A83 Rest and Be Thankful

MTS EIAR VOLUME 4, APPENDIX 8.2 – NATIONAL VEGETATION CLASSIFICATION

Transport Scotland

A83AAB-AWJ-EGN-MTS_GEN-RP-LE-000447

A8-2. National Vegetation Classification

A8-2.1. Introduction

Terms of Reference

A8-2.1.1. AtkinsRéalis WSP Joint Venture (AWJV) was commissioned by Transport Scotland as part of the Old Military Road (OMR) Interventions known as the Medium-Term Solution (MTS), hereafter referred to as 'the Proposed Scheme', to undertake National Vegetation Classification (NVC) surveys to support assessment of Ground Water Dependent Terrestrial Ecosystems (GWDTE) within Volume 2, Chapter 8 Geology, Soils and Groundwater.

A8-2.1.2. Volume 2, Chapter 4: The Proposed Scheme, provides details of the construction works, the Receptor Sites and Natural Capital (NC) and Biodiversity Net Gain (BNG) enhancement sites. They are not discussed within this report. For the purposes of this report, the Proposed Scheme area described excludes NC and BNG enhancement sites.

Purpose of Appendix

A8-2.1.3. This appendix is intended to provide baseline information regarding habitats in relation to the Proposed Scheme. The report presents ecological information obtained during NVC surveys undertaken between May 2023 and September 2024.

A8-2.2. Methodology

Field Survey

A8-2.2.1. The field surveys were undertaken between May and September 2023 with a small number of supplementary survey visits being undertaken in November 2023 and May 2024. A UK Habitat Classification (UKHab) survey was undertaken of all habitats within 250m of the Proposed Scheme, (in addition a small area outside of this survey area, in Site 1 has been captured for completeness). As part of the UKHab survey condition assessment data were collected from all habitats in line with Biodiversity Metric 4.0. Where applicable an NVC survey was also undertaken concurrently with the UKHab Survey, within the same 250m buffer.

A8-2.2.2. Vascular plant names recorded during the UKHab and NVC surveys follow 'New Flora of the British Isles 4th Edition' (Stace, 2019), and bryophyte names follow 'A New Checklist of the Bryophytes of Britain and Ireland (Blockeel *et al*,

2020). All UKHab surveys were carried out by surveyors who hold at least a Botanical Society of Britain & Ireland (BSBI) Field Identification Skills Certificate (FISC) Level 4. The BSBI's FISC test determines botanical skill. Levels range from 1 (beginner) to 5 (professional) with 6 being awarded in exceptional cases. Level 4 is the expected minimum level required for consultants undertaking botanical surveys. Most NVC surveys were undertaken by surveyors who hold a FISC Level 6. The only exceptions were supplementary NVC surveys completed by a FISC Level 4 botanist in November 2023 and May 2024; the results of these surveys were verified by a FISC Level 6 botanist.

NVC

A8-2.2.3. The NVC survey was carried out in accordance with the survey guidance set out in the following publications:

- British Plant Communities Volume 1 - Woodlands and scrub (Rodwell, 1991)
- British Plant Communities Volume 2 - Mires and heaths (Rodwell, 1991)
- British Plant Communities Volume 3 - Grassland and montane communities (Rodwell, 1992)
- British Plant Communities Volume 4 - Aquatic communities, swamps and tall-herb fens (Rodwell, 1995) and
- NVC Users' Handbook (Rodwell, 2006).

A8-2.2.4. The NVC methodology provides a standardised system for classifying and mapping semi-natural vegetation communities and ensures that surveys are carried out to a consistent level of detail and accuracy.

A8-2.2.5. The surveyors identified areas of similar vegetation (homogeneous stands) within the survey area that could be classified as separate communities using the NVC. The surveyors identified sampling points in areas considered to be representative of the homogeneous stand. At least five quadrats were taken for most vegetation communities other than where communities could be easily identified without quadrat data, such as MG7, and/or were limited in extent, such as CG10.

A8-2.2.6. At each sampling point, a sampling plot (quadrat) was marked out, within which the presence and abundance of each plant species was recorded. Within each quadrat, the presence and abundance of each vascular plant and bryophyte species was recorded. Cover was taken as the vertical projection on to the

ground of the extent of the living parts of the species. Cover estimates were recorded using the Domin Scale which gives a value of 1-10 based on percentage cover within a quadrat (see Table A8-2-1). The sampling process generated a list of plant species and associated Domin values for each quadrat sample.

Table A8-2-1 - Assessment of percentage cover using the Domin Scale

Percentage Cover	Domin Value
<4 % few individuals	1
<4 % several individuals	2
<4 % many individuals	3
4-10%	4
11-25%	5
26-33%	6
34-50%	7
51-75%	8
76-90%	9
90-100%	10

A8-2.2.7. Species present within the sampled homogenous stand but outside of the quadrats were also recorded. This was to ensure that rare species are looked for as part of the assessment.

A8-2.2.8. For each stand the number of times each species was identified in a quadrat was recorded. Quadrat frequency is summarised in floristic tables using the Roman numerals I-V and referred to in descriptions of vegetation types using the terms listed in Table A8-2-2.

Table A8-2-2 – NVC vegetation frequency classes

Frequency Class	Range of Frequency	Term used to describe Frequency Class
V	81-100%	Constant
IV	61-80%	Constant
III	41-60%	Frequent
II	21-40%	Occasional
I	1-20%	Scarce

Analysis

A8-2.2.9. NVC communities were identified using keys and written descriptions presented in the NVC British Plant Communities volumes. Scottish Environment Protection Agency Land Use Planning System SEPA Guidance Note 31 on the identification of GWDTEs was used to identify which NVC community types are potentially groundwater dependent.

Protected and Priority Plant Species

A8-2.2.10. As part of the NVC survey a search was made for protected and priority plant species. The location of protected and/or priority plant species found during the survey was recorded using Esri Field Maps.

A8-2.2.11. The following legal and conservation designations for protected and priority plant species have been considered in this report:

- Schedule 8 of the Wildlife and Countryside Act 1981 (as amended); Schedule 5 of the Conservation of Habitats and Species Regulations 2017 (as amended). Plants listed under these schedules are strictly legally protected.
- The Scottish Biodiversity List identifies species that are of 'principal importance' for biodiversity conservation in Scotland.
- The GB Red List for Vascular Plants uses International Union for Conservation of Nature (IUCN) criteria to assess the status of vascular plants in Britain based on population trends in Great Britain.
- Lists of Nationally Rare and Nationally Scarce Plants in Great Britain (Botanical Survey of Britain and Ireland, 2023 dataset). These lists are based on how many hectads (10km grid squares) a plant occurs in within Great Britain. A Nationally Rare plant is one that occurs in 15 or fewer hectads and a Nationally Scarce plant occurs in fewer than 100. There are 2909 total hectads in Great Britain.
- Revised Lists of Nationally Rare and Scarce Bryophytes for Britain. This list uses the same criteria for determining Nationally Rare/Scarce bryophytes as for vascular plants in the above list.
- The IUCN Red List for Bryophytes in the UK. This list uses the same IUCN criteria for determining Nationally Rare/Scarce bryophytes as for vascular plants in the above vascular plant red lists.

A8-2.3. Limitations

A8-2.3.12. This section identifies any limitations to the surveys and provides an explanation as to the potential effect of these on the assessment.

A8-2.3.13. Botanical surveys are limited by factors which affect the presence of plants such as the time of year. Therefore, the survey has not produced a complete list of plants and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.

A8-2.3.14. Most of the surveys were undertaken between May and September, during the optimal season for UKHab and NVC. Due to updates to the Proposed Scheme, a small section was surveyed in November which is out of the optimal survey season. However, these areas were outside of the Proposed Scheme and only just within the 250m buffer. The habitats in these areas were similar to those found within the rest of the survey area, so could be assigned with a high degree of confidence. Therefore, this is not considered a substantive limitation.

A8-2.3.15. Habitats were mapped in the field using professional judgement and informed by aerial imagery. Habitat areas are measured with GIS, which creates a high degree of precision. However, boundaries between habitats are sometimes gradual changes, so despite the level of precision in area calculations there is always a slight element of approximation involved in calculations.

A8-2.4. Results

A8-2.4.16. Table A8-2-3 shows the area of NVC communities identified within the Proposed Scheme, totalling 10.27ha. Potential GWDTE total 5.24ha, dominated by M6, M23 and MG10 (combining to 3.8ha).

A8-2.4.17. The NVC habitat map is shown in Volume 3 Figure 8.1 National Vegetation Communities.

Table A8-2-3 – Areas of NVC habitats within Proposed Scheme (excl. NC and BNG)

NVC Community Type	SEPA LUPS-GU31 GWDTE Potential Groundwater Dependency	Approximate Area within the Proposed Scheme (ha)
CG10	High	0.03
CG11	High	0.03

NVC Community Type	SEPA LUPS-GU31 GWDTE Potential Groundwater Dependency	Approximate Area within the Proposed Scheme (ha)
H9	-	0.01
H12	-	0.01
H13	-	0.02
H14	-	0.05
H12/H21 Mosaic	-	0.15
M6	High	1.3
M10	High	0.14
M23	High	0.94
M23a	High	0.04
M23b	High	<0.01
M23/M25 Mosaic	High/Moderate	0.3
M25	Moderate	0.22
MG6/MG7a Transition	-	0.02
MG7	-	0.02
MG9	Moderate	0.21
MG9/W1/W21 Transition	Moderate/-	0.01
MG10	Moderate	1.51
U2	-	0.01
U4	-	0.1
U5/H14/U20/M23 Transition	-/High	0.15
U20	-	1.51
W1	Moderate	0.02
W4	High	0.32
W24	-	0.01

NVC Community Type	SEPA LUPS-GU31 GWDTE Potential Groundwater Dependency	Approximate Area within the Proposed Scheme (ha)
W25	-	0.39
W25a	-	0.41
Habitats not assignable to any NVC community (including existing paved surfaces)	-	2.33
Total	-	10.27

A8-2.4.18. Table A8-2-4 shows the extent to which habitats intersect with permanent and temporary works within the Proposed Scheme. The total area in Table A8-2-4 (9.35ha) is slightly less than total for Table A8-2-3 (10.27ha), as planned works will not occur across the full extent of the Proposed Scheme boundary. 3.05ha of potential GWDTE intersect with temporary works, with 1.93ha intersecting with permanent works. The communities M6, M23 and MG10 are the potential GWDTEs with the greatest losses.

A8-2.4.19. Most of the NVC woodland communities to be lost do not need to be assessed under the Scottish Government's Control of Woodland Removal Policy as the woodland loss either does not exceed the 0.1ha threshold, or because they are scrub or bracken-dominated habitats that do not meet the definition of woodland under this policy. The exception is the temporary loss of 0.32ha of W4.

Table A8-2-4 - Extent of habitats that intersect temporary and permanent works within the Proposed Scheme (NVC)

NVC Community Type	SEPA LUPS-GU31 GWDTE Potential Groundwater Dependency	Habitat Area that Intersects Temporary Works (ha)	Habitat Area that Intersects Permanent Works (ha)
CG10	High	0.03	-
CG11	High	0.03	-
H9	-	0.01	-
H12/H21 Mosaic	-	0.05	0.03

NVC Community Type	SEPA LUPS-GU31 GWDTE Potential Groundwater Dependency	Habitat Area that Intersects Temporary Works (ha)	Habitat Area that Intersects Permanent Works (ha)
H13	-	0.02	-
H14	-	0.05	-
M6	High	0.51	0.79
M10	High	0.14	-
M23	High	0.56	0.38
M23a	High	0.04	-
M23/M25 Mosaic	High/Moderate	0.30	-
M25	Moderate	0.11	0.09
MG6/MG7a Transition	-	0.02	-
MG7	-	0.01	0.01
MG9	Moderate	0.03	-
MG10	Moderate	0.90	0.57
U2	-	0.01	-
U4	-	0.04	0.06
U5/H14/U20/M23 Transition	-/High	0.07	0.09
U20	-	0.96	0.55
W1	Moderate	0.01	0.01
W4	High	0.32	-
W24	-	0.01	-
W25	-	0.11	0.24
W25a	-	0.41	-
Habitats not assigned to any NVC community (including existing paved surfaces)	-	0.91	0.87
Total		5.66	3.69

A8-2.4.20. All of the NVC communities recorded within the NVC Study Area (250m buffer around the Proposed Scheme) are described in the text below, with different subheadings for each major category by which NVC communities are grouped (e.g. aquatic communities, mires, heathlands).

A8-2.4.21. Some of these communities are outwith the Proposed Scheme boundary (e.g. aquatic communities and potential GWDTE; M26 and MG11).

Aquatic Communities

A8-2.4.22. Aquatic NVC communities were only identified within Loch Restil on the northern side of the survey area. A full survey of aquatic macrophytes was not undertaken or considered necessary as part of the NVC survey, because the Proposed Scheme is not predicted to have any impacts on Loch Restil. Three aquatic plant communities were identified from the shoreline:

- A22 *Littorella uniflora-Lobelia dortmanna* community: A community most commonly found in oligotrophic upland waterbodies dominated by shoreweed *Littorella uniflora* and water lobelia *Lobelia dortmanna*.
- A23 *Isotes lacustris/setacea* community: A community most commonly found in oligotrophic upland lakes, dominated by quillwort *Isotes lacustris* and *Isotes echinospora*. These similar species were not distinguished during the survey.
- A24 *Juncus bulbosus* community: A community most commonly found in oligotrophic upland lakes, dominated by bulbous rush *Juncus bulbosus*.

Mire Communities

A8-2.4.23. Mire communities were widespread across the survey area. In total ten mire communities were identified as outlined below:

- M2 *Sphagnum cuspidatum/recurvum* bog pool community. Small areas of this community were present in the northern side of the survey area, associated with an area of M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire. This community was characterised by the presence of *Sphagnum cuspidatum* within bog pools.
- M4 *Carex rostrata-Sphagnum recurvum* mire. This community was scattered in flushes throughout the survey area, mostly west of the Old Military Road although it was less widespread than M6 in these habitats. It was characterised by the presence of bottle sedge *Carex rostrata* as a constant species.

- M6 *Carex echinata-Sphagnum recurvum* mire. This community was widespread in flushes throughout the survey area including within the Proposed Scheme. This is a type of poor-fen characterised by frequent star sedge *Carex echinata* and base-intolerant *Sphagna*.
- M10 *Pinguiculo-Caricetum* mire. These communities were localised to two areas in the survey area, between the A83 and Old Military Road, with a M10 mosaic nearby, downslope. They are calcareous flush communities characterised by a high diversity of small sedges including species like dioecious sedge *Carex dioica* that are dependent on base-enrichment.
- M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire. M18 was present in the survey area only in an area to the north-east of the A83. It was characterised by the constant presence of peat-forming *Sphagna* including *Sphagnum papillosum* and *Sphagnum rubellum* in ombrotrophic blanket bog conditions.
- M21 *Narthecio-Sphagnetum* valley mire. This community was present in two areas within the survey area, south of the Old Military Road. It was characterised by the constant presence of bog asphodel *Narthecium ossifragum* and peat-forming *Sphagna* including *Sphagnum papillosum* and *Sphagnum rubellum* in minerotrophic valley mire conditions.
- M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture. This community was widespread in the survey area including within the Proposed Scheme; it was found on both sides of the Old Military Road but not east of the A83. Two sub-communities were identified, although not all M23 stands were referable to either of these sub-communities.
    - M23a *Juncus effusus/acutiflorus-Galium palustre* rush-pasture *Juncus acutiflorus* sub-community. This subcommunity was characterised by sharp-flowered rush *Juncus acutiflorus* being dominant over soft rush *Juncus effusus* and
    - M23b *Juncus effusus/acutiflorus-Galium palustre* rush-pasture *Juncus effusus* sub-community. This subcommunity was characterised by dominant soft rush in the absence of sharp-flowered rush.
- M25 *Molinia caerulea-Potentilla erecta* mire. M25 was an abundant and generally species-poor community occurring throughout the survey area, including within the Proposed Scheme, in both grazed pasture and regenerating forestry clear-fell. It was characterised by constant purple-moor grass *Molinia caerulea* and tormentil *Potentilla erecta*.

- M26 *Molinia caerulea-Crepis paludosa* mire. This community was present to the south of Loch Restil in the northern part of the survey area, within the Beinn an Lochain SSSI, in a mosaic with M23. It is a more species-rich purple moor-grass dominated community than M25, with constant marsh hawk's-beard *Crepis paludosa*.

Acid Grassland Communities

A8-2.4.24. Acid grassland communities were widespread within the Proposed Scheme and survey area. Five acid grassland communities were identified by the NVC surveys, as outlined below:

- U2 *Deschampsia flexuosa* grassland. This was present in a small area of regenerating forestry clear-fell on the southern side of the survey area, between the A83 and Old Military Road. It was dominated by wavy hair-grass *Avenella flexuosa* (formerly known as *Deschampsia flexuosa*).
- U4 *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland. U4 was widespread throughout pasture in the survey area, including within the Proposed Scheme. It is characterised as grassland in which sheep's fescue *Festuca ovina*, common bent *Agrostis capillaris* and heath bedstraw *Galium saxatile* were the most consistent components.
- U5 *Nardus stricta-Galium saxatile* grassland. This community was present over a small area of pasture on the northern side of the survey area. It was characterised by the dominance of mat-grass *Nardus stricta*.
- U20 *Pteridium aquilinum-Galium saxatile* community. U20 is a very widespread community across the survey area, including within the Proposed Scheme, especially in ungrazed areas such as clear-felled forestry plantations and road verges. Most of the stands were dominated by bracken *Pteridium aquilinum* with few other species present.
- U21 *Cryptogramma crispa-Deschampsia flexuosa* grassland was present in the north of the survey area adjacent to the A83.

Neutral Grassland Communities

A8-2.4.25. Neutral grassland communities were scattered throughout the survey area, especially where the vegetation had been agriculturally improved or disturbed by forestry operations. Four neutral grassland communities were identified during the NVC surveys as outlined below:

- MG6 *Lolio-Cynosuretum cristati* grassland/MG7a *Lolium perenne* leys and related grasslands *Lolio-Plantaginion Lolium perenne-Trifolium repens* leys. An area of pasture on the northern side of the survey area (including within the Proposed Scheme) was transitional between these two community types, as it was an area of agriculturally improved re-seeded grassland (MG7a) in the process of reverting to a semi-improved community (MG6).
- MG9 *Holcus lanatus-Deschampsia cespitosa* grassland. This community was frequent in low-lying pasture within the survey area, especially in proximity to the Croe Water and in both grazed pasture and clear-felled forestry plantations. It was characterised by the dominance of tufted hair-grass *Deschampsia cespitosa* and a range of other bulky grasses.
- MG10 *Holco-Juncetum effusi* rush-pasture. This was present in one area of clear-felled forestry on the southern side of the survey area. It was characterised by prominent tussocks of soft rush *Juncus effusus* in addition to creeping bent *Agrostis stolonifera*, Yorkshire fog *Holcus lanatus* and creeping buttercup *Ranunculus repens*.
- MG11 *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland. This community was present in one area of clear-felled forestry on the southern side of the survey area. It was characterised by the abundance of red fescue *Festuca rubra* and creeping bent *Agrostis stolonifera*.

Calcareous Grassland Communities

A8-2.4.26. Two calcareous grassland communities were identified by the NVC surveys, these were highly localised:

- CG10 *Festuca ovina-Agrostis capillaris-Thymus praecox* grassland and CG11 *Festuca ovina-Agrostis capillaris-Alchemilla alpina* grass-heath. These communities were present in a small area of cattle-grazed pasture on the northern side of the survey area, where it is currently subject to overgrazing and high levels of disturbance from trampling. These are species-rich upland calcareous grassland communities in which sheep's fescue *Festuca ovina* and common bent *Agrostis capillaris* are constant.

Woodland/Scrub Communities

A8-2.4.27. Woodland and scrub communities were scattered throughout the survey area especially where vegetation was protected from grazing, and in plantations, were a recognisable NVC ground flora community was sometimes observed

beneath the planted trees. Eight woodland/scrub communities were identified by the NVC surveys:

- W1 *Salix cinerea-Galium palustre* woodland. There were scattered stands of regenerating grey willow *Salix cinerea* dominated woodland found throughout the survey area, generally in areas that are not grazed by livestock.
- W4 *Betula pubescens-Molinia caerulea* woodland. A small stand of W4 was present on either side of the Croe Water north-east of the A83. This community was characterised by dominant *Betula pubescens* with frequent purple moor-grass *Molinia caerulea* in the ground layer.
- W11 *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland. This community was occasional on the southern side of the survey area, as scattered regeneration in areas not grazed by livestock, where it occurred in a mosaic with other woodland types. It was not present as mature woodland.
- W16 *Quercus spp.-Betula spp.-Deschampsia flexuosa* woodland. Several areas of mature conifer plantation within the survey area had a ground flora that resembled this community type, although the natural canopy layer was not present.
- W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland. Some areas of mature conifer plantation within the survey area had a ground flora that resembled this community type, though it was less widespread than W16. The natural canopy layer was not present in these areas.
- W21 *Crataegus monogyna-Hedera helix* scrub. There were scattered stands of regenerating common hawthorn *Crataegus monogyna* dominated scrub corresponding to W21, present in the southern side of the site in a mosaic with other community types in ungrazed areas.
- W24 *Rubus fruticosus-Holcus lanatus* underscrub. This community was scattered in ungrazed areas on the southern side of the survey area. It is a bramble dominated community in which Yorkshire-fog *Holcus lanatus* is also constant.
- W25 *Pteridium aquilinum-Rubus fruticosus* underscrub. This was a common and widespread habitat throughout the survey area, especially in ungrazed areas and on steep slopes. It was characterised by bracken

Pteridium aquilinum and bramble *Rubus fruticosus*, both of which were constant species;

- Some of the stands of W25 on the northern side of the survey area were assigned as the W25a *Hyacinthoides non-scripta* sub-community as they had a significant herbaceous component, which included bluebell *Hyacinthoides non-scripta*.

Heathland Communities

A8-2.4.28. Seven heathland NVC communities were identified by the NVC surveys as follows:

- H9 *Calluna vulgaris-Deschampsia flexuosa* heath. This community was present as small stands scattered throughout the southern side of the survey area. This is a heathland community in which common heather *Calluna vulgaris* and wavy hair-grass *Avenella flexuosa* (formerly *Deschampsia flexuosa*) are constant species.
- H10 *Calluna vulgaris-Erica cinerea* heath. H10 was only present in forestry clear-fell on the southern part of the survey area, in a mosaic with other heathland types. It was characterised as heathland in which bell heather *Erica cinerea* is co-dominant with common heather.
- H12 *Calluna vulgaris-Vaccinium myrtillus* heath. This was a widespread community throughout the survey area, most extensively where it has regenerated in areas of forestry clear-fell. It was characterised as a heathland community in which common heather and bilberry *Vaccinium myrtillus* are constant and dominant along with a range of species characteristic of dry acid habitats.
- H13 - *Calluna vulgaris-Cladonia arbuscula* heath was recorded in a small patch in the north of the survey area between the A83 and the OMR. This is a near-natural, high-altitude heath community, bordered by the A83 to the north and a complex mix of mesotrophic grasslands, rush pasture and bracken-dominated vegetation.
- H14 *Calluna vulgaris-Racomitrium lanuginosum* heath. This was a frequent community within the survey area, especially on its northern side. Most of these swards are grazed, with close cropped common heather and a range of bryophyte and lichen species.

- H18 *Vaccinium myrtillus-Deschampsia flexuosa* heath. This was a very localised community on the southern side of the survey area in which bilberry was a constant species, with little heather.
- H21 *Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium* heath. This community was present mostly within the Beinn an Lochain SSSI but also scattered on the southern side of the survey area. It is a bryophyte-rich heathland community in which *Sphagnum capillifolium* is constant with common heather and bilberry.