here there were no distinguishing species apart from those that define the community as a whole.
- M15c *Cladonia* sub-community. The *Cladonia* (lichen) sub-community is a drier type that was found on thin, dry peats at higher altitudes across the central northern part of the Development Site, or on steeper, rocky slopes but also extended onto deep peat in and adjacent to the WTZ where it had replaced the original bog vegetation due to drying out from drainage and erosion. The community constants were augmented by species more associated with dry heaths, including frequent *Cladonia* spp. lichens, and occasional bell heather and *Racomitrium lanuginosum* (moss).
- M15d *Vaccinium myrtillus* sub-community. The bilberry sub-community is indicative of drier conditions and characterised by frequent bilberry, cowberry, heath rush and wavy hair-grass; as well as the moss *Hylocomium splendens.* It had a single occurrence in the WTZ.

3.1.4.3 D4 MONTANE HEATH/DWARF HERB

Montane heath/dwarf herb habitat was restricted to the highest altitudes within the Development Site and included a variety of vegetation types dominated by montane species of rush, sedge and forb. It was a rare habitat occurring on only the most exposed mountain plateaux and was represented by the NVC community U10.

U10 *Carex bigelowii-Racomitrium lanuginosum* moss-heath

The stiff sedge-*Racomitrium lanuginosum* (moss) community had a restricted occurrence around stony plateaux areas. It consisted of a thick mat of *Racomitrium lanuginosum* pierced through by abundant stiff sedge and occasional viviparous sheep's-fescue (*Festuca vivipara*), wavy hair-grass and bilberry. Species of Cladonia lichens were also occasional in the ground

carpet. All U10 on the Development Site was identified as U10b, by the presence of a further species:

- U10b Typical sub-community. The Typical sub-community was made up of the species above with the addition of frequent montane crowberry.

3.1.5 E - MIRE

3.1.5.1 E1.6.1 BLANKET BOG

Blanket bog is characterised as vegetation on deep peat (>0.5m) fed only by rainwater (ombrotrophic). This was a common and extensive habitat at lower altitudes on level to gently sloping ground; and occurred in mosaics with wet and dry heaths. It was represented by the NVC communities M2, M17 and M19.

M2 *Sphagnum cuspidatum/fallax* bog pool community

Sphagnum cuspidatum/fallax (bog-mosses) bog pools are small features (typically no more than a few square metres in size). They were locally present amongst extensive areas of blanket bog, occupying wet depressions and hollows amongst the surrounding bog vegetation. In these pools, there was abundant *Sphagnum cuspidatum* as well as occasional *S. rubellum.* All M2 recorded on the Development Site was identified as the M2b subcommunity:

- M2b *Sphagnum fallax* sub-community. The *Sphagnum fallax* sub-community had frequent *Sphagnum fallax* as well as occasional *S. papillosum, S. palustre* and *Polytrichum commune.*

M17 *Trichophorum germanicum-Eriophorum vaginatum* blanket mire

Deergrass-hare's-tail cottongrass blanket mire was the usual type of bog on wetter peats at lower altitudes. It was widely distributed across much of the Development Site, apart from the steeper slopes and high elevations of the montane areas across the central north of the Development Site. The community is characterised by an even mix of graminoids, dwarf shrubs and *Sphagnum* (bog-moss) species, and here comprised varying quantities of deergrass, heather, cross-leaved heath, bog asphodel, common cottongrass, hare's-tail cottongrass, purple moor-grass and tormentil, together with the bog-mosses *Sphagnum papillosum* and *S. capillifolium. All M17 recorded on site was identified as M17a:*

- M17a *Drosera rotundifolia-Sphagnum* spp. sub-community. The round-leaved sundew-*Sphagnum* spp. (bog moss) sub-community is the wettest type, and here had occasional round-leaved sundew and, in places, bog-myrtle (*Myrica gale*). The liverwort *Pleurozia purpurea* was also occasional in some stands.

M19 *Calluna vulgaris-Eriophorum vaginatum* blanket mire

Heather-hare's-tail cottongrass blanket mire is a drier form of bog than the M17 community, with a similar distribution across the Development Site, whilst additionally occurring at higher altitudes than other bog types. It was co-dominated by heather and hare's-tail cottongrass, both of which were abundant. The bog-moss *Sphagnum capillifolium* was also present in all forms of this community, and was frequent to occasional. All three sub-communities were encountered, and each of these was associated with a distinct grouping of additional species:

- M19a *Erica tetralix* sub-community. The cross-leaved heath sub-community is the dampest form of this type of bog, with a number of species of wet heaths and more saturated blanket mires. This included frequent deergrass as well as occasional cross-leaved heath, bog asphodel, common cottongrass and the bog-moss *Sphagnum papillosum.*
- M19b *Empetrum nigrum* ssp. *nigrum* sub-community. The crowberry sub-community is a drier form of this type of bog, and was here distinguished by frequent crowberry as well as occasional cloudberry and bilberry. The bryophytes *Pleurozium schreberi* and *Plagiothecium undulatum* were occasional. In some stands there was a frosting of *Cladonia* species lichens below the vascular plants.
- M19c *Vaccinium vitis-idaea-Hylocomium splendens* sub-community. The cowberry-*Hylocomium splendens* (moss) sub-community was another drier type and the most montane form of this bog. There was occasional cowberry, cloudberry, bilberry and crowberry, and the moss *Hylocomium splendens* was abundant in the ground layer.

3.1.5.2 E1.7 WET MODIFIED BOG

Wet modified bog is blanket mire that has been modified and degraded as a result of erosion, overgrazing, trampling, drainage and burning. This alters the original bog vegetation such that it becomes dominated by species such as hare's-tail cottongrass or purple moor-grass, often resembling wet heath. Four NVC communities were associated with this habitat on site (including stands of M15 wet heat on deep (>0.5m) peat), together with additional sub-communities of M17 and M25 not already described in previous sections.

M3 *Eriophorum angustifolium* bog pool community

Common cottongrass bog pools were found within tracts of modified bog or occupied the base of peat hags within eroded blanket mire. Sometimes these 'pools' had little or no standing water. These stands consisted of little more than frequent to occasional common cottongrass either growing through recently colonised bare peat in drier situations or pricking up through a layer of the aquatic bog-moss *Sphagnum cuspidatum* in wetter ones.

M15 *Trichophorum germanicum-Erica tetralix* wet heath

Stands of deergrass-cross-leaved heath wet heath occurring on deep (>0.5m) peat are regarded as forms of wet modified bog. Here, the characteristic bog species hare's-tail cottongrass and *Sphagnum papillosum* have been largely eliminated and the vegetation comes to resemble that of wet heath. It was widely distributed across the Development Site, particularly the M15c sub-community in areas of eroded peat in and adjacent to the WTZ.

M16 *Erica tetralix-Sphagnum compactum* wet heath

The cross-leaved heath-*Sphagnum compactum* (bog-moss) community is normally a wet heath on shallow peats but on site it occupied a few areas of degraded bog on deeper peat in the central northern part of the Development Site. Frequent patches of bare peat were a feature of these stands, resulting in a patchy cover of vegetation that included frequent heather and bog asphodel, and occasional cross-leaved heath, common cottongrass and deergrass. The tiny bog-moss *Sphagnum tenellum* grew opportunistically here and there amongst the bare peat. All M16 recorded on site belonged to the following sub-community:

- M16d *Juncus squarrosus-Dicranum scoparium* sub-community. The heath rush-*Dicranum scoparium* sub-community was characterised by occasional heath rush but more distinctively by a ground carpet of frequent *Cladonia* species lichens and *Racomitrium lanuginosum* (moss).

M17 *Trichophorum germanicum-Eriophorum vaginatum* blanket mire

Two sub-communities of deergrass-hare's-tail cottongrass blanket mire best considered as wet modified bog rather than (near-natural) blanket bog were recorded on the Development Site:

- M17b *Cladonia* sub-community. The *Cladonia* (lichen) sub-community was largely associated with hagged (eroded) peat, though it was also encountered in more near-natural drier situations where it can be considered as the Phase 1 habitat E1.6.1 Blanket bog. It was especially concentrated in and adjacent to the WTZ. In addition to the overall community species described in the previous section, here there were abundant *Cladonia* spp. lichens, particularly *Cladonia portentosa.* There was also occasional fir clubmoss and the moss *Racomitrium lanuginosum.*
- M17c *Juncus squarrosus-Rhytidiadelphus loreus* sub-community. The heath rush-*Rhytidiadelphus loreus* (moss) sub-community was a drier type with a single occurrence in an area of hagged peat at the west of the Development Site in a mosaic with other modified bog types. There was frequent heath rush, and occasional bilberry and common sedge. Non-*Sphagnum* bryophytes are a conspicuous feature of this sub-community, and here included frequent *Hylocomium splendens* as well as occasional *Rhytidiadelphus loreus, Plagiothecium undulatum* and *Aulacomnium palustre.*

M20 *Eriophorum vaginatum* blanket and raised mire

The hare's-tail cottongrass mire is a form of modified bog dominated by hare's-tail cottongrass that has been derived from more near-natural forms as a result of the effects of grazing, burning or drainage. Most M20 appeared to be derived from M19 that had been subjected to burning, removing much of the original cover of heather. The community was distributed widely but patchily throughout the Development Site, apart from montane areas to the west. The vegetation composition was overwhelmingly dominated by hare's-tail cottongrass with occasional cross-leaved heath in most stands. The presence and abundance of other species was variable, with common sedge, *Polytrichum commune* and *Sphagnum fallax* noted in drier areas; as well as *Sphagnum papillosum*, *S. capillifolium* and *S. cuspidatum* in wetter areas.

M25 *Molinia caerulea-Potentilla erecta* mire

Purple moor-grass-tormentil mire over deep peat deposits (> 0.5 m thickness) was a rare habitat, with only a single occurrence in a mosaic with wet heath and blanket bog at the far north-west of the Development Site. The field layer is typically dominated by purple moor-grass with occasional tormentil and devil's-bit scabious. However, the sub-community recorded on site was different and represented the M25a sub-community:

- M25a *Erica tetralix* sub-community. The cross-leaved heath sub-community had occasional cross-leaved heath and bog asphodel, along with the bog-mosses *Sphagnum papillosum, S. palustre* and *S. capillifolium.*

3.1.5.3 E1.8 DRY MODIFIED BOG

Dry modified bog is similar to wet modified bog, but *Sphagnum* (bog-moss) species are noticeably sparse or absent. Two NVC community represented this habitat on site, M19b associated with eroded peat, and M20.

M19b *Empetrum nigrum* ssp. *nigrum* sub-community. The crowberry sub-community is a drier form of this type of bog, and was here distinguished by frequent crowberry as well as occasional cloudberry and bilberry. The bryophytes *Pleurozium schreberi* and *Plagiothecium undulatum* were occasional. Examples of this sub-community associated with eroded peat are regarded as the Phase 1 habitat E1.8 Dry modified bog.

M20 *Eriophorum vaginatum* blanket and raised mire

This category incorporates the drier form of M20 blanket mire mentioned in the preceding **Section 3.1.5.2**. Like the wetter types, it had abundant hare's-tail cottongrass, and the bog-moss *Sphagnum capillifolium* was frequent. The M20 recorded on the Development Site was split between two sub-communities:

- M20a Species-poor sub-community. The Species-poor sub-community only had one occurrence, in the WTZ, in a mosaic with blanket bog; therefore, no detailed description is available. It normally consists of tussocks of hare's-tail cottongrass with occasional common cottongrass and wavy hair-grass.
- M20b *Calluna vulgaris-Cladonia* sub-community. The heather-*Cladonia* (lichen) sub-community was concentrated in the WTZ, with only a sporadic occurrence in the Development Site. Here, there was occasional heather, bilberry and cloudberry, and the bryophytes *Pleurozium schreberi* and *Hylocomium splendens* were frequent to occasional. Cowberry was abundant in some stands, despite not normally being associated with this assemblage, which may indicate that these examples were derived from M19c blanket mire after burning, where the species is often present.

3.1.5.4 E2.1 FLUSH AND SPRING – ACID/NEUTRAL FLUSH

Acid/neutral flushes were characterised by a carpet of *Sphagnum* bog-mosses overlain by rushes or sedges, either in relatively dry or completely submerged conditions. They were usually located in shallow channels or water-filled depressions adjoining blanket bog and heath; and characterised by the NVC communities M6 and M29.

M6 *Carex echinata-Sphagnum fallax/auriculatum* mire

Star sedge-*Sphagnum fallax/auriculatum* (bog-moss) mire most often occupied the edges of wet, peaty channels or the margins of sluggish streams within blanket bog or wet heath. It was distributed widely but patchily across the Development Site, including the WTZ, apart from the montane areas at the west of the Development Site. The sward composed of either sedges or rushes rooted in a deep layer of mosses, most notably *Sphagnum fallax.* The grasses velvet bent and sweet vernal-grass were frequent to occasional and forbs were represented by frequent to occasional tormentil. M6 recorded on the Development Site was split between three sub-communities, with their classification based principally on whether sedge or rush species predominated:

- M6a *Carex echinata* sub-community. The star sedge sub-community was uncommon, with a patchy distribution on the Development Site. It was characterised by abundant

star sedge in addition to the species above. There was occasional bog asphodel, cross-leaved heath, devil's-bit scabious, mat-grass and heath rush. The bog-mosses *Sphagnum palustre* and *S. subnitens* were occasional, and other bryophytes included occasional *Aulacomnium palustre.*

- M6b *Carex nigra-Nardus stricta* sub-community. The common sedge (*Carex nigra*)-mat-grass sub-community only occurred in the WTZ; therefore, no detailed description is available. This sub-community normally consists of even mixtures of common sedge, star sedge and carnation sedge, accompanied by common cottongrass, mat-grass and heath rush.
- M6c *Juncus effusus* sub-community. In the soft-rush sub-community, star sedge was only occasional and was almost entirely replaced by abundant soft-rush growing through a carpet of *Sphagnum fallax* and *Polytrichum commune.* Heath bedstraw and common cottongrass were occasional here. This was easily the most widespread and extensive of the three sub-communities.

M29 *Hypericum elodes-Potamogeton polygonifolius* soakway

The marsh St John's-wort (*Hypericum elodes*)-bog pondweed (*Potamogeton polygonifolius*) soakway was a rare community on Development Site, with a single occurrence in a water-filled depression fed by a number of sluggish channels at the base of a steep slope at the far north of the Development Site. Whilst marsh St John's-wort itself was absent here, as the Development Site is situated beyond the natural range for the species, other species characteristic of the community were present. Bog pondweed was the most abundant species overall, its floating leaves prominent on the surface of the pool as well as the more slow-moving channels. Sedges were conspicuous, with carnation sedge and common sedge frequent and common yellow-sedge occasional. There was also occasional lesser spearwort, bulbous rush (*Juncus bulbosus*), purple moor-grass and common cottongrass. Carpets of bog-moss were emergent from the water, particularly *Sphagnum auriculatum* with lesser quantities of *S. cuspidatum.*

3.1.5.5 E2.2 FLUSH AND SPRING – BASIC FLUSH

Basic flush was a rare habitat on site, with a single occurrence as a small linear feature, and indicating the possible emergence of base-rich groundwater to the surface. The habitat was characterised by the NVC community M10.

M10 *Carex dioica-Pinguicula vulgaris* mire

Dioecious sedge-common butterwort mire consisted of an open sward of sedges, other graminoids, forbs and bryophytes. Whilst dioecious sedge was absent, other sedge species collectively dominated the canopy, with frequent carnation sedge as well as occasional tawny sedge and flea sedge. Common butterwort was occasional and the bryophyte *Campylium stellatum* was also occasional. All M10 on site was identified to the sub-community M10a:

- M10a *Carex demissa-Juncus bulbosus/kochii* sub-community. The common yellow-sedge-bulbous rush sub-community additionally contained frequent common yellow-sedge and star sedge. There was also occasional bulbous rush, cross-leaved heath, bog asphodel, round-leaved sundew and marsh arrowgrass (*Triglochin palustris*).

3.1.5.6 E2.3 FLUSH AND SPRING – BRYOPHYTE-DOMINATED SPRING

Bryophyte-dominated springs are wet habitats where groundwater emerges through the substrate onto the surface, and were dominated by mosses rather than vascular plants. Water ingress can be acidic, neutral or base-enriched, giving rise to different vegetation communities. However, only the more acidic/neutral type was identified on site, characterised by the NVC communityM32.

M32 *Philonotis fontana-Micranthes stellaris* spring

Philonotis fontana (moss)-starry saxifrage (*Micranthes stellaris*) springs occurred rarely on steep slopes at higher elevations at the west of the Development Site, and on shallower slopes amongst blanket bog in the WTZ. They were dominated by mosses, with *Dichodontium palustre* abundant, and *Philonotis fontana* and *Sarmentypnum exannulatum* occasional. Vascular plants had a sparse cover, with marsh violet, blinks (*Montia fontana*) and star sedge all occasional. A single sub-community was present on the site, identified by two further species:

- M32a *Sphagnum auriculatum* sub-community. The *Sphagnum auriculatum* (bog-moss) sub-community additionally had occasional *Sphagnum auriculatum* in the bryophyte carpet, and frequent creeping bent (*Agrostis stolonifera*) growing through this ground layer.

3.1.5.7 E4 BARE PEAT

There were areas of exposed peat on the Development Site, most likely resulting from erosion. These were usually located within stands of blanket bog and took the form of bare peat on the sides and bases of peat haggs (gullies), or as larger flat expanses (so called 'peat pans'). They were individually too small to map but were extensive enough in some polygons, especially in the WTZ, to justify being allocated a minority percentage cover of those polygons.

3.1.6 G - OPEN WATER

3.1.6.1 G1 STANDING WATER

This habitat represents waterbodies where the walkover survey was not complete in assessing whether the waterbody was oligotrophic or dystrophic.

3.1.6.2 G1.3 STANDING WATER – OLIGOTROPHIC

Oligotrophic (nutrient-poor) standing water was present in the form of a small loch (Loch Chuinneag) occupying a basin at c.500m altitude near the centre of the Development Site. Any submerged or emergent vegetation here was very sparse to absent.

3.1.6.3 G1.4 STANDING WATER – DYSTROPHIC

This habitat was only recorded in the WTZ; therefore, no detailed description is available. It appears to refer to a scattering of very small water-filled depressions in areas of bare, eroded peat.

3.1.6.4 G2 RUNNING WATER

Running water on Development Site was present as a number of watercourses (rivers and streams). A few stretches were wide enough for their cover to be taken account of (as a

percentage) within polygons where they made a significant contribution to the surface area, but most were too small for this to be feasible. No attempt was made to determine the trophic (nutrient) status of these watercourses in order to sub-divide the category, but it is likely that most, if not all, examples were either oligotrophic (nutrient-poor) or dystrophic (nutrient-poor and peat-stained). As with standing waters, submerged and emergent vegetation was sparse or absent, and no attempt was made to classify to NVC community.

3.1.7 I - ROCK EXPOSURE AND WASTE

3.1.7.1 I1.2.1 SCREE – ACID/NEUTRAL

Acid/neutral scree was present as boulder fields on steep slopes and plateaux at high altitudes at the west of the Development Site. Some of these boulders were carpeted with the moss *Racomitrium lanuginosum*; however, no NVC community was assigned due to the lack of any discernible vegetation composition.

3.1.7.2 I1.4 OTHER EXPOSURE

This category refers to exposed bedrock, and was present on mountain tops at the west of the Development Site, and also in two locations of very limited extent in the WTZ.

3.1.8 J - OTHER HABITAT

3.1.8.1 J3.6 - BUILDINGS

Buildings were present adjacent to the south of the Existing Forestry Access Track, south of Inchlumpie.

3.1.8.2 J4 – BARE GROUND

This category refers mainly to the gravel Existing Forestry Access Track in the south of the Development Site.

3.2 NON-NATIVE INVASIVE SPECIES

No incidental sightings of non-native invasive species were recorded within the HSA. No information on non-native invasive species was provided for the WTZ.

3.3 NOTABLE PLANT SPECIES

The following notable species were encountered during the habitat and vegetation survey:

- common juniper;
- dwarf birch;
- aspen;
- small cranberry; and
- field gentian.

Further details of these species, and their locations, are presented in **Appendix B**.

4. SUMMARY

4.1 PROTECTED AND PRIORITY HABITATS

NVC communities can be assigned to a number of different classifications to help identify habitats of ecological importance. Those considered relevant to the ecological context of the Development Site include the following:

- Annex I habitats of the European Union Habitats Directive;
- Scottish Biodiversity List (SBL); and
- Highland Nature Biodiversity Action Plan (LBAP).

4.1.1 ANNEX I HABITATS

A number of NVC communities may be representative of Annex I habitat types, within the meaning of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (otherwise known as the Habitats Directive).

Whilst an NVC community can be attributed to an Annex I habitat, this does imply that all occurrences of that NVC community constitute Annex I habitat as this can depend on a range of environmental factors (e.g. quality, extent, vegetation composition, geographic setting and underlying substrates).

Based on the descriptions of Annex I habitat types documented by the Joint Nature Conservation Committee (JNCC)[21], NVC communities within the Development Site that may constitute Annex I habitat are shown in **Table 4.1**; and include the following:

- **3130**: Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels;
- **4010**: Wet heathland with cross-leaved heath;
- **4030**: Dry heaths;
- **4060**: Alpine and subalpine heaths;
- **6150**: Montane acid grasslands;
- **6230**: Species-rich grassland with mat-grass in upland areas (*only applies to U5c*);
- **7130**: Blanket bog;
- **7140**: Very wet mires often identified by an unstable 'quaking' surface; and
- **7230**: Calcium-rich springwater-fed fens.

4.1.2 SBL PRIORITY HABITATS

The SBL is a list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland, within the meaning of the Nature Conservation (Scotland) Act 2004.

The SBL identifies habitats that are of the highest priority for biodiversity conservation, which are referred to as SBL priority habitats. Many of these priority habitats are broad and some can be characterised by multiple NVC communities.

[21] JNCC (2019) *Annex I habitats and Annex II species occurring in the UK*. Joint Nature Conservation Committee [online]. Available at: <https://webarchive.nationalarchives.gov.uk> (last accessed July 2025).

Prior to the publication of the UK Post-2010 Biodiversity Framework[22], the classification of SBL priority habitats was changed from NVC to UK BAP priority habitats to increase the use and accessibility of the SBL.

Based on NatureScot's published guidance providing definitions of Scotland's broad and priority habitats[23], NVC communities within the Development Site that may constitute SBL priority habitats are shown in **Table 4.1**; and include the following:

- Blanket bog;
- *Juncus squarrosus - Festuca ovina* grassland;
- Mountain heaths and willow scrub;
- *Nardus stricta-Galium saxatile* grassland;
- Oligotrophic and dystrophic lakes;
- Upland birchwoods;
- Upland flushes, fens and swamps; and
- Upland heathland.

4.1.3 HIGHLAND NATURE LBAP HABITATS

The Highland Nature LBAP aims to conserve and enhance locally important habitats and species[24]; as well as improving society's relationship with nature.

Locally important habitats identified within the Development Site, based on the NVC communities recorded, are shown in **Table 4.1**; and include the following:

- Freshwater: rivers, lakes and lochs;
- Upland and moorland;
- Peatland and wetland,
- Woodland and forest; and
- Agricultural land

4.2 GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS

Based solely on the NVC communities recorded, the following potential GWDTEs have been identified within the HSA (and shown in **Annex A, Figure 4**):

- U5c *Nardus stricta-Galium saxatile* grassland, *Carex panicea-Viola riviniana* sub-community
- U6 *Juncus squarrosus-Festuca ovina* grassland
- U16 *Luzula sylvatica-Vaccinium myrtillus* tall-herb community
- M6 *Carex echinata-Sphagnum fallax/auriculatum* mire
- M10 *Carex dioica-Pinguicula vulgaris* mire
- M15 *Trichophorum germanicum-Erica tetralix* wet heath

[22] JNCC/Defra. (2012) *UK Post-2010 Biodiversity Framework* [online]. Joint Nature Conservation Committee and Department for Environment, Farming and Rural Affairs on behalf of the Four Countries' Biodiversity Group. Available at: <https://data.jncc.gov.uk/data/587024ff-864f-4d1d-a669-f38cb448abdc/UK-Post2010-Biodiversity-Framework-2012.pdf> (last accessed July 2025).
[23] NatureScot. (2023) *National classifications* [online]. NatureScot (formerly Scottish Natural Heritage). Available at: <https://www.nature.scot/landscapes-and-habitats/habitat-types/habitat-definitions> (last accessed July2025).
[24] Highland Nature. (2021) *Highland Nature: Biodiversity Action Plan 2021 – 2026* [online]. Highland Nature Biodiversity Partnership. Available at: <https://www.highland.gov.uk/> (last accessed July 2025).

- M16 *Erica tetralix-Sphagnum compactum* wet heath
- M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture
- M29 *Hypericum elodes-Potamogeton polygonifolius* soakway
- M32 *Philonotis fontana-Micranthes stellaris* spring

An assessment of the potential GWDTEs to determine true groundwater dependence, taking account of underlying geological and hydrological information for the Development Site, is provided in **Chapter 13: Geology, Hydrology, Hydrogeology and Peat**.

TABLE 4.1: SUMMARY OF NVC COMMUNITIES AND HABITAT IMPORTANCE

Phase 1 habitat	NVC	Potential GWDTE	Annex I Habitat	SBL Priority Habitat	Highland Nature LBAP
A1.1.1 Broadleaved woodland – semi-natural	W17	-	-	Upland birchwoods	Woodland and forest
A1.3.2 Mixed woodland – plantation	W11	-	-	-	Woodland and forest
B1.1 Acid grassland – unimproved	U4	-	-	-	Upland and moorland
	U5	Yes	6230: Species-rich grassland with mat-grass in upland areas (*only applies to U5c*)	*Nardus stricta-Galium saxatile* grassland	
	U6	Yes	-	*Juncus squarrosus-Festuca ovina* grassland	
B1.2 Acid grassland – semi-improved	U4	-	-	-	
B2.2 Neutral grassland – semi-improved	MG6	-	-	-	Agricultural land
B5 Marsh/marshy grassland	M23	Yes	-	-	Peatland and wetland
	M25	-			Upland and moorland
	Small sedge mire	-		Upland flushes, fens and swamps	Peatland and wetland
C1.1 Bracken – continuous	U20	-	-	-	Upland and moorland

Phase 1 habitat	NVC	Potential GWDTE	Annex I Habitat	SBL Priority Habitat	Highland Nature LBAP
C3.2 Other tall herb and fern – non-ruderal	U16	Yes	-	-	Upland and moorland
D1.1 Dry dwarf shrub heath – acid	H10	-	4030: Dry heaths	Upland heathland	Upland and moorland
	H12	-			
	H13	-	4060: Alpine and subalpine heaths	Mountain heaths and willow scrub	Upland and moorland
	H14	-			
	H16	-	4030: Dry heaths	Upland heathland	Upland and moorland
	H17	-	4060: Alpine and subalpine heaths	Mountain heaths and willow scrub	Upland and moorland
	H21	-	4030: Dry heaths	Upland heathland	Upland and moorland
	H22	-	4060: Alpine and subalpine heaths	Mountain heaths and willow scrub	Upland and moorland
D2 Wet dwarf shrub heath	M15	Yes	4010 Northern Atlantic wet heaths with Erica tetralix	Upland heathland	Upland and moorland
D4 Montane heath/dwarf herb	U10	-	6150: Montane acid grasslands	Mountain heaths and willow scrub	Upland and moorland
E1.6.1 Blanket bog	M2	-	7130: Blanket bog	Blanket bog	Peatland and wetland
	M17	-			
	M19	-			
E1.7 Wet modified bog	M3	-	7130: Blanket bog	Blanket bog	Peatland and wetland
	M15		7130 Blanket bogs (where peat is greater than 0.5 m)	Blanket bog (where peat is greater than 0.5 m)	Peatland and wetland (where peat is greater than 0.5 m)
	M16	Yes			
	M17	-	7130: Blanket bog	Blanket bog	Peatland and wetland

Phase 1 habitat	NVC	Potential GWDTE	Annex I Habitat	SBL Priority Habitat	Highland Nature LBAP
	M20	-			
	M25	-	7130 Blanket bogs (where peat is greater than 0.5 m)	Blanket bog (where peat is greater than 0.5 m)	Peatland and wetland (where peat is greater than 0.5 m)
E1.8 Dry modified bog	M19	-	7130: Blanket bog	Blanket bog	Peatland and wetland
	M20	-			
E2.1 Flush and spring – acid/neutral flush	M6	Yes	-	Upland flushes, fens and swamps	Peatland and wetland
	M29	Yes	7140: Very wet mires often identified by an unstable 'quaking' surface		Peatland and wetland
E2.2 Flush and spring – basic flush	M10	Yes	7230: Calcium-rich springwater-fed fens		Peatland and wetland
E2.3 Flush and spring – bryophyte-dominated spring	M32	Yes	-		Peatland and wetland
G1.3 Standing water – oligotrophic	None	-	3130: Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels	Oligotrophic and dystrophic lakes	Freshwater: rivers, burns and lochs

ANNEX A: FIGURES

FIGURE 1: PHASE 1 HABITAT SURVEY

FIGURE 2: NVC SURVEY AND HABITAT TARGET NOTES

FIGURE 3: NOTABLE SPECIES

FIGURE 4: GROUNDWATER-DEPENDENT TERRESTRIAL ECOSYSTEMS

Site Boundary

Habitat Survey Area

Wind Turbine Zone

Phase 1 Habitat Classification

- A1.1.1 - Broadleaved woodland - semi-natural
- A1.2.2 - Coniferous woodland - plantation
- A1.3.2 - Mixed woodland - plantation
- B1.1 - Acid grassland - unimproved
- B1.1/E1.6.1
- B1.2 - Acid grassland - semi-improved
- B5 - Marsh/marshy grassland
- D1.1 - Dry dwarf shrub heath - acid
- D2 - Wet dwarf shrub heath
- E1.6.1 - Blanket sphagnum bog
- E1.7 - Wet modified bog
- E1.8 - Dry modified bog
- E2.1 - Flush and spring - acid/neutral flush
- E4 - Peat - bare
- G1 - Standing water
- G1.3 - Standing water - oligotrophic
- G1.4 - Standing Water: Dystrophic
- I1.2.1 - Scree - acid/neutral
- I1.4.1 - Other exposure - acid/neutral
- J3.6 - Buildings
- J4 - Bare ground

0 500 1,000 1,500 2,000

Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0730493	CHECKED: ST
DATE: 22/08/2025	APPROVED: RP

Figure 1
Phase 1 Habitats
Technical Appendix 8.1
Creachan Wind Farm

ERM

PROJECTION: British National Grid

Contains OS data © Crown copyright [and database right] 2024

Path: \\UKSPRDGISFS01\Data\London\Projects\0730493 - Creachan\Maps\0730493 - Creachan.aprx

Site Boundary
Habitat Survey Area
Wind Turbine Zone
WTZ Target Notes
Non WTZ Target Notes

NVC Code

H10a
H10b
H12a
H12b
H13
H13a
H17b
H21a
H22b
M15b
M15b^
M15c
M15c^
M15d
M17
M17a
M17b
M19
M19a
M19b
M19c
M2
M20
M20^
M20b
M6a
M6b
M6c
NVC not assigned
Non-NVC
U4a
U4b
U5
U5a
U5b
U5c
U6a
U6b
W11d
W18

0 500 1,000 1,500 2,000
Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0730493	CHECKED: ST
DATE: 22/08/2025	APPROVED: RP

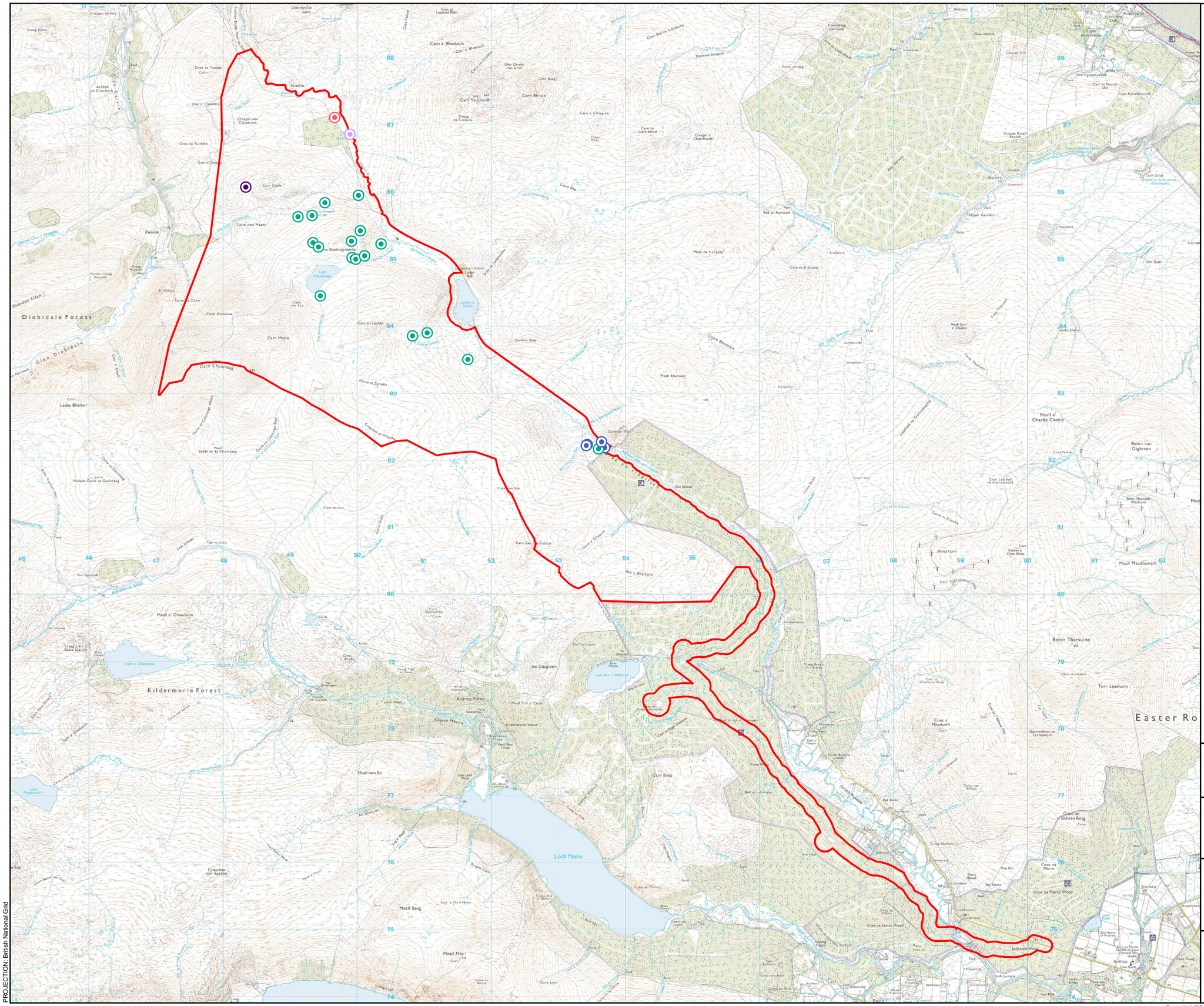
Figure 2
NVC Communities and Habitat Target Notes
Technical Appendix 8.1
Creachan Wind Farm

ERM

PROJECTION: British National Grid

Contains OS data © Crown copyright [and database right] 2024

Path: \\UKSPRDGISFS01\Data\London\Projects\0730493 - Creachan\Maps\0730493 - Creachan.aprx



SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0730493	CHECKED: ST
DATE: 22/08/2025	APPROVED: RP

Figure 3
Notable Species
Technical Appendix 8.1
Creachan Wind Farm

ERM

PROJECTION: British National Grid

Contains OS data © Crown copyright [and database right] 2024

Path: \\UKSPRDGISFS01\Data\London\Projects\0730493 - Creachan\Maps\0730493 - Creachan.aprx

Site Boundary

Wind Turbine Zone

Groundwater-dependent Terrestrial Ecosystems (GWDTE)

Dominant GWDTE

Sub-dominant GWDTE

No GWDTE

GWDTE Not Assigned

0 500 1,000 1,500 2,000

Metres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0730493	CHECKED: ST
DATE: 22/08/2025	APPROVED: RP

Figure 4
Terrestrial Ecosystems
Technical Appendix 8.1
Creachan Wind Farm

ERM

PROJECTION: British National Grid

Contains OS data © Crown copyright [and database right] 2024

Path: \\UKSPRDGISFS01\Data\London\Projects\0730493 - Creachan\Maps\0730493 - Creachan.aprx

ANNEX B: TARGET NOTES

TABLE B-1: HABITAT TARGET NOTES (WTZ)

Number	Co-ordinates	NVC	Description
1	252498, 881255	M3	Area with a number of M3 bog pools present.
2	252723, 880702	M32	M32 spring and flush.
3	252726, 880692	M32	M32 spring with abundant *Sphagna* and water upwelling at surface.
4	254943, 880622	N/a	Historical drains present in this area.
5	255014, 880244	N/a	Deeply incised and active drains present locally.
6	254327, 880059	M32	*Sphagnum* dominated spring with water upwelling at surface.
7	252853, 882095	M32	*Sphagnum* dominated spring.
8	252717, 882599	M3	*Eriophorum angustifolium* is the dominant species with floating patches of *Sphagnum cuspidatum*.
9	252785, 882301	N/a	Example of dwarf birch (*Betula nana*) across the survey area.
10	252394, 882213	M2	Bog pool containing some *Eriophorum angustifolium* with abundant *Sphagnum cuspidatum*.
11	251705, 882998	N/a	Extensive peat hagging around this area with erosion within the gullies down to the underlying substrate.
12	250306, 882476	N/a	Peat hagging with erosion down to underlying substrate with wet heath and bog covering the tops of the haggs. Depth over 2m in places.
13	251991, 882793	N/a	Mature rowan tree.
14	250026, 883453	N/a	Example of peat erosion with hagging and exposed underlying substrate.
15	251330, 883298	M32a	*Philonotus fontana* dominates the spring.
16	251357, 883295	M32a	Spring.

TABLE B-2: HABITAT TARGET NOTES (DEVELOPMENT SITE, EXCLUDING WTZ)

Number	Co-ordinates	NVC & Phase 1	Photograph
34	247863 885275	W11d Mixed woodland – plantation (birch canopy)	
35	247790 885258	W11d Mixed woodland – plantation (Scots pine canopy)	
19	249449 886710	Coniferous woodland – plantation (no NVC) Bog woodland with Scots pine canopy	
18	249264 886724	Coniferous woodland – plantation (no NVC) with Sitka spruce canopy	
20	249659 886713	Coniferous woodland – plantation (no NVC) with lodgepole pine canopy	

Number	Co-ordinates	NVC & Phase 1	Photograph
94	253413 882216	U5a Acid grassland – unimproved	
27	248932 885753	U5b Acid grassland – unimproved	
40	248105 887015	U5c Acid grassland – unimproved	
97	250374 883760	U6a Acid grassland – unimproved	
43	248009 886958	U4b Acid grassland – semi-improved	

Number	Co-ordinates	NVC & Phase 1	Photograph
39	247954 885456	M25b Marsh/marshy grassland	
51	248444 886737	Marsh/marshy grassland (no NVC) Small sedge mire	
49	248339 886056	Marsh/marshy grassland (no NVC) Small sedge mire	
55	248572 887822	U20b Bracken – continuous	
2	248126 887685	H10a Dry dwarf shrub heath – acid	

Number	Co-ordinates	NVC & Phase 1	Photograph
46	248720 886148	H10b Dry dwarf shrub heath – acid	
44	248455 886898	H12a Dry dwarf shrub heath – acid	
60	247811 884268	H12b Dry dwarf shrub heath – acid	
52	248960 887158	H12c Dry dwarf shrub heath – acid	
61	247970 884191	H13a Dry dwarf shrub heath – acid	

Number	Co-ordinates	NVC & Phase 1	Photograph
63	247421 883264	H14b Dry dwarf shrub heath – acid	
59	247794 884259	H16c Dry dwarf shrub heath – acid	
14	249534 886282	H17b Dry dwarf shrub heath – acid	
62	248065 884293	H22b Dry dwarf shrub heath – acid	
3	248143 887741	M15b Wet dwarf shrub heath	

Number	Co-ordinates	NVC & Phase 1	Photograph
45	248510 885860	M15c Wet dwarf shrub heath	
64	247514 883405	U10b Montane heath/dwarf herb	
16	249303 886429	M2b Blanket bog	
12	249367 886038	M17a Blanket bog	
22	249937 886570	M19a Blanket bog	

Number	Co-ordinates	NVC & Phase 1	Photograph
58	247673 884512	M19b Blanket bog	
13	249432 886127	M19c Blanket bog	
29	249069 885811	M3 Wet modified bog	
21	249807 886568	M16d Wet modified bog	
30	249069 885825	M17b Wet modified bog	

Number	Co-ordinates	NVC & Phase 1	Photograph
57	247740 885080	M17c Wet modified bog	
24	249763 886997	M20 Wet modified bog	
72	249121 885634	M20 Wet modified bog	
41	248424 887111	M25a Wet modified bog	
88	251072 884007	M20b Dry modified bog	

Number	Co-ordinates	NVC & Phase 1	Photograph
54	248427 887646	M29 Flush and spring – acid/neutral flush	
48	248333 886093	M10a Flush and spring – basic flush	
66	247784 884026	M32a Flush and spring – bryophyte-dominated spring	

TABLE B-3: NOTABLE PLANT SPECIES

Co-ordinates	Species	Photograph
253416 882218 253432 882231 253646 882271 253690 882186	Common Juniper (*Juniperus communis)* Scattered in wet heath, blanket bog and on the banks of small watercourses at the far south-eastern end of the Development Site. **Conservation status**: SBL priority species and noted in the Highland Nature LBAP.	

NVC community	W11d	U4a	U5a	U5b	U5c	U6a	U4b	MG6b	M23b	M25b	Small sedge mire	Small sedge mire	U20b	H10a	H10b	H10d	H12a	H12b	H12c	H13a	H14b	H16c	H17b	H21a	H22b	M15a	M15b	M15c	M15d	U10b	M2b	M17a	M19a	M19b
Target note	34/35	10	94	27	40	97	43	37	36	39	49	51	55	4	46	8	44	60	52	61	63	59	14	6	62	9	3	45	42	64	16	12	22	58
Species with Domin scores																																		
Achillea millefolium							3	4																										
Agrostis stolonifera																																		
Arctostaphylos alpinus																							4											
Arctostaphylos uva-ursi																						4	4											
Agrostis canina	4	4		5	5	4				4		4							4															
Agrostis capillaris	6	7	8				7	5		5						5	3		3															
Agrostis stolonifera																															5			
Anthoxanthum odoratum	4	5	3	4			5			4		4				4																		
Aulacomnium palustre																																		
Avenella flexuosa	4		4	5		4								3	3		3		4		3								3	3			
Bellis perennis								4																										
Betula nana																																		
Betula pubescens	(10)																																	
Blechnum spicant																	3																	
Calluna vulgaris				3									4	9	8	8	8	8	9	9	6	7	8	9	6	4	8	7	4			6	7	6
Campylium stellatum																																		
Cardamine pratensis									3																									
Carex bigelowii																				6											8			
Carex binervis														3														4						
Carex demissa											5	4														5								
Carex dioica												3																						
Carex echinata						4					5	6														4					4			
Carex hostiana												3																						
Carex nigra												3																						
Carex panicea					3						5	6			4											6								
Carex pulicaris					3											3																		
Cirsium palustre									3																									
Cladonia floerkeana															4																			
Cladonia portentosa																																		
Cladonia sp.															4			7		6	4	8	3		9			5		4		3		
Cynosurus cristatus					5		4	6																										
Danthonia decumbens		3								3		3							3															
Dichodontium palustre																																		
Drosera rotundifolia																										2						3		
Empetrum nigrum ssp. hermaphroditum																				4	7				5						6			
Empetrum nigrum ssp. nigrum													3		3			6						4										5
Epilobium palustre									4																									
Erica cinerea														5	5			3				7	5					4						
Erica tetralix				3								2														4	5	5	5			6	4	
Eriophorum angustifolium																											4		4			4	4	
Eriophorum vaginatum																								5	4							4	7	7
Festuca ovina		4					7	5											4							3								
Festuca rubra																																		
Festuca vivipara			6																							3					3			
Galium saxatile	3	5	4	4		4	4																											
Holcus lanatus									3	4		4																						
Holcus mollis	6																																	
Huperzia selago																				2	3													
Hylocomium splendens	4		5	5		5	4						7				8	5	7					4	4				6				7
Hypnum jutlandicum														4	3								4											
Juncus articulatus					5						5	6																						
Juncus bulbosus											4																							
Juncus effusus										9																								
Juncus squarrosus		3	3	4	4	8																					3	3	4			4		3
Luzula multiflora		3	3	3	3							3		2													3							
Molinia caerulea										8				4													6		6			4		
Montia fontana																																		
Myrica gale																																3		
Nardus stricta		4	5	7	5																													
Narthecium ossifragum												3														5	3					4	4	
Oxalis acetosella	4															4	3																	
Pedicularis sylvatica																																		
Philonotis fontana																																		
Pinguicula vulgaris																										2								
Pinus sylvestris	(10)																																	
Plagiothecium undulatum						4																												3
Plantago lanceolata		3			4			4			4					4																		
Pleurozia purpurea																																3		
Pleurozium schreberi			4										4				4	5							4									4
Polygala serpyllifolia				3																														
Polytrichum commune				4		8											4														4			
Potamogeton polygonifolius																																		
Potentilla erecta	3	4	4	4	4	3	4			4		4		3		4	4		5							4	4		3			3		
Prunella vulgaris											4																							
Pseudoscleropodium purum							3																											
Pteridium aquilinum													9																					
Racomitrium lanuginosum															5					3	9	5						4		8				
Ranunculus acris					4		5	4	4			4				4																		
Ranunculus flammula									4		7																							
Ranunculus repens									4																									
Rhinanthus minor					3																													
Rhytidiadelphus loreus													4					5							4									
Rhytidiadelphus squarrosus							4	4																										
Rubus chamaemorus																									4									4
Rumex acetosa							3	4	4																									
Salix cinerea	3																																	
Sarmentypnum exannulatum																																		
Scorzoneroides autumnalis					4			3				3																						
Sorbus aucuparia	3																																	
Sphagnum auriculatum											3																							
Sphagnum capillifolium																								8	5		4	3				4	5	4
Sphagnum cuspidatum																															7			
Sphagnum fallax						6																									5			
Sphagnum fuscum																																		
Sphagnum inundatum																										4								
Sphagnum palustre																															4			
Sphagnum papillosum																															4	4	4	
Sphagnum rubellum																															4			
Sphagnum subnitens																																		
Sphagnum tenellum																																		
Stellaria alsine									5																									
Succisa pratensis					4					4		5				4										4								
Trichophorum germanicum														3	5			4				4	5			4	4	6				7	5	
Trifolium repens					4		5	5				4																						
Triglochin palustris																																		
Scorzoneroides autumnalis		2																																
Vaccinium myrtillus			4	3		3							6	3	3		5	6	3	3				3	4				5	3			4
Vaccinium vitis-idaea			8										6																5					
Veronica officinalis	3																																	
Viola palustris										3																								
Viola riviniana	3	3														4																		
Bare peat																																		