

## Technical Appendix

# Lairdmannoch Energy Park

## Technical Appendix 6-2: National Vegetation Classification Survey

Lairdmannoch Energy Park Limited

**wind2**

May 2025



# Contents

1	Introduction	2
2	Methodology	3
2.1	NVC survey methods	3
2.2	Limitations	3
3	Results	4
3.1	NVC communities	4
3.2	Vegetation community summary	8
3.2.1	Potential GWDTE	9
4	Summary	10
5	References	11
	Appendices	12
	Appendix A. Figures	12
	Appendix B. Quadrat data	13
	Tables	
	Table 6-2-1: Annex I, Scottish Biodiversity List Habitats and Priority Peatlands	8
	Table 6-2-2: Ecological Importance criteria from SEPA (2024) for Potential GWDTEs	9
	Figures	
	Figure 6-2-1 - NVC Survey Results	

## Glossary of Terms

Acronym	Full Term
The Applicant	Lairdmannoch Energy Park Limited
The Proposed Development	Lairdmannoch Energy Park.
The Proposed Development Site	The full application boundary as per Figure 1-1
Habitats Directive	European Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (as amended)

## List of Abbreviations

Acronym	Full Term
EclA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
GWDTE	Ground Water Dependant Terrestrial Ecosystem
JNCC	Joint Nature Conservation Committee
km	Kilometre
m	Metre
NVC	National Vegetation Classification
SBL	Scottish Biodiversity List
SEPA	Scottish Environment Protection Agency
TA	Technical Appendix

# 1 Introduction

This Technical Appendix (TA) has been prepared in support of **Chapter 6: Ecology** in **Volume 2** of this EIA Report of the Lairdmannoch Energy Park Environmental Impact Assessment and, as such, does not comprise an assessment of impacts, but provides baseline information only. It should be read in conjunction with **Chapter 8: Hydrology, Hydro-geology and Soils** in **Volume 2** of this EIA Report.

Atmos Consulting Ltd (Atmos) were commissioned by Lairdmannoch Energy Park Limited ('the Applicant') to carry out a National Vegetation Classification (NVC) survey on land at Lairdmannoch. The NVC survey was undertaken during 4<sup>th</sup> to the 8<sup>th</sup> September 2023 by two surveyors.

The proposed Lairdmannoch Energy Park (the 'Proposed Development') would be located 7 km north-east of Gatehouse of Fleet and 10 km west of Castle Douglas in Dumfries and Galloway (the 'Proposed Development Site') and lies entirely within the planning authority area of Dumfries and Galloway Council.

The Applicant commissioned the survey to identify sensitive habitats present and to establish whether any Priority Peatlands and/or Ground Water Dependiant Terrestrial Ecosystems (GWDTEs) are present that may be negatively affected by the Proposed Development.

The survey methodology and results are detailed within this report, which provides information on the NVC communities recorded and their conservation status. NVC communities which are ecologically important, including potential GWDTEs, are identified; the latter based on SEPA (2024) Guidance. NVC communities were also evaluated in respect of their status as listed in Annex I of the European Habitats Directive, as per the Habitats Regulations<sup>1</sup>, and their Scottish Biodiversity List status.

To confirm whether potential GWDTEs are truly groundwater dependent, and if so to what degree, a hydro-geological risk assessment was undertaken; this is reported as part of the Hydrology Assessment within **Chapter 8: Hydrology, Geology and Hydrogeology** in **Volume 2** of this EIA Report.

---

<sup>1</sup> The Conservation (Natural Habitats, &c.) Regulations 2019 (as amended)

## 2 Methodology

### 2.1 NVC survey methods

The NVC survey was carried out by two surveyors between the 4<sup>th</sup> and 8<sup>th</sup> September 2023 inclusive.

The NVC communities within the survey boundary were mapped by eye and classified according to Rodwell (1995, 1991ab, 1992). The floristics of the main NVC communities were recorded using 2m by 2m quadrat samples to aid vegetation type classification. Woodland quadrats were adapted to the size of the community and were preferentially 10 m by 10 m for assessment of the tree canopy and 2 m by 2 m for the ground flora.

Higher plant nomenclature follows that of Stace (2020), and bryophyte nomenclature follows that of Hill *et al.* (2008).

### 2.2 Limitations

The survey was carried out in early September with no specific limitations noted at the time of survey. There was no issue in terms of seasonality as grasses, mosses and sedges were in good condition and able to be identified. The weather was good with strong sunshine and good visibility throughout. It is possible that early flowering plants may have been missed; however, any effect is considered negligible and is unlikely to affect the accurate classification of communities.

### 3 Results

The results map is shown in Appendix A: **Figure 6-2-1**, with quadrats taken during the survey shown in Appendix B.

The survey recorded vegetation communities that are considered to be of potential conservation interest or potential GWDTEs. Where these communities were floristically distinct, they were assigned into corresponding sub-communities. NVC communities of particular interest recorded during the survey were:

- Mires, flushes and swamp: M17, M18, M23, M25, S8 and S9;
- Grasslands and tall herb communities: U4 and U5;
- Heath: M15; and
- Woodland: W9 and W15.

These are described in further detail below. In addition, the survey recorded MG7 *Lolium perenne* leys and related grasslands, U20 *Pteridium aquilinum*-*Galium saxatile* community and W23 *Ulex europaeus*-*Rubus fruticosus* scrub also occurred on the Proposed Development Site. MG7 is an improved and poor semi-improved pasture type, U20 is continuous bracken and W23 is gorse scrub. These have limited conservation value and are never ground water dependent. These communities are therefore not considered further in this report.

The Proposed Development is split between upland in the west, where the wind farm is intended, and lowland agricultural fields in the east, intended for the solar farm and battery storage.

#### 3.1 NVC communities

##### *M15 Trichophorum germanicum-Erica tetralix wet heath*

M15b *Scirpus cespitosus-Erica tetralix* wet heath, typical sub-community was found in the far south-west in the vicinity of the proposed turbine 4 and associated infrastructure. An area was also found in the far west, abutting the plantation where the ground drops from the drier M25 grassland in the vicinity of a burn.

As is typical with M15, overall, there was much variation within a wet-dry gradient. This was present in both M15b (the typical sub-community) and where more pronounced, could be split out into other sub-communities defined by the degree of wetness (as typified by grasses at one end of the spectrum, and *Sphagnum* moss the other). Cross-leaved heath *Erica tetralix* was a constant across all M15 types recorded.

Much smaller amounts of the grassier, M15d *Scirpus cespitosus-Erica tetralix* wet heath, *Vaccinium myrtillus* sub-community, were found on higher areas as this is a drier sub-community. The grasses mat grass *Nardus stricta*, sheep's fescue *Festuca ovina* and also heather *Calluna vulgaris* were more common, as was the ubiquitous springy turf moss, *Rhytidiadelphus squarrosus*.

The M15a *Scirpus cespitosus-Erica tetralix* wet heath, *Carex panicea* sub-community was highly localised, south-east of the proposed turbine 1. Differentiating species to M15a included *Sphagnum palustre*, bog asphodel *Narthecium ossifragum* and star sedge *Carex echinata*.

M15 is considered Annex I M15 - H4010 N Atlantic wet heaths with *Erica tetralix* or when on deep peat ( $\geq 50$  cm) H7130 Blanket bogs. M15 is also a Scottish Biodiversity List habitat.

#### M17 *Trichophorum germanicum*-*Eriophorum vaginatum* blanket mire

M17 blanket mire is found in one discrete location in the north of the Proposed Development Site (centred on grid reference NX 63586 62683). The area was dominated by *Sphagnum capillifolium*, purple moor-grass *Molinia caerulea* and common cottongrass *Eriophorum angustifolium* and *Sphagnum papillosum*. *Narthecium ossifragum* was present, as was the notable species round-leaved sundew *Drosera rotundifolia*; the presence of the latter species indicates an affinity with M18 raised mire and it is noted the area sits within a depression as the land descends to the edge of the plantation.

M17 blanket bog is an Annex I and Scottish Biodiversity List habitat.

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

The M18a sub-community is found at a single location at the north-east edge of the survey area towards the solar area (NX 66465 62224). M18 is a community found on waterlogged, ombrogenous peats where the mire surface is rainwater fed rather than being influenced by groundwater. Located within a small depression with a domed profile, the discreet location was dominated by *Calluna vulgaris*, *Erica tetralix* and hare's tail cotton-grass *Eriophorum vaginatum*. Cranberry *Vaccinium oxycoccus* was present and is regarded as a strong indicator of raised bog as is, although to a lesser extent, *Drosera rotundifolia* and *Sphagnum papillosum*. Other species included *Narthecium ossifragum*, *Sphagnum capillifolium* and bog-bead moss *Aulacomnium palustre*.

M18 bog is an Annex I habitat.

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

The majority of M23 was found on the northern track leading into the Proposed Development Site, and to a lesser extent, in the far south of the solar farm area. Much of it aligned with the common, less species-rich M23b *Juncus effusus*/*acutiflorus*-*Galium palustre* rush-pasture, *Juncus effusus* sub-community. However, in some instances it was not possible to assign to a sub-community as quadrats returned a poor goodness of fit.

The prevalence of smooth rush *Juncus effusus* and grasses including tufted hair-grass *Deschampsia cespitosa*, false oat-grass *Arrhenatherum elatius* and species associated with disturbance (or tolerance thereof), including common nettle *Urtica dioica* and foxglove *Digitalis purpurea*, further indicate the less sensitive M23b sub-community. The topographical position further tends toward the less flush-influenced M23b sub-community (and less likely to be GWDTE) as stands were typically in recently constructed ditches adjacent to the northern track, or depressions in agricultural fields.

Whilst M23 may form part of the SBL Upland flushes, fens and swamps, the type encountered was that which is commonly found within agricultural settings and did not align with the species-rich M23a community, which is more likely to have a groundwater influence.

### M25 *Molinia caerulea* – *Potentilla erecta* mire

M25 is a vegetation type found on well aerated, moist peat and peaty soils and which is generally overwhelmingly dominated by *Molinia caerulea*. This habitat is dominant in the proposed wind farm portion of the Proposed Development.

The M25a *Molinia caerulea*-*Potentilla erecta* mire, *Erica tetralix* sub-community dominates, and to a much lesser degree M25 stands that could not be assigned clearly to a sub-community due to a poor goodness of fit with the quadrat data. M25a is typically the wetter form typified by species such as *Sphagnum capillifolium*, *Sphagnum palustre*, bog myrtle *Myrica gale* and *Erica tetralix*, albeit in reduced proportions to the *Molinia caerulea* which was dominant.

Quadrats surveyed comprised *Molinia caerulea* as the main constant, with other dwarf shrubs including heather *Calluna vulgaris* and bilberry *Vaccinium myrtillus*, although as a much smaller proportion of the habitat overall. The presence of a large *Molinia*-stool indicated that this habitat was well established in what was difficult terrain to cross. *Myrica gale* was present in lower-lying areas.

Species diversity was low with forbs dominated by tormentil *Potentilla erecta* and smaller proportions of creeping buttercup *Ranunculus repens*, Devil's-bit scabious *Succisa pratensis* (c. <5% per quadrat), meadow buttercup *Ranunculus acris* (c. <2%) and marsh violet *Viola palustris* (c. <1%).

Across all M25 types the potential value of the habitats will align more closely with peat depth, rather than floristic community composition. When on deep peat (≥ 50 cm) M25 is considered to be the Annex I habitat H7130 Blanket bog and Scottish Biodiversity List habitat.

### S8 *Scirpus lacustris* ssp. *lacustris* swamp

At the edge of Loch Mannoch, the edge of the survey area covers a S8 *Scirpus lacustris* ssp. *lacustris* swamp, which was the only species recorded throughout the habitat. This abuts the S9 *Carex rostrata* swamp. S8 is further into Loch Mannoch than S9 as the former represents the deep-water limit of swamp vegetation in Britain (Rodwell, 1995).

S8 is a Scottish Biodiversity List habitat.

### S9 *Carex rostrata* swamp

Landward of the S8 *Scirpus lacustris* ssp. *lacustris* swamp at the edge of Loch Mannoch the S9 *Carex rostrata* swamp was dominated by bottle sedge *Carex rostrata* at 75%, with Broad-leaved Pondweed *Potamogeton natans* at less than 5%. The remaining area within the quadrat was open water. *Iris pseudocorus* was present at the edge of the area, suggesting a transition to M28 *Iris pseudocorus*-*Filipendula ulmaria* mire but which was too small to map.

S9 is a Scottish Biodiversity List habitat.

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

U4 is a pasture type found on base-poor but well-drained mineral soils in the upland fringes of north and west Britain. Across the survey area, this community was found on high ground where rocky outcrops occurred. Much of this area is found where bracken *Pteridium aquilinum* (U20) is found. The majority of this type was the U4a typical sub-



community which is species poor and has no distinguishing features of its own (JNCC, 2004).

The U4a sub-community was characterised by a co-dominance of *Festuca ovina*, *Agrostis capillaris* and *Anthoxanthum odoratum* with mosses including *Hylocomium splendens*, *Rhytidiadelphus squarrosus* and *Hypnum jutlandicum*.

The U4b sub-community occurred in closer proximity to agricultural pasture (MG7 type) as evidenced by species indicating improvement such as rank grasses including Yorkshire fog *Holcus lanatus*, false oat-grass *Arrhenatherum elatius* and cock's-foot *Dactylis glomerata* but also forbs such as yarrow *Achillea millefolium* and ribwort plantain *Plantago lanceolata*.

The surveyed U4 grasslands have low conservation interest.

### U5 *Nardus stricta*–*Galium saxatile* grassland

An area of U5d *Nardus stricta*–*Galium saxatile* grassland, *Calluna vulgaris*–*Danthonia decumbens* sub-community is present in the south-central portion of the Proposed Development Site between the intended wind and solar areas. The classification at U5d is based on the consistent presence of *Nardus stricta* in tandem with the dominant grasses, *Festuca ovina*, *Agrostis capillaris* and *Anthoxanthum odoratum*. The presence of *Nardus stricta* was considered the differentiating factor between U5d and the U4a.

This grassland is considered to have low conservation interest.

### W9 *Fraxinus excelsior*–*Sorbus aucuparia*–*Mercurialis perennis* woodland

This is an area of W9b *Fraxinus excelsior*–*Sorbus aucuparia*–*Mercurialis perennis* woodland, *Crepis paludosa* sub-community, the upland counterpart of the W9a sub-community. This dry, base-tending woodland was found within the Designated Solar Area adjacent the A762. The woodland was dominated by the canopy species hazel *Corylus avellana* and downy birch *Betula pubescens*, understorey by a 70% cover of broad-buckler fern *Dryopteris dilatata*, and a ground layer of 70% common tamarisk moss *Thuidium tamariscidium*. Other ferns included scaly male-fern *Dryopteris affinis* and *Pteridium aquilinum*.

Whilst W9b can be of conservation interest, based on uncommon plants and presence of lichens (JNCC, 2004), this example is not considered to meet that threshold based on the low species diversity and lack of lichens. This example is therefore not considered to comprise the H9180 Mixed woodland on base-rich soils associated with rocky slope habitat.

### W15 *Fagus sylvatica*–*Deschampsia flexuosa* woodland

Whilst typically a community of southern Britain this assignment was considered appropriate based on the 90% dominance of planted beech *Fagus sylvatica* and understorey of bilberry *Vaccinium myrtillus*. Ground flora was sparse, apart from the *Vaccinium*, with moss species dominated by *Thuidium tamariscidium* and *Dicranum majus*. The single stand was found at the northern most end of the northern access track, on the far side of the B road which borders the north of the Proposed Development Site.

This woodland is considered to have minimal intrinsic botanical interest.

### 3.2 Vegetation community summary

A number of the recorded communities are considered to have conservation value at a European level (Annex I) (European Commission, 2013) or at a national level (Scottish Biodiversity List). A summary of habitats and their designations are found in Table 6-2-1.

**Table 6-2-1: Annex I, Scottish Biodiversity List Habitats and Priority Peatlands**

NVC Code	Annex I	SBL Habitats	Priority Peatlands
M15	H7130 (Only applicable on peat >50 cm deep)	Blanket bog	On 50 cm or more
M15	H4010 (Wet heathland with cross-leaved heath)	Upland heathland	No
M17	H7130 Blanket bogs	Blanket bog	Yes
M18	H7110 Active raised bogs	N/A	Yes
M25	H7130 (Only applicable on peat >50 cm deep)	Blanket bog	On 50 cm or more
S8	N/A	Upland flushes, fens and swamps/ Purple moor-grass and & rush pastures	No
S9	N/A	Upland flushes, fens and swamps/ Purple moor-grass and & rush pastures	No

With regards to M15 and M25 peatland habitats as part of the Annex I H7130 designation, these communities are only classed as Annex I quality if they adhere to certain criteria. For the H7130 Annex I classification the peat layer should be greater than 50 cm in depth and be capable of regeneration within a period of 30 years (European Commission, 2013).

For the community to regenerate within a period of 30 years, there needs to be a *Sphagnum* assemblage capable of generating a peat layer. The main peat building *Sphagnum* species that form the bulk of the peat layer are *S. medium*, *S. papillosum* and to a lesser extent, *S. capillifolium*. Whilst these species are absent from the M15 and M25, given that *S. papillosum* and *S. capillifolium* is found elsewhere, if correct hydrology/grazing levels were in place there is the potential for it to become Annex I. However, this process is unlikely to happen without peatland restoration intended under the Proposed Development, which would address these very issues.

Of the recorded communities within the survey area in the current baseline, M17 and M18 exhibited this suite of species. As such, in terms of Blanket Bog only M17 and M18 communities are considered to be classed as Annex I habitats.

M15 is considered an Annex I habitat under the H4010 (Wet heathland with cross-leaved heath) designation.

The W9b *Fraxinus excelsior-Sorbus aucuparia-Mercurialis perennis* woodland, *Crepis paludosa* sub-community woodland is not considered to comprise the H9180 Mixed woodland on base-rich soils associated with rocky slope habitat.

### 3.2.1 Potential GWDTE

Groundwater dependency is often linked to wetlands that contain flora that is dependent upon the chemical composition of the water fed from a groundwater source. SEPA defines the habitats with regard to their potential for groundwater dependency as identified above. The potential groundwater dependency of habitats identified in Table 6-2-2 is discussed in **Chapter 8: Hydrology, Geology and Hydrogeology** in **Volume 2** of this EIA Report.

**Table 6-2-2: Ecological Importance criteria from SEPA (2024) for Potential GWDTEs**

Community Code	Community Name	SBL, UK BAP, Annex I	Designated Nature Conservation Site Feature	Habitat Connectivity	Ecosystem Services Provided	Relative Extent in Scotland	Significant Decline / Unfavourable Condition	Importance for Supporting Species
M15	Trichophorum germanicum – Erica tetralix wet heath	SBL / Annex I	-	Limited as surrounded by poor quality M25 Molinia grassland, commercial forestry and lowland habitats to the east	Carbon storage, water attenuation	Widespread	Yes (as per SBL)	Yes (as per SBL)
M23	Juncus effusus/acutiflorus - Galium palustre rush-pasture	-	-	Limited. Small areas in lowland agricultural areas,	Water attenuation, Nutrient capture	Widespread	-	-

## 4 Summary

The NVC surveys were targeted to record communities of potential conservation value and/or potential groundwater dependency. An ecological assessment was carried out for potential GWDTE NVC categories on the Proposed Development Site.

Two potentially groundwater dependant NVC communities are found (M15 and M23) although where M15 occurs on peat 50 cm or more it may class as blanket bog, which by definition is not groundwater dependant. Nevertheless, whilst the classification hierarchy described above separates GWDTE and bog, in practice this is not always distinct. However, **Chapter 8: Hydrology, Hydrogeology and Geology** in **Volume 2** of this EIA Report determines that none of these habitats are dependent on groundwater. On this basis, none of the habitats identified in Table 6-2-2 are taken forward for assessment as GWDTE in **Chapter 8: Hydrology, Hydrogeology and Geology** in **Volume 2** of this EIA Report.

Three Annex I communities are considered to be present:

- M15 - H4010 North Atlantic wet heaths with *Erica tetralix*;
- M17 - H7130 Blanket bogs; and
- M18 - H7110 Active raised bogs.

Up to four Scottish Biodiversity List priority habitats are present:

- Blanket Bog;
- Upland heathland;
- Upland flushes, fens and swamps; and
- Purple moor-grass and & rush pastures.

S8 *Scirpus lacustris* ssp. *lacustris* and S9 *Carex rostrata* swamp communities, whilst potentially hydrologically sensitive, are scoped out as they are located beyond the Zone of Influence of impacts from the Proposed Development. Further detail is provided in **Chapter 6: Ecology** in **Volume 2** of this EIA Report.

## 5 References

- European Commission (2013) *Interpretation Manual of European Union Habitats*. Natura 2000. EU.
- Hill, M.O., Blackstock, T.H., Long, D.G. & Rothero, G.P. (2008) *A checklist and census catalogue of British and Irish bryophytes updated 2008*. Middlewich: British Bryological Society.
- JNCC (2004), *An Illustrated Guide to British Upland Vegetation*. Peterborough: Joint Nature Conservation Committee.
- JNCC (2010), *Handbook for Phase 1 habitat survey - a technique for environmental audit*. Peterborough: Joint Nature Conservation Committee.
- Rodwell, J.S., (1995). *British Plant Communities. Volume 4: Aquatic communities, swamps and tall herb-ferns*. Cambridge: Cambridge University Press.
- Rodwell, J. S. (1991a). *British Plant Communities - Volume 2: Mires and Heaths*. Cambridge: Cambridge University Press.
- Rodwell, J. (1991b). *British Plant Communities - Volume 1: Woodlands and Scrub*. Cambridge: Cambridge University Press.
- Rodwell, J. (1992). *British Plant Communities - Volume 3: Grasslands and Montane Communities*. Cambridge: Cambridge University Press
- NatureScot (2023). *Advising on peatland, carbon-rich soils and priority peatland habitats in development management*.
- SEPA (2012) *Planning guidance on windfarm developments. Land Use Planning System, Guidance Note 4*. UK
- SEPA, 2024. *Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems*. Scottish Environment Protection Agency.
- Stace, C. (2020) *New Flora of the British Isles 4<sup>th</sup> edition*. Cambridge: Cambridge University Press.

## Appendices

### Appendix A. Figures

**See Next Page**



# Lairdmannoch Energy Park

wind2

Figure 6-2-1  
NVC Overview

## Key

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

## NVC Community

MG7	S8
M15a	S9a
M15b	U4
M15d	U4b
M17a	U5d
M18a	U20
M23	U20c
M23b	W9b
M25	W23
M25a	Non-NVC

atmos  
CONSULTING

0 200 400 800  
Metres



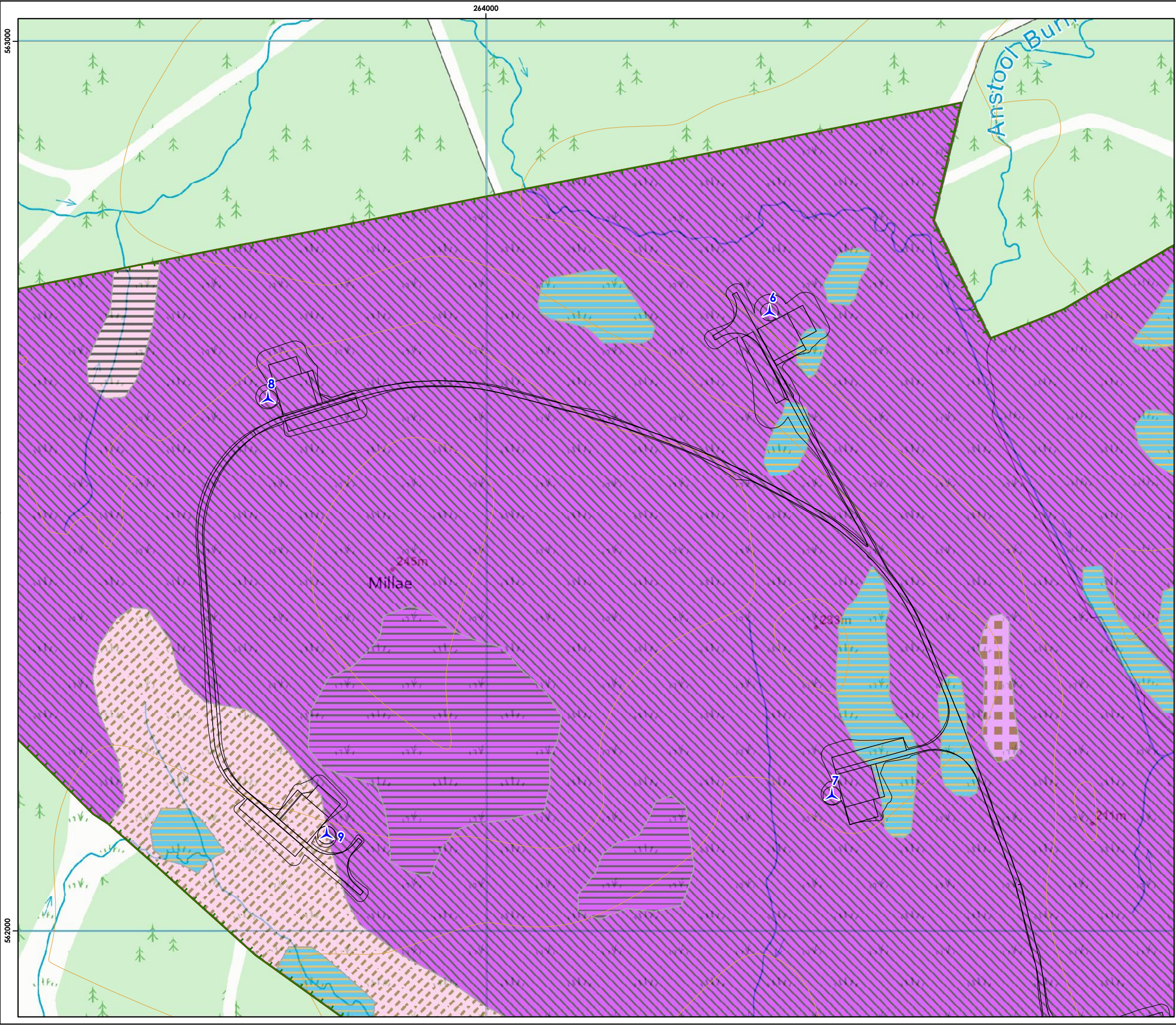
Scale @ A3:  
1:16,000



© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.

19/03/2025 TL010 40418/HB/047d  
Drawn by: LB Checked by: TH Approved by: SM





Lairdmannoch  
Energy Park

wind2

Figure 6-2-1  
NVC Map 1

**Key**

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

**NVC Community**

M15b	M17a	M25	M25a	U5d	U20
------	------	-----	------	-----	-----

atmos  
CONSULTING

0 50 100 200  
Metres

N

Scale @ A3:  
1:4,000

CLAS  
UKAS  
ACCREDITED  
2012

© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.

19/03/2025 TL010 40418/HB/047d  
Drawn by: LB Checked by: TH Approved by: SM



# Lairdmannoch Energy Park

## wind2

Figure 6-2-1  
NVC Map 2

### Key

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

### NVC Community

- |      |         |
|------|---------|
| M15a | U20     |
| M25a | Non-NVC |
| U5d  |         |

atmos  
CONSULTING

0 50 100 200  
Metres

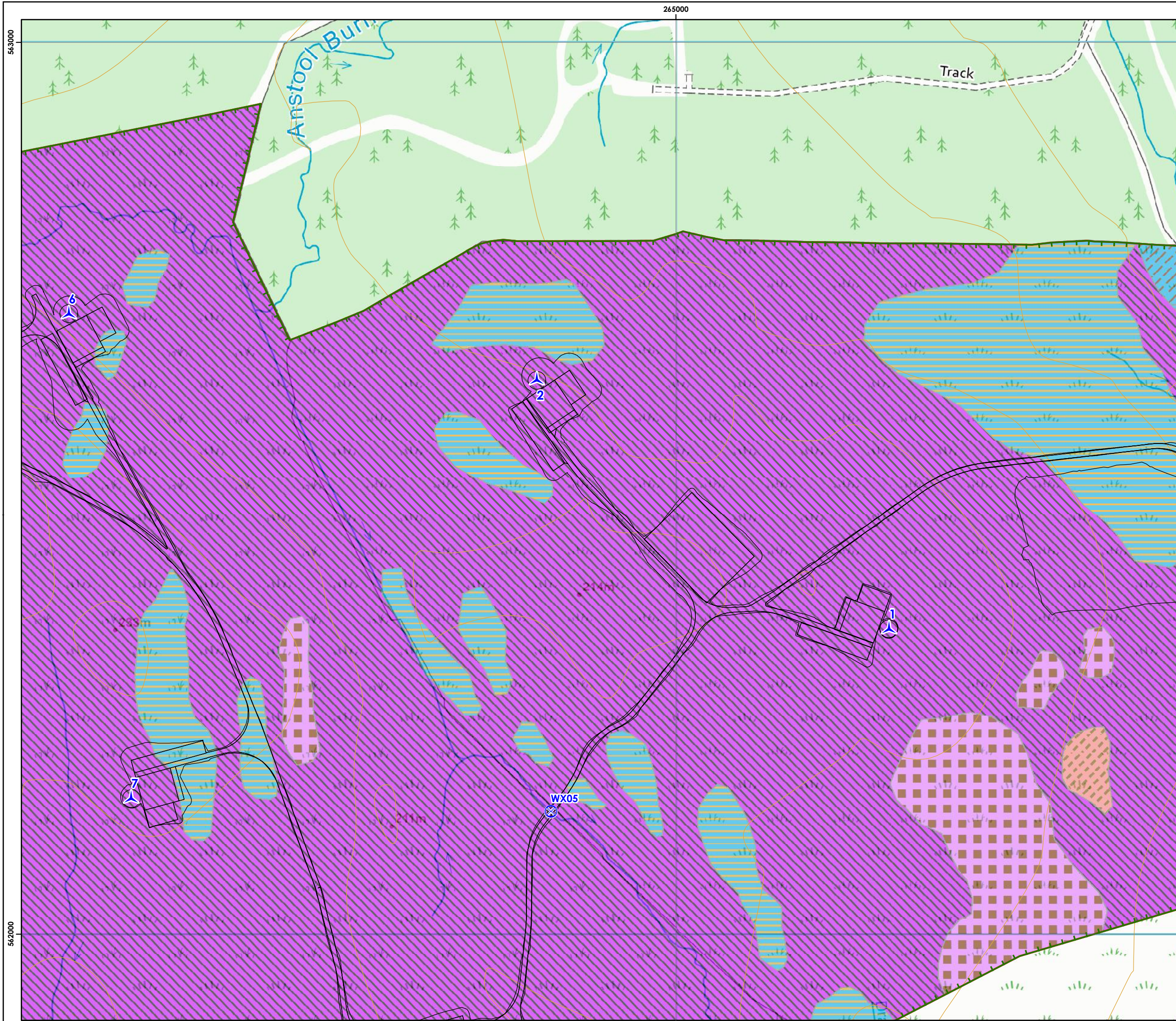


Scale @ A3:  
1:4,000

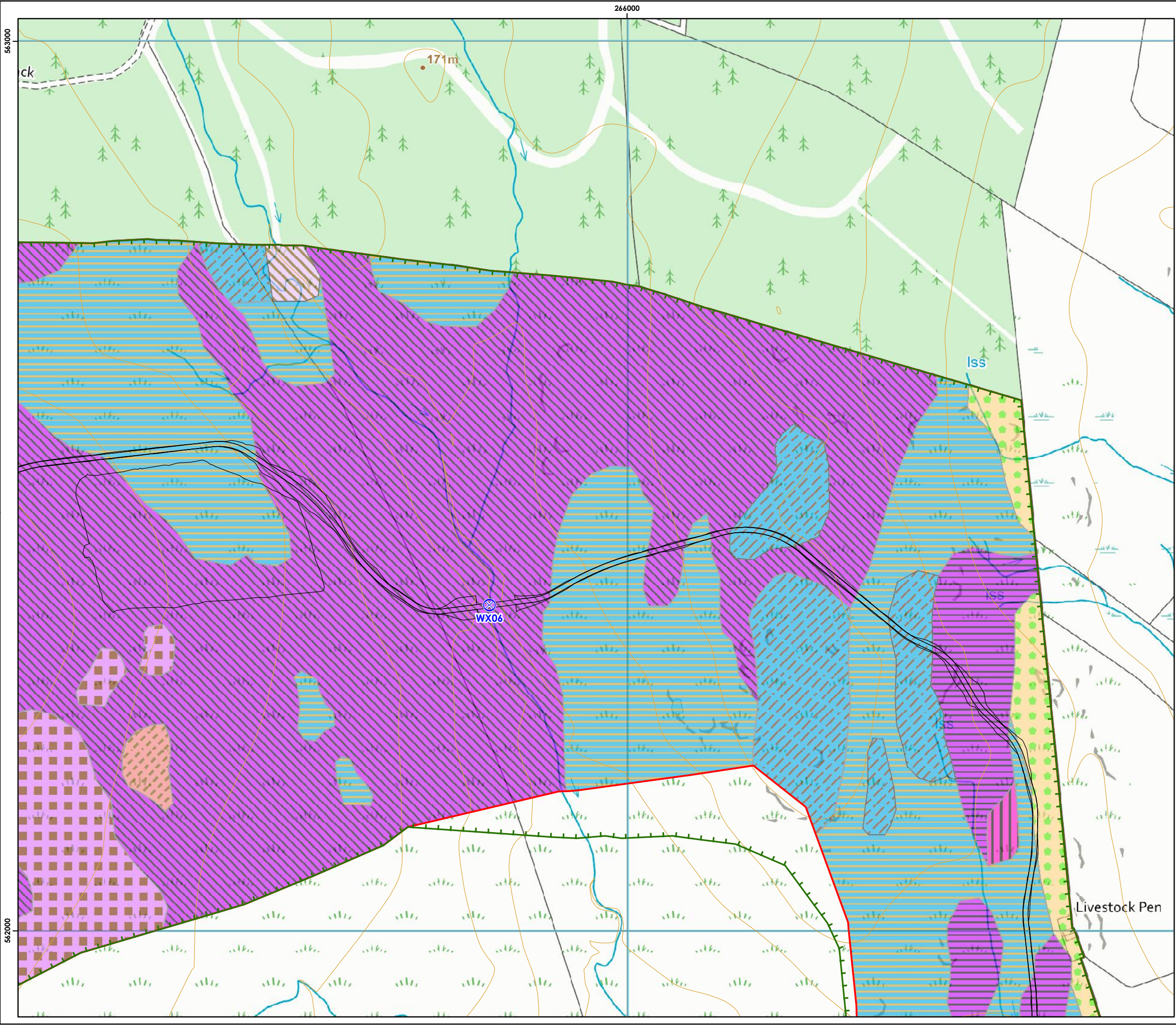


© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.

19/03/2025	TL010	40418/HB/047d
Drawn by: LB	Checked by: TH	Approved by: SM







# Lairdmannoch Energy Park

wind2

Figure 6-2-1  
NVC Map 3

**Key**

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

**NVC Community**

M15a	M18a	M23	M23b	M25	M25a	U4	U5d	U20	W23	Non-NVC
------	------	-----	------	-----	------	----	-----	-----	-----	---------

atmos  
CONSULTING

0 50 100 200  
Metres

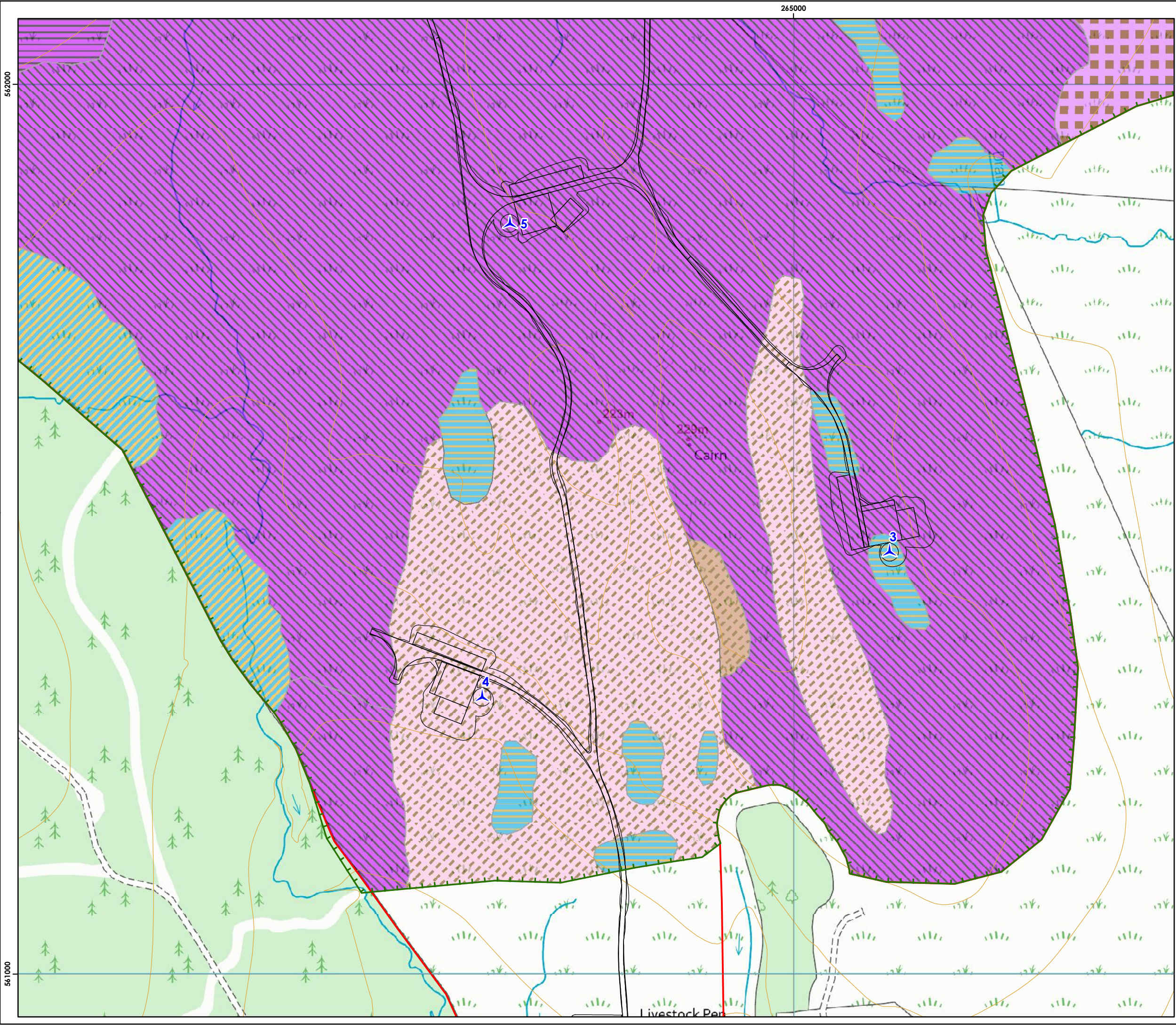
N

Scale @ A3:  
1:4,000

UKAS

© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.





# Lairdmannoch Energy Park



Figure 6-2-1  
NVC Map 4

**Key**

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

**NVC Community**

M15b	M15d	U5d
M25a	U20	U20c



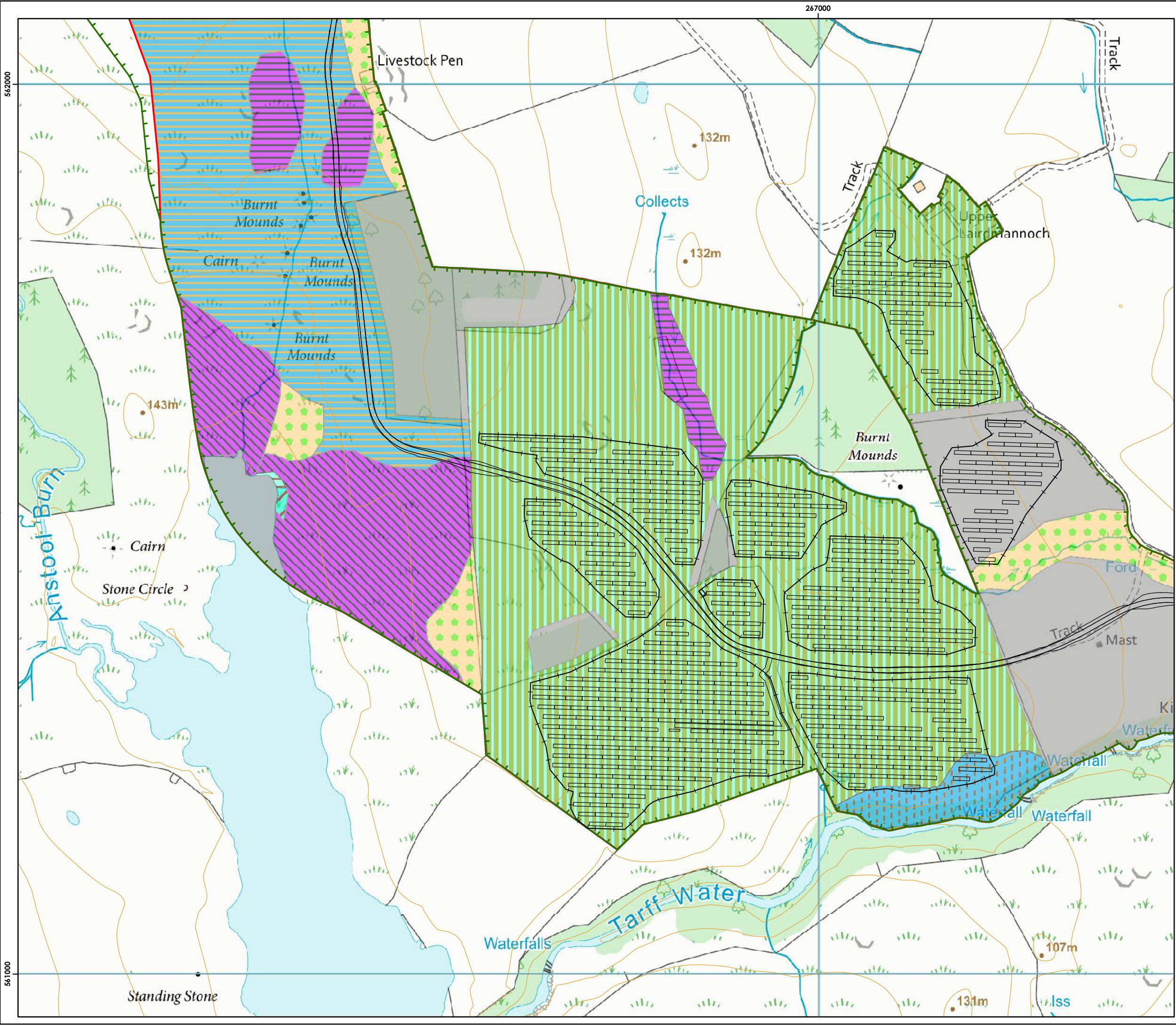
0 50 100 200  
Metres

N

Scale @ A3:  
1:4,000

© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.





Lairdmannoch  
Energy Park

wind2

Figure 6-2-1  
NVC Map 5

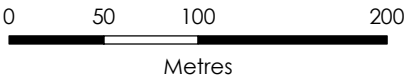
**Key**

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

**NVC Community**

MG7	U4b
M25	U20
M25a	W23
S8	Non-NVC
S9a	

atmos  
CONSULTING



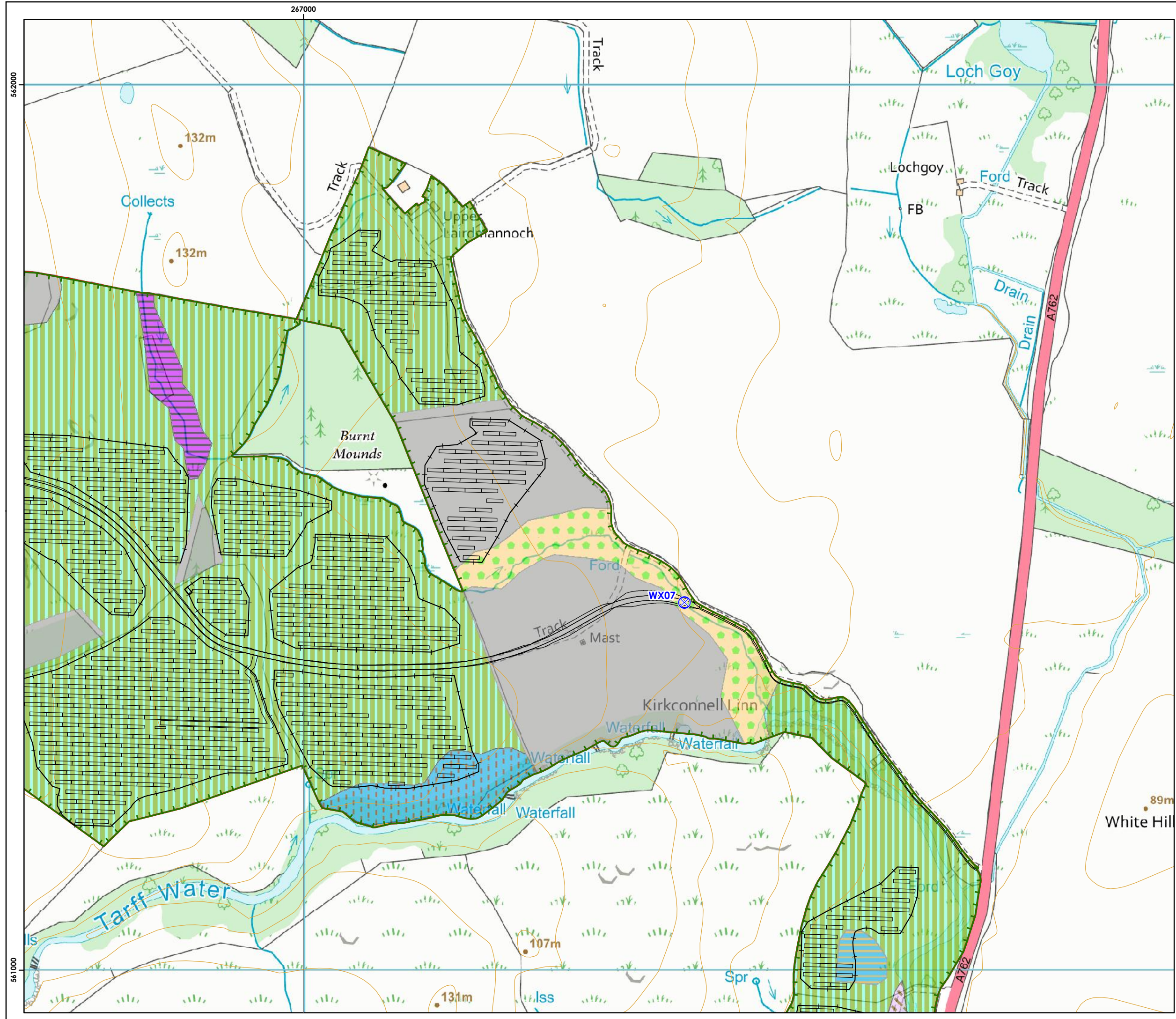
Scale @ A3:  
1:4,000



© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.

19/03/2025 TL010 40418/HB/047d  
Drawn by: LB Checked by: TH Approved by: SM





# Lairdmannoch Energy Park

wind2

Figure 6-2-1  
NVC Map 6

**Key**

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

**NVC Community**

MG7	U20
M25	W23
U4b	Non-NVC

**atmos**  
CONSULTING

0 50 100 200  
Metres

N

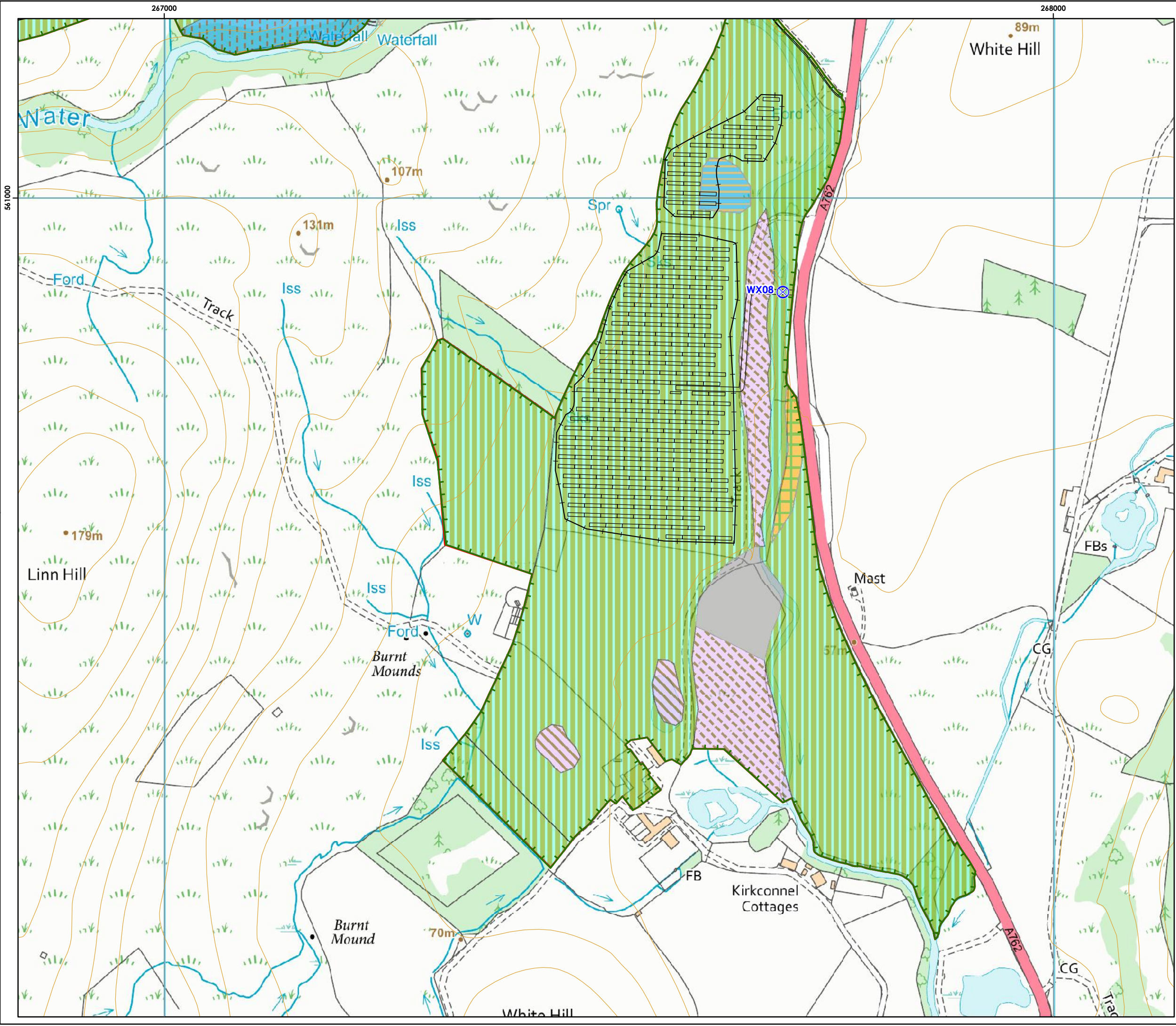
Scale @ A3:  
1:4,000

CLAS  
UKAS  
ACCREDITED  
2012

© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.

19/03/2025 TL010 40418/HB/047d  
Drawn by: LB Checked by: TH Approved by: SM





# Lairdmannoch Energy Park

wind2

Figure 6-2-1  
NVC Map 7

**Key**

- Site boundary
- Turbine Location
- Survey Area
- Proposed infrastructure, including earthworks
- Watercourse crossing

**NVC Community**

MG7	U20
M23	W9b
M23b	Non-NVC

atmos  
CONSULTING

0 50 100 200  
Metres

N

Scale @ A3:  
1:4,000

© Crown copyright 2025. All rights reserved.  
Ordnance survey licence number AC0000808122.

19/03/2025 TL010 40418/HB/047d  
Drawn by: LB Checked by: TH Approved by: SM

## Appendix B. Quadrat data

Tables for sampled vegetation in each community are shown over the following pages. The Domin value is based on the percentage cover of each species within the 2 x 2m quadrat as in the following table.

% cover	DOMIN value
91 - 100	10
76 - 90	9
51 - 75	8
34 - 50	7
26 - 33	6
11 - 25	5
4 - 10	4
< 4 many	3
< 4 several	2
< 4 few	1

	M15a	M15b	M15b	M15d	M15d
Quadrat No.	14	2	5	1	12
Easting	265459	264753	265058	264937	264426
Northing	562336	561112	561636	561250	561869
Species	Domin	Domin	Domin	Domin	Domin
<i>Narthecium ossifragum</i>	4	9	7		1
<i>Calluna vulgaris</i>	5		7	6	7
<i>Molinia caerulea</i>	5		5	7	6
<i>Sphagnum capillifolium</i>	5		3		3
<i>Pleurozium schreberi</i>		3		5	1
<i>Hypnum jutlandicum</i>			3		5
<i>Carex echinata</i>	5				
<i>Myrica gale</i>		5			
<i>Erica tetralix</i>	4		4		
<i>Festuca ovina</i>		3		4	
<i>Rhytidiadelphus squarrosus</i>		3		4	
<i>Trichophorum germanicum</i>		3		4	
<i>Vaccinium myrtillus</i>				4	
<i>Nardus stricta</i>				4	
<i>Gallium saxatile</i>				4	
<i>Kindbergia praelonga</i>				4	
<i>Erica cinerea</i>		4			
<i>Eriophorum vaginatum</i>			3		3

	M15a	M15b	M15b	M15d	M15d
<i>Potentilla erecta</i>		3		2	
<i>Pseudoscleropodium purum</i>		1		3	
<i>Polytrichum stricta</i>	1		3		
<i>Carex flacca</i>		3			
<i>Erica tetralix</i>		3			
<i>Succisa pratensis</i>	3				
<i>Sphagnum palustre</i>	3				
<i>Agrostis vinealis</i>				3	
<i>Sphagnum fallax</i>			3		
<i>Narthecium ossifragum</i>		2			
<i>Chiloscyphus polyanthos</i>	1				1
<i>Carex binervis</i>	1				
<i>Pinguicula vulgaris</i>	1				
<i>Drosera rotundifolia</i>	1				
<i>Juncus acutiflorus</i>	1				
<i>Sorbus aucuparia</i>				1	
<i>Cerastium fontanum</i>				1	



	M17a	M18a	M19a
Quadrat No.	9	20	11
Easting	263604	266465	263419
Northing	562717	562224	562519
Species	Domin	Domin	Domin
<i>Calluna vulgaris</i>		7	7
<i>Molinia caerulea</i>	5		5
<i>Erica tetralix</i>		5	4
<i>Sphagnum capillifolium</i>	5	3	3
<i>Eriophorum vaginatum</i>		4	4
<i>Sphagnum papillosum</i>	3	4	
<i>Narthecium ossifragum</i>	1	4	2
<i>Eriophorum angustifolium</i>	4		
<i>Sphagnum spp.</i>	4		
<i>Hypnum jutlandicum</i>		1	3
<i>Menyanthes trifoliata</i>	3		
<i>Carex flacca</i>	3		
<i>Aulacomnium palustre</i>		1	2
<i>Vaccinium oxycoccus</i>		1	
<i>Drosera rotundifolia</i>	1	1	
<i>Dicranum scoparium</i>			1
<i>Juncus squarrosus</i>		1	
<i>Juncus acutiflorus</i>	1		

	M23	M23b	M25	M25
Quadrat No.	15	27	19	10
Easting	265564	267613	266393	263368
Northing	562835	560399	562534	562621
Species	Domin	Domin	Domin	Domin
<i>Juncus effusus</i>	9	8		
<i>Molinia caerulea</i>			8	5
<i>Poa trivialis</i>		7		
<i>Juncus acutiflorus</i>	4		5	5
<i>Kindbergia praelonga</i>	3		4	5
<i>Persicaria maculosa</i>		5		
<i>Cirsium palustre</i>	3		4	4
<i>Ranunculus repens</i>	3	2	4	1
<i>Caltha palustris</i>			3	2
<i>Gallium saxatile</i>	3	1		
<i>Festuca rubra</i>		3		
<i>Urtica dioica</i>	3			
<i>Digitalis purpurea</i>	3			
<i>Arrhenantherum elatius</i>	3			
<i>Deschampsia cespitosa</i>	3			
<i>Oxalis acetosella</i>	3			
<i>Holcus lanatus</i>			3	
<i>Agrostis canina</i>			3	
<i>Hypnum cupressiforme</i>			3	
<i>Rumex acetosa</i>	2		2	
<i>Ranunculus acris</i>			2	
<i>Sphagnum fallax</i>			2	
<i>Sphagnum palustre</i>			2	
<i>Pseudoscleropodium purum</i>			2	
<i>Rhytidiadelphus squarrosus</i>			2	
<i>Succisa pratensis</i>				4
<i>Menyanthes trifoliata</i>				4
<i>Epilobium palustre</i>	1		1	
<i>Potentilla erecta</i>			1	1
<i>Dryopteris dilatata</i>			1	
<i>Liverwort spp.</i>			1	
<i>Cardamine pratensis</i>		1		
<i>Scutellaria galericulata</i>		1		
<i>Alchemilla ptarmica</i>	1			
<i>Viola palustris</i>				1
<i>Ranunculus flammula</i>				1
<i>Equisetum fluviatile</i>				1

	M25a	M25a
Quadrat No.	4	8
Easting	264585	264765
Northing	561263	561973
Species	Domin	Domin
<i>Molinea caerulea</i>	8	9
<i>Calluna vulgaris</i>	5	4
<i>Juncus acutiflorus</i>	3	
<i>Phragmites australis</i>		5
<i>Myrica gale</i>		4
<i>Filipendula ulmaria</i>		
<i>Potentilla erecta</i>	3	1
<i>Succisa pratensis</i>		2
<i>Sphagnum palustre</i>		3
<i>Sphagnum capillifolium</i>		3
<i>Juncus conglomeratus</i>		3
<i>Juncus articulatus</i>		3
<i>Ranunculus repens</i>		
<i>Cirsium palustre</i>		
<i>Vaccinium myrtillus</i>	3	
<i>Erica tetralix</i>	2	2
<i>Ranunculus acris</i>		
<i>Pseudoscleropodium purum</i>	1	
<i>Kindbergia praelonga</i>	1	
<i>Lophocolea bidentata</i>	1	
<i>Lysimachia nemorum</i>		
<i>Viola palustris</i>		

	MG1a	MG9a
Quadrat No.	28	16
Easting	267673	
Northing	560692	
Species	Domin	Domin
<i>Arrhenantherum elatius</i>	9	
<i>Salix</i> spp.		9
<i>Deschampsia cespitosa</i>		6
<i>Betula pubescens</i>		4
<i>Poa nemoralis</i>		4
<i>Picea sitchensis</i>		4
<i>Agrostis stolonifera</i>	4	
<i>Centaurea nigra</i>	4	
<i>Festuca rubra</i>	4	
<i>Holcus mollis</i>	3	
<i>Rumex acetosa</i>	3	
<i>Poa trivialis</i>	3	
<i>Juncus effusus</i>		3
<i>Oreopteris limbosperma</i>		3
<i>Anthyrium filix-mas</i>		3
<i>Cirsium palustre</i>		3
<i>Holcus lanatus</i>		3
<i>Oxalis acetosella</i>		3
<i>Hypnum cupressiforme</i>		3
<i>Digitalis purpurea</i>		2
<i>Blechnum spicant</i>		2
<i>Caltha palustris</i>		2
<i>Rumex acetosella</i>		1
<i>Dryopteris dilatata</i>		1
<i>Umbellifer unknown sp.</i>		1
<i>Bromus</i> sp.		1
<i>Succisa pratensis</i>		1
<i>Chamerion angustifolium</i>		1
<i>Rumex obtusifolius</i>	1	

	S11c	S8	S9a
Quadrat No.	22	24	23
Easting	266393	266393	266393
Northing	561535	561535	561535
Species	Domin	Domin	Domin
<i>Schoenoplectus lacustris</i>		10	
<i>Carex rostrata</i>	4		8
<i>Sphagnum squarrosum</i>	5		
<i>Sphagnum inundatum</i>	5		
<i>Potentilla palustris</i>	4	3	
<i>Juncus acutiflorus</i>	3		
<i>Potamogeton natans</i>			3

	U4b	U5d	U5d
Quadrat No.	25	13	6
Easting	267170	265291	
Northing	561217	562084	
Species	Domin	Domin	Domin
<i>Agrostis capillaris</i>	7	5	7
<i>Nardus stricta</i>		5	5
<i>Anthoxanthum odoratum</i>		5	5
<i>Potentilla erecta</i>		5	3
<i>Festuca rubra</i>	5		
<i>Holcus lanatus</i>	4	4	
<i>Gallium saxatile</i>		4	3
<i>Rhytiadelphus squarrosus</i>		4	3
<i>Centaurea nigra</i>	4		
<i>Trifolium repens</i>	4		
<i>Plantago lanceolata</i>	4		
<i>Molinia caerulea</i>			4
<i>Kindbergia praelonga</i>			3
<i>Lotus corniculatus</i>	3		
<i>Achillea millefolium</i>	3		
<i>Arrhenantherum elatius</i>	3		
<i>Ranunculus repens</i>	3		
<i>Juncus squarrosus</i>		2	
<i>Veronica chamaedrys</i>	1		
<i>Scorzoneroide autumnalis</i>	1		
<i>Ranunculus acris</i>	1		
<i>Prunella vulgaris</i>	1		
<i>Hypochaeris radicata</i>	1		
<i>Rumex acetosella</i>	1		
<i>Campanula rotundifolia</i>	1		
<i>Dactylis glomerata</i>	1		
<i>Polygala serpyllifolia</i>		1	

	W9b	W8c
Quadrat No.	26	29
Easting	267717	
Northing	560999	
Species	Domin	Domin
<i>Salix caprea</i>		10
<i>Betula pubescens</i>	5	
<i>Fagus sylvatica</i>		1
<i>Thuidium tamariscidium</i>	8	7
<i>Dryopteris dilatata</i>	8	
<i>Corylus avellana</i>	7	
<i>Deschampsia cespitosa</i>		6
<i>Poa nemorosa</i>	3	
<i>Rubus fruticosus</i>	1	5
<i>Hypnum cupressiforme</i>	4	
<i>Oxalis acetosella</i>	4	
<i>Geranium robertianum</i>	1	4
<i>Fraxinus excelsior</i>		1
<i>Poa nemoralis</i>		4
<i>Sorbus aucuparia</i>	3	
<i>Pteridium aquilinum</i>	3	
<i>Dryopteris affinis</i>	3	
<i>Luzula sylvatica</i>	3	
<i>Rubus chamaemorus</i>	1	1
<i>Arrhenantherum elatius</i>	1	
<i>Achillea ptarmica</i>	1	
<i>Polypodium interjectum</i>	1	
<i>Geum urbanum</i>		1
<i>Filipendula ulmaria</i>		1