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# Appendix 6.1

## Technical Appendix Ecology

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### List of Abbreviations

List and describe your abbreviations here.

Abbreviation	Description
AYR-LBAP	Ayr Local Biodiversity Action Plan
DGLBAP09	Dumfries and Galloway Local Biodiversity Action Plan 2009
EIA	Environmental Impact Assessment
GMBRC	Glasgow Museums Biological Record Centre
HabRegs	The Conservation of Habitat and Species Regulations 2017
SBL	Scottish Biodiversity List
SWSEIC	South West Scotland Environmental Information Centre
UKBAP	UK Biodiversity List
WCA	The Wildlife and Countryside Act 1981

## 6.1. INTRODUCTION

A6.1.1. This Technical Appendix presents the following information in support of the Ecology Chapter 6 of the Environmental Impact Assessment (EIA) for the Proposed Development:

- Existing non-confidential ecology records within a 5 km radius (10 km for bats) of the original site boundary, held by the South West Scotland Environmental Information Centre (SWSEIC) and Glasgow Museums Biological Record Centre (GMBRC);
- Details of habitat surveys carried out by Natural Power; and
- Details of protected mammal surveys carried out by Natural Power

## 6.2. LATIN NAMES

A6.2.1. Latin names of all animal species referred to in Chapter 6: Ecology are given in Table 1, Latin names of all plant and lichen species referred to in Chapter 6 are given in Table 2.

Table 1: Latin names of animal species referred to in Chapter 6

Taxon group	Scientific Name	Common Name
Amphibian	<i>Bufo bufo</i>	Common Toad
Amphibian	<i>Lissotriton helveticus</i>	Palmate Newt
Amphibian	<i>Lissotriton vulgaris</i>	Smooth Newt
Amphibian	<i>Rana temporaria</i>	Common Frog
Reptile	<i>Anguis fragilis</i>	Slow-worm
Reptile	<i>Vipera berus</i>	Adder
Reptile	<i>Zootoca vivipara</i>	Common Lizard
Terrestrial Mammal	<i>Erinaceus europaeus</i>	Hedgehog
Terrestrial Mammal	<i>Lepus europaeus</i>	Brown Hare
Terrestrial Mammal	<i>Lepus timidus</i>	Mountain Hare
Terrestrial Mammal	<i>Lutra lutra</i>	Otter
Terrestrial Mammal	<i>Meles meles</i>	Badger
Terrestrial Mammal	<i>Sciurus carolinensis</i>	Grey Squirrel
Terrestrial Mammal	<i>Sciurus vulgaris</i>	Red Squirrel
Terrestrial Mammal	<i>Arvicola amphibius</i>	Water Vole
Terrestrial Mammal - bat	<i>Myotis sp.</i>	Mouse-eared bat species
Terrestrial Mammal - bat	<i>Myotis daubentonii</i>	Daubenton's Bat
Terrestrial Mammal - bat	<i>Myotis mystacinus/brandtii</i>	Whiskered/Brandt's Bat
Terrestrial Mammal - bat	<i>Myotis nattereri</i>	Natterer's Bat
Terrestrial Mammal - bat	<i>Nyctalus sp.</i>	Noctule bat species
Terrestrial Mammal - bat	<i>Nyctalus leisleri</i>	Leisler's bat/Lesser Noctule
Terrestrial Mammal - bat	<i>Nyctalus noctula</i>	Common Noctule
Terrestrial Mammal - bat	<i>Pipistrellus sp.</i>	Pipistrelle Bat species
Terrestrial Mammal - bat	<i>Pipistrellus nathusii</i>	Nathusius' Pipistrelle

Taxon group	Scientific Name	Common Name
Terrestrial Mammal - bat	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle
Terrestrial Mammal - bat	<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle
Terrestrial Mammal - bat	<i>Plecotus auritus</i>	Brown Long-eared Bat
Insect - Butterfly	<i>Boloria selene</i>	Small Pearl-bordered Fritillary
Insect - Butterfly	<i>Coenonympha pamphilus</i>	Small Heath
Insect - Butterfly	<i>Coenonympha tullia</i>	Large Heath
Insect - Butterfly	<i>Nymphalis polychloros</i>	Large Tortoiseshell
Insect - Moth	<i>Acronicta rumicis</i>	Knot Grass
Insect - Moth	<i>Arctia caja</i>	Garden Tiger
Insect - Moth	<i>Caradrina morpheus</i>	Mottled Rustic
Insect - Moth	<i>Celaena haworthii</i>	Haworth's Minor
Insect - Moth	<i>Diarsia rubi</i>	Small Square-spot
Insect - Moth	<i>Ecliptopera silaceata</i>	Small Phoenix
Insect - Moth	<i>Eugnorisma glareosa</i>	Autumnal Rustic
Insect - Moth	<i>Hydraecia micacea</i>	Rosy Rustic
Insect - Moth	<i>Melanchra persicariae</i>	Dot Moth
Insect - Moth	<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar
Insect - Moth	<i>Spilosoma lubricipeda</i>	White Ermine
Insect - Moth	<i>Spilosoma lutea</i>	Buff Ermine
Insect - Moth	<i>Tyria jacobaeae</i>	Cinnabar
Insect - Moth	<i>Xanthorhoe decoloraria</i>	Red Carpet
Insect - Dragonfly (Odonata)	<i>Coenagrion pulchellum</i>	Variable Damselfly
Insect - Hymenopteran	<i>Bombus monticola</i>	Bilberry (Blaeberry) Bumblebee
Insect - Beetle (Coleoptera)	<i>Cyphon punctipennis</i>	insect - beetle (Coleoptera)

Table 2: Latin names of plant and lichen species referred to in Chapter 6

Type	Scientific Name	Common Name
Herb	<i>Parnassia palustris</i>	Grass of Parnassus
Herb	<i>Achillea millefolium</i>	Yarrow
Herb	<i>Achillea ptarmica</i>	Sneezewort
Herb	<i>Ajuga reptans</i>	Bugle
Herb	<i>Angelica sylvestris</i>	Wild Angelica
Herb	<i>Calluna vulgaris</i>	Heather
Herb	<i>Caltha palustris</i>	Marsh marigold
Herb	<i>Campanula rotundifolia</i>	Harebell
Herb	<i>Cardamine pratensis</i>	Cuckooflower
Herb	<i>Centaura nigra</i>	Common Knapweed
Herb	<i>Cerastium fontanum</i>	Common Mouse-ear

Type	Scientific Name	Common Name
Herb	<i>Chamaenerion angustifolium</i>	Rosebay willowherb
Herb	<i>Chrysosplenium oppositifolium</i>	Opposite-leaved Golden-saxifrage
Herb	<i>Cirsium palustre</i>	Marsh Thistle
Herb	<i>Drosera rotundifolia</i>	Round-leaved sundew
Herb	<i>Empetrum nigrum</i>	Crowberry
Herb	<i>Epilobium anagallidifolium</i>	Alpine Willowherb
Herb	<i>Epilobium montanum</i>	Broad-leaved Willowherb
Herb	<i>Erica cinerea</i>	Bell Heather
Herb	<i>Erica tetralix</i>	Cross-leaved Heather
Herb	<i>Fallopia japonica</i>	Japanese Knotweed
Herb	<i>Filipendula ulmaria</i>	Meadowsweet
Herb	<i>Galium palustre</i>	Marsh Bedstraw
Herb	<i>Galium saxatile</i>	Heath Bedstraw
Herb	<i>Geum rivale</i>	Water avens
Herb	<i>Hypericum elodes</i>	Marsh St John's-wort
Herb	<i>Impatiens glandulifera</i>	Indian Balsam
Herb	<i>Linum catharticum</i>	Fairy Flax
Herb	<i>Lotus uliginosus</i>	Greater bird's-foot trefoil
Herb	<i>Lynchnis flos-cuculi</i>	Ragged robin
Herb	<i>Lysimachia nemorum</i>	Yellow Pimpernel
Herb	<i>Montia fontana</i>	Blinks
Herb	<i>Myosotis laxa</i>	Tufted Forget-me-not
Herb	<i>Myosotis secunda</i>	Creeping forget-me-not
Herb	<i>Myosotis stolonifera</i>	Pale Forget-me-not
Herb	<i>Narthecium ossifragum</i>	Bog Asphodel
Herb	<i>Oxalis acetosella</i>	Wood-sorrel
Herb	<i>Pedicularis palustris</i>	Marsh Lousewort
Herb	<i>Pilosella officinarum</i>	Mouse-ear-hawkweed
Herb	<i>Pinguicula vulgaris</i>	Common Butterwort
Herb	<i>Plantago lanceolata</i>	Ribwort Plantain
Herb	<i>Plantago major</i>	Broadleaf plantain
Herb	<i>Polygala serpyllifolia</i>	Heath Milkwort
Herb	<i>Potamogeton polygonifolius</i>	Bog Pondweed
Herb	<i>Potamogeton sp.</i>	Pondweed
Herb	<i>Potentilla erecta</i>	Tormentil
Herb	<i>Potentilla palustris</i>	Marsh cinquefoil
Herb	<i>Primula vulgaris</i>	Common primrose

Type	Scientific Name	Common Name
Herb	<i>Prunella vulgaris</i>	Selfheal
Herb	<i>Ranunculus acris</i>	Meadow Buttercup
Herb	<i>Ranunculus flammula</i>	Lesser Spearwort
Herb	<i>Ranunculus omiophyllus</i>	Round-leaved Crowfoot
Herb	<i>Ranunculus repens</i>	Creeping Buttercup
Herb	<i>Rubus chamaemorus</i>	Cloudberry
Herb	<i>Rumex acetosa</i>	Common Sorrel
Herb	<i>Saxifraga stellaris</i>	Starry Saxifrage
Herb	<i>Stachys palustris</i>	Marsh woundwort
Herb	<i>Stellaria alsine</i>	Bog Stitchwort
Herb	<i>Succisa pratensis</i>	Devil's-bit Scabious
Herb	<i>Teucrium scorodonia</i>	Woodland germander
Herb	<i>Thymus polytrichus</i>	Wild Thyme
Herb	<i>Thymus praecox</i>	Wild Thyme
Herb	<i>Trifolium repens</i>	White Clover
Herb	<i>Tussilago farfara</i>	Coltsfoot
Herb	<i>Vaccinium myrtillus</i>	Bilberry
Herb	<i>Vaccinium oxycoccos</i>	Cranberry
Herb	<i>Vaccinium uliginosum</i>	Bog bilberry
Herb	<i>Vaccinium vitis-idaea</i>	Cowberry
Herb	<i>Valeriana officinalis</i>	Valerian
Herb	<i>Verbena officinalis</i>	Common verbena
Herb	<i>Veronica montana</i>	Wood speedwell
Herb	<i>Viola palustris</i>	Marsh Violet
Herb	<i>Viola riviniana</i>	Common Dog-violet
Conifer	<i>Juniperus communis</i>	Juniper
Conifer	<i>Pinus sylvestris</i>	Scots pine
Tree/shrub	<i>Salix aurita</i>	Eared willow
Tree/shrub	<i>Salix cinerea</i>	Grey willow
Tree/shrub	<i>Alnus glutinosa</i>	Black alder
Tree/shrub	<i>Crataegus sp.</i>	Hawthorn species
Grass	<i>Agrostis capillaris</i>	Common Bent
Grass	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
Grass	<i>Arrhenatherum elatius</i>	False oat-grass
Grass	<i>Briza media</i>	Quaking-grass
Grass	<i>Deschampsia cespitosa</i>	Tufted Hairgrass
Grass	<i>Deschampsia flexuosa</i>	Wavy Hair-grass

Type	Scientific Name	Common Name
Grass	<i>Festuca ovina</i>	Sheep's Fescue
Grass	<i>Festuca rubra</i>	Red Fescue
Grass	<i>Festuca vivipara</i>	Viviparous sheep's-fescue
Grass	<i>Holcus lanatus</i>	Yorkshire Fog
Grass	<i>Molinia caerulea</i>	Purple Moor-grass
Grass	<i>Nardus stricta</i>	Mat-grass
Sedge	<i>Carex dioica</i>	Dioecious Sedge
Sedge	<i>Carex echinata</i>	Star Sedge
Sedge	<i>Carex flacca</i>	Glaucous Sedge
Sedge	<i>Carex lasiocarpa</i>	Slender Sedge
Sedge	<i>Carex nigra</i>	Common Sedge
Sedge	<i>Carex panicea</i>	Carnation Sedge
Sedge	<i>Carex pulicaris</i>	Flea Sedge
Sedge	<i>Carex rostrata</i>	Bottle Sedge
Sedge	<i>Carex viridula</i>	Little Green Sedge
Sedge	<i>Eriophorum angustifolium</i>	Common Cottongrass
Sedge	<i>Eriophorum vaginatum</i>	Hare's-tail Cottongrass
Sedge	<i>Scirpus cespitosus (Trichophorum cespitosum)</i>	Deergrass
Sedge	<i>Trichophorum cespitosum</i>	Deergrass
Sedge	<i>Trichophorum germanicum</i>	Deergrass
Rush	<i>Juncus acutiflorus</i>	Sharp-flowered Rush
Rush	<i>Juncus articulatus</i>	Jointed Rush
Rush	<i>Juncus bulbosus</i>	Bulbous Rush
Rush	<i>Juncus effusus</i>	Soft Rush
Rush	<i>Juncus squarrosus</i>	Heath Rush
Rush	<i>Luzula campestris</i>	Field Woodrush
Fern	<i>Oreopteris limbosperma</i>	Mountain Fern
Fern	<i>Pteridium aquilinum</i>	Bracken
Horsetail	<i>Equisetum palustre</i>	Marsh Horsetail
Moss	<i>Brachythecium rutabulum</i>	Rough-stalked Feather-moss
Moss	<i>Breutelia chrysocoma</i>	Golden-head Moss
Moss	<i>Bryum pseudotriquetrum</i>	Marsh Bryum
Moss	<i>Calliergonella cuspidata</i>	Pointed Spear-moss
Moss	<i>Campylium stellatum</i>	Yellow Starry Feather-moss
Moss	<i>Campylopus introflexus</i>	Heath star moss
Moss	<i>Ctenidium molluscum</i>	Comb-moss
Moss	<i>Dichodontium palustre</i>	Marsh Forklet-moss

Type	Scientific Name	Common Name
Moss	<i>Hylocomium splendens</i>	Glittering Woodmoss
Moss	<i>Hypnum jutlandicum</i>	Heath Plait-moss
Moss	<i>Palustriella commutata</i>	Curled Hookmoss
Moss	<i>Philonotis calcarea</i>	Thick-nerved Apple-moss
Moss	<i>Philonotis fontana</i>	Fountain Apple-moss
Moss	<i>Plagiomnium undulatum</i>	Hart's-tongue Thyme Moss
Moss	<i>Pleurozium schreberi</i>	Red-stemmed Feathermoss
Moss	<i>Polytrichum commune</i>	Common Haircap
Moss	<i>Pseudoscleropodium purum</i>	Neat Feather-moss
Moss	<i>Racomitrium lanuginosum</i>	Woolly Fringe-moss
Moss	<i>Rhytidiadelphus loreus</i>	Little shaggy moss
Moss	<i>Rhytidiadelphus squarrosus</i>	Springy Turf-moss
Moss	<i>Scorpidium cossonii</i>	Intermediate Hook-moss
Moss	<i>Scorpidium revolvens</i>	Rust Hook-moss
Moss	<i>Sphagnum auriculatum</i>	Cow-horn Bog-moss
Moss	<i>Sphagnum capillifolium</i>	Red bog-moss
Moss	<i>Sphagnum cuspidatum</i>	Feathery Bog-moss
Moss	<i>Sphagnum denticulatum</i>	Cow-horn Bog-moss
Moss	<i>Sphagnum fallax</i>	Flat-topped Bog-moss
Moss	<i>Sphagnum magellanicum</i>	Magellanic Bog-moss
Moss	<i>Sphagnum palustre</i>	Blunt-leaved Bog-moss
Moss	<i>Sphagnum papillosum</i>	Papillose Bog-moss
Moss	<i>Sphagnum recurvum</i>	Flat-topped Bog-moss
Moss	<i>Straminergon stramineum</i>	Straw Spear-moss
Moss	<i>Thuidium tamariscinum</i>	Common Tamarisk-moss
Moss	<i>Warnstorfia exannulata</i>	Ringless Hook-moss
Moss	<i>Warnstorfia sarmentosa</i>	Twiggy Spear-moss
Clubmoss	<i>Diphasiastrum alpinum</i>	Alpine Clubmoss
Clubmoss	<i>Lycopodium clavatum</i>	Stag's-horn Clubmoss
Clubmoss	<i>Selaginella selaginoides</i>	Lesser Clubmoss
Liverwort	<i>Scapania undulata</i>	Water Earwort
Lungwort	<i>Lobaria pulmonaria</i>	Tree Lungwort
Lichen	<i>Cladonia</i>	Cladonia
Lichen	<i>Nephroma laevigatum</i>	lichen
Lichen	<i>Sticta fuliginosa s. lat.</i>	lichen
Lichen	<i>Sticta limbata</i>	lichen
Lichen	<i>Sticta sylvatica</i>	lichen

### 6.3. SURVEY METHODS

- A6.3.1. Baseline surveys were carried out between March 2019 and August 2020 (inclusive) to assess the habitats present in the Proposed Development Area and to quantify use of the development and surrounding area by protected mammal species.
- A6.3.2. All field surveys were undertaken by the following experienced ecological surveyors:
- Adam Anderson (AA)
  - Helen Allinson (HA)
  - Jack Bell (JB)
  - Nicole Dunn (ND)
  - Kirsten Hazelwood (KH)
  - Chris Rodger (CCR)
  - Heather Scott (HS)
- A6.3.3. The survey methods are described below.

#### Phase 1 Habitat Surveys

- A6.3.4. Phase 1 Habitat surveys were carried out in the Main Wind Farm Area in August to October 2019, further surveys of the Primary Proposed Access Route were carried out in August 2020. The Phase 1 habitat survey methodology provides a standardised system for classifying and mapping semi-natural vegetation and wildlife habitats over large areas of countryside.
- A6.3.5. Habitats across the survey area were identified and mapped using the standard Joint Nature Conservation Committee (JNCC) Phase 1 habitat classification<sup>1</sup>.
- A6.3.6. The survey was 'extended' to search for and record signs of legally protected or other notable species, and to assess the potential for the habitats to support such species. The surveyors specifically considered badger, otter, and water vole.

#### National Vegetation Classification (NVC)

- A6.3.7. National Vegetation Classification (NVC) surveys were carried out at the Main Wind Farm Area in August to October 2019, and in the Primary Proposed Access Route were carried out in August 2020, at the same time as the Phase 1 Habitat survey. The NVC is a detailed phytosociological classification, which assesses the full suite of vascular plant, bryophyte and macro-lichen species within a certain vegetation type.
- A6.3.8. NVC community and sub-community types were identified in the field (based on extensive surveyor experience), and delineated and mapped using Global Positioning System (GPS) as per Chapter 10 of the NVC Users' Handbook<sup>2</sup>. Where areas were considered to comprise mosaics or complexes of different habitat communities, the proportion of each was estimated in percentage terms. Details of habitat types identified within the survey area are provided in Chapter 6: Ecology of the EIAR.
- A6.3.9. Target Notes were recorded to provide an overview of the habitat types present and any features of ecological interest.

<sup>1</sup> JNCC, (2010), Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7

<sup>2</sup> Rodwell, J.S, (2006), NVC Users' Handbook, 68 pages, ISBN 978 1 86107 574 1

### Bat Surveys

A6.3.10. Surveys were undertaken between May and September 2019. Methods were based on best practice guidance from NatureScot<sup>3</sup> (previously called SNH) that was current at the time of survey and included a desk-based data search, a walkover survey for potential bat roosts, an automated static detector survey.

#### Walkover Surveys

A6.3.11. A walkover of the site and surrounding area was undertaken by Helen Allinson on 26 September 2019 to identify and assess potential bat roosts. Notes were taken where any habitat suitable for roosting was encountered during the survey, as well as any areas likely to provide key foraging or commuting habitat.

A6.3.12. Survey of any trees within 200 m of the proposed turbine locations which were current at the time of survey was undertaken in accordance with NatureScot guidelines<sup>3</sup> and included a preliminary assessment of the trees for any cracks, holes and crevices which would provide suitable roosting habitat. The inspection was undertaken from ground level with a powerful torch and binoculars.

#### Automated Static Detector Surveys

A6.3.13. A total of 12 Anabat SD4 bat detectors were deployed following the methods outlined by NatureScot<sup>3</sup> at sample locations within the site for 11-14 nights per survey period. All sample locations were deployed simultaneously in order to allow direct comparisons of bat activity. A summary of the automated survey schedule is provided in Table 3.

A6.3.14. Detectors were programmed to commence recording from 1 hour before sunset and continue until 1 hour after sunrise, to cover the active period for all species potentially encountered on site. Detectors recorded data to a memory card which was downloaded and later analysed to identify species present. Activity levels can also be established from this data, based on the number of 'bat passes' recorded. Bat passes are defined here as a fifteen-second recording file which contains at least one bat call.

Table 3: Static Bat Detector Deployment Dates and Locations

Detector ID	Grid Ref	Season	Date Out	Date In	No. Nights Deployed
1	NS 97040 05452	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
2	NS 97262 06233	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
3	NS 97953 06673	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
4	NS 98021 06364	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
5	NS 98254 05721	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14

<sup>3</sup> SNH. (2019). *Bats and onshore wind farms – survey, assessment and mitigation*. SNH. Battleby

Detector ID	Grid Ref	Season	Date Out	Date In	No. Nights Deployed
6	NS 98423 05262	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
7	NS 98998 06174	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
8	NS 99000 07236	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
9	NS 99106 07512	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
10	NS 99881 07129	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
11	NT 00206 06636	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14
12	NT 00304 07784	Spring	17/05/2019	28/05/2019	11
		Summer	01/07/2019	15/07/2019	14
		Autumn	06/09/2019	20/09/2019	14

A6.3.15. Weather was recorded at two met masts local to the development area and used to inform the bat data analysis. It is recommended that data is only used where the temperature is 8°C or higher and wind speeds are 5m/s or lower. Data was provided for met mast 1 (MM1) and 2 (MM2). Temperature was measured at height 40m. Wind speed was measured at 40m for MM1 and 50m for MM2. Wind speeds were measured every 10 minutes. Median and IQR of wind speeds have been calculated as the average of each 10-minute measure between sunset and sunrise. Weather recorded during bat detector deployments can be found in Table 4.

Table 4: Summary of weather conditions at the Proposed Development during bat activity surveys

Season	Date	MM1		MM2	
		Temp at sunset (°C)	Median (IQR) wind speed (m/s)	Temp at sunset (°C)	Median (IQR) wind speed (m/s)
Spring	17/05/19	6.6	4.3 (3.7 - 5.2)	6.6	4.6 (4.0 - 5.2)
	18/05/19	8.1	2.6 (2.2 - 2.9)	8.3	3.8 (3.3 - 4.1)
	19/05/19	7.6	3.5 (2.9 - 3.8)	7.6	3.3 (2.3 - 4.5)
	20/05/19	7.4	6.0 (5.6 - 6.6)	7.5	3.2 (2.4 - 4.4)
	21/05/19	7.2	3.7 (2.5 - 4.5)	7.2	5.6 (3.7 - 6.8)
	22/05/19	6.6	5.6 (5.4 - 6.3)	6.6	4.2 (3.7 - 5.0)
	23/05/19	6.5	9.8 (6.5 - 11.4)	6.9	10.3 (8.2 - 12.4)
	24/05/19	7.1	4.0 (2.2 - 6.5)	7.2	3.5 (1.8 - 4.8)
	25/05/19	11.4	6.9 (5.7 - 7.8)	11.5	8.3 (7.2 - 10.1)

Season	Date	MM1		MM2	
		Temp at sunset (°C)	Median (IQR) wind speed (m/s)	Temp at sunset (°C)	Median (IQR) wind speed (m/s)
Summer	26/05/19	6.9	14.0 (13.2 - 14.8)	7.5	15.9 (14.9 - 16.7)
	27/05/19	5.6	2.8 (1.9 - 3.5)	5.5	3.4 (2.6 - 3.9)
	01/07/19	8.9	6.4 (5.4 - 7.4)	9.2	9.7 (8.2 - 10.3)
	02/07/19	8.2	6.1 (5.7 - 6.9)	8.2	4.5 (4.0 - 5.1)
	03/07/19	9.7	6.4 (5.5 - 7.1)	10	5.4 (4.6 - 6.3)
	04/07/19	9.4	7.6 (6.1 - 11.1)	9.6	10.5 (8.7 - 13.8)
	05/07/19	10.5	9.9 (8.8 - 11.1)	10.5	10.2 (9.3 - 11.6)
	06/07/19	10	3.5 (2.8 - 3.9)	9.7	2.8 (2.1 - 3.5)
	07/07/19	10.8	2.5 (2.2 - 2.8)	11	2.2 (1.7 - 3.4)
	08/07/19	11.1	2.3 (1.7 - 2.8)	11.5	4.2 (3.2 - 5.7)
	09/07/19	12.6	4.4 (3.3 - 5.6)	12.6	4.7 (4.3 - 5.1)
	10/07/19	12	2.1 (1.7 - 2.7)	12.1	4.8 (4.5 - 6.1)
	11/07/19	11.6	5.6 (5.0 - 6.5)	12	5.5 (4.6 - 6.1)
	12/07/19	10.9	5.6 (4.6 - 6.2)	11.3	3.7 (3.2 - 4.2)
Autumn	13/07/19	10.9	2.4 (0.9 - 4.1)	10.9	2.5 (1.5 - 4.4)
	14/07/19	13.5	1.0 (0.7 - 1.4)	13.6	0.9 (0.6 - 1.3)
	06/09/19	8.8	6.3 (5.4 - 7.2)	9.1	5.6 (4.0 - 7.1)
	07/09/19	8.7	1.3 (1.0 - 1.7)	9.3	1.3 (0.9 - 1.6)
	08/09/19	9.3	4.5 (3.3 - 6.0)	9.3	6.3 (5.6 - 7.1)
	09/09/19	9.7	4.6 (4.2 - 4.9)	9.8	3.6 (3.2 - 4.0)
	10/09/19	8.1	13.0 (12.1 - 14.1)	8.1	15.1 (14.1 - 16.7)
	11/09/19	9.7	6.1 (5.4 - 6.9)	9.7	8.1 (7.1 - 9.1)
	12/09/19	8.3	8.5 (7.8 - 9.8)	8.7	9.5 (8.4 - 10.5)
	13/09/19	8.7	5.2 (4.3 - 6.6)	8.9	6.7 (5.1 - 8.3)
14/09/19	11.3	11.1 (10.0 - 13.2)	11.3	12.9 (11.1 - 15.5)	
15/09/19	7.6	3.6 (2.7 - 4.0)	7.7	4.1 (2.8 - 4.6)	
16/09/19	7.6	11.7 (10.8 - 12.7)	8	11.8 (10.6 - 12.7)	
17/09/19	7.5	2.7 (2.0 - 3.3)	7.6	2.2 (1.9 - 2.7)	
18/09/19	10.4	2.4 (1.7 - 3.4)	10.4	2.5 (1.5 - 3.3)	
19/09/19	12.4	1.5 (1.3 - 1.8)	12.5	1.8 (1.6 - 2.5)	

Source: Natural Power

**Bat Survey Analysis**

A6.3.16. Due to the large number of data files analysis was undertaken to species or genus using Kaleidoscope automatic identification software. Signal Parameters were 15-120 kHz, 2-500 ms, 500 ms maximum inter-syllable gap and with a minimum of 3 pulses. All data was then collated into an excel spreadsheet. *Myotis* sp. were not identified further than genus due to the overlap between species frequency calls. Pipistrelle and *Nyctalus* species were

retained as species groups where there was an overlap between calls of common, soprano and Nathusius' pipistrelles or Leisler's and noctule (*Nyctalus*) bats but were classified to species where this was possible.

- A6.3.17. Manual checks of the auto-identified results were undertaken for all calls of all species except for common and soprano pipistrelle due to some unreliability of the software for other species, as well as recordings that did not fit to species parameters within the software. Quality assurance checks were undertaken on 10% of all calls, as well as to confirm rarer species identification.
- A6.3.18. Relative activity levels of the bats recorded a value for the total bat passes each night for each species, these are compared to the values in the Ecobat reference database. This quantifies what percentile the bat data falls at, and therefore what the relative activity level is.
- A6.3.19. Natural Power identified potential issues within the Ecobat programme<sup>4</sup> during analysis. A bug in the Ecobat analysis incorrectly reports the relative activity for bat pass records identified to genus, but only on nights when bat passes were recorded from a species within the same group. The bug affected 64 bat pass records in total which were removed: 14 bat pass records for Unidentified *Nyctalus* sp. and 50 bat pass records for Unidentified *Pipistrellus* sp.

## Protected Mammals

- A6.3.20. A summary of survey effort and weather conditions for protected mammal surveys are shown in Table 5.

### Otter Survey

- A6.3.21. Otter surveys were undertaken in areas of suitable habitat within the Daer Land Portion in August 2019, in the Kinnelhead Development Area in October 2019, and within 250 m of the Primary Proposed Access Route in August

2020. Surveys were undertaken by experienced surveyors in suitable weather conditions. Otter field signs that were searched for, as described in Bang & Dahlstrøm (2001)<sup>5</sup> and Sargent & Morris (2003)<sup>6</sup>.

- A6.3.22. Evidence of otter presence was recorded in the field, including the location of all signs via the use of a handheld GPS and photographs to visually catalogue each record.

### Water Vole Survey

- A6.3.23. Water vole surveys were undertaken in areas of suitable habitat within the Daer Land Portion in August 2019, in the Kinnelhead Development Area in October 2019, and within 250 m of the Primary Proposed Access Route in August 2020. Surveys were undertaken by experienced surveyors in suitable weather conditions. Water vole field signs that were searched for, as described in Strachan & Moorhouse (2011)<sup>7</sup>.

- A6.3.24. Evidence of water vole presence was recorded in the field, including the location of all signs via the use of a handheld GPS and photographs to visually catalogue each record.

### Badger Survey

- A6.3.25. Badger surveys were undertaken in areas of suitable habitat within the Daer Land Portion in August 2019, in the Kinnelhead Development Area in October 2019, and within 250 m of the Primary Proposed Access Route in August 2020. Surveys were undertaken by experienced surveyors in suitable weather conditions. Badger field signs that were searched for, as described in Neal & Cheeseman (1996)<sup>8</sup>, Bang & Dahlstrøm (2001)<sup>5</sup> and SNH (2001)<sup>9</sup>.

- A6.3.26. Evidence of badger presence was recorded in the field, including the location of all signs via the use of a handheld GPS and photographs to visually catalogue each record.

Table 5: Protected mammal survey effort and weather 2019 and 2020

Date	Observer	Start Time	End Time	Precipitation (last 24hrs)	Water Level	Notes
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	HA	10:15	16:00	Dry	Medium	Daer river
26/08/2019	AA	14:16		Dry	Medium	
26/08/2019	AA	14:02		Dry	Medium	
26/08/2019	AA	13:57		Dry	Medium	
26/08/2019	AA	13:49		Dry	Medium	

<sup>4</sup> First reported to Ecobat in January 2020.

<sup>5</sup> Bang, P. & Dahlstrøm, P. (2001). *Animal Tracks and Signs*. Oxford University Press, Oxford.

<sup>6</sup> Sargent, G. & Morris, P. (2003) *How to find & Identify Mammals*. The Mammal Society, London.

<sup>7</sup> Strachan, R., Moorhouse, T. & Gelling, M. (2011) *The Water Vole Conservation Handbook*. Third Edition, Wildlife Conservation Research Unit, University of Oxford, Abingdon.

<sup>8</sup> Neal, E. & Cheeseman, C. (1996). *Badgers*. Poyser Natural History, London.

<sup>9</sup> Scottish Natural Heritage (2001). *Scotland's Wildlife: Badgers and Development*. SNH, Battleby.

Date	Observer	Start Time	End Time	Precipitation (last 24hrs)	Water Level	Notes
26/08/2019	AA	13:35		Dry	Low	
26/08/2019	AA	12:31		Dry	Medium	
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	HA	10:16		Dry	Medium	Crookburn
27/08/2019	AA	14:14		Dry	High	
27/08/2019	AA	14:09		Dry	High	
27/08/2019	AA	13:58		Dry	High	
27/08/2019	AA	11:32		Dry	Low	
27/08/2019	AA	11:23		Dry	Low	
27/08/2019	AA	11:17		Dry	Medium	
28/08/2019	AA	14:59		Light Showers	Low	
28/08/2019	AA	12:46		Drizzle	Low	
28/08/2019	AA	12:41		Drizzle	Low	
28/08/2019	AA	12:15		Light Showers	Low	
28/08/2019	AA	12:08		Drizzle	Low	
28/08/2019	AA	11:59		Light Showers	Low	
28/08/2019	AA	11:54		Light Showers	Low	
28/08/2019	AA	11:35		Dry	Low	
28/08/2019	AA	11:07		Dry	Low	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	



Date	Observer	Start Time	End Time	Precipitation (last 24hrs)	Water Level	Notes
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	HA	10:15	11:37	Light Showers	Medium	
29/08/2019	AA	10:37		Light Showers	High	
29/08/2019	AA	10:32		Light Showers	High	
29/08/2019	AA	10:28		Light Showers	High	
29/08/2019	AA	10:24		Light Showers	High	
29/08/2019	AA	10:21		Light Showers	High	
15/10/2019	HA	13:40			Medium	Bank vole feeding signs
15/10/2019	HA	13:30		Drizzle	Medium	
15/10/2019	HA	13:26		Drizzle	Medium	Old scat on rock
15/10/2019	HA	12:57		Drizzle	Medium	
15/10/2019	HA	12:50		Drizzle	Medium	
15/10/2019	HA	12:37		Drizzle	Medium	
15/10/2019	HA	12:28		Drizzle	Medium	
15/10/2019	HA	10:00		Drizzle	Medium	
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
18/08/2020	HA	10:00	16:00	Heavy Showers	Medium	Primary Proposed Access Route. Annandale estate section
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2

Date	Observer	Start Time	End Time	Precipitation (last 24hrs)	Water Level	Notes
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
19/08/2020	HA	10:00	17:21	Heavy Showers	Medium	Primary Proposed Access Route. Start of forestry, map 2
20/08/2020	HA	10:00	16:00	Light Showers	Medium	Primary Proposed Access Route
20/08/2020	HA	10:00	16:00	Light Showers	Medium	Primary Proposed Access Route
20/08/2020	HA	10:00	16:00	Light Showers	Medium	Primary Proposed Access Route
21/08/2020	JB	09:31	15:49	Heavy Rain (Persistent)	High	
21/08/2020	HA	09:45	14:00	Heavy Rain (Persistent)	High	Primary Proposed Access Route, bailed due to high winds
21/08/2020	HA	09:45	14:00	Heavy Rain (Persistent)	High	Primary Proposed Access Route, bailed due to high winds
26/08/2020	HA	10:00	14:00	Heavy Rain (Persistent)	High	Primary Proposed Access Route - finishing off forestry. Burns all done previous week.
26/08/2020	HA	10:00	14:00	Heavy Rain (Persistent)	High	Primary Proposed Access Route - finishing off forestry. Burns all done previous week.
26/08/2020	HA	10:00	14:00	Heavy Rain (Persistent)	High	Primary Proposed Access Route - finishing off forestry. Burns all done previous week.
26/08/2020	HA	10:00	14:00	Heavy Rain (Persistent)	High	Primary Proposed Access Route - finishing off forestry. Burns all done previous week.

## 6.4. RESULTS

### Desk Study Results

A6.4.1. A desk-based study was carried out in 2019 to identify the presence of protected species within a search buffer of the Proposed Development. The SWSEIC and GMBRC provided data on non-avian species recorded within a 10 km radius of the Daer Land Portion. Table 6 lists all protected or invasive species (excluding birds) for which there were records from between 2009 and 2019. Bird records are provided in Technical Appendix 7.1.

Table 6: Desk Study Results from SWSEIC and GMBRC

Taxon group	Species	No. Records	Last Recorded	Record from	Legally Protected Species	Biodiversity Lists	Invasive
Amphibian	Common Toad	12	2015	SWSEIC	WCA-Sch5	UKBAP, SBL	
Amphibian	Palmate Newt	5	2017	SWSEIC	WCA-Sch5		
Amphibian	Smooth Newt	5	2009	SWSEIC	WCA-Sch5		
Amphibian	Common Frog	19	2017	SWSEIC & GMBRC	WCA-Sch5		
Reptile	Slow-worm	4	2014	SWSEIC & GMBRC	WCA-Sch5	UKBAP, SBL	
Reptile	Adder	10	2017	SWSEIC	WCA-Sch5	UKBAP, SBL, DGLBAP09	
Reptile	Common Lizard	17	2010	SWSEIC	WCA-Sch5	UKBAP, SBL	
Terrestrial Mammal	Hedgehog	5	2015	SWSEIC		UKBAP, SBL	
Terrestrial Mammal	Brown Hare	1	2017	SWSEIC		UKBAP, SBL, AYR-LBAP, DGLBAP09	
Terrestrial Mammal	Mountain Hare	19	2016	SWSEIC	HabRegs-Sch4	UKBAP, SBL, DGLBAP09	
Terrestrial Mammal	Otter	20	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5		

Taxon group	Species	No. Records	Last Recorded	Record from	Legally Protected Species	Biodiversity Lists	Invasive
Terrestrial Mammal	Badger	43	2017	SWSEIC	Protection of Badgers Act 1992		
Terrestrial Mammal	Grey Squirrel	43	2017	SWSEIC			Invasive
Terrestrial Mammal	Red Squirrel	175	2017	SWSEIC	WCA-Sch5	UKBAP, SBL, AYR-LBAP, DGLBAP09	
Terrestrial Mammal	Myotis sp.	5	2016	SWSEIC & GMBRC	HabRegs-Sch2, WCA-Sch5		
Terrestrial Mammal	Daubenton's Bat	7	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5	SBL, DGLBAP09	
Terrestrial Mammal	Whiskered/ Brandt's Bat	2	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5		
Terrestrial Mammal	Natterer's Bat	7	2016	SWSEIC & GMBRC	HabRegs-Sch2, WCA-Sch5	SBL, DGLBAP09	
Terrestrial Mammal	Noctule sp.	13	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5	UKBAP, SBL, AYR-LBAP, DGLBAP09	
Terrestrial Mammal	Pipistrelle sp.	16	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5		
Terrestrial Mammal	Nathusius' Pipistrelle	1	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5	SBL	
Terrestrial Mammal	Common Pipistrelle	20	2016	SWSEIC & GMBRC	HabRegs-Sch2, WCA-Sch5	AYR-LBAP, DGLBAP09	
Terrestrial Mammal	Soprano Pipistrelle	13	2016	SWSEIC & GMBRC	HabRegs-Sch2, WCA-Sch5	UKBAP, SBL, AYR-LBAP, DGLBAP09	
Terrestrial Mammal	Brown Long-eared Bat	2	2016	SWSEIC	HabRegs-Sch2, WCA-Sch5	UKBAP, SBL, DGLBAP09	
Insect - Butterfly	Small Pearl-bordered Fritillary	52	2018	SWSEIC		UKBAP, SBL, DGLBAP09	
Insect - Butterfly	Small Heath	306	2018	SWSEIC & GMBRC		UKBAP, SBL	
Insect - Butterfly	Large Heath	5	2010	SWSEIC	WCA-Sch5	UKBAP, SBL	
Insect - Butterfly	Large Tortoiseshell	2	2013	SWSEIC	WCA-Sch5		
Insect - Moth	Knot Grass	3	2011	SWSEIC		UKBAP, SBL	
Insect - Moth	Garden Tiger	6	2010	SWSEIC		UKBAP, SBL	
Insect - Moth	Mottled Rustic	1	2015	SWSEIC		UKBAP, SBL	
Insect - Moth	Haworth's Minor	4	2013	SWSEIC		UKBAP, SBL	
Insect - Moth	Small Square-spot	3	2015	SWSEIC & GMBRC		UKBAP, SBL	
Insect - Moth	Small Phoenix	4	2009	SWSEIC		UKBAP, SBL	
Insect - Moth	Autumnal Rustic	2	2015	SWSEIC & GMBRC		UKBAP, SBL	
Insect - Moth	Rosy Rustic	3	2009	SWSEIC		UKBAP, SBL	
Insect - Moth	Dot Moth	3	2009	SWSEIC		UKBAP, SBL	
Insect - Moth	Shaded Broad-bar	1	2017	SWSEIC		UKBAP, SBL	
Insect - Moth	White Ermine	9	2015	SWSEIC & GMBRC		UKBAP, SBL	
Insect - Moth	Buff Ermine	7	2009	SWSEIC		UKBAP, SBL	
Insect - Moth	Cinnabar	5	2015	SWSEIC & GMBRC		UKBAP, SBL	
Insect - Moth	Red Carpet	6	2015	SWSEIC & GMBRC		UKBAP, SBL	
Insect - Dragonfly (Odonata)	Variable Damselfly	43	2014	SWSEIC		DGLBAP09	
Insect - Hymenopteran	Bilberry Bumblebee	2	2017	SWSEIC		SBL	
Insect - Beetle (Coleoptera)	<i>Cyphon punctipennis</i>	1	2017	SWSEIC		SBL, DGLBAP09	
Flowering Plant	Japanese Knotweed	11	2013	SWSEIC			Invasive
Flowering Plant	Indian Balsam	2	2015	SWSEIC			Invasive

Source: SWSEIC and GMBRC

## Phase 1 and NVC Surveys

### Main Wind Farm Area

A6.4.2. Descriptions of all habitats recorded during the Phase 1 Habitat and NVC surveys in the Main Wind Farm Area are given in Table 7. Target notes recorded in the Main Wind Farm Area during the habitat surveys are shown in Table 8.

Table 7: Phase 1 and NVC Habitat descriptions in the Proposed Development Area 2019

NVC Habitat	NVC Code	Phase 1 Habitat	Priority	Description
<i>Festuca ovina-Agrostis capillaris-Galium saxatile</i> grassland	U4a-b	Acid Grassland (B1)	UKBAP	Acid grassland, both unimproved and semi-improved, present throughout the site. Areas primarily present in the northern part of the site, on the lower areas of the gully to the east and in higher areas in the south of the site.
<i>Nardus stricta-Galium saxatile</i> grassland	U5a-d	Acid Grassland (B1)	None	
<i>Juncus squarrosus-Festuca ovina</i> grassland	U6a-d	Acid Grassland (B1)	None	
<i>Festuca ovina-Agrostis capillaris-Thymus praecox</i> grassland	CG10a-b	Calcareous grassland: unimproved (B3.1)	Annex 1 GWDTE (high) UKBAP	Species-rich calcareous grassland CG10 ( <i>Festuca ovina-Agrostis capillaris-Thymus praecox</i> grassland) was observed at several locations, always intimately associated with base-rich flushes on slopes. This indicates that the presence of calcareous communities was due largely to the irrigation of base rich water from the springs and flushes. Consequently, much of the grassland was the sedge-rich sub-community CG10b ( <i>Carex pulicaris-Carex panicea</i> sub-community), more typical of damper conditions. However, below some flushes were fairly extensive lawns of the drier CG10a ( <i>Trifolium repens-Luzula campestris</i> sub-community), which stood-out in contrast to the surrounding bog and heath communities.
<i>Juncus effusus/acutiflorus-Galium palustre</i> rush pasture	M23a-c	Marshy grassland (B5)	GWDTE (moderate) UKBAP	M6 acid flush, and, to a lesser extent, M23 was encountered widely across the site, often covering large swathes of land (particularly flanking watercourses on level ground). With the exception of areas of M23 clearly influenced by base-enriched groundwater (Target-noted), these habitats are among the less-sensitive potential GWDTE, on account of the reduced probability of being truly dependent on groundwater input and by being common and widespread habitats.
<i>Carex echinata-Sphagnum recurvum/auriculatum</i> mire	M6a-d	Flush and spring: acid/neutral (E2.1)	GWDTE (high) UKBAP	However, they are high and moderate potential GWDTE habitats.
<i>Holcus lanatus-Juncus effusus</i> rush pasture	MG10a	Marshy grassland (B5)	GWDTE (Moderate) UKBAP	Although classed as moderate GWDTE potential, this habitat, found mainly in association with rush-pasture communities and near water courses, is the least sensitive of the potential GWDTE, on account of habitat conservation value and unlikely groundwater dependency. It was generally well grazed and likely derived from former semi-improved hill grazing (inbye).
<i>Scirpus cespitosus-Erica tetralix</i> wet heath	M15a-c	Wet dwarf shrub heath (D2) & wet modified bog (E1.7)	Annex 1 GWDTE (moderate) UKBAP	Wet heath was an abundant habitat, often found in close mosaic with areas of more active blanket bog (particularly M17c) and representing more degraded blanket bog. There were a few small areas of the M15a <i>Carex panicea</i> sub-community, the more flushed sub-community indicating mild base-water influence. M15 is classed as moderate potential GWDTE, and this is the sub-community that indicates groundwater dependency. These areas were generally small and identified by TNs. They were largely associated with base-rich flush systems (M10) and avoidance/mitigation of these features is likely to safeguard M15a communities where found.
<i>Scirpus cespitosus-Eriophorum vaginatum</i> blanket mire	M17a-c	Blanket bog (E1.6.1)	Annex 1 UKBAP	The dominant relatively intact blanket bog community on-site. This blanket bog was found in greatest abundance on flatter ground, either on the floor of glens or gentle slopes on higher ground (where deeper peat deposits accumulate). Much of the M17 comprised the sub-community M17c; <i>Juncus squarrosus-Rhytidiadelphus loreus</i> sub-community. This is the driest sub-community and was often in mosaic with wet heath (M15).
				On the valley floor the most saturated sub-community M17a was found, with very extensive sheets of <i>Sphagnum papillosum</i> . It was in mosaic with the areas of M18 and it is likely that much of this area would correspond with M18 with more detailed assessment. However, deer grass ( <i>Trichophorum germanicum</i> ) and purple-moor grass ( <i>Molinia caerulea</i> ) were normally dominant (more analogous with M17). There were some areas of M17 where purple-moor grass was particularly abundant in the sward (annotated as M17-M25) and this may be a reflection of recent burning. There were

NVC Habitat	NVC Code	Phase 1 Habitat	Priority	Description
				also some areas where recent excavation of drainage channels has occurred. On the higher plateau, areas of M17 were often restricted to the top of isolated peat hags, with the intervening ground variously eroded to bedrock, reverted to acid grassland/wet heath/ wet modified bog (M20). Commonly, the ground between hags was filled with lawns of <i>Sphagnum fallax</i> , resembling acid flush (M6) and bog pool (M2) communities where water leaches out from the exposed peat. Pure stands of common cottongrass ( <i>Eriophorum angustifolium</i> ) were frequent on the eroded banks of the hags (M3).
<i>Erica tetralix-Sphagnum papillosum</i> raised and blanket mire	M18a	Blanket bog (E1.6.1)	Annex 1 UKBAP	These areas of blanket bog were typified by extensive sheets of <i>Sphagnum magellanicum</i> and <i>Sphagnum papillosum</i> , with scattered bog associates, particularly cross-leaved heath. Bog cranberry ( <i>Vaccinium oxycoccos</i> ) was frequent. This habitat was particularly found in the low-lying flat valley floor flanking Crook Burn (particularly to the north, on the east of Nether Law) and the low ground south of Daer Reservoir. There were several areas of bog habitat in similar topographical settings elsewhere on-site (particularly running south along Crook Burn) where hare's-tail cottongrass ( <i>Eriophorum vaginatum</i> ) was overwhelmingly dominant but the ground covered by extensive sheets of <i>Sphagnum papillosum</i> and, less-so, <i>Sphagnum magellanicum</i> . These areas, classed as M20, are reckoned to be derived from M18 and have been annotated in Target notes (TNs) as M20-M17, to indicate this affinity.
<i>Calluna vulgaris-Eriophorum vaginatum</i> blanket mire	M19a-b	Blanket bog (E1.6.1)	Annex 1 UKBAP	This bog community was mainly found at higher elevations and on steeper slopes than M17 and M18. Whilst still highlighting areas of deep peat, the peat is better-drained and firmer than M17 and M18 (and therefore easier to excavate carefully and reinstate if no other option). Much of the areas were typical in comprising a mix of heather ( <i>Calluna vulgaris</i> ) and hare's-tail cottongrass and lacking the extensive sheets of 'bog-Sphagna' of M17 and M18 (although <i>S.capillifolium</i> was often common). However, on the whole heather was more thinly represented in the sward than is typical for the community, with several stands grading towards M20 (where heather is very scarce and hare's-tail cottongrass strongly dominant). The image below shows a fairly transitional stand where heather, although abundant, has a rather stunted growth. This is indicative of moderate to high grazing pressure, to which heather is not resilient. The sub-community M19a ( <i>Erica tetralix</i> sub-community) was by far the most frequently encountered, with small areas of M19b ( <i>Empetrum nigrum</i> ssp. <i>nigrum</i> sub-community) on the very highest ground.
<i>Eriophorum vaginatum</i> blanket and raised mire	M20a-b	Bog: wet modified (E1.7) & dry modified (E1.8)	Annex 1 UKBAP	Stands of blanket bog, where hare's-tail cottongrass is overwhelmingly dominant in the sward, were classed as M20, although this community is often more diverse than the examples sampled by Rodwell. The examples at Daer were mainly the more species-rich sub-community M20b ( <i>Calluna vulgaris-Cladonia</i> spp. sub-community), including extensive stands of variants described by Averis; the rather dry type where hare's-tail cottongrass tussocks are overgrown by <i>Hylocomium splendens</i> and <i>Pleurozium schreberi</i> and the considerably wetter type with abundant <i>Sphagnum papillosum</i> , which is presumed to be derived from M18 (as described under that habitat heading). In addition, there were examples of the type where <i>Sphagnum fallax</i> and <i>Polytrichum commune</i> are abundant below the hare's-tail cottongrass, particularly between the peat hags on the highly eroded bog on the high plateau areas (described under the heading for M17). Due to the variability in wetness (and, crucially, Sphagna cover), M20 was either classed as wet-modified bog or dry-modified bog for Phase 1 categorisation.
<i>Molinia caerulea-Potentilla erecta</i> mire	M25a-c	Bog: wet modified (E1.7) & dry modified (E1.8). M25a: wet dwarf shrub heath (D2)	Annex 1 (M25b-c) GWDTE (M25a - Moderate) UKBAP	M25 was the single most extensive habitat in extent across the site. This habitat can either be classed as blanket bog (Annex I) or marshy grassland (non-Annex I but UKBAP), depending on whether the peat depth was above or below the threshold of 50cm (See Table A1, Appendix). Where M25 is on deep peat, it represents blanket bog that is highly degraded by a history of drainage, grazing and burning. The TNs identify the stands of M25 on peat >50cm; some of these stands still held a significant proportion of bog associates, including several stands where hare's-tail cottongrass was almost co-dominant with purple-moor grass (pictured; TNs annotate these areas as M25-M20). These stands should be regarded as of higher sensitivity than pure purple-moor grass stands, and certainly stands on peat <50cm. The M25 qualifying as blanket bog represent the least sensitive category of blanket bog on the site.
<i>Calluna vulgaris-Vaccinium myrtillus</i> heath	H12a/c	Bog: dry modified (E1.8)	Annex 1 GWDTE	Dry heath communities were fairly scarce on the site, mainly comprising stands of H12 restricted to steeper ground where the soil is thinner and better-drained (and particularly where grazing pressure significantly reduced). Heather was generally heavily-browsed throughout the site and much of the ground suitable for heath comprised of acid grassland,

NVC Habitat	NVC Code	Phase 1 Habitat	Priority	Description
				with heather only sparse and gnarly. There is low likelihood of significant effects on stands of dry heath due to their locations on steep and relatively inaccessible slopes.
<i>Eriophorum angustifolium</i> bog pool community	M3	Bog: dry modified (E1.8)	Annex 1 UKBAP	Pure stand of common cottongrass ( <i>Eriophorum angustifolium</i> ) were frequent on the eroded banks of the hags (M3).
<i>Hypericum elodes</i> - <i>Potamogeton polygonifolius</i> soakway	M29	Flush and spring: acid/neutral (E2.1)	Annex 1 GWDTE (high) UKBAP	The few small areas tentatively identified as M29 are identified with low confidence. It is somewhat disputed whether this community can in fact be reliably identified in Scotland. However, there were locations where water soakways over peat that fitted with the variant described by Averis & Averis found at more upland and northern locations (lacking <i>H. elodes</i> ). The best fit is the quadrat location at NS 96555 05380. However, these locations were clearly irrigated by base-rich water and therefore can be regarded as high-potential GWDTE with confidence.
<i>Ranunculus omiophyllus</i> - <i>Montia fontana</i> rill	M35	Flush and spring: acid/neutral (E2.1)	GWDTE (high) UKBAP	These flushes and spring-heads were less numerous than the more base-rich M37/M10 but were similarly small and discrete features. These are clearly groundwater influenced habitats, the M32 presenting as small bryophyte-dominated spring-heads, sometimes with flush-lines running down slope. Interesting vascular associates included alpine willowherb ( <i>Epilobium anagallidifolium</i> ), pale forget-me-not ( <i>Myosotis stolonifera</i> ) and starry saxifrage ( <i>Saxifraga stellaris</i> ).
<i>Philonotis fontana</i> - <i>Saxifraga stellaris</i> spring	M32	Flush and spring: Bryophyte dominated (E2.3)	GWDTE (high) UKBAP	
<i>Carex dioica</i> - <i>Pinguicula vulgaris</i> mire	M10	Flush and spring: basic (E2.2)	Annex 1 GWDTE (high) UKBAP	These two habitats are grouped together, as they are intimately connected. The hard-water springs depositing lime (NVC: M37) are the spring-heads where groundwater emerges, surrounded by calcicolous moss assemblages. The calcium-rich springwater-fed fens form the base-rich flushed ground running down slope from the springheads. The base-rich flushes were almost exclusively M10 (although further survey may reveal M11 communities) and were very numerous across the site. These flushes form saturated, fairly bare and peaty ground, dominated by a sward of low sedges and calcicolous bryophytes. Butterwort ( <i>Pinguicula vulgaris</i> ) were numerous and other common associates were lesser clubmoss ( <i>Selaginella selaginoides</i> ) and fairy flax ( <i>Linum catharticum</i> ). These communities are often host to scarce upland/subalpine plants, assessment of which was constrained by the late survey date and time constraints.
<i>Palustriella commutata</i> - <i>Festuca rubra</i> spring	M37	Flush and spring: Bryophyte dominated (E2.3)	Annex 1 GWDTE (high) UKBAP	

Source: Tringa Ecology

Table 8: NVC and Phase 1 Target Notes in Main Wind Farm Area 2019

ID	Grid Ref	Note
1	NS 96643 05651	GWDTE: M6c, <i>Juncus effusus</i> sub-community.
3	NS 96623 05641	M23b, <i>Juncus effusus</i> sub-community. Much of flush dry.
5	NS 96649 05691	M15 in small patches amongst M25. <i>Calluna vulgaris</i> v. <i>scarce</i> ; <i>Trichophorum cespitosum</i> , <i>Erica tetralix</i> , <i>Eriophorum angustifolium</i> & <i>Sphagnum papillosum</i> dominant.
8	NS 96634 05777	Peat depth >50cm; M15 wet heath.
10	NS 96618 05784	GWDTE & wet mire area - avoid. Mix of M6 ( <i>Juncus effusus</i> sub-community) with extensive sheets of <i>Sphagnum papillosum</i> & M2 bog pools feeding off adjacent M15. Very wet and peat depth >50cm.
11	NS 96572 05854	M6a runs to riverside.
13	NS 96721 05966	M17 (M15). <i>Sphagnum magellanicum</i> at this location is an indication of wet heath/rush pasture derived from M17 blanket bog. Peat >50cm deep.
15	NS 97017 06101	Clear transition to M15 wet heath. <i>Eriophorum vaginatum</i> rare. <i>Trichophorum cespitosum</i> , <i>Calluna vulgaris</i> (cropped), <i>Narthecium ossifragum</i> , <i>Erica tetralix</i> , <i>Eriophorum angustifolium</i> dominant. <i>Sphagnum papillosum/capillifolium</i> dominant but patchy. Peat >50cm. <i>Sphagnum magellanicum</i> occasional.

ID	Grid Ref	Note
16	NS 96924 06193	M17a on lower ground. <i>Eriophorum vaginatum</i> , <i>Erica tetralix</i> , <i>Trichophorum cespitosum</i> , <i>Narthecium ossifragum</i> all effectively co-dominant. <i>Calluna vulgaris</i> Frequent. Ground layer almost entirely <i>Sphagna</i> ; mainly <i>Sphagnum papillosum</i> & <i>capillifolium</i> with <i>Sphagnum magellanicum</i> frequent. Very saturated- possibly derived from M18a.
17	NS 96922 06263	Drop towards Loch; dwarf shrub species & <i>Trichophorum cespitosum</i> disappear to give way to M20 <i>Sphagnum</i> variant; <i>Eriophorum vaginatum</i> on sheets of <i>Sphagnum papillosum</i> & <i>Sphagnum magellanicum</i> (likely derived from M18).
18	NS 97178 06267	River flanked by poor M6a. Small extent, species poor.
19	NS 97546 06687	M35 rill (spring) High GWDTE potential. Acid spring from acid geology.
20	NS 97569 06738	Small patch of M6. <i>Juncus acutifloris</i> & <i>Sphagnum palustre</i> dominant.
22	NS 97540 06808	Feature not GWDTE. Acid grass U4a.
23	NS 97575 06774	M25 in this area a M25-M20 intergrade. <i>Eriophorum vaginatum</i> abundant
24	NS 96721 05618	Drier area blanket bog M17c; however, still <i>Sphagnum</i> rich, relatively few <i>hypnoids</i> . In mosaic with similar areas without <i>Eriophorum vaginatum</i> (grading to U6a). Peat >50cm.
25	NS 97013 05652	M17c on flatter terraces (deeper peat). Flanked by M25.
26	NS 97238 05641	M25a on slopes. Peat <50cm.

ID	Grid Ref	Note
27	NS 97436 05491	GWDTE- groundwater source. No particular flush/spring community evident. Feeds narrow and species poor strip of M6a and M6d. <i>Carex flacca</i> abundant, indicating possible enrichment by more base-rich water. However, all other <i>Carex</i> and bryophyte acidophilus. Would merit survey when <i>Carex</i> / vascular assemblage more evident if direct impacts anticipated.
28	NS 97500 05530	Area dominated by M25 ( <i>Eriophorum vaginatum</i> variant) but heavily flushed - small patches M6a.
30	NS 97605 05407	Level ground, deep peat. Highly saturated. <i>Sphagnum</i> much more continuous, including <i>Sphagnum magellanicum</i> . Note; shows features of both M17 & M18 (below).
32	NS 97785 05387	GWDTE - spring head. Water observed seeping from single point. Surrounding vegetation floating (mainly <i>Agrostis capillaris</i> ). <i>Ranunculus acris</i> , <i>Cirsium palustre</i> only vascular plants. No bryophytes. No clear NVC community. <i>Montia fontana</i> dominant. Very close-cropped grasses.
33	NS 97847 05437	M25b.
34	NS 97876 05395	U4a. Narrow strip following geological feature (gully).
35	NS 97809 05487	M6 (from distance)
36	NS 98007 05494	M6d. Small extent flanking drainage channel. GWDTE
37	NS 98124 05597	M17c
38	NS 98197 05497	HIGH POTENTIAL GWDTE: M10.
39	NS 98204 05350	All wet modified bog; M20 ( <i>Sphagnum</i> variant) 70%. M20 ( <i>Molinia caerulea</i> dominant, <i>Eriophorum vaginatum</i> and <i>Sphagnum</i> abundant). 25%. U6 ( <i>Sphagnum</i> sub-community) 5%.
41	NS 98239 05325	M6d. GWDTE. Small extent. Not mapped.
42	NS 98293 05364	Small patches acid grass. Peat present.
43	NS 98406 05370	Blanket mire changes character completely across fence - now M19; Much <i>Calluna vulgaris</i> and absence of sheets of <i>Sphagnum papillosum</i> , <i>Sphagnum magellanicum</i> etc. (ground cover <i>hypnoid</i> mosses & <i>Sphagnum capillifolium</i> ). <i>Trichophorum cespitosum</i> & <i>Erica tetralix</i> v.rare. Drier bog.
45	NS 98627 05292	Still M19. Ground dominant by <i>Hylocomium splendens</i> . <i>Sphagnum</i> rare.
46	NS 98604 05347	Base-rich flush. More diffuse here. Small lawns of <i>Carex viridula</i> , <i>Carex flacca</i> & <i>Carex panicea</i> with <i>Campylium stellatum</i> . Probably base rich water irrigation. No source located. Avoid. High GWDTE and sensitive habitat.
47	NS 98470 05363	GWDTE M6/M4 Within drainage channel. Essentially M6 but with high cover <i>Carex rostrata</i> and <i>Sphagnum denticulatum</i> .
48	NS 97306 05955	M6d GWDTE. Good condition- large sheets <i>Sphagnum palustre</i> .
49	NS 97564 05917	M25 here very <i>Sphagnum</i> rich; also much <i>Eriophorum vaginatum</i> = M25 (M17).
50	NS 97796 06002	HIGH GWDTE; small-sedge basic flush; <i>Campylium stellatum</i> , <i>Carex viridula</i> , <i>Carex flacca</i> , <i>Carex panicea</i> ( <i>Centaurea nigra</i> , <i>Ranunculus acris</i> here and occasional in poor-M23a down slope).

ID	Grid Ref	Note
51	NS 97873 06019	Base flush to here: diffuse cover of <i>Carex</i> (heavily cropped). Dry and bryophyte cover practically none (v.small patch <i>Calliergonella cuspidata</i> ). Freshly cut drainage ditch across top-end of flush and likely source of ground water. Probably M10 (damaged).
52	NS 98076 06242	Over fence - M19a blanket mire.
55	NS 98104 06526	M17c. On flatter ground; much wetter, M17 community (abundant <i>Sphagnum papillosum</i> , <i>Erica tetralix</i> , <i>Trichophorum cespitosum</i> , more open structure).
56	NS 98109 06574	Patches of M20b reflect differences in M17/19 origin. <i>Hylocomium splendens</i> , <i>Pleurozium schreberi</i> variant where M19 (slope). <i>Sphagna/Trichophorum cespitosum</i> (deer grass) variant on wetter ground (from M17).
57	NS 97753 06829	<i>Calluna vulgaris</i> cover much reduced, M20b predominate. However, many stands still heathy, with frequent though weak <i>Calluna vulgaris</i> and <i>Vaccinium myrtillus</i> , <i>Empetrum nigrum</i> (effectively transitional M19-M20).
58	NS 97830 07030	Quite extensive patch of M17 between rocky hillocks. Fairly dry example ( <i>Sphagnum papillosum</i> cover patchy), M17c, although no <i>Juncus squarrosus</i> seen. <i>Vaccinium oxycoccos</i> present.
59	NS 97946 07205	M6d good condition. High <i>Sphagnum palustre</i> & <i>Sphagnum fallax</i> cover. Abundant <i>Viola palustris</i> . Drains to drainage channel <i>Sphagnum denticulatum</i> abundant. <i>Carex rostrata</i> Frequent.
60	NS 98018 07281	Stand of M17c. Recently excavated drainage channels throughout.
61	NS 98060 07114	This area-stands of M17c heavily drained. Intervening areas M20-M25 intergrade. For mapping purposes call M20 as cover of <i>Eriophorum vaginatum</i> is very high.
62	NS 98061 07649	M17 Deep peat. Huge drainage effort.
63	NS 98086 07685	Extremely saturated peat with extensive <i>Sphagnum</i> lawns - in particular <i>Sphagnum magellanicum</i> . <i>Sphagnum magellanicum</i> also forming tussocks. <i>Vaccinium oxycoccos</i> occasionally frequent.
64	NS 97652 06889	High GWDTE POTENTIAL; spring-head feeding M6d flush. Water clearly breaking ground at this point NS97654-06887. Floating mats of <i>Montia fontana</i> (blinks) but very little else except typical M6 spp. (no bryophyte or vascular spp associated with M32 for example). Suggests this is water that has moved through peat before emerging, rather than ground water per se.
65	NS 97518 06216	M25b dominant: 80%. Much of this peat>50cm with many bog associates, although in certain parts tussocky and dry (dry modified bog). Other areas wet, <i>Sphagnum</i> rich M20-M25 intergrade (wet modified bog) - mainly lower, flatter areas. Pockets of wet heath 15% (M15) and degraded M17 5%.
66	NS 98205 06873	Blanket mire here mainly M20b and M25a. Peat depth variable; roughly corresponds to M20- c. 55cm and M25 c20-40cm, but not always. Despite shallow peat, sea is clearly ombrogenous mire in poor condition and Phase 1 dry modified bog most appropriate.

ID	Grid Ref	Note
67	NS 98146 07003	Patch U4a grassland at rocky outcrop. Drain running out from bog above. Considerable <i>Juncus</i> cover but NOT GWDTE habitat; U4 <i>Juncus effusus</i> (and <i>Juncus acutiflorus</i> ).
68	NS 98180 07110	M6d. Poor quality habitat. Some <i>Sphagnum fallax</i> but intergrade with M25/U4 over much of area. Associated with peat drainage.
69	NS 98281 07128	M25-M20 intergrade. Burned blanket bog with both <i>Molinia caerulea</i> and <i>Eriophorum vaginatum</i> growing back in. Peat depth >50cm on flatter area (majority - where drainage channels). Area has been burned in recent times.
70	NS 98329 06999	Paler areas at edge = M20b (some intergrade M25-M20 as <i>Molinia caerulea</i> cover quite high).
71	NS 98310 06907	M25b. Some intergrade with M20, <i>Eriophorum vaginatum</i> frequent. Peat depth >50cm. Wet modified bog.
72	NS 98373 06781	Clearly M25-M17 intergrade. <i>Molinia caerulea</i> dominant, <i>Eriophorum vaginatum</i> very abundant. High cover <i>Sphagnum papillosum</i> , <i>Sphagnum capillifolium</i> , <i>Erica tetralix</i> . M25(M17).
73	NS 98662 06861	Despite initial appearances & location, habitat closest to MG10; very species- poor sward dominated by <i>Juncus effusus</i> & <i>Juncus acutiflorus</i> , with close- grazed grass between tussocks. Constants for M23 generally absent. Herbs: <i>Rumex acetosa</i> (common sorrel), <i>Ranunculus repens</i> (creeping buttercup): Constant. <i>Galium saxatile</i> : Occasional. <i>Viola palustris</i> : Rare. Grasses: <i>Holcus lanatus</i> : Dominant. <i>Deschampsia cespitosa</i> , <i>Agrostis capillaris</i> : V.Common, <i>Anthoxanthum odoratum</i> .
74	NS 98682 06919	This area more clearly U4 <i>Juncus</i> variant; <i>Agrostis capillaris</i> , <i>Nardus stricta</i> , <i>Anthoxanthum odoratum</i> mixed with <i>Juncus effusus</i> & <i>Juncus acutiflorus</i> . Note however <i>Ranunculus repens</i> & <i>Rumex acetosa</i> (common sorrel) Constant. Becomes more MG10- like, although <i>Agrostis capillaris</i> constant.
75	NS 98528 07094	Very saturated area - extensive sheets <i>Sphagnum magellanicum</i> .
77	NS 98429 06993	M18a; extensive sheets of <i>Sphagnum magellanicum</i> , <i>Erica tetralix</i> dominant dwarf shrub.
78	NS 98440 07136	Difficult to determine whether M17 or M18. Heavily drained, but <i>Sphagnum</i> cover still high. High cover <i>Sphagnum magellanicum</i> where <i>Sphagna</i> encountered. <i>Erica tetralix</i> extremely abundant. No <i>Potentilla erecta</i> . <i>Molinia caerulea</i> rare. However, <i>Trichophorum cespitosum</i> abundant. Where drainage is not too bad, very saturated and extensive continuous <i>Sphagnum magellanicum</i> & <i>papillosum</i> . Only balance M18 modified.
79	NS 98377 07267	This area bog drier; <i>Juncus squarrosus</i> A. M17c.
80	NS 98459 07424	M17c; wetter type- sheets of <i>Sphagnum papillosum</i> , no <i>Juncus squarrosus</i> .
82	NS 98544 07470	Area here extensive sheets <i>Sphagnum magellanicum</i> & <i>Sphagnum papillosum</i> . Modified M18.
83	NS 98452 07483	M6d GWDTE. Small area flowing towards burn. Much <i>Sphagnum fallax</i> & <i>palustre</i> . <i>Carex panicea</i> Frequent, suggesting mild flushing.
84	NS 98232 07487	M25a marshy grassland here (peat 30cm).

ID	Grid Ref	Note
85	NS 98268 07653	Diffuse area of rush pasture running down hill through M25. More neutral (M23): <i>Viola palustris</i> , <i>Cirsium palustre</i> frequent. <i>Carex panicea</i> v.frequent. No input found, but suspected.
86	NS 98276 07830	U4a acid grassland breaks clearly to rush pasture - probable fracture line & water source.
87	NS 98286 07816	Area below clearly saturated, <i>Juncus acutiflorus</i> dominant. <i>Sphagnum palustre</i> , <i>Kindbergis praelonga</i> , <i>Holcus lanatus</i> Frequent. (mix M6/spp poor M23); <i>Cirsium palustre</i> (marsh thistle) & <i>Viola palustris</i> Abundant. No <i>Galium palustre</i> , <i>Rumex acetosa</i> (common sorrel).
88	NS 98295 07924	U4a/H12c; grazed-out H12; <i>Calluna vulgaris</i> reduced to few clumps gnarly plants.
89	NS 98428 07736	M17c on flatter areas. Peat depth >50cm.
90	NS 98492 07150	Although highly disturbed, traces of M17b - <i>Cladonia</i> & <i>Racomitrium lanuginosum</i> . Also extensive sheets <i>Sphagnum magellanicum</i> (M18) in more saturated areas.
91	NS 98533 06880	M17; highly drained but still saturated and much <i>Sphagnum papillosum</i> . No <i>Juncus squarrosus</i> .
92	NS 98554 06768	Area of M18a; extensive <i>Sphagnum magellanicum</i> , including hummocks. <i>Vaccinium oxycoccos</i> Abundant.
93	NS 97648 05135	M23a proper here; <i>Juncus acutiflorus</i> dominant, <i>Galium palustre</i> , <i>Rumex acetosa</i> (Common sorrel) Frequent, <i>Brachythecium rutabulum</i> , <i>Cirsium palustre</i> Abundant. Much of rush pasture a messy intergrade between U4 ( <i>Juncus effusus</i> )/M23 and M6c-d. Heavily grazed.
94	NS 97702 05001	GWDTE: Spring head. Dominated by <i>Montia fontana</i> (blinks), <i>Myosotis laxa</i> , <i>Ranunculus repens</i> (creeping buttercup).
96	NS 97673 05046	HIGH GWDTE- AVOID. <i>Carex viridula</i> , <i>Pedicularis palustris</i> (Marsh lousewort). Showing base- influence of groundwater has wider diffuse effects
97	NS 97672 04917	HIGH GWDTE. <i>Dichodontium palustre</i> noted in spring.
98	NS 97683 04920	More base flush species (as M32).
99	NS 97675 04898	M32 species in burn. Clear Ground Water influence well-spread. Further survey advised when design formalised.
100	NS 97673 04834	Base influence.
101	NS 97664 04807	M32 spring. Similar to quadrat. Includes <i>Saxifrage</i> .
102	NS 97692 04756	Base spring.
103	NS 97757 04718	<i>Thymus polytrichus</i> ( <i>/Praecox</i> ); small quantity growing on rock exposures at NS 97762-04715. Raises possibility of calcaerous CG10 grassland in area.
104	NS 97811 04709	<i>Thymus polytrichus</i> ( <i>/Praecox</i> ) abundant here. <i>Viola riviniana</i> , <i>Carex panicea</i> , <i>Plantago lanceolata</i> (ribwort plantain), <i>Trifolium repens</i> , <i>Campanula rotundifolia</i> noted but other usual associated mesotrophic herbs absent (e.g. <i>Lotus</i> ). Unlikely simply due to season. Small area U4c. <i>Carex</i> - rich flush above.
105	NS 97833 04706	GWDTE. Diffuse <i>Carex viridula</i> / <i>Carex panicea</i> / <i>Carex flacca</i> / <i>Pedicularis palustris</i> / <i>Polygala serpyllifolia</i> (heath milkwort).



ID	Grid Ref	Note
		Hillside in general clearly has calcaerous influence, centred around rock exposures & water moving over/through geology.
106	NS 98050 04743	Degraded bog U6: M17c: M6d.
107	NS 98532 04909	M17 dry; M17c(Js). Abundant <i>Juncus squarrosus</i> .
108	NS 98759 04905	Blanket mire here overwhelmingly M19a.
109	NS 98709 04750	Fairly extensive patch M20b amongst M19a. Occasional patch U5a (probably snow accumulation).
110	NS 98787 04735	M19b here- much <i>Rubus chamaemorus</i> , <i>Vaccinium vitis-idaea</i> .
111	NS 99244 04775	Acid grass= U5a 60%: U4a 40%.
112	NS 99213 04572	As move off plateau - flatter areas of bog wet saturated <i>Sphagnum papillosum</i> rich M17c(wet). Also patches M15 (10%).
113	NS 99576 04588	M6d flush following drainage channel.
114	NS 99740 04798	M6d acid flush good condition.
115	NS 99759 04777	Blanket mire mainly M19a; closed canopy <i>Eriophorum vaginatum</i> & <i>Calluna vulgaris</i> , <i>hypnoid</i> ground layer & dry. However, pockets where <i>Erica tetralix/Trichophorum cespitosum</i> (& occasionally <i>Sphagnum papillosum</i> ). Probably intergrade; heavily drained.
116	NS 99942 04979	M6d.
117	NT 00120 05078	This feature appears to be lower peat, M25-M20 intergrade. Not watercourse or GWDTE.
118	NS 99995 05202	M6d associated with burn.
119	NS 99997 05308	Acid grass patches around watercourse = U5a.
120	NS 99467 05199	M6d weak, poor quality. Following drains. Mainly <i>Juncus</i> over U4-5 grassland.
121	NS 99376 05094	On slope/ridge all peat depth <50cm).
122	NS 99331 05208	GWDTE POTENTIAL - fairly weak & sheep trampled. <i>Carex panicea</i> Abundant. <i>Breutelia chrysocoma</i> Frequent. Probably flushed wet heath. M15c; <i>Carex panicea</i> sub-community.
123	NS 99318 05225	M10: HIGH GWDTE POTENTIAL. Similar to quadrat. <i>Carex</i> rich, <i>Pinguicula vulgaris</i> , Mosses: <i>Philonotis fontana</i> , <i>Campylium stellatum</i> , <i>Scorpidium revolvens</i> . <i>Warnstorfia exannulata</i> . AVOID AREA. Quite extensive.
124	NS 99269 05276	Flush runs down here - much <i>Carex panicea</i> in M15 (m15x). Small area M4 - <i>Carex rostrata</i> Abundant.
125	NS 99243 05162	M10 - good example near head of burn. AVOID. More base flushes expected further up judging from topography. <i>Philonotis calcarea</i> and <i>Palustriella commutata</i> here (M37 spring head).
126	NS 99423 05608	M10. Base rich flush HIGH GWDTE POTENTIAL. Not sampled in detail but <i>Cnetidium molluscum</i> and <i>Warnstorfia exannulata</i> noted with <i>Pinguicula vulgaris</i> & abundant <i>Carex viridula</i> & <i>Juncus articulatus</i> .
127	NS 99020 05639	M17c wet - high <i>Sphagnum papillosum</i> , no <i>Juncus squarrosus</i> .

ID	Grid Ref	Note
128	NS 98745 05768	M19a here. Drier bog, <i>Eriophorum vaginatum</i> & <i>Calluna vulgaris</i> co-dominant & closed canopy. <i>Erica tetralix</i> & <i>Trichophorum cespitosum</i> Occasional. Possible intergrade M17. Small area M17c (dry <i>Juncus squarrosus</i> ) seen at edge.
129	NS 98623 05780	Example of intergrade here, transition obvious - <i>Calluna vulgaris</i> decreases and <i>Erica tetralix</i> & <i>Trichophorum cespitosum</i> (deer grass) increase. Flatter ground.
130	NS 98584 05567	M19b. Very dry in places & <i>Eriophorum vaginatum</i> thinning out; grading to H12a ( <i>Calluna vulgaris/Vaccinium myrtillus</i> ) or U5b ( <i>Polytrichum commune/Deschampsia flexuosa/Nardus stricta</i> ); Dry modified bog.
131	NS 98569 05451	M6d extensive poor condition. <i>Sphagnum palustre</i> mainly in channels, grades to extensive <i>Juncus</i> over acid grassland (U4Je).
132	NS 98458 05048	Poor quality M17 on flatter areas. True M17a with <i>Juncus squarrosus</i> & <i>Deschampsia flexuosa</i> . Some areas very thin <i>Eriophorum vaginatum</i> , dense <i>Calluna vulgaris</i> & <i>Eriophorum angustifolium</i> going to M15a.
133	NS 98145 05081	Walk across flat plateau - all saturated, <i>Sphagnum papillosum</i> constant below <i>Eriophorum vaginatum</i> mire; M20(M17). Small areas where <i>Trichophorum cespitosum</i> & <i>Calluna vulgaris</i> take dominance with no <i>Eriophorum vaginatum</i> (M15) Small areas U5A and M6d. M20 (M17) 80%: M15a 10%: M6d 5%: U5a 5%
134	NS 97162 02011	Mapped as spring on OS. Area searched but no obvious spring. Note that in this general area headwaters to burn is strongly flushed with M6 acid flush (mainly M6c, some M6a). This originates above marked spring.
136	NS 96516 05560	<i>Potamogeton</i> - dominated soakaway in ditch draining M6 flush (poor M29). <i>Potamogeton</i> sp, <i>Myosotis laxa</i> , <i>Juncus articulatus</i> , <i>Ranunculus flammula</i> , <i>Straminergon stramineum</i> .
137	NS 96649 05384	M25 and M15b on deep peat. Messy, heavily grazed. Dominated by <i>Molinia caerulea</i> with abundant <i>Trichophorum cespitosum</i> & <i>Juncus squarrosus</i> . Probably was M17c (dry- <i>Juncus squarrosus</i> ). But now so heavily grazed all <i>Ericoids</i> / bog spp absent. Other areas where bog species present it. Quite flushed- pockets poor M6.
138	NS 96842 05342	Very poor rush pasture. Probably M23 originally but again a messy U4Je/MG10 mix. Spp poor. No <i>Galium palustre</i> . Herbs: <i>Cirsium palustre</i> , <i>Ranunculus repens</i> , <i>Holcus lanatus</i> . Ground dominated by <i>Rhytidiadelphus squarrosus</i> . Frequent <i>Potentilla erecta/Galium saxatile</i> around edges. <i>Carex nigra</i> often dominant. <i>Ajuga reptans/ Cardamine pratensis</i> Rare.
139	NS 96898 05206	U4a grassland above fence.
140	NS 97001 05252	M25b (marshy grassland) 80% - much <i>Nardus stricta</i> in sward. U4a 20%. Peat depth <50cm.
141	NS 97096 05372	M17c dry; <i>Juncus squarrosus</i> abundant.
142	NS 97091 05033	M17c - wet <i>Sphagnum papillosum</i> variety on flat ground. Dry <i>Juncus squarrosus</i> variety on slopes.
143	NS 96909 05366	HIGH GWDTE POTENTIAL; Base-rich flush, M10 type. Less obviously base-influenced than other examples.

ID	Grid Ref	Note
		<i>Carex</i> -rich ( <i>Carex lasiocarpa</i> / <i>Carex panicea</i> / <i>Carex echinata</i> ) but basophilic bryophyte sparse; <i>Scorpidium cossonii</i> , <i>Campylium stellatum</i> noted but very limited. Liverworts also present. Otherwise bryophyte cover dominated by <i>Sphagnum denticulatum</i> . <i>Juncus bulbosus</i> .
144	NS 96896 05278	Another weak flush line - <i>Carex</i> rich but little sign of calcaerous bryophyte ( <i>Carex</i> cover probably influenced by disturbance- quad track).
145	NS 97119 04845	M17c on main plateau of the dry variety; <i>Juncus squarrosus</i> Frequent, <i>Sphagnum papillosum</i> patchy. Recent large drainage channels cut-through bog. Occasional small bog pools with <i>Sphagnum cuspidatum</i> (M2).
146	NS 97111 04802	M2 bog pool drained by recent excavations
147	NS 97141 04699	From this point, gradient increases and bog shows signs of grading from M17c to M19b. Only in patches; map as M17c.
148	NS 97092 04444	M17c.
149	NS 97412 04324	M10 HIGH GWDTE POTENTIAL: M10 base-rich flush. This location a good example of spring-head community (M37). Species include <i>Carex viridula</i> (A), <i>Carex panicea</i> . Bryophyte: <i>Scorpidium revolvens</i> , <i>Campylium stellatum</i> , <i>Dichodontium palustre</i> , <i>Philonotis fontana</i> , <i>Palustriella commutata</i> .
150	NS 97399 04386	HIGH GWDTE POTENTIAL, base-rich flush moving through here - large area flushed c.40x10m. See TN 149 for indicative species. AVOID.
151	NS 97433 04395	Looking back up flush.
152	NS 97362 04195	Mixed award. Mainly <i>Nardus</i> dominant, several other grasses & <i>Juncus squarrosus</i> , including much <i>Molinia caerulea</i> . U5d probably best fit. Peat depth <50cm.
153	NS 97259 04166	M17c & M20 (M17 mosaic).
154	NS 97198 03641	<i>Sphagnum denticulatum</i> dominated pool (M1). Following drainage.
155	NS 97418 03512	GWDTE Spring head, species poor. 'poor' M32. Dominated by <i>Montia fontana</i> (blinks). Bryophyte-poor. <i>Juncus squarrosus</i> dominant, with a little <i>Philonotis fontana</i> & <i>Brachythecium rutabulum</i> . <i>Myosotis stolonifera</i> , <i>Stellaria alsine</i> , <i>Cardamine pratense</i> .
156	NS 97455 03126	Large pool (no NVC Community). Flanked by M2 community.
158	NS 97101 02924 NS 97029 03099 NS 96995 03165 NS 96878 03333	Several M32 flushes running west off hill in this area. Heavy rain prevented mapping with Tablet.
161	NS 97325 05522	HIGH GWDTE POTENTIAL: M10. Key spp; <i>Pinguicula vulgaris</i> , abundant <i>Carex viridula</i> , <i>Carex panicea</i> . Bryophyte including <i>Palustriella commutata</i> , <i>Scorpidium revolvens</i> (particularly abundant).
162	NS 97425 04786	Lower part of blanket mire in drier condition. Dark areas M17c (dry: <i>Juncus squarrosus</i> ). Paler M20 and M20-M25. All peat depth >50cm.
163	NS 97837 04351	M6c & M6d flanking burn. Also U5a.

ID	Grid Ref	Note
164	NS 97866 04403	Patches grassland by river MG10- type. <i>Holcus lanatus</i> / <i>Ranunculus repens</i> / <i>Juncus effusus</i> dominant. However, also much <i>Nardus stricta</i> and <i>Agrostis capillaris</i> .
165	NS 97868 04427	High GWDTE POTENTIAL M23a - good quality. Most species rich seen so far <i>Galium palustre</i> , <i>Ranunculus flammula</i> , <i>Viola palustris</i> , <i>Cardamine pratensis</i> all abundant.
166	NS 97864 04439	High GWDTE POTENTIAL. M23 grades to M6a - clearly enriched. <i>Carex panicea</i> abundant. Much <i>potamogeton</i> (M29).
167	NS 97827 04517	M10 base-rich flush HIGH GWDTE POTENTIAL. Feeds mosaic acid flush/marshy grassland along river edge. Whole area strongly influenced by GW.
168	NS 97845 04534	Base flush starts here.
169	NS 97902 04478	Calcaerous grassland associated with flush. CG10. <i>Thymus polytrichus</i> , <i>Achillea millefolium</i> , <i>Prunella vulgaris</i> , <i>Trifolium repens</i> , <i>Plantago lanceolata</i> , <i>Cerastium fontanum</i> (mouse-ear) etc.
170	NS 97952 04403	Base flush reaching edge river terrace.
171	NS 97952 04379	M23a Species-rich. Including <i>potamogeton</i> soakaway (M29). high GWDTE POTENTIAL. Includes <i>Achillea ptarmica</i> (sneezewort).
172	NS 97991 04362	Whole area where base-rich flush feeds down to river terrace. Very rich <i>Carex</i> sward. Very species rich. Area must be avoided
173	NS 98055 04425	Large area <i>Carex</i> rich sward associated with this flush. CG10b. <i>Carex panicea</i> / <i>C. flacca</i> / <i>C. echinata</i> dominant. <i>Linus catharticum</i> , <i>Pedicularis palustris</i> , as well as species already listed. <i>Achillea ptarmica</i> (sneezewort) particularly abundant.
174	NS 98101 04467	Source extensive base flush.
175	NS 98033 04474	Source flush.
176	NS 98046 04497	Flush above more neutral; M23. But spp rich and clearly base influence.
177	NS 98172 04391	High GWDTE. Flush here less base-rich. More like species rich M23. Lower area very rushy M23a. Clearly still base influence.
178	NS 98177 04330	Away from flush area, still species-rich grassland CG10. <i>Thymus polytrichus</i> ( <i>/Praecox</i> ) frequent, spp rich; <i>Achillea millefolium</i> , <i>Viola riviniana</i> , <i>Trifolium repens</i> <i>Prunella vulgaris</i> (Selfheal) etc.
179	NS 98281 04350	Base-rich flush running all way downhill from here.
180	NS 98311 04392	Flushed ground takes form of M15c here ( <i>Carex panicea</i> sub-community).
181	NS 98345 04488	Above this line, hillside still flushed but acid flush (M6c&d). Suspect fault/shift in geology below this height as responsible for base flushes.
182	NS 99010 04440	M6a.
183	NS 99526 04213	M15c <i>Carex panicea</i> sub-community here. GWDTE. Mild flushing. No obvious source found.

ID	Grid Ref	Note
184	NS 99740 03895	Good M17c here
185	NS 99954 03789	Plateau stabilised hags M17c high ground. U5a / M20 lower.
186	NT 00017 03561	Large area rush pasture running down slope here. Mosaic M6 & M23. Signs of base input. No clear Ground Water input found. Treat whole area as GWDTE.
187	NS 99947 03552	Signs of base input here ( <i>Carex panicea</i> abundant).
188	NS 99864 03391	M10. HIGH GWDTE POTENTIAL. Base rich flush.
189	NS 99923 03370	Slight base flush.
190	NS 99687 03338	CG10b; much <i>Carex panicea</i> , <i>Thymus polytrichus</i> ( <i>/Praecox</i> ) present. Species rich- same assemblage as previous areas. Not surveyed in detail. Suggests base flushing above.
191	NS 99692 03395	Base flush running down to CG10.
192	NS 98678 04149	Grassland species-rich rich CG10 in areas. Not sampled.
193	NS 98580 04170	M10 flush originating here.
197	NS 96778 04531	Poor M6 flanking narrow burn/ ditch.
198	NS 96775 03910	M6c (poor).
199	NS 96812 03166	Small flushes here neutral (species poor M23a). Presumably influence of springs above.
200	NS 97061 02868	Point where flush feeds in to grassland. Does not produce calcaerous grassland. Is clearly improved and fairly rich U4 but definitely not calcaerous.
202	NS 97503 02655	Scattered peat hags. M17c/M15b on hags; basically very poor dry bog going-over to wet heath. Between hags a mix of M20 (M3 - <i>Sphagnum fallax</i> ) or U5.
203	NS 97415 02757	Clear differences across fence. More degraded/ acid grass to east.
204	NS 97702 02744	Head of burns; acidic; feeding poor M6c.
205	NS 97610 02576	Area between hags wetter here; mainly <i>Sphagnum fallax</i> but some <i>Sphagnum papillosum</i> & <i>Sphagnum capillifolium</i> . peat depth >50cm. <i>Eriophorum vaginatum</i> constant (M20: <i>Sphagnum variant</i> ). Much of U5 above is U5b ( <i>Polytrichum</i> sub-community).
206	NS 97395 02377	Plateau mosaic M20 with much U6. <i>Festuca viviparia</i> abundant.
207	NS 97204 02037	Extensive M6c and M6a between hags.
208	NS 97137 01330	M10/ M37 starts here.
209	NS 97077 01329	M10 flush.
210	NS 96988 01352	Base rich community following burn downhill. Signs of base enrichment to grassland.
211	NS 96744 02111	U5 40%: U6 10%: M15 15%: M20 15%: M23 5%: M6c 5%: M17c 10%. Wet heath and M20 and poor M17c on remnant consolidated hags. Acid grassland (U5 & U6) elsewhere.
212	NS 96657 02454	Lower slopes below TN 211 U5 60%: U6 25%: M15 15%. Much U5b probably M23/M6 on flank to W.
213	NS 96600 02565	Lower slopes almost all U5a.

ID	Grid Ref	Note
215	NS 96505 02774	Old stabilised hags occasional from here. Poor M20 (with much <i>Trichophorum cespitosum</i> ) and M15. U5a between hags. At very bottom M23c species poor.
216	NS 98496 07053	Large area M18a. Extensive sheets <i>Sphagnum magellanicum</i> with abundant <i>Vaccinium oxycoccos</i> .
217	NS 98688 07320	Very poor M17c, going-over to wet heath. <i>Eriophorum vaginatum</i> constant but <i>Sphagnum</i> reduced to runnels and much bare peat. Remainder M25a and M3.
218	NS 98751 07285	Runnel with abundant <i>Carex viridula</i> & <i>Carex panicea</i> . Clearly base rich water input. No obvious source nearby. Presumably spring uphill.
220	NS 99070 06883	Where ground levels peat depth.
221	NS 99362 06666	Small base rich flush. No clear spring/emergence. <i>Carex</i> : <i>Carex panicea</i> Abundant. Bryophyte: <i>Scorpidium cossonii</i> , <i>Bryum pseudotriquetrum</i> , <i>Calliergonella cuspidata</i> . <i>Succisa pratensis</i> / <i>Trifolium repens</i> / <i>Juncus articulatus</i> Frequent.
223	NS 99591 06483	M25-M20 intergrade. Still abundant <i>Sphagnum</i> , although sparse & confined to ditches in places. Peat depth >50cm.
224	NS 99585 06335	M20(M17). <i>Eriophorum vaginatum</i> dominant but all M17 species frequent.
225	NS 99517 06149	River Flanked by degraded species poor M23a <i>Juncus effusus</i> tussocks - grazed around ( <i>Rumex</i> sp. (sorrel)/ <i>Ranunculus repens</i> / <i>Holcus lanatus</i> / <i>Juncus squarrosus</i> ). U4 species frequent <i>Agrostis capillaris</i> and <i>Galium saxatile</i> .
226	NS 99536 06129	M29 soakaway in ditch. Ground Water influence.
227	NS 99603 05931	M23b in fairly dry ditch.
228	NS 99635 06013	Bog here M17c (dry, <i>Juncus squarrosus</i> Abundant, grading to M20). 70%: M20b(M17) 30%.
229	NS 99550 05906	HIGH GWDTE POTENTIAL: Spring head. Bryophyte rich spring head. Below = <i>Carex</i> rich sward. <i>Montia fontana</i> (blinks) dominant at spring head (with some <i>Myosotis laxa</i> & <i>Epilobium</i> sp., <i>Achillea ptarmica</i> (sneezewort)). Bryophyte: <i>Philonotis fontana</i> , <i>Scorpidium cossonii</i> , <i>Dichodontium palustre</i> , <i>Warnstorfia exannulata</i> . <i>Carex</i> : <i>Carex panicea</i> , <i>Carex viridula</i> , <i>Carex flacca</i> .
230	NS 99512 05853	GWDTE; Flushed U5c flanking burn which contains calcaerous species.
231	NS 99487 05774	GWDTE; this burn obviously connects with Ground Water source mapped previously (TN 126). Whole area should be considered dependent on Ground Water. Base rich community following burn.
232	NS 99462 05798	Another burn running down here - associated Ground Water communities perhaps even more extensive. M10 and associated calcaerous grassland- needs detailed assessment.
233	NS 99440 05791	Source of textbook M10 flush which runs downhill from here.
234	NS 99435 05802	M10 still emerges to this point.
235	NS 99420 05836	M10 here.
236	NS 99390 05849	M10 here.

ID	Grid Ref	Note
237	NS 99371 05859	M10 here. Note much U5c between this point and adjacent. Moves towards bog from hereon.
238	NS 99328 05862	U5c here.
239	NS 99124 06095	Upper part polygon M19a 70%: M20b 30%.
240	NS 98971 06029	Steep river embankment H12.
241	NS 98604 06174	River gully with H12. <i>Calluna vulgaris</i> gnarly, <i>Vaccinium myrtillus</i> very sparse and bryophyte poor; borderline H9.
242	NS 98604 06305	U5a 20%: M19b 20%: M25a 60%. Marshy grassland.
243	NS 98669 06388	Darker areas M17c (Js) Rest M25-M20 intergrade peat depth >50cm. M6d - flushed bog 10%.
244	NS 97426 05653	M10 base-rich flush runs down to here, then on to river. Clearly connected with feature above (TN 161 ). Good condition, bryophyte & <i>Carex</i> rich. Quick assessment; <i>Pinguicula vulgaris</i> , <i>Selaginella selaginoides</i> (lesser clubmoss). <i>Carex viridula</i> . Bryophyte include; <i>Scorpidium revolvens</i> , <i>Campylium stellatum</i> , <i>Warnostorfia sarmentosa</i> , <i>Breutelia chrysocoma</i> .
245	NS 97558 05162	M29 soakaway here particularly rich. Signs of base enrichment ( <i>Dichodontium palustre</i> ) and much <i>Chrysosplenium oppositifolium</i> & <i>Carex rostrata</i> .
246	NS 97871 04078	Up to here; edge of bog; M20b 60%: M15b 20%: M17c 20%.
247	NS 97920 03994	Between hags/blocks of M17; mix of <i>Sphagnum</i> flush; M6d and <i>Sphagnum fallax/Eriophorum</i> damaged bog (M3). Drier areas mix of U5a/U4a and occasional U6.
248	NS 97948 03887	Larger areas fairly good M17c ( <i>Juncus aquarrosus</i> ); eroded peat but generally stabilised. M20b on lowered peat and M15b on stabilised peat slopes. Very little exposed/ actively eroding peat.
249	NS 97902 03784	On steeper ground; M17 gives way to M15b & U5a.
250	NS 97807 03691	Fairly flushed hillside. Appears to all be scattered areas of poor M6c and M6d ( <i>Juncus</i> with <i>Sphagnum fallax</i> ).
251	NS 97779 03607	M10 base-rich flush. Wet flushed hillside- surrounded by several other flushes- acid M6d. Includes abundant <i>Carex viridula</i> & <i>Carex panicea</i> , <i>Scorpidium revolvens</i> , <i>Breutelia chrysocoma</i> , <i>Cnetidium molluscum/Palustriella commutata</i> , <i>Pseudoscleropodium purum</i> .
252	NS 97800 03587	M10.
253	NS 97788 03542	Clearly enriched, species-rich grassland here. Not CG10. Many damp grassland herbs ( <i>Ranunculus repens/Cardamine sp.</i> as well as <i>Trifolium repens</i> etc. Appears to be diffuse seepage of base-rich water on this slope. Sheep dunging probably factor as well.
254	NS 97788 03515	M10. Very large swathe moving downhill.
255	NS 97814 03497	M10 extends to here. Some small patches U5c associated.
256	NS 98141 03184	Overall bog essentially M17c. Eroded peat but stable. Good M17c, all species and fairly good cover of <i>Sphagnum papillosum</i> . Lower areas M20 (M17). Essentially an intergrade; <i>Eriophorum vaginatum</i> dominant but M17 species, including

ID	Grid Ref	Note
		<i>Sphagnum papillosum</i> abundant. Some eroded areas forming <i>Sphagnum</i> pools/lawns (including <i>Sphagnum papillosum</i> ). Percentages M17c 80%: M20(M17) 20%. Flat basin mire - peat will be deep & wet. Recommend avoid.
257	NS 97722 03044	Large swathe M6d coming down hill.
258	NS 98447 02771	Water flowing from spring clearly base rich; abundant calcicoles. Bryophyte includes <i>Scapania undulata/Campylium stellatum/Scorpidium revolvens</i> . Herb-rich below <i>Juncus effusus</i> ; much <i>Succisa pratensis</i> , <i>Prunella vulgaris</i> .
259	NS 98409 02763	Below flush; calcaerous grassland- probably CG10b; <i>Prunella vulgaris</i> Abundant, <i>Linum catharticum</i> (fairy flax). <i>Thymus polytrichus</i> ( <i>Praecox</i> ) present.
260	NS 98443 02623	Calcaerous mosses and <i>Carex</i> noted below the 2 flushes marked by P1 TNs. On walk through, base influence not apparent.
261	NS 98404 02701	Clear base influence here - <i>Carex panicea</i> Abundant.
262	NS 98421 02677	Base rich flush coming g down here. <i>Pedicularis palustris</i> , <i>Linum catharticum</i> , <i>Pinguicula vulgaris</i> , abundant <i>Carex</i> and calcaerous bryophyte.
263	NS 98432 02669	Large area M10.
264	NS 98573 02698	Little indication of Ground Water influence the above marked flushes; U4a and U5a (30:70)ra. However, drainage channel have M23, quite herb rich including <i>Ajuga reptans</i> . Possibly draining Ground Water source above.
265	NS 98640 02753	Weak signs of base flushing in <i>Juncus</i> above ( <i>Carex/Pinguicula vulgaris</i> ) source not found.
266	NS 99940 03127	Steep gullies. Not checked. Likely to have interesting flora, however very unlikely to be impacted by development.
267	NS 99437 02817	Deeply eroded. Still intact M17 on high peat. But much grading to M20/M15. Very wide and wet erosion channels - filled by bog pool/flush habitat – i.e. sheets of <i>Sphagnum</i> . Saturated.
268	NS 99736 02842	M20b.
269	NS 99500 02818	Deep cut river gullies here and, especially on opposite side. Given exposed possibly base rich geology may hold interesting/rare species. Unlikely to be impacted by the development. However if crossing gullies, survey advised. Rocks covered by <i>Thymus polytrichus</i> .
270	NS 99470 03149	Blanket mire comes all way to track on south side. Mainly M20/U6 but also some good condition M17c. Also very wet highly flushed sections ( <i>Sphagnum fallax/Eriophorum vaginatum</i> flushed bog).
271	NS 99092 03104	HIGH GWDTE POTENTIAL. M10 base-rich flush. Large area of CG10 associated. Location of source NS 99097- 03108.
272	NS 99073 03134	M10 base-rich flush.
273	NS 99012 03180	M10. Entire slope flushed - crossed 3 other M10 flushes until reached this one. Runs down from further up.
274	NS 98932 03300	Very broad base-rich flush here. Not typical M10 but broad area flushed acid grass U5c and flushed <i>Juncus acutifloris</i> .

ID	Grid Ref	Note
275	NS 98910 03366	Much of grassland herb rich, appears calcareous. Getting dark so needs re-survey. Whole area needs mapped for GWDTE- high sensitivity.
276	NS 98842 03494	M10 base-rich flush comes right down to track side.
277	NS 98743 08217	M25a. Peat depth 50cm. <i>Molinia caerulea</i> tussocks have been burned recently.
278	NS 98775 08094	Spring: water rising from ground (not surface flow). Lacking bryophytes except for small patch <i>Brutelia chrysocoma</i> further down. Associated habitat; 'poor' M23b; <i>Juncus acutifloris</i> dominant, <i>Viola palustris</i> / <i>Ajuga reptans</i> / <i>Cirsium palustre</i> / <i>Calliergonella cuspidata</i> / <i>Brachythecium rutabulum</i> / <i>Deschampsia cespitosa</i> (notably; <i>Galium palustre</i> & <i>Rumex acetosa</i> not seen). However, majority has acid grass community with <i>Juncus</i> ( <i>Hylocomium splendens</i> ).
279	NS 98772 08098	CG10a grassland associated with spring; confirms Ground Water spring despite lack of bryophyte at location of spring. <i>Thymus polytrichus</i> ( <i>Praecox</i> ) Abundant, <i>Briza media</i> , <i>Plantago lanceolata</i> , <i>Pinguicula vulgaris</i> , <i>Viola riviniana</i> , <i>Trifolium repens</i> , <i>Carex panicea</i> . <i>Ctenidium molluscum</i> - confirms calcaerous habitat.
280	NS 98862 08002	CG10 grassland between M10 flush and main burn.
281	NS 98912 07991	This area is highly flushed - calcaerous grassland species very frequent.
282	NS 98927 08020	Where ditches converge large M10 flush community. Drainage channels will have base-rich flushes feeding-in upstream. Indicative species; <i>Carex panicea</i> / <i>Carex viridula</i> / <i>Pinguicula vulgaris</i> / <i>Prunella vulgaris</i> / <i>Philonotis fontana</i> / <i>Scorpidium revolvens</i> / <i>Bryum pseudotriquetrum</i> .
283	NS 98847 07936	Mainly M25a & M6d but calcaerous species within ditch. Also the two communities particularly herb rich and <i>Carex panicea</i> abundant- Ground Water flushed.
284	NS 98808 08002	M23a here; <i>Galium palustre</i> & <i>Ranunculus flammula</i> .
285	NS 98734 07735	Occasional areas peat depth >50cm; <i>Eriophorum vaginatum</i> & <i>Sphagnum capillifolium</i> / <i>Sphagnum papillosum</i> in M25 sward.
286	NS 98216 07967	Seepage at this point. Mildly base rich - <i>Brutelia chrysocoma</i> Abundant. Location NS 98221-07963. Feeds small patch <i>Juncus acutifloris</i> - generally acid in composition.
287	NS 98100 08090	Heath on N facing slope = H21; damp heath with much <i>Sphagnum capillifolium</i> below dense canopy of <i>Calluna vulgaris</i> .
288	NS 97817 07781	H12; building phase <i>Calluna vulgaris</i> on steep slope. Poor bryophyte below (dominated by <i>Hypnum jutlandicum</i> but <i>Hylocomium splendens</i> & <i>Pleurozium schreberi</i> coming through). <i>Erica tetralix</i> , <i>Empetrum nigrum</i> , <i>Rhytidiadelphus loreus</i> . <i>Racomitrium lanuginosum</i> Frequent. <i>Pleurozium schreberi</i> , <i>Diphasiastrum alpinum</i> (Alpine club moss) & <i>Lycopodium clavatum</i> (Stags horn club moss) Abundant. <i>Vaccinium myrtillus</i> absent - very upland associate/feel to this stand (H13).
289	NS 97926 07736	Burned heath. Now M25a few pockets remnant heath.
290	NS 97913 07569	Remnant M17c - going-over to M20b, some wet heath.

ID	Grid Ref	Note
291	NS 98200 07351	Base-enriched location. No spring located - acidic all around. Maybe localised enrichment by rock exposures in ditch. <i>Philonotis fontana</i> / <i>Bryum pseudotriquetrum</i> in ditch. Species rich grassland adjacent ( <i>Pinguicula vulgaris</i> / <i>Plantago lanceolata</i> / <i>Trifolium repens</i> ).
292	NS 98162 07253	Species rich U4 grassland at this location - <i>Pinguicula vulgaris</i> / <i>Plantago lanceolata</i> / <i>Trifolium repens</i> / <i>Carex panicea</i> . No <i>Thymus polytrichus</i> seen. No sign of flushing; presumably due to thin soils/exposed rocks.
293	NS 98206 07300	Ditch here has <i>Dichodontium palustre</i> . The ditch excavations in this area presumably account for the observed mild flushing in the habitats below.
294	NS 98854 07341	GWDTE. Clear Ground Water input from above. Area highly irrigated by base-rich water. Calcicoles abundant here and in adjacent rush pasture and M25.
295	NS 98907 07606	M23a with abundant <i>Filipendula ulmaria</i> flanking burn. Remainder U4b.
296	NS 98930 07642	CG10a noted here. River to east flanked by spp rich M23 ( <i>Filipendula ulmaria</i> & <i>Ajuga reptans</i> abundant). Ditches with calcicoles. Clear Ground Water influence.
297	NS 98910 07708	Track flanked by U4b on west side.
298	NS 98958 07815	Looking east - possible M10 flushes on north side of burn.
299	NS 98968 07857	Base-rich community associated with burn coming down from east.
300	NS 98979 07194	Patches of <i>Juncus effusus</i> M23b.
301	NS 99966 08040	Small patch of M23a.
302	NS 99976 08102	Small patch of M23a.
303	NS 99920 08231	Small patch of M20b.
304	NS 99557 07486	Small patch of M25b.
305	NS 99416 07696	Patches of M23b along ditch.
306	NS 99712 07751	Small patch of M20b.
307	NS 99735 07855	Small patch of M15b.
308	NS 99399 07657	M23a small patch.
309	NS 99616 08207	M23a patch.
310	NT 00351 09341	M10a. Small patch dominated by <i>Carex nigra</i> with <i>Carex echinata</i> and <i>Carex panicea</i> abundant. Fairly wet, small mosses. <i>Holcus lanatus</i> and other grasses throughout.
311	NS 98986 07131	M20b within M19a area. Fewer species: <i>Sphagnum fallax</i> , <i>Deschampsia flexuosa</i> , <i>Polytrichum commune</i> . Poor ericoid cover.
312	NS 99062 07766	Small rill section with <i>Sphagnum</i> s, <i>Narthecium ossifragum</i> , <i>Ranunculus flammula</i> , <i>Carex viridula</i> , <i>C. panicea</i> and <i>Juncus acutiflorus</i> . No specific NVC code but some botanical interest.
314	NS 98534 09114	M35 rill. <i>Montia fontana</i> , <i>Ranunculus flammula</i> Dominant, <i>Equisetum palustre</i> , <i>Juncus bulbosus</i> , <i>Carex panicea</i> , <i>Myosotis</i> , <i>Carex viridula</i> , <i>Sphagnum denticulatum</i> , mosses Abundant.
315	NT 00243 08873	M20 in gully.

Source: Tringa Ecology

**Primary Proposed Access Route**

A6.4.3. Descriptions of all habitats recorded during the Phase 1 Habitat and NVC surveys on the Primary Proposed Access Route are presented in Table 6.9, target notes recorded on the Primary Proposed Access Route during the habitat surveys are shown in Table 6.10.

**Table 9: Phase 1 and NVC Habitat descriptions on the Primary Proposed Access Route 2020**

Habitat Name	Phase 1 Code	NVC code	Notes
Broadleaved woodland - plantation	A1.1.2	W7	
Broadleaved woodland - plantation	A1.1.2	W11	
Coniferous woodland - plantation	A1.2.2		
Scrub	A2	W4	
Scrub	A2	W7	
Scrub - dense/continuous	A2.1		
Scrub - scattered	A2.2	W7	
Coniferous woodland - recently felled	A4.2		
Acid grassland - unimproved	B1.1	U2b	
Acid grassland - unimproved	B1.1	U4a	
Acid grassland - semi-improved	B1.2	U4b	
Neutral grassland - unimproved	B2.1	MG9	
Neutral grassland - unimproved	B2.1	MG10	
Neutral grassland - semi-improved	B2.2	MG10	
Improved grassland	B4		
Marsh/marshy grassland	B5	M23a-b	
Marsh/marshy grassland	B5	M25a	
Marsh/marshy grassland	B5	MG9	
Poor semi-improved grassland	B6	MG6b	
Bracken	C1		
Bracken	C1	U20	
Bracken - continuous	C1.1	U20	
Bracken - scattered	C1.2		
Other tall herb and fern	C3	M27	<i>Filipendula ulmaria</i> dominant over much of area (M27)
Other tall herb and fern	C3	M23	<i>Filipendula ulmaria</i> dominant over much of area (M27)
Other tall herb and fern - non ruderal	C3.2		
Dry dwarf shrub heath - acid	D1.1	H10	
Dry heath/acid grassland	D5		
Wet modified bog	E1.7	M19	

Habitat Name	Phase 1 Code	NVC code	Notes
Wet modified bog	E1.7	M20	
Wet modified bog	E1.7	M25a	
Flush and spring - acid/neutral flush	E2.1	M4	
Flush and spring - acid/neutral flush	E2.1	M6c-d	
Flush and spring - basic flush	E2.2	M10	
Swamp	F1	S10	
Swamp	F1	S12	
Swamp	F1	OV35	Mosaic with S10/S12/S19
Swamp	F1	S19	
Other habitat	J5		Borrow pit/quarry

Source: Tringa Ecology

**Table 10: NVC and Phase 1 Target Notes in the Primary Proposed Access Route 2020**

P1 or NVC	ID	Notes
P1	1	Ditch/edge of burn species-rich. Enrichment from burn and/or track material. <i>Succisa pratensis/Prunella vulgaris</i> Abundant, <i>Euphrasia sp./Carex flacca</i> Frequent
P1	3	Track side drainage; <i>Salix cinerea</i> scrub/rush pasture mosaic.
P1	4	Still M25 but fairly mixed sward; <i>Juncus acutiflorus/ Juncus effusus/ Deschampsia cespitosa</i> abundant in sward dominated by <i>Molinia caerulea</i> .
P1	7	M25a; peat depth >50 cm over much of the area but not consistently. Mapped as wet modified bog. Species-poor <i>Molinia</i> sward; <i>Eriophorum vaginatum/ Potentilla erecta</i> Occasional. No other bog associates.
P1	8	M23a - species-rich as further up (grading towards M27; <i>Filipendula ulmaria</i> Abundant). <i>Carex rostrata</i> and <i>Phalaris sp.</i> abundant where wettest.
P1	9	Rock exposures- species rich. <i>Thymus sp.</i> absent. <i>Pilosella officinarum</i> Abundant. <i>Drosera rotundifolia/Achillea millefolium/ Festuca ovina</i> Abundant.
P1	12	Thicket stage spruce on this side of track as well.
P1	13	General note: track side vegetation is mainly spp of disturbed ground ( <i>Chamaenerion angustifolium/Tussilago farfara/Plantago major</i> etc). <i>Salix cinerea</i> Occasional. Neutral grass with enrichment from track ( <i>Euphrasia sp./Prunella vulgaris</i> ). Ditches generally filled with <i>Sphagnum fallax</i> . Edge plantation with poor dry heath ( <i>Calluna vulgaris</i> ).
P1	14	General observation; tall ruderal ( <i>Chamaenerion angustifolium</i> ) frequent in patches throughout, all habitats.
P1	15	Large drain - culverted below track.
P1	16	<i>Salix sp.</i> much more sparse along track.
P1	17	Stand of <i>Juncus effusus</i> has broad appearance of acid flush but just a messy assemblage growing over brash. Mainly <i>Juncus effusus</i> with acid grass associates.

P1 or NVC	ID	Notes
NVC	1	M23a; <i>Juncus acutiflorus</i> sub-community; species-rich. <i>Potentilla palustris/ Carex rostrata/Geum rivale/ Filipendula ulmaria/ Caltha palustris/ Myosotis secunda/ Achillea ptarmica/ Lychnis flos-cuculi</i> among usual M23 spp. <i>Stellaria alsine</i> Rare.
NVC	2	<i>Filipendula ulmaria</i> comes to dominance in patches (with much <i>Geum rivale</i> & <i>Carex rostrata</i> ). Grading towards M27. Note species-richness greatest along water course. Slight acid flush at outer edge (small patch <i>Sphagnum palustre</i> ).
NVC	3	More acidic in nature here; <i>Sphagnum palustre</i> . M6 <i>Juncus effusus</i> sub-community (M6c). Very small extent- surrounded by M23.
NVC	4	<i>Carex rostrata</i> dominant at this location Very swampy. M23 associates; <i>Juncus acutiflorus/Galium palustre/Cirsium palustre/Rumex acetosa/Epilobium palustre</i> . Basically a small patch of species-poor <i>Carex rostrata</i> swamp (S9a) in deeper water within M23 rush-pasture.
NVC	5	<i>Carex rostrata</i> swamp. Very wet, inundated. <i>Carex rostrata</i> dominant but with some M23 associates. Associates; <i>Galium saxatile/Epilobium montanum/Cirsium palustre/Juncus effusus</i> . A small patch of species-poor <i>Carex rostrata</i> swamp (S9a) in deeper water within M23 rush-pasture.
NVC	6	Species-rich area of M23; <i>Angelica sylvestris</i> Abundant, <i>Valeriana officinalis</i> Occasional. Sward dominated by <i>Juncus</i> and M23 associates although <i>Arrhenatherum elatius</i> Abundant. Intergrade M23-MG9b.
NVC	7	M23 associated with burn in from plantation.
NVC	8	M23-M27. Small patches good for M27. Others M23 or intergrade with M27. M23 80%: M27 20%. <i>Angelica sp./Lotus uliginosus/Galium palustre</i> Abundant. <i>Filipendula ulmaria</i> abundant in patches. <i>Valeriana officinalis/Deschampsia cespitosa/Urtica sp.</i> Frequent. <i>Juncus effusus/ Juncus acutiflorus</i> Constant. <i>Caltha palustris/Geum rivale /Marsh woundwort (Stachys palustris)</i> Occasional (abundant where M27). <i>Chrysosplenium oppositifolium</i> Rare.
NVC	11	Species-rich M23a. <i>Verbena officinalis/Angelica sp./Vaccinium uliginosum</i> Abundant. <i>Filipendula</i> Rare. Otherwise all M23 <i>Juncus acutiflorus</i> sub-community.
NVC	12	Still species-rich M23. Occasional patches where <i>Filipendula ulmaria</i> comes to dominance.
NVC	13	Still species-rich M23. Occasional acid input ( <i>Sphagnum fallax</i> ), <i>Carex nigra</i> sward.
NVC	14	M10 runnel. <i>Parnassia palustris/ Pinguicula vulgaris/Briza media/Pedicularis palustris/Carex flacca/Carex viridula/Carex panicea. Scorpidium cossonii</i> Abundant.

P1 or NVC	ID	Notes
NVC	15	M10 in rivulet here. Note: source of base-rich flushes not found: as you walk-up, flushes become less distinct- grades to species-rich M25c.
NVC	16	M23 <i>Juncus acutiflorus</i> sub-community - less species-rich than across wall/nearer water but fairly rich in places. Marshy grassland.
NVC	17	W7: willow carr ( <i>Salix aurita/Salix cinerea/Crataegus sp.</i> ). <i>Lysimachia nemorum /Ranunculus repens/Ajuga reptans/Deschampsia cespitosa</i> Abundant. <i>Prunella vulgaris/ Primula vulgaris/Viola riviniana/Veronica montana</i> Common.
NVC	18	W11 on steeper banks. Same canopy species ( <i>Salix carr</i> ). <i>Anthoxanthum odoratum/Agrostis capillaris/Deschampsia flexuosa/Potentilla erecta/Hylocomium splendens/Pleurozium schreberi/ Galium saxatile/ Teucrium scorodonia/ Oreopteris limbosperma</i>
NVC	19	Alder ( <i>Alnus glutinosa</i> ) with relict W7. <i>Chrysosplenium oppositifolium/Plagiomnium undulatum</i> .
NVC	20	Small area M4. Disturbed.
NVC	21	<i>Carex rostrata</i> dominant in trackside ditch. No <i>Sphagnum</i> . Not GWDTE. More analogous with <i>Carex rostrata</i> swamp (S9a; species-poor sub-community) although dry at time.
NVC	22	As can be seen from aerial, this section of track is crossed by several large drains (culverted below track). All have associated rush-pasture vegetation- largely neutral (M23; <i>Galium saxatile/Ranunculus repens</i> etc) but occasionally more acidic in patches.
NVC	23	See TN 22: Map drains as marshy grassland B5 (M23) but note highly modified by drainage and forestry management.
NVC	24	M23 with <i>Salix</i> scrub.
NVC	25	Edge of burn with low quality dry heath /acid grassland/ <i>Juncus</i> vegetation. Highly disturbed by forestry management. Habitat described in more detail on opposite side of track. <i>Chamaenerion angustifolium/bracken (Pteridium aquilinum)</i> Abundant.
NVC	26	River corridor quite steep sided with dry heath (H10)/acid grassland (U2&U4). Some scrub within gully ( <i>Salix/Sorbus/Rubus/Dryopteris</i> & exotic conifer). Much disturbance/bracken ( <i>Pteridium aquilinum/Chamaenerion angustifolium</i> on lower ground
NVC	27	Dry heath here is H12 ( <i>Vaccinium myrtillus</i> in <i>Calluna</i> sward, <i>Erica cinerea</i> absent).
NVC	28	At edge; W11 in nature: <i>Oreopteris limbosperma/Vaccinium myrtillus/Thuidium tamariscinum/Oxalis acetosella</i> (last v.abundant). <i>Deschampsia flexuosa</i> abundant, although not as grassy as typical due to deep shade from mature spruce.
NVC	29	<i>Salix/Sorbus</i> scrub continues a short distance this side of track.

Source: Tringa Ecology

## Bat Surveys

A6.4.4. Potential Roost Features (PRFs) from the daytime inspection of trees and other structures with the potential to support bat roosts are presented in Table 11 and Table 12. Metrics recorded by static detectors for each species are shown in Table 6.13. Timing of bat calls recorded by static detectors are shown in Figure 1. Relative bat activity levels have also been assessed for each bat detector following SNH guidance<sup>3</sup>. Assessment of the median activity levels per season is in Table 14 and assessment of the maximum activity levels per season is in Table 15, confidence intervals for results presented in Table 14 and Table 15 are given in Table 16. Assessment of the median activity levels per bat detector location is in Table 17 and assessment of the maximum activity levels per bat detector location is in Table 18.

Table 11: PRFs recorded in trees during bat walkover surveys 2019

Grid Reference	Distance from Proposed Development (m)	Roost Potential	Tree Species	Life Stage	PRF	Height	Orientation	Notes
NS 97191 06213	793	high number of PRF	Scots pine	Semi-mature - Alive (good condition)	Lifting bark	1-2 m	South	Lone tree less than 60m from Crookburn. Two bird nests, possibly crows, in the higher branches
NS 97191 06213	7932	high number of PRF	Scots pine	Semi-mature - Alive (good condition)				Lone tree less than 60m from Crookburn

Table 12: PRFs recorded in structures during bat walkover surveys 2019

Grid Reference	Distance from Proposed Development (m)	Roof design	Roof material	Roof void	Habitat	Roost Potential	Access notes	Notes
NS 98562 07354	418			No	Grassland, open moorland a burn	Low	Gaps between the stones that make up the walls of the bridge on both sides of the burn	
NS 98597 07332	377	Barn - pitched roof	Corrugated plastic and metal	No	Grassland and moorland	Low	Used periodically through the year, cracks present in render in outer wall, gap under overhanging roof, not secure, two broken windows. Used for storage.	Recent work done to inside and outside of barn. Render repaired in some areas
NS 98597 07332	377	Barn - pitched roof	Corrugated plastic and metal	No	Grassland and moorland	Low	Used periodically through the year, cracks present in render, gap under overhanging roof, not secure, two broken windows. Used for storage.	Recent work done to inside and outside of barn. Render repaired in some areas
NS 98597 07332	377	Barn - pitched roof	Corrugated plastic and metal	No	Grassland and moorland	Low	Used periodically through the year, cracks present in render in inner walls, gap under overhanging roof, not secure, two broken windows. Used for storage.	Recent work done to inside and outside of barn. Render repaired in some areas
NS 98597 07332	377	Barn - pitched roof	Corrugated plastic and metal	No	Grassland and moorland	Low	Used periodically through the year, cracks present in render, gap under overhanging roof, not secure, two broken	Recent work done to inside and outside of barn. Render repaired in some areas



Grid Reference	Distance from Proposed Development (m)	Roof design	Roof material	Roof void	Habitat	Roost Potential	Access notes	Notes
				No	Burn and open moorland	Low	windows. Used for storage. Wooden beams with gaps/cracks	
NS 97305 05980	886			No	Next to Crookburn	Low	Stone culvert with stone bridge. 1m high. Gaps between stones	Low/neg potential
NS 97316 05979	877			No	Bridge over Crookburn. Made from stone metal and wood	Low	Gaps between stone wall and wooden bridge	

Table 13: Key metrics for each detector and bat species recorded

Detector ID	Species	Median Percentile	95% CIs	Max Percentile	Nights Recorded	Reference Range
1	Mouse-eared bat species	38	38 - 38	42	2	767.5
1	Common pipistrelle	1	1 - 1	49	5	1372
1	Soprano pipistrelle	1	1 - 17.5	34	7	1567
1	Brown long-eared bat	34	0	34	1	112
2	Mouse-eared bat species	38	28.5 - 49	67	20	781.5
2	<i>Nyctalus</i> bat species	29	1 - 44.5	60	5	1104
2	Leisler's bat	43	0	43	1	304
2	Leisler's bat	1	0	1	1	314
2	Pipistrelle sp.	91	87.5 - 94	97	4	2013
2	Common pipistrelle	78	58 - 81	96	29	1246
2	Soprano pipistrelle	61	51 - 72	95	24	1481
3	Mouse-eared bat species	1	1 - 25	49	8	780.6
3	Leisler's bat	1	0	1	1	314
3	Pipistrelle sp.	81	0	81	1	2013
3	Common pipistrelle	42	22 - 56	78	17	1253
3	Soprano pipistrelle	34	24.5 - 49	72	19	1454
4	Mouse-eared bat species	1	1 - 1	34	3	816.7
4	Common pipistrelle	29	15 - 44.5	64	15	1385
4	Soprano pipistrelle	8	1 - 34	59	14	1431
4	Brown long-eared bat	1	0	1	1	112
5	Mouse-eared bat species	22	8 - 35.5	70	14	766.4

Detector ID	Species	Median Percentile	95% CIs	Max Percentile	Nights Recorded	Reference Range
5	Leisler's bat	1	0	1	1	314
5	Common pipistrelle	38	25 - 52	83	18	1387
5	Soprano pipistrelle	39	17.5 - 54.5	64	10	1600
6	Leisler's bat	57	0	57	1	132
6	Common pipistrelle	1	1 - 38	75	5	1588
6	Soprano pipistrelle	1	1 - 1	67	11	1579
7	Mouse-eared bat species	18	1 - 34	34	6	816.7
7	<i>Nyctalus</i> bat species	1	0	1	1	1104
7	Leisler's bat	1	1 - 1	34	3	184.7
7	Pipistrelle sp.	82	81.5 - 81.5	85	2	2013
7	Nathusius' pipistrelle	1	0	1	1	7
7	Common pipistrelle	50	26 - 63	92	18	1357
7	Soprano pipistrelle	38	24.5 - 52.5	81	20	1489
7	Brown long-eared bat	34	34 - 34	34	3	112
8	Mouse-eared bat species	15	1 - 41.5	70	15	799.3
8	Leisler's bat	1	0	1	1	304
8	Pipistrelle sp.	98	97.5 - 97.5	99	2	2013
8	Nathusius' pipistrelle	43	34 - 78	78	3	8.333
8	Common pipistrelle	68	45 - 76	98	24	1337
8	Soprano pipistrelle	66	42.5 - 69.5	97	23	1445
8	Brown long-eared bat	18	17.5 - 17.5	34	2	112
9	Mouse-eared bat species	1	1 - 1	15	4	776.2
9	Pipistrelle sp.	43	0	43	1	2013
9	Common pipistrelle	56	26 - 64.5	72	11	1500
9	Soprano pipistrelle	34	22 - 47	75	15	1552
10	Mouse-eared bat species	8	1 - 29	57	18	768.6
10	<i>Nyctalus</i> bat species	1	0	1	1	1104
10	Pipistrelle sp.	97	75 - 99	99	4	2013
10	Nathusius' pipistrelle	1	0	1	1	7
10	Common pipistrelle	49	38.5 - 73	98	19	1357
10	Soprano pipistrelle	67	44 - 80	98	21	1528
10	Brown long-eared bat	1	1 - 1	1	2	79
11	Mouse-eared bat species	43	29 - 56	84	23	763.5
11	<i>Nyctalus</i> bat species	29	0	29	1	1104
11	Leisler's bat	1	0	1	1	132
11	Leisler's bat	1	0	1	1	314
11	Pipistrelle sp.	87	87 - 87	87	3	2013

Detector ID	Species	Median Percentile	95% CIs	Max Percentile	Nights Recorded	Reference Range
11	Common pipistrelle	63	39.5 - 70.5	85	19	1300
11	Soprano pipistrelle	55	35 - 62.5	89	24	1442
11	Brown long-eared bat	1	0	1	1	112
12	Mouse-eared bat species	71	60.5 - 76.5	87	21	769.8
12	<i>Nyctalus</i> bat species	1	1 - 1	1	2	1104
12	Pipistrelle sp.	80	0	80	1	2013
12	Common pipistrelle	53	33 - 68	84	17	1349
12	Soprano pipistrelle	39	24.5 - 58.5	87	18	1521
12	Brown long-eared bat	1	1 - 1	1	2	112

Source: EcoBat

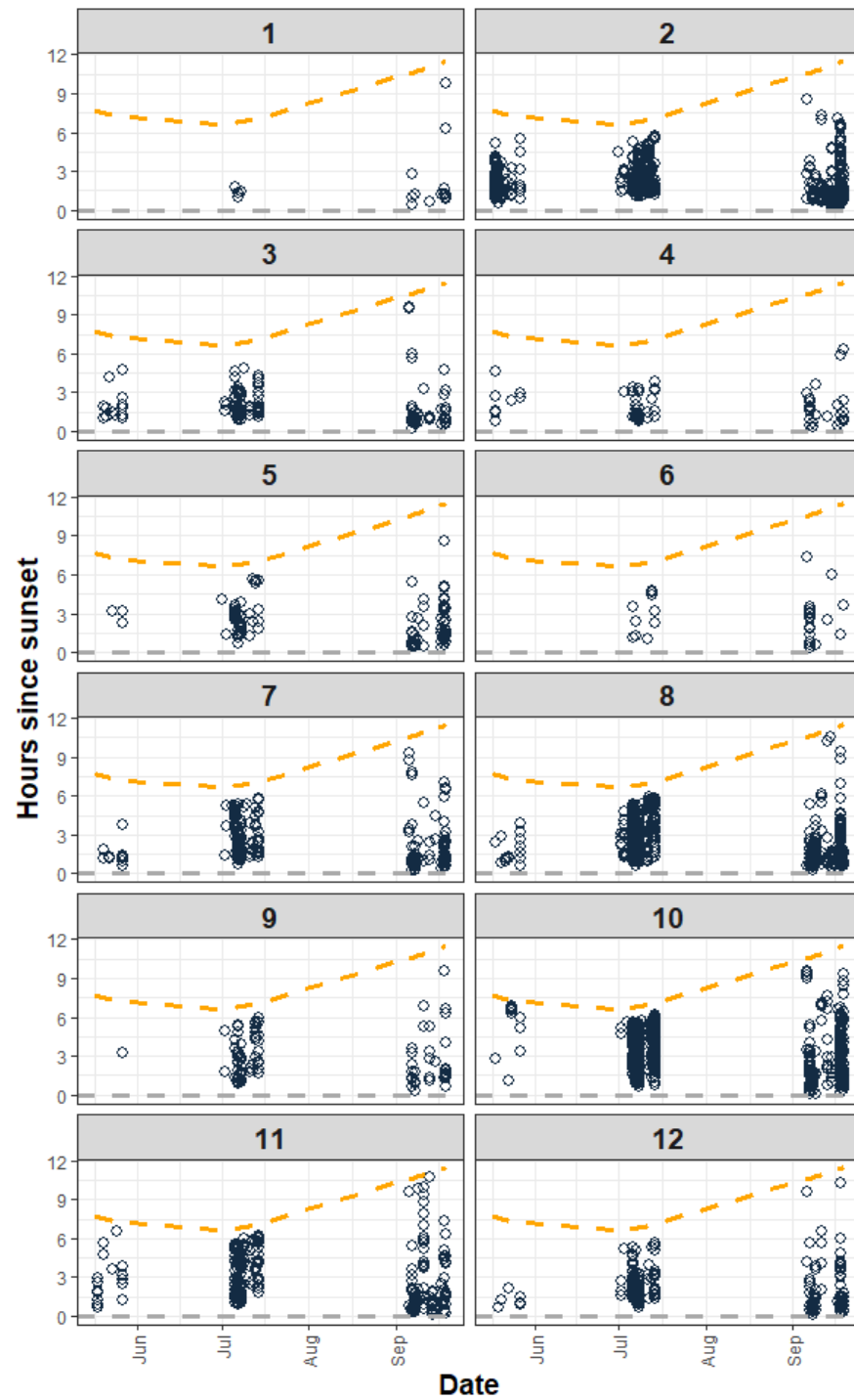


Figure 1: Timing of bat calls plotted as hours after sunset. Dashed grey line indicates sunset and dashed orange line indicates sunrise throughout the survey period. Bat calls are shown for common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, unidentified pipistrelle, common noctule, Leisler's bat and unidentified noctule.

Table 14: Ecobat relative bat activity for the median activity level (percentile) of bats recorded across each night of the bat survey for the Proposed Development summarised by season and for the whole year.

Species	Spring	Summer	Autumn	Year
Common pipistrelle	Low to Moderate	Moderate	Moderate	Moderate
Soprano pipistrelle	Moderate	Moderate	Low to Moderate	Moderate
<i>Myotis</i> sp.	Moderate	Low to Moderate	Low to Moderate	Low to Moderate
Nathusius' pipistrelle	NA	Moderate	Low	Low to Moderate
Noctule	NA	Low	Low	Low
Leisler's bat	NA	Low to Moderate	Low to Moderate	Low to Moderate
Brown long-eared	NA	Low	Low	Low

Source: Ecobat/Natural Power

Table 15: Ecobat relative bat activity for the maximum activity level (percentile) of bats recorded across each night of the bat survey for the Proposed Development summarised by season and for the whole year.

Species	Spring	Summer	Autumn	Year
Common pipistrelle	High	High	High	High
Soprano pipistrelle	High	High	High	High
<i>Myotis</i> sp.	High	High	Moderate to High	High
Nathusius' pipistrelle	NA	Moderate to High	Low to Moderate	Moderate to High
Noctule	NA	Low	Low to Moderate	Low to Moderate
Leisler's bat	NA	Moderate	Moderate	Moderate
Brown long-eared	NA	Low	Low to Moderate	Low to Moderate

Source: Ecobat/Natural Power

Table 16: Relative bat activity confidence intervals\* for Table 14 and Table 15.

Species	Spring	Summer	Autumn
Common pipistrelle	58-81	58-81	58-81
Soprano pipistrelle	51-72	51-72	51-72
<i>Myotis</i> sp.	8-35.5	8-35.5	8-35.5
Nathusius' pipistrelle	NA	34-78	34-78
Noctule	NA	1-1	1-1
Leisler's bat	NA	0	0
Brown long-eared	NA	1-1	34-34

\*The 95% confidence intervals represent the range of values that you can be 95% certain contains the true average bat activity for each species based on the range of data used in the assessment.

Source: Ecobat/Natural Power

Table 17: The Ecobat relative bat activity for the median activity level (percentile) of bats recorded across each night of the bat survey for each detector location summarised for the whole year.

Species	Detector ID											
	1	2	3	4	5	6	7	8	9	10	11	12
Common pipistrelle	Low	Mod - High	Mod	Low - Mod	Low - Mod	Low	Mod	Mod - High	Mod	Mod	Mod - High	Mod
Soprano pipistrelle	Low	Mod - High	Low - Mod	Low	Low - Mod	Low	Low - Mod	Mod - High	Low - Mod	Mod - High	Mod	Low - Mod
<i>Myotis</i> sp.	Low - Mod	Low - Mod	Low	Low	Low - Mod	NA	Low	Low	Low	Low	Mod	Mod - High
Nathusius' pipistrelle	NA	NA	NA	NA	NA	NA	Low	Mod	NA	Low	NA	NA
Noctule	NA	Low	Low	NA	Low	NA	Low	NA	NA	NA	Low	NA
Leisler's bat	NA	Mod	NA	NA	NA	Mod	NA	Low	NA	NA	Low	NA
Brown long-eared	Low - Mod	NA	NA	Low	NA	NA	Low-Mod	Low	NA	Low	Low	Low
<b>Dist. from turbine (m)</b>	<b>1210</b>	<b>930</b>	<b>300</b>	<b>180</b>	<b>170</b>	<b>70</b>	<b>170</b>	<b>460</b>	<b>125</b>	<b>270</b>	<b>710</b>	<b>575</b>

Source: Ecobat/Natural Power

Table 18: The Ecobat relative bat activity for the maximum activity level (percentile) of bats recorded across each night of the bat survey for each detector location summarised for the whole year.

Species	Detector ID											
	1	2	3	4	5	6	7	8	9	10	11	12
Common pipistrelle	Mod	High	Mod - High	Mod - High	High	Mod - High	High	High	Mod - High	High	High	High
Soprano pipistrelle	Low - Mod	High	Mod - High	Mod	Mod - High	Mod - High	High	High	Mod - High	High	High	High
<i>Myotis</i> sp.	Mod	Mod - High	Mod	Low - Mod	Mod - High	NA	Low - Mod	Mod - High	Low	Mod	High	High
Nathusius' pipistrelle	NA	NA	NA	NA	NA	NA	Low	Mod - High	NA	Low	NA	NA
Noctule	NA	Low	Low	NA	Low	NA	Low - Mod	NA	NA	NA	Low	NA
Leisler's bat	NA	Mod	NA	NA	NA	Mod	NA	Low	NA	NA	Low	NA
Brown long-eared	Low - Mod	NA	NA	Low	NA	NA	Low - Mod	Low - Mod	NA	Low	Low	Low
<b>Dist. from turbine (m)</b>	<b>1210</b>	<b>930</b>	<b>300</b>	<b>180</b>	<b>170</b>	<b>70</b>	<b>170</b>	<b>460</b>	<b>125</b>	<b>270</b>	<b>710</b>	<b>575</b>

Source: Ecobat/Natural Power

## Protected Mammals

A summary of all protected mammal signs recorded in the Main Wind Farm Area in 2019 and the Primary Proposed Access Route in 2020 are shown in Table 19.

Table 19: Protected mammal survey results in the Proposed Development Area 2019 and 2020

Date	Grid Reference	Species	Confidence of record	Nature of record	No. signs	Freshness of sign	Status	Comments
26/08/2019	NS 96582 05684	Otter	Definite	Spraint/scat	1	Recent		Spraint on east side of river
26/08/2019	NS 96594 05748	Otter	Definite	Spraint/scat	1	Old		East side of river
26/08/2019	NS 96637 06004	Otter	Definite	Spraint/scat	1	Recent		East side of river
26/08/2019	NS 96450 05496	Water vole	Possible	Suitable habitat			Potential	Small burn off main river, slow flowing. Low
26/08/2019	Confidential*	Otter	Possible	Holt	1		Potential	Potential rest site, collapsed bank with void. Bedding and partially eaten frog present
26/08/2019	NS 96428 05161	Otter	Definite	Spraint/scat	1	Recent		Spraint on east side of river

Date	Grid Reference	Species	Confidence of record	Nature of record	No. signs	Freshness of sign	Status	Comments
26/08/2019	NS 96451 05125	Water vole	Possible	Suitable habitat			Potential	Slow flowing burn off main river. Low/mod potential for water vole
26/08/2019	Confidential*	Otter	Possible	Couch			Potential	Old potential rest site
26/08/2019	NS 96466 05430	Otter	Probable	Feeding sign	1	Recent		
26/08/2019	NS 96573 04810	Otter	Definite	Spraint/scat	1	Recent		
26/08/2019	NS 96742 04460	Water vole	Possible	Suitable habitat			Potential	Small slow running burn with banks and vegetation. Low potential
27/08/2019	Confidential*	Otter	Possible	Couch	1	Old	Potential	Potential rest site, no other signs present
27/08/2019	NS 97523 05569	Otter	Definite	Spraint/scat	1	Old		
27/08/2019	NS 97628 05211	Water vole	Possible	Suitable habitat			Potential	Low potential for water vole. Stream leads into rushy marshy grassland
27/08/2019	NS 97608 05136	Water vole	Possible	Suitable habitat			Potential	Low potential for water vole
27/08/2019	NS 97775 04480	Water vole	Possible				Potential	Habitat with low water vole potential
27/08/2019	NS 97698 04604	Otter	Definite	Spraint/scat	1	Old		
27/08/2019	NS 97574 05060	Water vole	Possible	Suitable habitat			Potential	Low potential for water vole
27/08/2019	NS 97209 06062	Otter	Definite	Spraint/scat	1	Recent		
29/08/2019	Confidential*	Otter	Possible	Couch			Potential	Otter rest sites under three slabs next to burn
29/08/2019	NS 98607 08958	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat. 2 small burns with banks and suitable vegetation
29/08/2019	NS 98751 08979	Otter	Definite	Spraint/scat	1	Old		Old spraint
29/08/2019	NS 98851 08945	Otter	Definite	Spraint/scat	1	Old		
29/08/2019	NS 98916 08948	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat. Marshy grassland, dominated by rush. Bank voles present
29/08/2019	NS 98920 08933	Otter	Definite	Spraint/scat	1	Old		
29/08/2019	NS 99030 08933	Otter	Definite	Spraint/scat	1	Old		
29/08/2019	NS 99053 08917	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat. No signs present
29/08/2019	NS 99234 08852	Water vole	Possible	Suitable habitat			Potential	Marshy grassland surrounding small burn. Banks and suitable vegetation. No signs
29/08/2019	NS 99517 08892	Badger	Probable	Spraint/scat	1	Recent		Badger scat, mainly consisting of beetle casings, musty
29/08/2019	NS 99634 08846	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat. Bank voles presents, live sighting, some burrows and feeding signs
29/08/2019	NS 99622 08942	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat, bank vole present
29/08/2019	NS 99714 09041	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat, small burn surrounded by marshy grassland. Bank vole present. Multiple small burns in area leading back to main burn
29/08/2019	NT 00173 09057	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat
29/08/2019	NT 00029 09223	Water vole	Possible	Suitable habitat			Potential	Low potential water vole habitat, no signs present
15/10/2019	NS 98379 02723	Bank vole	Probable	Feeding sign	1	Recent		Bank vole feeding sign
15/10/2019	NS 98349 02875	Otter	Definite	Spraint/scat	1	Recent		
15/10/2019	NS 98302 02934	Otter	Definite	Spraint/scat	1	Old		
15/10/2019	NS 98342 03324	Water vole	Possible	Suitable habitat	1	Recent	Potential	Low potential, wet flush with mod vegetation, banks and slow flowing water. Bank vole scat seen
15/10/2019	NS 98371 03432	Otter	Definite	Spraint/scat	1	Old		
15/10/2019	NS 98399 03619	Otter	Definite	Spraint/scat	1	Recent		
15/10/2019	NS 98412 03727	Otter	Definite	Spraint/scat	1	Old		

Date	Grid Reference	Species	Confidence of record	Nature of record	No. signs	Freshness of sign	Status	Comments
15/10/2019	NS 99212 03188	Water vole	Possible	Suitable habitat	1	Recent	Potential	Low potential water vole habitat. Good banks, heavily vegetated. Feeding signs found but given lack of other signs considered likely to be bank vole.
18/08/2020	NY 07262 98164	Otter	Definite	Spraint/scat	1	Old		Old spraint on rock under bridge.
18/08/2020	NY 07290 98324	Water vole	Possible	Suitable habitat	1		Potential	Low potential water vole habitat. Good banks and access to river. Bank vole scat present.
18/08/2020	NY 06774 97875	Badger	Definite	Snuffle hole	10	Recent		Snuffle holes in birch shelter belt below track.
18/08/2020	Confidential*	Badger	Definite	Sett	1	Recent	Active	Active single entrance sett, most likely annex/outlier.
18/08/2020	NY 06738 97835	Badger	Definite	Snuffle hole	3	Recent		Up bank from single entrance.
18/08/2020	NY 06733 97841	Badger	Definite	Other	1	Recent	Active	Digging signs, looks like potential sett digging attempt..
18/08/2020	Confidential*	Badger	Definite	Sett	1	Recent	Active	Main sett as found in previous survey, can't check for other entrances as on wrong side of fence
18/08/2020	NY 06738 97916	Badger	Definite	Snuffle hole	1	Recent		In birch shelter belt above track.
18/08/2020	NY 06508 97900	Water vole	Possible	Suitable habitat	2	Recent	Potential	Low potential water vole habitat, some likely bank vole burrows along the bank. Live sighting of bank vole.
18/08/2020	NY 06278 97928	Water vole	Possible	Suitable habitat			Potential	Slow flowing burn with suitable banks and some likely bank vole burrows. Heavily poached by livestock in places.
18/08/2020	NY 06245 97895	Badger	Probable	Other	1	Recent		Digging signs near burn.
18/08/2020	NY 05655 97727	Badger	Possible	Other	1	Recent	Potential	Area dug out. relatively recent but some plants starting to reseed.
18/08/2020	NY 05613 97715	Badger	Probable	Run	1	Recent		Run under fence and down to track.
18/08/2020	NY 05559 97704	Badger	Probable	Run	1	Recent		Run under fence and across to track.
18/08/2020	NY 05261 97656	Reptile sp.	Possible	Hibernacula	1		Potential	Old dry-stone wall bordering track. Starts at NY 05261 97657 ends at NY 05680 97738.
19/08/2020	NY 04364 97561	Squirrel	Definite	Feeding sign	4	Recent		
19/08/2020	NY 04365 97538	Squirrel	Definite	Feeding sign	2	Recent		
19/08/2020	NY 04375 97528	Squirrel	Definite	Feeding sign	1	Recent		
19/08/2020	NY 04334 97484	Squirrel	Definite	Feeding sign	1	Recent		
19/08/2020	NY 04141 97468	Otter	Definite	Spraint/scat	1	Recent		Under bridge to wind farm.
19/08/2020		Badger	Probable	Feeding sign	1	Recent		Digging signs, uncovered wasp's nest. unable to get photo or accurate grid ref due to angry wasps.
19/08/2020	NY 04247 97235	Water vole	Possible	Feeding sign	1	Recent		
19/08/2020	NY 04310 97181	Otter	Probable	Spraint/scat	1	Old		
19/08/2020	Confidential*	Otter	Probable	Couch	2	Recent	Potential	Potential couch, overhang next to burn with dry land underneath. 2 scats present, 1 recent and 1 old.
19/08/2020	NY 04210 97431	Otter	Definite	Spraint/scat	1	Recent		next to small pond just up from burn.
19/08/2020	NT 04036 01253	Otter	Definite	Spraint/scat	1	Old		
19/08/2020	NT 04019 01201	Reptile sp.	Possible	Hibernacula	1		Potential	Dry stone wall at edge of track, potential for reptiles.
19/08/2020	NT 04003 01208	Reptile sp.	Possible	Hibernacula	1		Potential	Dry stone wall next to track.
19/08/2020	NT 03870 01072	Squirrel	Definite	Feeding sign	1	Recent		
20/08/2020	NT 03772 03711							Wind blow blocking access to burn. surveyed up to 100m from track.
20/08/2020	Confidential*	Otter	Possible	Couch		Recent	Potential	Old hollow tree, grass pushed aside. Used by something but no scat or tracks. Potential couch, just above burn.
20/08/2020	NT 02108 05612	Otter	Definite	Spraint/scat	1	Old		
21/08/2020		Bird sp.	Definite	Other	1	Recent		Buzzard feather, plenty of nesting habitat.
21/08/2020	NT 03518 03776	Squirrel	Definite	Feeding sign		Recent		
21/08/2020	NT 03117 00632	Squirrel	Definite	Feeding sign	4	Recent		

Date	Grid Reference	Species	Confidence of record	Nature of record	No. signs	Freshness of sign	Status	Comments
26/08/2020	NY 02993 99297	Squirrel	Definite	Feeding sign	2	Recent		
26/08/2020	NY 02857 99905	Squirrel	Definite	Feeding sign	2	Recent		
26/08/2020	NT 02944 00004	Squirrel	Definite	Feeding sign	2	Recent		
26/08/2020	NT 02973 00120	Squirrel	Definite	Feeding sign	1	Recent		Large number of stripped cones under partially fallen tree.

Source: Natural Power

\*The locations of otter and badger places of shelter are confidential – see Confidential Figure 6.6 for details of location.