



ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION



November 2025

Appendix 12.15 National Vegetation Classification

Hventus Ardersier Port

Technical Appendix: National Vegetation Classification

JULY 2025 FOR HAVENTUS



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Document Revision History

<i>Issue</i>	<i>Issue date</i>	<i>Remarks</i>
1	31/07/25	MP

<i>Version</i>	<i>Date</i>	<i>Comments</i>	<i>Revised by</i>
1	31/07/25	N/A	MP

<i>Circulation</i>	<i>No. Copies</i>
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1.0 Background

This survey was commissioned by HED Ltd of Dingwall in early 2025, continuing from a survey carried out in summer 2024.

Four further areas were surveyed:

- **Site 3:** the un-named 'lagoon' in the west of the site almost adjacent to Fort George Ministry of defence land – this area includes a small sandy spit to the west;
- **Site 4:** the narrow spit of land that extends west-northwest from Delnies to Whiteness Head;
- **Site 5:** narrow strips of made ground on both sides of the straight road between the site entrance and the site offices;
- **Site 6:** the woodland enclave some 500m west of the site offices.

A follow-up survey was carried out on the gorse-infested dune slack surveyed in 2024 named **Site 2** in last year's report. *Pinus sylvestris* forestry (**Site 1** in last year's report) was not looked at again. Results from the previous NVC survey at Site 1 and Site 2 are provided in Section 3.1, see also HED Ltd (2024).

2.0 Methodology

2.1 NVC Methodology

The survey was carried out by walking through the sites while mapping vegetation (and vegetation communities) onto georeferenced aerial photography. The survey was carried out in early June 2025 in fine weather.

2.2 Limitations

Seasonal constraints on plant identification were assessed after the survey to have been small apart from late growth and flowering of some species on the spit.

Access to the sites was unconstrained apart from the wet core of the lagoon which was inaccessible due to depth of water.

3.0 Results

3.1 NVC Site Descriptions 2024

3.1.1. Site 1: Plantation Woodland (formerly Landholdings of the Company Trust)

The only plant of note is the nationally scarce *Goodyera repens*. It occurs throughout the *Pinus* plantation and would likely become yet more abundant if the trees were managed sympathetically.

W10d woodland with a coniferous canopy is of limited inherent interest, although with sympathetic management (irregular thinning and deliberate creation of standing and fallen deadwood), the woodland would become a more useful habitat for invertebrates, then mammals and birds.

Table 1: Results from 2024 NVC Survey at Site 1 Plantation Woodland (formerly Landholdings of the Company Trust)

NVC	NVC Label	Phase1	Ph1 Code	Notes
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d with much <i>Goodyera repens</i> & many mature SP.
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Very grassy & species-poor field layer, close to W10d; likely open to sheep or cattle more recently than elsewhere; occasional <i>Goodyera repens</i>
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Ditch with dense Ulex europaeus scrub
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent <i>Goodyera repens</i>

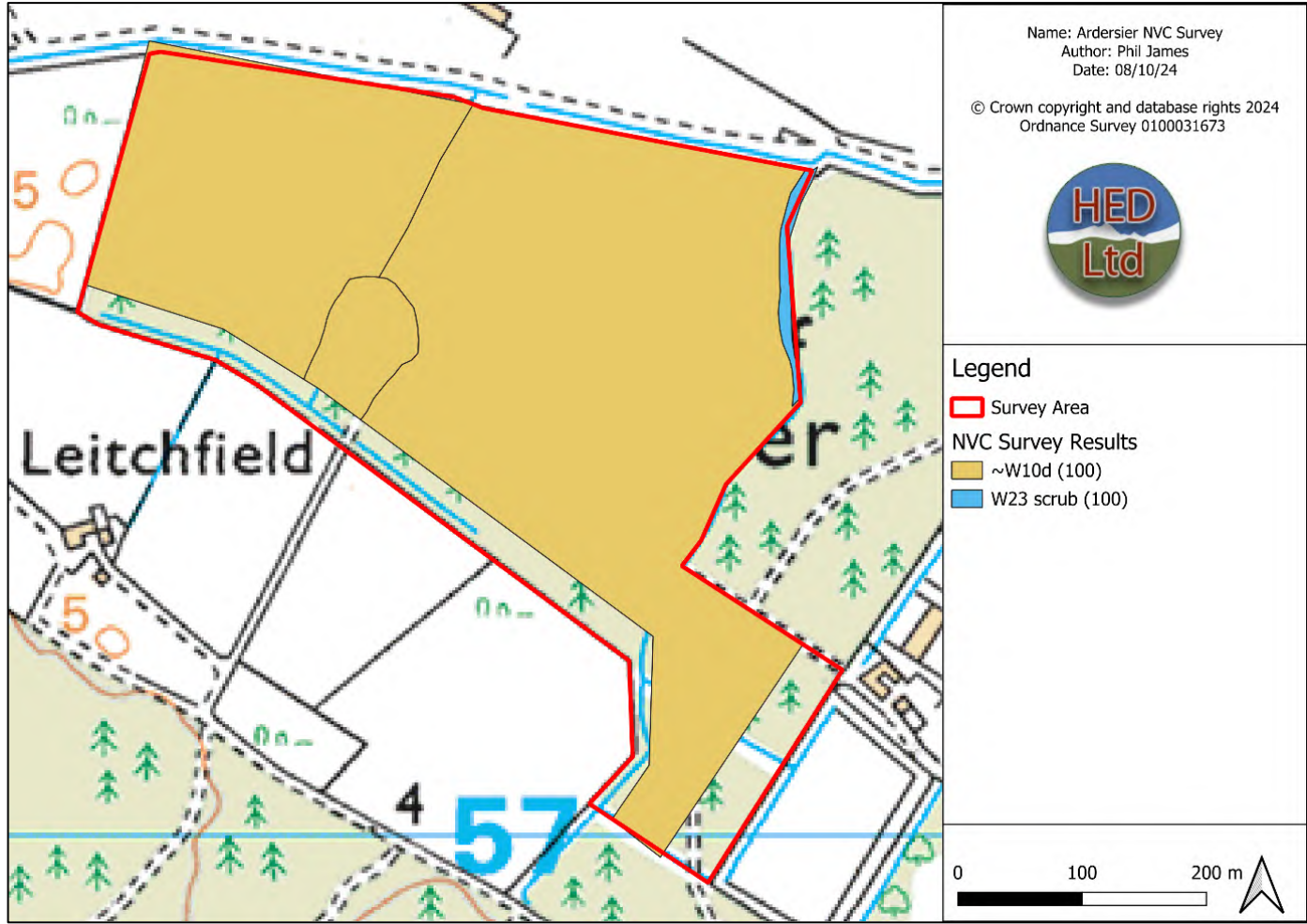


Figure 1: Results from NVC Survey 2024 at Site 1 Plantation Woodland (formerly Landholdings of the Companies Trust)

3.1.2. Site 1: Plantation Woodland (formerly The Dowager Countess Cawdor)

The survey area consists predominantly of a plantation of evenly spaced *P. sylvestris* that would appear to have been thinned once, with many mossy stumps showing.

The field layer is generally grassy without being rank, with variably abundant and diverse mosses, small herbaceous species, sparse dwarf-shrubs and occasional browsed tree regeneration. The most notable plant is the locally frequent pinewood specialist orchid, *Goodyera repens* – this occurs under nearly all parts of the *Pinus* canopy (see Appendix 4). Flowering spikes are relatively infrequent, suggesting that a further thinning of the *Pinus* canopy would optimize light conditions and allow it to spread by seed as well as by rhizome.

Despite the *Pinus* canopy, the floristic data do not give a good match to **W18** *Pinus sylvestris* – *Hylocomium splendens* woodland. All **W18** sub-communities have at least frequent ericaceous species, and here neither *Calluna* or *Vaccinium* spp. are more than occasional whereas grasses (notably *Agrostis capillaris*, *Holcus mollis* and *Anthoxanthum odoratum*) as well as several herbaceous species not normally found in **W18** were found to be common. Throughout the British lowlands, woods that have been converted to conifer plantations and newly planted conifer plantations that are thinned show a field layer much more akin to **W10d** *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* woodland, *Holcus lanatus* sub-community; this is what is found here.

Along unplanted strips (a power line wayleave and ditches), *Ulex* has come to dominate, at least until flailed to allow access. The field layer under *Ulex* is grassy and rather sparse and just about allows classification as **W23** *Ulex europaeus* – *Rubus fruticosus* scrub.

No Invasive Non-native Species (INNS) were observed within the survey area.

Table 2: Results from 2024 NVC Survey at Site 1 Plantation Woodland (formerly The Dowager Countess Cawdor)

NVC	NVC Label	Phase1	Ph1 Code	Notes
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens
n/a	n/a	n/a	n/a	Flailed scrub & young trees
n/a	n/a	Ephemeral vegetation	J1.3	Sparse cover of grasses and Potentilla anserina
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Dense Ulex europaeus
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Dense Ulex europaeus
n/a	n/a	Coniferous plantation	A1.2.2	Windblown Pinus contorta & much Betula spp. regen
n/a	n/a	Coniferous plantation	A1.2.2	Pinus contorta with sparse field layer
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent Goodyera repens; trees slightly larger, and Goodyera more abundant than elsewhere
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Ulex europaeus with birch regen, Calluna and mosses; not recently cleared
n/a	n/a	Semi-natural broadleaved woodland	A1.1.1	Betula spp., Salix aurita, SS & Pinus contorta at edge of wayleave
n/a	n/a	Coniferous plantation	A1.2.2	Unthinned SS poles with very sparse field layer
n/a	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2	Some windblown SP with Betula spp. poles and ER in gaps

~W10d (100)	SP-dominated W10d <i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland, <i>Holcus lanatus</i> sub-community	Coniferous plantation	A1.2.2	Field layer close to W10d, locally frequent <i>Goodyera repens</i>
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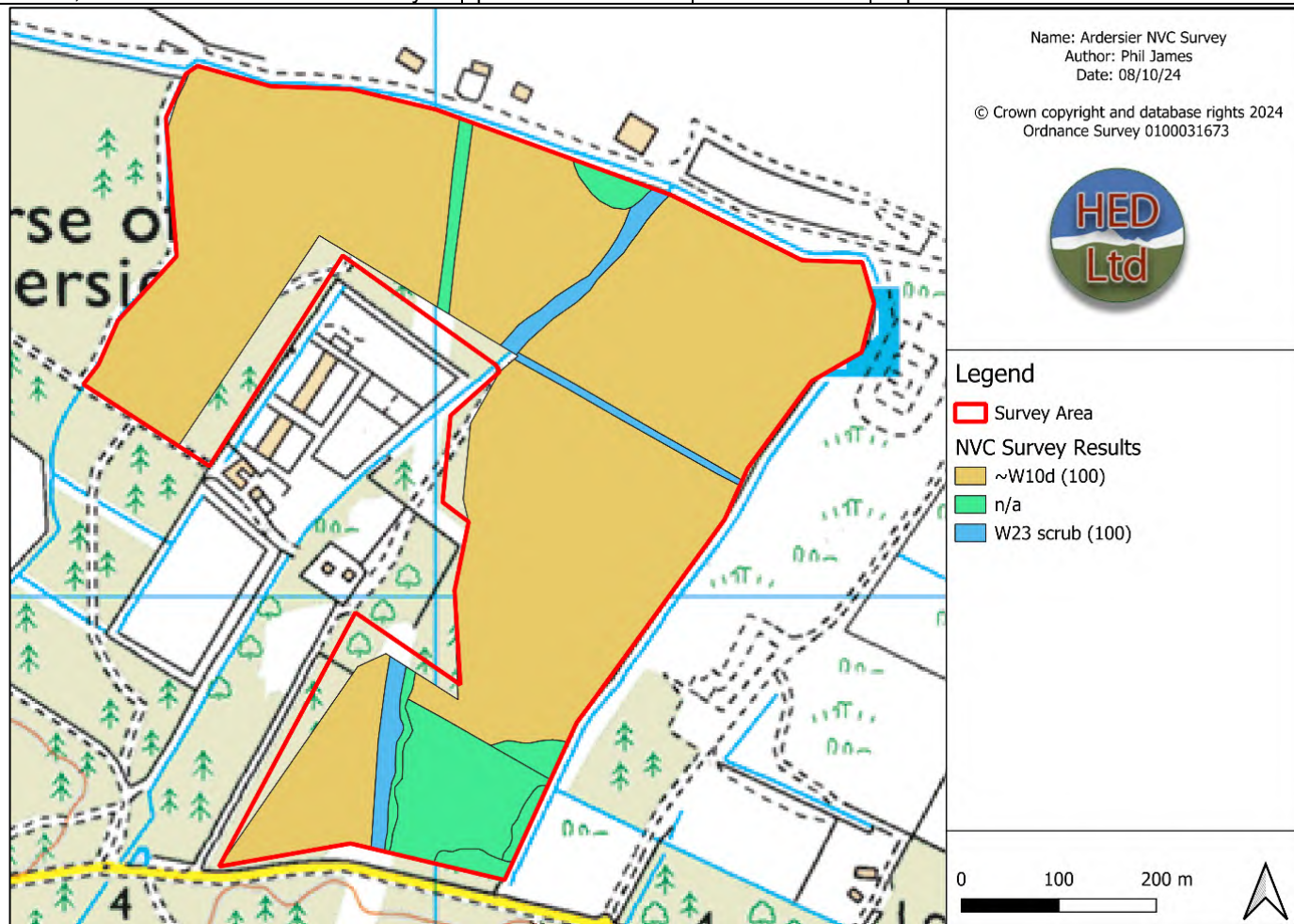


Figure 2: Results from NVC Survey 2024 at Site 1 Plantation Woodland (formerly The Dowager Countess Cawdor)

3.2 NVC Site Descriptions 2025

Of the plant communities surveyed this year, out with Site 3, there were no ground water dependent terrestrial ecosystems recorded. However, at Site 3, it is likely that most woodland is groundwater dependant, and without surveying the wet centre of this site, no assessment of dependency can be made here. See SEPA (2024) for guidance on assessing the impacts of development on groundwater abstractions.

3.2.1 Site 2: Dune-slack

The purpose of re-surveying this area this year at an earlier stage of the growing season was to identify any further plants that might have been missed in 2024. This was attempted but due to the very dry spring and early summer, the vegetation had a very bedraggled appearance, and by looking at the ditches, it was clear that the water table is much lower than in summer 2024. No botanical data was added to that gathered in 2024.

Table 3: Results from 2024 NVC Survey at Site 2 dune-slack (formerly The Cawdor Maintenance Trust)

NVC	NVC Label	Phase1	Ph1 Code	Notes
n/a	n/a	Open water, periodically brackish	G1.6	Salinity likely to fluctuate tidally and seasonally.
W23 scrub (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Dense scrub	A2.1	Dominated by Cytisus scaoparius & Ulex europaeus
SD17d dune slack (100)	SD17c Potentilla anserina - Carex nigra dune-slack community, Hydrocotyle vulgaris - Ranunculus flammula sub-community	Dune slack	H6.4	Tussocky, moderately spp.-rich sward with halophytes
n/a	n/a	n/a	n/a	Inaccessible, unsurveyed due to dense scrub, mainly Ulex europaeus
M23b rush-pasture > W4b woodland	W4b Betula pubescens - Molinia caerulea woodland, J. effusus sub-community, M23b J. effusus/acutiflorus - Galium palustre rush-pasture, J. effusus sub-community	Marshy grassland, scattered scrub + trees	B5, A2.2, A3.3	Dominated by J. effusus with increasing cover of scrub and young trees

M23b rush-pasture > W4b woodland	W4b <i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland, <i>J. effusus</i> sub-community, M23b <i>J. effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>J. effusus</i> sub-community	Marshy grassland, scattered scrub + trees	B5, A2.2, A3.3	Dominated by <i>J. effusus</i> , in parts with increasing cover of scrub and young trees
M23b rush-pasture > W4b woodland	W4b <i>Betula pubescens</i> - <i>Molinia caerulea</i> woodland, <i>J. effusus</i> sub-community, M23b <i>J. effusus/acutiflorus</i> - <i>Galium palustre</i> rush-pasture, <i>J. effusus</i> sub-community	Marshy grassland, scattered scrub + trees	B5, A2.2, A3.3	Dominated by <i>J. effusus</i> , in parts with increasing cover of scrub and young trees
M23b rush-pasture, H11c heath, SD17d dune slack	M23b <i>J. effusus</i> - <i>Galium palustre</i> rush-pasture, <i>J. effusus</i> sub-community, H11c <i>C. vulgaris</i> - <i>Carex arenaria</i> heath, spp.-poor sub-community & SD17c <i>Potentilla anserina</i> - <i>Carex nigra</i> dune-slack, <i>Hydrocotyle vulgaris</i> - <i>Ranunculus flammula</i> sub-community	Marshy grassland, dune heath, dune slack	B5, H6.6, H6.4	Mosaic of <i>Juncus</i> - and <i>Calluna</i> -dominated vegetation with small marshy patches
H11c heath, SD17c dune slack	H11c <i>Calluna vulgaris</i> - <i>Carex arenaria</i> heath, spp.-poor sub-community & SD17c <i>Potentilla anserina</i> - <i>Carex nigra</i> dune-slack, <i>Hydrocotyle vulgaris</i> - <i>Ranunculus flammula</i> sub-community	Dune heath, dune slack + scattered trees, scrub	H6.6, H6.4, A2.2, A3.3	Mainly <i>Calluna</i> -dominated heath with a few small marshy hollows; frequent <i>Ulex</i> , <i>SP</i> , <i>Betula</i> spp., occasional <i>Cytisus scoparius</i> & <i>Salix aurita</i>
SD17d dune slack (100)	SD17c <i>Potentilla anserina</i> - <i>Carex nigra</i> dune-slack community, <i>Hydrocotyle vulgaris</i> - <i>Ranunculus flammula</i> sub-community	Dune slack	H6.4	Tussocky, moderately spp.-rich sward with halophytes

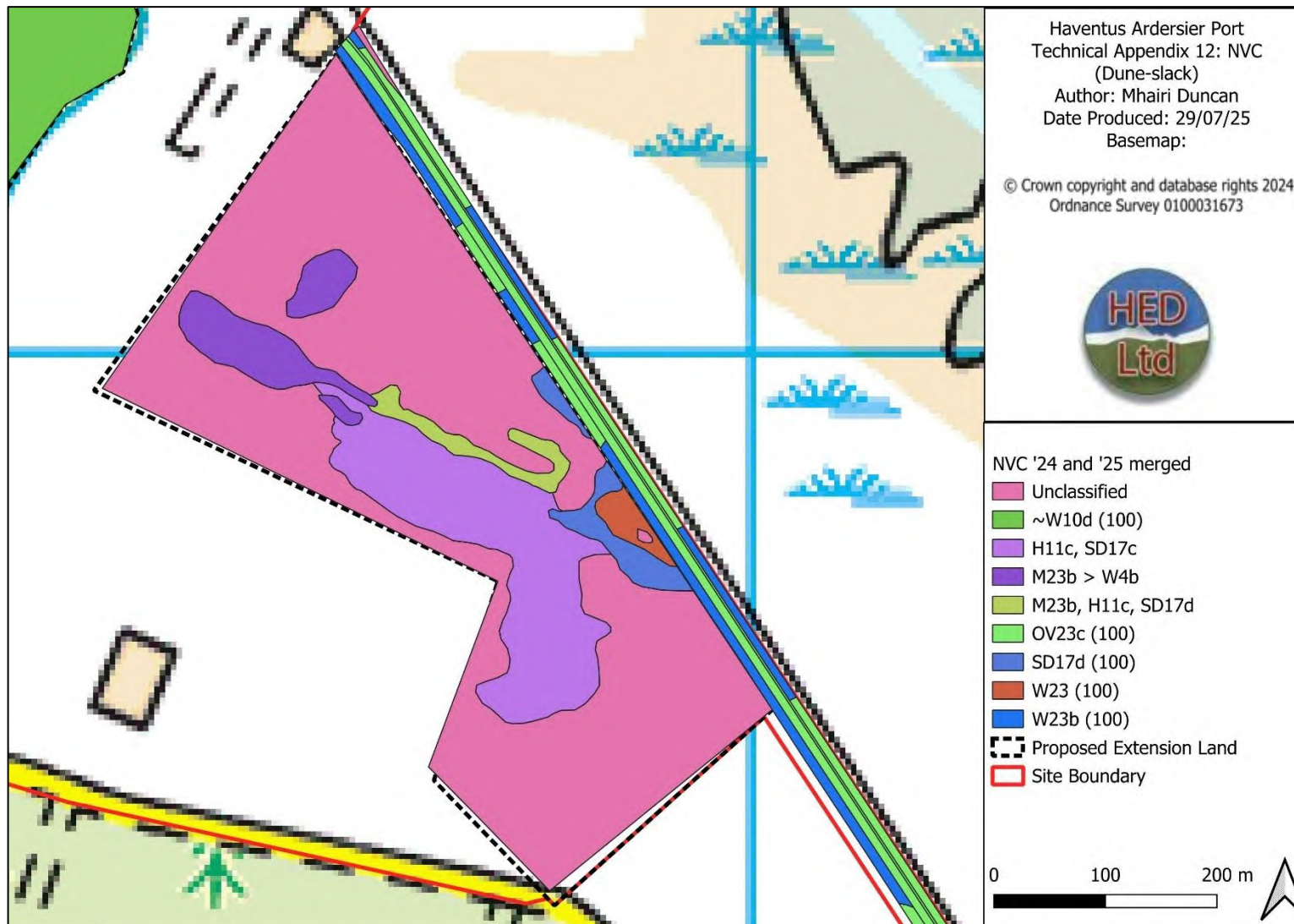


Figure 3: Map Showing NVC Survey Results (Dune-slack 2025)

3.2.2 Site 3: Lagoon

The nominal survey area here is around 20ha, all of which is below 5m asl and includes woodland, wetland, open water and saltmarsh that were not surveyed due to lack of safe access. Woodland, scrub, neutral and acid grasslands, dune grassland, open dune vegetation, strandline vegetation, swamp and ephemeral vegetation were recorded. Some vegetation stands recorded were not classified to NVC and some others were a less than good fit to the classification, due to the recent origin of the vegetation here.

A few small specimens of *Centaureum littorale* were found on the stone road on the south side of the bund (three plants at NH8004657614 and one plant at NH8001857614). *C. littorale* is scarce, i.e., recorded in between 16 and 100 10km squares in the UK between about 1970 and 1990 (Stewart D. *et al*, 1994). The coast between Ardersier and Forres (and more generally the Moray Firth coast) appears to be one of its strongholds, although the great majority of recent records are from the west coasts of England, Wales and Scotland.

A few scattered specimens of *Dactylorhiza incarnata* were recorded near the west shore of the lagoon.

Trees and plant communities recorded correlate with the recent origin of the site, i.e., trees are mostly of small stature and there is no correlation with recognised NVC woodland types. The lagoon and surrounding earthworks were reportedly created in the 1970s or 1980s. The largest woodland stand is less than 0.2ha in size on the north-west side of the lagoon, with a mixture of *Betula pubescens* and *Salix* spp., likely the hybrid *S. cinerea* x *S. aurita* = *S. multinervis*. There are extensive stands of W23 scrub dominated largely by *Ulex europaeus*, notably along the bund that runs most of the way round the lagoon; in places, small trees are starting to appear, suggesting that in time, the scrub will succeed to woodland.

Open water fringes are dominated by mixtures of *Carex rostrata* (S9 *Carex rostrata* swamp) and *Typha latifolia* (S12d *Typha latifolia* swamp, *Carex rostrata* sub-community) which are both quite species-poor. Along the western fringe, between swamp and scrub/woodland, is a stand of MG9a *Holcus lanatus* - *Deschampsia cespitosus* grassland, *Poa trivialis* sub-community (with a few *D. incarnata*).

To the north-west of the lagoon and beyond the bund is a mosaic of vegetation types including small stands of U1d *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland, *Anthoxanthum odoratum* - *Lotus corniculatus* sub-community, a small stand of species-poor neutral grassland dominated by *Deschampsia cespitosa* (not classified to NVC), H11a *Calluna vulgaris* - *Carex arenaria* heath, *Erica cinerea* sub-community and SD4 *Elymus farctus* ssp. *boreali-atlanticus* foredune community. Alongside the stone track to the west of the lagoon and

above the spring tide high water line are strips of SD9a *Ammophila arenaria* - *Arrhenatherum elatius* dune grassland, Typical sub-community and SD6g *Ammophila arenaria* mobile dune, *Carex arenaria* sub-community. On the small spit to the west are mosaics of SD2 *Honkenya peploides* - *Cakile maritima* strandline community and SD6f *Ammophila arenaria* mobile dune community, *Poa pratensis* sub-community; SD2 strandline community is also found sparsely on the surrounding shingle. Note the presence of U1d acid grassland is unusual in Scotland but is here due to the very dry climate in the southern Moray Firth coastal strip which typically has very low rainfall in early season.

Table 4: Results from NVC Survey at Site 3 (Lagoon)

NVC	NVC Label	Phase1	Ph1 Code	Notes
SD2 / SD6c (20/80)	SD2 Honkenya peploides - Cakile maritima strandline community / SD6f Ammophila arenaria mobile dune community, Poa pratensis sub-community (20/80)	Strandline vegetation / open dune	H5 / H6.8 (20/80)	
BS & SD2	Mobile sand / SD2 Honkenya peploides - Cakile maritima strandline community	Shingle & strandline vegetation	H3 & H5	
-	Unclassified	Saltmarsh	H2 (100)	
made ground	-	Bare ground	J4 (100)	dredged material
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
-	-	Scrub	A2.1 (100)	Rosa spp.
-	-	-	-	unsurveyed
-	-	Scrub	A2.1 (100)	Rosa spp.
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
SD9a (100)	SD9a Ammophila arenaria - Arrhenatherum elatius dune grassland, Typical sub-community	Dune grassland	H6 (100)	
SD9a (100)	SD9a Ammophila arenaria - Arrhenatherum elatius dune grassland, Typical sub-community	Dune grassland	H6 (100)	
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	Occasional young Pinus sylvestris
SD6g (100)	SD6g Ammophila arenaria mobile dune, Carex arenaria sub-community	Open dune	H6.8 (100)	

U4a (100)	U4a Festuca ovina - Agrostis capillaris - Galium saxatile grassland, Typical sub-community	Unimproved acid grassland	B1.1 (100)	
-	Standing water	Open water	G1 (100)	
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
-	Unclassified	Scattered scrub, ephemeral vegetation	A2.2, J1.3	Ulex & Cytisus
-	-	Bare ground	J4 (100)	<1% vegetated
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub, scattered trees	A2.1 (100) + A3.1	scattered Betula spp.
SD4 (100)	SD4 Elymus farctus ssp. boreali-atlanticus foredune community	Strandline vegetation	H5 (100)	
U1d (100)	U1d Festuca ovina - Agrostis capillaris - Rumex acetosella grassland, Anthoxanthum odoratum - Lotus corniculatus sub-community	Unimproved acid grassland	B1.1 (100)	
H11a (100)	H11a Calluna vulgaris - Carex arenaria heath, Erica cinerea sub-community	Dry dwarf shrub heath	D1.1 (100)	includes occasional Dactylorhiza incarnata
MGxx (100)	Unclassified	Unimproved neutral grassland	B2.1 (100)	species-poor dominated by Deschampsia cespitosa
W23 + H11c	W23 Ulex europaeus - Rubus fruticosus scrub / H11c Calluna vulgaris - Carex arenaria heath, spp.-poor sub-community (20/80)	Scrub, dry dwarf shrub heath, scattered conifers	A2.1, A3.2, D1.1	Ulex & Cytisus with some young SP
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer

-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Young wet woodland with sparse field layer; Betula & Salix spp.
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Young wet woodland with sparse field layer; Betula & Salix cinerea x aurita.
-	-	Bare ground	J4 (100)	<1% vegetated
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
S12d (100)	S12d Typha latifolia swamp, Carex rostrata sub-community	Swamp	F1 (100)	
MG9a (100)	MG9a Holcus lanatus - Deschampsia cespitosus grassland, Poa trivialis sub-community	Unimproved neutral grassland	B2.1 (100)	includes occasional Dactylorhiza incarnata
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
SD12a (100)	SD12a Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland, Anthoxanthum odoratum sub-community	Dune grassland	H6 (100)	
MG9a (100)	MG9a Holcus lanatus - Deschampsia cespitosus grassland, Poa trivialis sub-community	Unimproved neutral grassland	B2.1 (100)	includes occasional Dactylorhiza incarnata
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix
W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix

W23 (100)	W23 Ulex europaeus - Rubus fruticosus scrub	Scrub	A2.1 (100)	with occasional Cytisus & Salix aurita
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
-	Unclassified	Other habitat	J5 (100)	rough grassy bank cleared of scrub
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix
S12a (100)	S12a Typha latifolia swamp, T. latifolia sub-community	Swamp	F1 (100)	
-	-	Standing water - seasonal	G1 (100)	
-	Unclassified	Semi-natural coniferous woodland	A1.2.1 (100)	Pinus sylvestris with sparse field layer
U4b (100)	U4a Festuca ovina - Agrostis capillaris - Galium saxatile grassland, Holcus lanatus - Trifolium repens sub-community	Semi-improved acid grassland	B1.2 (100)	
Wxx (100)	Unclassified	Planted broadleaved woodland	A1.1.2 (100)	Acer pseudoplatanus
-	Unclassified	Ephemeral vegetation	J1.3 (100)	
U4a (100)	U4a Festuca ovina - Agrostis capillaris - Galium saxatile grassland, Typical sub-community	Unimproved acid grassland	B1.1 (100)	
S12a (100)	S12a Typha latifolia swamp, T. latifolia sub-community	Swamp	F1 (100)	
Ww (100)	Unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Young wet woodland with sparse field layer; Alnus glutinosa & Salix cinerea.

W23b (100)	W23b <i>Ulex europaeus</i> - <i>Rubus fruticosus</i> scrub, <i>Rumex acetosella</i> sub-community	Scrub	A2.1 (100)	
S12a (100)	S12a <i>Typha latifolia</i> swamp, <i>T. latifolia</i> sub-community	Swamp	F1 (100)	
S9 (100)	S9 <i>Carex rostrata</i> swamp - sub-community not determined	Swamp	F1 (100)	not surveyed in detail - viewed through binoculars only
BS & SD2	Mobile sand / SD2 <i>Honkenya peploides</i> - <i>Cakile maritima</i> strandline community	Shingle & strandline vegetation	H3 & H5	
road	-	Bare ground	J4 (100)	occasional <i>Centaurium littorale</i> in east

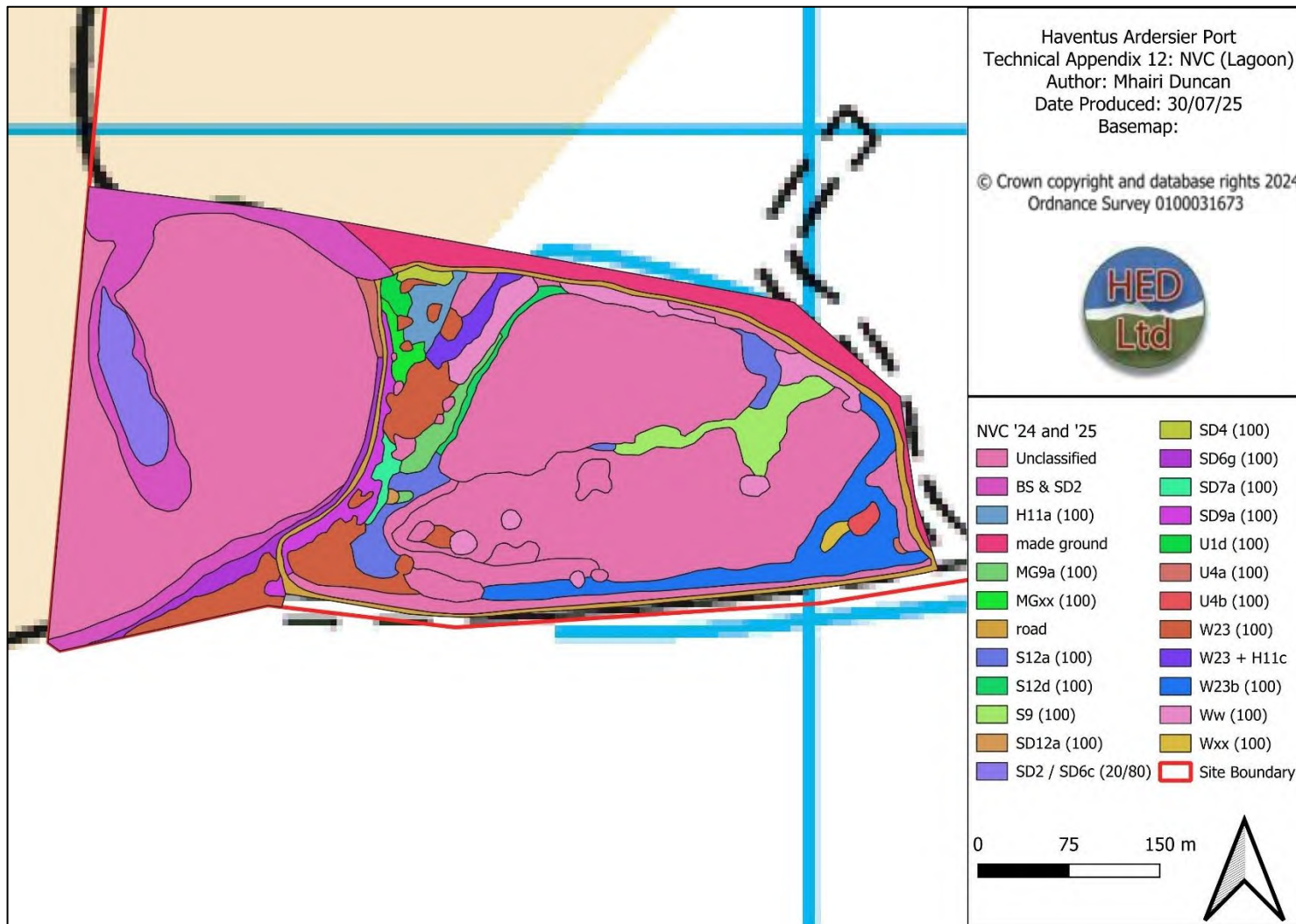


Figure 4: Map Showing NVC Survey Results (Lagoon)

3.2.3 Site 4: Whiteness Head

The surveyed area here is around 25ha in a strip no more than 200m wide at the east end and dwindling to less than 50m of shingle at the west end. The site is all barely above sea level.

Some mapping difficulties were encountered at the west end where the land has been altered by recent works, and there were some seasonal issues with identification of monocot species.

The bulk of the vegetation is either SD12 *Carex arenaria* - *Festuca ovina* - *Agrostis capillaris* dune grassland (no clear sub-community) especially in the east, tending towards SD7a *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community, Typical sub-community further west; there are smaller stands of SD9a *Ammophila arenaria* - *Arrhenatherum elatius* dune grassland, Typical sub-community and SD8b *Festuca rubra* - *Galium verum* fixed dune grassland, *Luzula campestris* sub-community and scattered throughout are evidently expanding stands of W23b *Ulex europaeus* - *Rubus fruticosus* scrub, *Rumex acetosella* sub-community. One small stand of H11c *Calluna vulgaris* - *Carex arenaria* heath, spp.-poor sub-community near the east end and two stands of strikingly extensive *Rosa* spp. were recorded. On the eroding remains of a 4m high small dune were noted a few *Juniperus communis* shrubs associated with ferns including *Dryopteris dilatata* and *Polypodium vulgare*.

On the north side of the vegetated strip, there is a naturally terraced bank of shingle with small, fragmentary stands of SD2 *Honkenya peploides* - *Cakile maritima* strandline community; this side is slowly growing by accretion.

The south side is eroding so there is far less strandline vegetation.

Table 5: Results from NVC Survey at Site 4 (Whiteness Head)

NVC	NVC Label	Phase1	Ph1 Code	Notes
Blown sand	-	Intertidal sand	H1.2 (100)	
shingle / SD2 (100/-)	shingle / SD2 Honkenya peploides - Cakile maritima strandline community	Shingle + strandline vegetation	H3 / H5 (100/-)	
-	unclassified	Saltmarsh, shingle	H2.3 (100)	Scattered Atriplex
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD9a (100)	SD9a Ammophila arenaria - Arrhenatherum elatius dune grassland, Typical sub-community	Dune grassland	H6.5 (100)	
SD12 (100)	SD12 Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland	Dune grassland	H6.5 (100)	
SD12 (100)	SD12 Carex arenaria - Festuca ovina - Agrostis capillaris dune grassland	Dune grassland	H6.5 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
H11c (100)	H11c Calluna vulgaris - Carex arenaria heath, spp.- poor sub-community	Dune heath	H6.6 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SM9 (100)	SM9 Suaeda maritima saltmarsh community	Saltmarsh	H2.6 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	mainly Cytisus
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	mainly Cytisus
-	-	Building	J3.6	

-	unclassified	Semi-improved acid grassland	B1.2 (100)	
-	unclassified	Scrub	A2.1 (100)	Rosa spp.
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD8b (100)	SD8b Festuca rubra - Galium verum fixed dune grassland, Luzula campestris sub-community	Dune grassland	H6.5 (100)	
-	unclassified	Scrub	A2.1 (100)	Rosa spp.
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
SD7a (100)	SD7a Ammophila arenaria - Festuca rubra semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	Juniperus, Polypodium & Dryopteris on old dune
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	

SD7a (100)	SD7a <i>Ammophila arenaria</i> - <i>Festuca rubra</i> semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
SD12b (100)	SD12b <i>Carex arenaria</i> - <i>Festuca ovina</i> - <i>Agrostis capillaris</i> dune grassland, <i>Holcus lanatus</i> sub-community	Dune grassland	H6.5 (100)	
SD12b (100)	SD12b <i>Carex arenaria</i> - <i>Festuca ovina</i> - <i>Agrostis capillaris</i> dune grassland, <i>Holcus lanatus</i> sub-community	Dune grassland	H6.5 (100)	
-	unclassified	Dune slack	H6.4 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
SD7a (100)	SD7a <i>Ammophila arenaria</i> - <i>Festuca rubra</i> semi-fixed dune community, Typical sub-community	Open dune	H6.8 (100)	
-	unclassified	Bare ground	J4 (100)	mostly recently disturbed, made ground

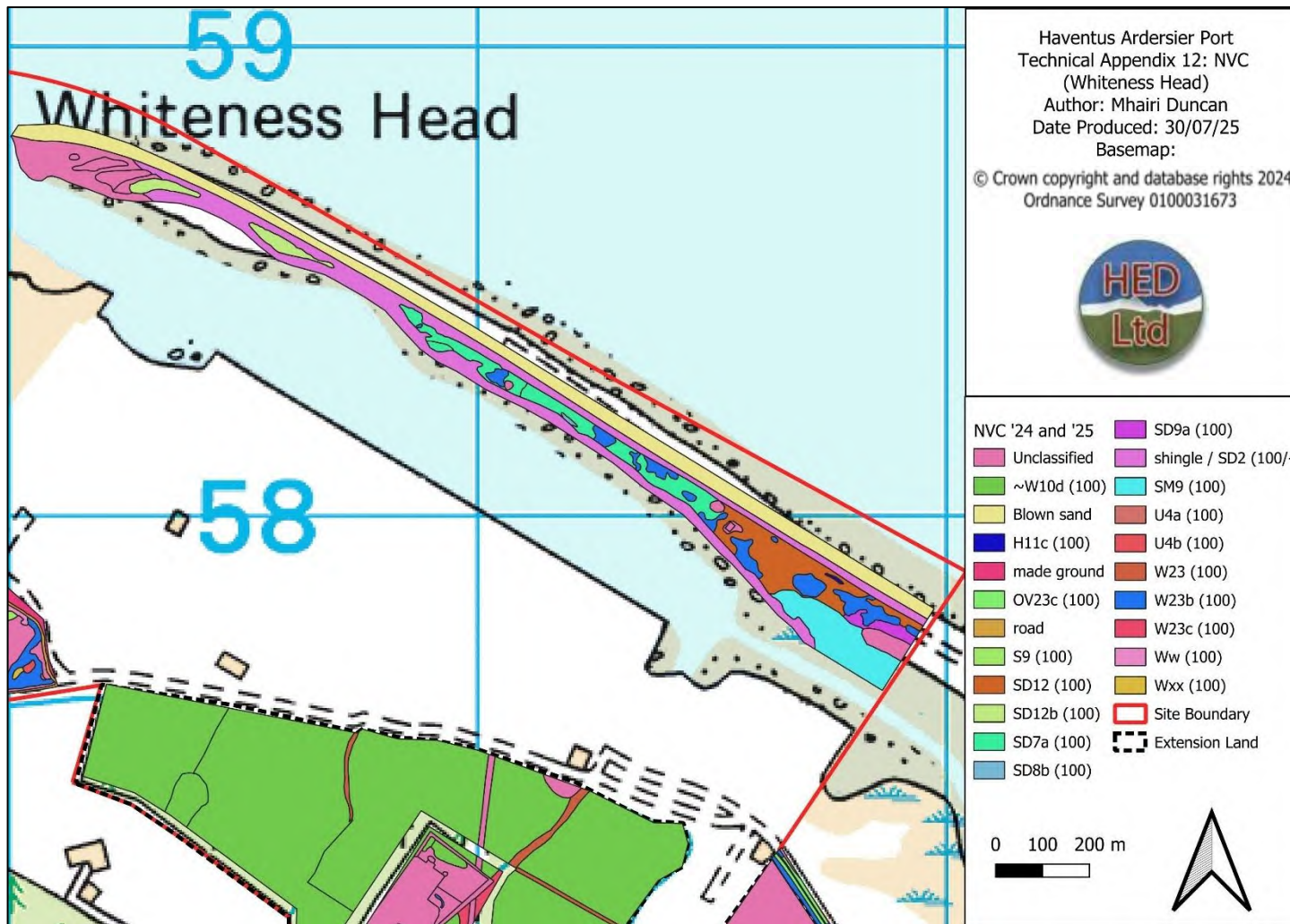


Figure 5: Map Showing NVC Survey Results (Whiteness Head)

3.2.4 Site 5: Access Road Verges

The two strips of ground on either side of the road are almost entirely on made ground that would likely have been built at the start of construction of the previous site in the 1970s. The total surveyed area (i.e., between the fences) is just less than 7ha. The road rises from sea level in the north to between 20m and 25m asl in the south.

On both sides of road, the vegetation comprises alternating strips of neutral grassland and W23b *Ulex europaeus* - *Rubus fruticosus* scrub, *Rumex acetosella* sub-community; *Ulex* is spreading and slowly increasing at the expense of open grassland. The neutral grassland, being of recent origin is classified as OV23c *Lolium perenne* - *Dactylis glomerata* community, *Arrhenatherum elatius* - *Medicago lupulina* sub-community rather than a semi-natural mesotrophic grassland. The OV23c is moderately species-rich. W23b and OV23c make up 99% of the vegetation, with just tiny scraps of unclassified ferns, dune grassland and trees.

There are occasional small clusters of *Dactylorhiza incarnata* on the north side of the road, many of which were strimmed in the days immediately before the survey.

Table 6: Results from NVC Survey at Site 5 (Access Road)

NVC	NVC Label	Phase1	Ph1 Code	Notes
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community + unclassified	Scrub + scattered trees	A2.1 + A3.3	scattered Salix & SP
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	-	-	road
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community + OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Scrub + scattered trees	A2.1 + A3.3	scattered Sambucus, Salix & SP
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b + OV23c (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community + OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Scrub + neutral grassland	A2.1 + B2.1 (100)	Mosaic of the 2 habitats
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Other habitat - mown verge	J5 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	much Cytisus, so succeeding to scrub
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	

OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
-	unclassified	Dune grassland	H6.5 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	

W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
-	unclassified	Ferns	C3.2 (100)	Dryopteris spp.
-	unclassified	Semi-natural broadleaved woodland	A1.1.1 (100)	Salix spp.
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	with Rubus idaeus
OV23c (100)	OV23c Lolium perenne - Dactylis glomerata community, Arrhenatherum elatius - Medicago lupulina sub-community	Neutral grassland	B2.1 (100)	spp.-poor with some Carex arenaria
-	unclassified	Tree	A3.1 (100)	Betula spp.
W21a (100)	W21a Crataegus monogyna - Hedera helix scrub, Hedera helix - Urtica dioica sub-community			Sambucus

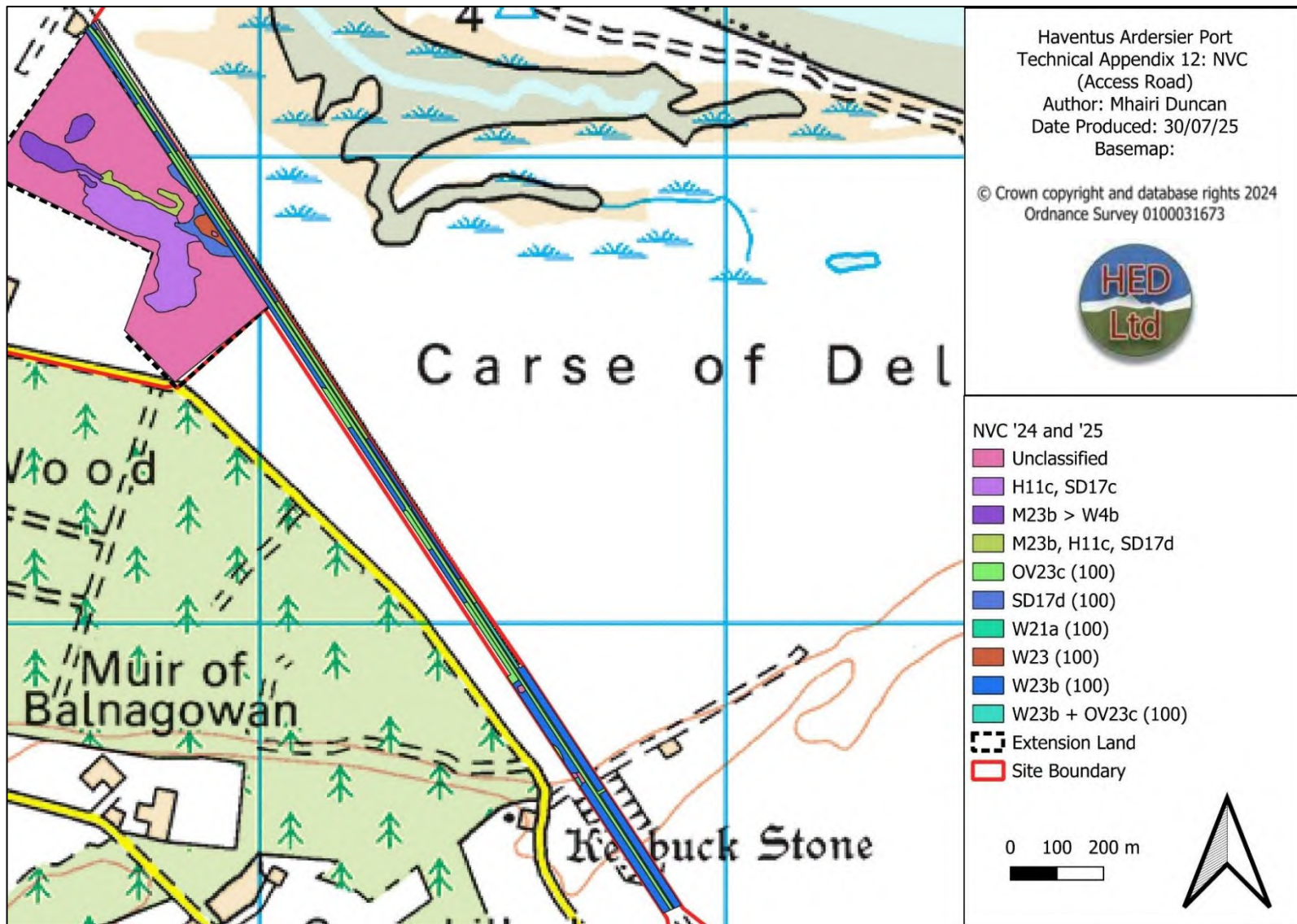


Figure 6: Map Showing NVC Survey Results (Access Road)

3.2.5 Site 6: Woodland Enclave

The surveyed area is wholly enclosed by SP-dominated forestry and is made up of two holdings totally about 9ha; the site is almost flat and is between sea level and 5m asl. A power line wayleave that has been recently flailed/mown runs north-south across the north-east corner through both holdings.

The eastern holding which comprises about one third of the total area is largely covered with W23c *Ulex europaeus* – *Rubus fruticosus* scrub, *Teucrium scorodonia* sub-community with a rather sparse field layer. SP-dominated W10d *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland, *Holcus lanatus* sub-community occurs in two small stands. There is a house with grassy garden and a few ornamental and fruit trees, and a patch of U1d *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland, *Anthoxanthum odoratum* - *Lotus corniculatus* sub-community that is slowly being over-run by *Ulex*. Note (again) the presence of U1 acid grassland is unusual in Scotland but is here due to the extreme dryness of the early growing season.

The western holding is more varied but supports no semi-natural vegetation. The northern part is mostly buildings and sheds of various sizes, hardstanding, bird pens and species-poor mown grassland on compacted soils, with a scattering of stands of annual and perennial weeds and *Ulex*. Near the northern edge is a small stand of SP-dominated W10d *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland, *Holcus lanatus* sub-community which has a few SP that probably pre-date the surrounding ones in the plantation. There is a very small (<0.1ha) stand of recently planted native trees to the east of the dwelling house and a small orchard nearby. South of the orchard is a field with a few trees in the south end that has been divided into two management units: one part is currently fallow (mainly with agricultural weeds, one small part is bare) and the other part is species-poor semi-improved grassland. The trees are mature SP and *Betula pubescens*.

Table 7: Results from NVC Survey at Site 6 (Woodland Enclave)

NVC	NVC Label	Phase1	Ph1 Code	Notes
-	unclassified	-	-	mown/flailed vegetation
W23c (100)	W23c Ulex europaeus - Rubus fruticosus scrub, Teucrium scorodonia sub-community	Scrub	A2.1 (100)	
-	unclassified	-	-	mown/flailed vegetation
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Field layer close to W10d, locally frequent Goodyera repens
~W10d? (100)	possible W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Mixed woodland	A1.3 (100)	Betula, Sambucus & Juniperus
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Mature SP with occasional Ulex & Cytisus
-	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Mature SP with Ulex
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Amenity grassland, perennial & annual vegetation, scattered scrub	A2.2+J1.2+J1.3 (100)	Unused pens, machinery
W23b (100)	W23b Ulex europaeus - Rubus fruticosus scrub, Rumex acetosella sub-community	Scrub	A2.1 (100)	
-	unclassified	Amenity grassland	J1.2 (100)	mown
-	unclassified	Ruderals	C3.1 (100)	

~W10d? (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub- community	Coniferous plantation	A1.2.2 (100)	
-	unclassified	Mixed woodland	A1.2.2 (100)	
-	unclassified	Tree	A3.1 (100)	Salix
-	unclassified	Tree	A3.2 (100)	Cupressus
-	unclassified	Mixed woodland	A1.2.2 (100)	Cupressus, Prunus
-	unclassified	Bare ground, buildings	J3.6, J4	
W23c (100)	W23c Ulex europaeus - Rubus fruticosus scrub, Teucrium scorodonia sub-community	Scrub	A2.1 (100)	
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub- community	Coniferous plantation	A1.2.2 (100)	Mature SP
-	unclassified	Broadleaved woodland	A1.1.2	Salix
-	unclassified	Bare ground, amenity grassland, buildings, ruderals	J1.2, J1.3, J3.6, J4	Pens, sheds, buildings, machinery, hardstanding, some grass and ruderals
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Tree	A3.1 (100)	Betula spp.
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub- community	Coniferous plantation	A1.2.2 (100)	Mature SP
-	unclassified	Tree	A3.1 (100)	Salix spp.
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Tree	A3.1 (100)	Betula spp.
-	unclassified	Tree	A3.2 (100)	Mature SP

-	unclassified	Tree	A3.1 (100)	Betula spp.
-	unclassified	Tree	A3.2 (100)	Mature SP
-	unclassified	Poor semi-improved grassland	B6 (100)	rank with Rubus, Urtica, etc.
-	unclassified	Broadleaved woodland	A1.1.2	Orchard
-	unclassified	Other	J5	Fruit bushes
-	unclassified	Broadleaved woodland	A1.1.2	Corylus, Quercus, Fraxinus, Prunus, Fagus, etc.
-	unclassified	Poor semi-improved grassland	B6 (100)	
-	unclassified	Ruderals, ephemeral vegetation	C3.1, J1.3 (100)	
-	unclassified	Amenity grassland	J1.2 (100)	
-	unclassified	Amenity grassland	J1.2 (100)	mown
-	unclassified	Broadleaved woodland	A1.1.2	Prunus spp.
~W10d (100)	SP-dominated W10d Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland, Holcus lanatus sub-community	Coniferous plantation	A1.2.2 (100)	Field layer close to W10d, locally frequent Goodyera repens
U1d (100)	U1d Festuca ovina - Agrostis capillaris - Rumex acetosella grassland, Anthoxanthum odoratum - Lotus corniculatus sub-community	Semi-improved acid grassland	B1.2 (100)	spp.-poor
-	unclassified	Tree	A3.1 (100)	Betula spp.
W23c (100)	W23c Ulex europaeus - Rubus fruticosus scrub, Teucrium scorodonia sub-community	Scrub	A2.1 (100)	

~W10d (100)	SP-dominated W10d <i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland, <i>Holcus lanatus</i> sub-community	Coniferous plantation	A1.2.2 (100)	Field layer close to W10d, locally frequent <i>Goodyera repens</i>
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Figure 7: Map Showing NVC Results (Woodland Enclave 2025) and (Woodland 2024)

4.0 Evaluation of Plants and Plant Communities

4.1 Site 2: Dune-slack

No further commentary is provided based on this year's fieldwork. The evaluation provided following the previous survey of this site is as follows. "The combination of plant communities found on site with saltwater influence succeeding towards woodland is uncommon in the Highlands. Left undisturbed, this area is likely to develop into *Pinus*-dominated woodland over the coming decades. Rodwell (1991) suggests development towards W16 *Quercus robur* – *Betula* spp. – *Deschampsia flexuosa* woodland from H11 heath; although W16 has not been recognised as a woodland community in Scotland. With *Betula* spp. and *Salix aurita* already well-established, and with a damp and saltwater influence in the centre, there is potential for a more variable and interesting woodland here without intervention, although the current proliferation of *Ulex* will prolong the succession" (HED Ltd., 2024).

4.2 Site 3: Lagoon

The whole of this surveyed area is no more than about 50 years old at most, and the patterns of vegetation development reflect this, with rather unusual mosaics of coastal vegetation. None of the plant communities here is intrinsically scarce and some are likely to be temporary; some mosaics, especially to the west of the lagoon, are likely to resolve into less complex patterns over time if allowed. Gorse-dominated vegetation will replace dune grassland and neutral grassland, then slowly succeed to woodland – but these changes may be interfered with by changes in management, e.g., scrub removal (as seen along the southern bank where the badger setts are) and fluctuations in rabbit population size. More significant would-be permanent changes in groundwater levels, although current fluctuations seem to be seasonal.

The presence of *Centaureum littorale* on the track is of interest but the plant is not rare and has no legal protection beyond the provisions of the Wildlife and Countryside Act (1981); the same applies to *Dactylorhiza incarnata* on neutral grassland to the west of the lagoon.

Beyond the intrinsic interest of the vegetation here is the value of habitat for mammals (badger setts are present already), arthropods and birds (especially in breeding season due to scrub and cover at water's edge), and potentially herptiles.

4.3 Site 4: Whiteness Head Spit

Whiteness Head is possibly more remarkable as a geomorphological feature than for the vegetation types currently to be found (for example, Sheet 28, 1 inch, seventh series, published 1958) show that the spit is (or possibly was, until recent dredging) migrating north and west at around 10m per year.

Tom Dargie (2001) gives some information on the vegetation present in 1997. He describes the presence of calcareous fixed dune on the western part of the spit, which was not at all evident this year. The spit has shifted north in 30 years, so the calcareous element has eroded away, to be replaced by acidic dune vegetation, with the change possibly owing to a change in source material.

None of the vegetation types present is especially species-rich or scarce, although the spit itself is unique in Scotland, so the mosaic of vegetation types has inherent value. I would also draw attention to the small stand of SD7a *Ammophila arenaria* - *Festuca rubra* semi-fixed dune community, Typical sub-community with a few small *Juniperus* and ferns – although this is likely to erode and vanish within a very few years.

Wind and water-borne litter from the previous and current phases of construction is present on much of the south side of the spit, especially in the west. Risks to breeding birds and damage to the marine environment are clear.

4.4 Site 5: Access Road Verges

The alternating strips of OV23c *Lolium perenne* - *Dactylis glomerata* community, *Arrhenatherum elatius* - *Medicago lupulina* sub-community and W23b *Ulex europaeus* - *Rubus fruticosus* scrub, *Rumex acetosella* sub-community hold little interest apart from the clusters of *Dactylorhiza incarnata*; these and other flowering plants would benefit from more sensitive verge management.

4.5 Site 6: Woodland Enclave

The only features of interest here are the few isolated, mature trees in the south and the stands of SP-dominated W10d *Quercus robur* - *Pteridium aquilinum* - *Rubus fruticosus* woodland, *Holcus lanatus* sub-community, although of these, the only ones with more than a residual field layer are the ones that are immediately next to the surrounding plantation and protected from regular disturbance.

5.0 References

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