

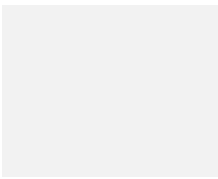
# **BIGLIS TO DINAS POWYS ATR**

## Preliminary Ecological Appraisal

DECEMBER 2023



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# Biglis to Dinas Powys Active Travel Route

## Preliminary Ecological Appraisal

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## VERSION CONTROL

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## Summary

Arcadis Consulting (UK) Limited was commissioned by Vale of Glamorgan Council to produce a Preliminary Ecological Appraisal (PEA) report for a proposed active travel route between Biglis and Dinas Powys ('the proposed development').

The PEA report identifies any ecological constraints associated with the proposed development and informs the design process by outlining appropriate mitigation measures.

Habitats within the survey area were considered suitable to support hazel dormouse; foraging, commuting and roosting bats; badger; otter, water vole, breeding birds; amphibians during their terrestrial phase; reptiles, and hedgehog.

It is recommended that:

- A walkover survey be completed within the field adjacent to Green Lane that could not be accessed by surveyors.
- An arboricultural survey and impact assessment be undertaken in accordance with BS 5837:2012 Trees in relation to design, demolition and construction, if any works are proposed within 15m of any of the proposed development's trees, hedgerows or woodland.
- Great crested newt (GCN) surveys are undertaken on all waterbodies suitable to support breeding GCN located within 250m of the proposed works (e.g. ponds and ditches).
- Once the extent of the vegetation and tree clearance is confirmed, all trees that will be impacted (felled/managed/located within proximity to any new lighting installed) undergo a ground based bat tree assessment, the results of which will determine if further surveys are required (e.g. aerial inspection, presence/absence surveys).
- A hazel dormouse survey be undertaken of suitable habitat along the proposed development (hedgerow, woodland and scrub).
- A pre-construction badger survey be undertaken of suitable habitat (woodland, hedgerows) within 30m of the proposed development to determine if badgers or their setts are present.
- Otter and water vole surveys up and downstream of the proposed development are undertaken as the proposed active travel route crosses Cadoxton River.
- A phased approach to vegetation clearance be adopted in areas of habitat identified as suitable for reptiles and amphibians (during their terrestrial phase). If GCN are found to be present a licence, granted by Natural Resources Wales, will be required detailing specific mitigation.
- Vegetation clearance be undertaken outside of the core breeding bird season (1 March to 31 August (inclusive, weather dependent)). If vegetation clearance works are required within this period, then a breeding bird check should be undertaken by a suitably qualified ecologist no more than 48 hours prior to the works being undertaken.
- Reasonable avoidance measures be put in place to avoid harm to harvest mouse and hedgehog to ensure that suitable refuges and potential hibernation sites (such as piles of vegetation and deadwood which are also suitable to support invertebrates such as beetles) are removed outside of the winter months.
- Pollution prevention measures be implemented where works are within 10m of Cadoxton River and any other minor watercourses to protect the Cadoxton Rivers Site of Importance for Nature Conservation.
- During works, any incomplete excavations be covered overnight, or a ramp provided to allow escape of any animals that may become trapped.
- New habitats of value to breeding birds and bats be created to compensate for habitat lost as part of the works to include invertebrate attractive planting to complement the B-line (pollinator wildlife corridor) and provide opportunities for hedgehog, polecat and harvest mouse.

# 1 Introduction and Aims

## 1.1 Background

Arcadis Consulting (UK) Limited was commissioned by Vale of Glamorgan Council to produce a Preliminary Ecological Appraisal (PEA) report regarding a proposed active travel route between Biglis and Dinas Powys ('the proposed development').

The PEA report identifies any ecological constraints associated with the proposed development and informs the design process by outlining appropriate mitigation measures.

## 1.2 Site Location

The proposed development is in the Vale of Glamorgan with a central grid reference of ST 15393 70215. The proposed development links Biglis in Barry (southwest end of active travel route) to Dinas Powys (northeast end of active travel route) via woodland, grazed semi-improved grasslands, and existing footpath/road along Cardiff Road and through Dinas Powys Skate Park. The route will terminate at Dinas Powys train station. The route of the proposed development is shown in Figure 1 below.



© Google Image

Figure 1 Overview of proposed active travel route between Biglis (south-west) to Dinas Powys (north-east)

## 1.3 Scope of Works

The scope of this assessment includes the following:

- A desk study (within 2km of the proposed development for protected species and designated sites, except for Special Areas of Conservation (SACs) designated for bat interest, for which a search of up to 10km was undertaken);

- An extended Phase 1 habitat survey of the proposed development and 50m buffer around the proposed development to identify key habitats, assess their potential to support protected and/or notable species, and record any presence of non-native invasive species;
- An outline of measures and location for mitigation and possible ecological enhancement; and
- Associated habitat mapping.

## 1.4 Proposals

The proposals are for a new active travel route between Dinas Powys and Biglis. An active travel route is a path that will be used for walking and cycling (including the use of mobility scooters) for everyday journeys. The northeastern and northern section of the proposed development runs along Cardiff Road from Dinas Powys train station to the entrance of Green Lane. The southern section of the proposed development runs from Green Lane where it will continue through grazed semi-improved grasslands and run parallel to Cardiff Road to the Biglis roundabout that connects the A4055 to the A4231 and B4267 at the eastern edge of Barry.

A second option is proposed which crosses the A4055 at grid reference ST 15256 69855 where it will pass through a series of fields with a parcel of woodland on the eastern boundary before terminating at grid reference ST 15324 70222. The location of the second option is shown on Figure 2 below.



Figure 2 Detail of second option of proposed active travel route at Dinas Powys

The existing footpath/road along the northern section of the proposed development will likely need widening with some adjacent trees and scrub requiring some management and/or clearance. Sections of hedgerow, trees, scrub, woodland, and semi-improved grassland will require some vegetation clearance along the southern section of the proposed development; however, the full extent of vegetation clearance is currently unknown. There may also be a requirement to incorporate some lighting along the travel route.



## 2 Methodology

### 2.1 Desk Study

A desk study was undertaken in February 2023 to identify any existing ecological information relating to the proposed development and its surroundings. The following resources/sources were used/consulted:

- The Multi-Agency Geographical Information for the Countryside (MAGIC) website (Ref 1) was used to search for statutory designated sites of nature conservation value within 2km of the proposed development. The search buffer was extended to 10km for Special Areas of Conservation (SACs) designated for bats.
- Natural Resources Wales' Ancient Woodland Inventory 2021 (Ref 2) was used to search for areas of ancient woodland within 100m of the proposed development and ponds and watercourses within 250m.
- South East Wales Biodiversity Records Centre (SEWBReC) was consulted for records of protected and notable species or species of conservation concern (from data collected in the last 10 years only) and Local Nature Conservation Sites within 2km of the proposed development.
- Habitats and species listed under Section 7 of the Environment (Wales) Act 2016 (Ref 3). These are Habitats of Principal Importance in Wales and Species of Principal Importance in Wales.

### 2.2 Field Survey

An extended Phase 1 habitat survey was undertaken on 8 February 2023 by experienced Arcadis Senior Ecologist Julie Player (MCIEEM) accompanied by Joe D'Souza (ACIEEM). The survey was undertaken during the daytime. Weather conditions were foggy, dry, and cold. An additional survey for the option two route was carried out on 15 September 2023 by experienced ecologists Julie Player (MCIEEM) and Rebecca Howells. The weather conditions during this survey were considered optimal.

The survey comprised a walkover survey to map habitats present within the proposed development and a 50m buffer following standard survey methodology (Ref 4). Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. Botanical names follow New Flora of the British Isles (Ref 5) for higher plants.

The habitats on site were also assessed for their potential to support protected or notable species of plants and animals, and observation was made of any incidental signs of protected or notable species.

### 2.3 Limitations

The survey data and recommendations provided in this report are valid for two years from the date of issue.

Surveyors did not enter residential gardens; however, they are likely to have limited ecological value and it is not considered to have affected the assessment of the proposed development.

Due to access issues surveyors could not enter the field highlighted below. Surveyors were only able to view this field from Green Lane and the field immediately south of this location. The field is very similar to adjacent habitat, with a very short grassland sward and evidence of grazing. However, a walkover of the field is required when the access issue has been resolved to confirm the habitat classification and ensure there are no protected or invasive plant species present.



Figure 2 - Yellow shading highlights a section of the proposed development that surveyors were unable to survey.

The optimal period for surveying for habitats and plant species is in the spring or summer months, but the initial survey was undertaken in February when not all plant species may have been identifiable or present and the species list should be considered a snapshot of those present at the time of the survey.

The protected species assessment provides a preliminary view of the likelihood of protected species occurring within the proposed development. This is based on the suitability of the habitat, known distribution of the species in the local area and any direct evidence within the survey area. It should not be taken as providing a full and definitive survey of any protected species group. It is only representative of the time the survey was carried out. Additional surveys may be recommended if, based on the preliminary assessment or during subsequent surveys, it is considered reasonably likely that protected species may be present.

### 3 Results

The results of the desk study and extended Phase 1 habitat survey are described below, with sites or features of particular nature conservation interest detailed as appropriate.

Supporting documents to be read in conjunction with the results and subsequent discussion are as follows.

- A summary of relevant legislation and policy presented in Appendix A.
- The results from the local record centre data search are summarised in Appendix B.
- The Phase 1 habitat survey plan is presented on Drawing 10058585-ARC-XX-XXX-DR-E-00001-P01, whilst the associated photographs can be seen in Figures 3 – 14 under Section 3.5 of this report.

#### 3.1 Statutory Designated Sites

There are five statutory designated sites within 2km of the proposed development. Hayes Point to Bedrick Rock Site of Special Scientific Interest (SSSI) is designated for geological reasons and is therefore not included in the list in Table 1 below.

There are no SACs designated for bats within 10km of the proposed development.

Table 1: Statutory Designated Sites within 2km of the proposed development

Site Name	Reasons for Designation	Location in relation to the proposed development
Cog Moors Site of Special Scientific Interest (SSSI)	<p>This SSSI supports extensive areas of relatively unimproved species rich grassland, which traditionally managed for hay. Grassland is characterised by Common Knapweed <i>Centaurea nigra</i>, Crested Dog's-tail <i>Cynosurus cristatus</i>, Common Bird's-foot-trefoil <i>Lotus corniculatus</i> and Meadow Vetchling <i>Lathyrus pratensis</i>. Other distinctive species found at Cog Moors include Pepper-saxifrage <i>Silaum silaus</i> and Meadow Barley <i>Hordeum secalinum</i>.</p> <p>Cog Moors also supports populations of several species which are uncommon including Brown Sedge <i>Carex disticha</i>, Adder's-tongue <i>Ophioglossum vulgatum</i> and Green-winged Orchid <i>Orchis morio</i>.</p>	465m
Cosmeston Lakes Country Park Local Nature Reserve (LNR)	Cosmeston has a variety of habitats covering over 100 hectares of land and water including habitats such as reedbeds, meadows, lakes, ponds, woodland and commons. Water vole ( <i>Arvicola amphibius</i> ) have recently been introduced here (Ref 6).	1489m
Barry Woodlands Site of Special Scientific Interest (SSSI)	Barry Woodlands is of special interest for its semi-natural broadleaved woodland.	1800m
Llynnoedd Cosmeston / Cosmeston Lakes Site of Special Scientific Interest (SSSI)	Located within Cosmeston Lakes LNR, this site relates to the two lakes, created from flooded limestone quarries which are connected by a narrow channel. These are deep, eutrophic water bodies which support a range of submerged plants. The presence of Starry Stonewort <i>Nitellopsis obtuse</i> in one of the lakes is of special interest. This site also includes areas of swamp, ponds, grassland that form part of the water catchment area for the lake.	1900m

### 3.2 Non-Statutory Designated Sites

There are 20 non-statutory designated sites within 2km of the proposed development, including 19 Sites of Importance for Nature Conservation (SINCs) and one Wildlife Trust Reserve (WTR). Information pertaining to the SINCs within/adjacent to the proposed development is provided below, in Table 2.

Table 2: Non-Statutory Designated Sites

Site Name	Reasons for Designation	Location in relation to the proposed development
Pwll Erw-naw SINC	Pond which supports good population of great crested newt (GCN) ( <i>Triturus cristatus</i> ).	10m
North of North Road SINC	Site with large pond supporting large stands of reed beds, scrub and scattered trees.	45m
North of Pop Hill SINC	Series of species-rich unimproved neutral grasslands with large anthills.	81m
Shortlands Wood SINC	Semi-natural broadleaved woodland, part on an ancient woodland site.	108m
Dinas Powys Moors SINC	Series of species-rich semi-improved neutral grasslands with ponds.	254m
Cross Common SINC	Semi-natural broadleaved woodland, part on an ancient woodland site.	296m
Pond 11 Biglis Moors SINC	Pond which supports good population of GCN.	533m
Cog Moors SINC	Presence of Purple Moor-grass and rush pasture. A botanical survey found this area also supports broad-leaved plantation woodland, scrub, species-rich semi-improved neutral grassland, marshy grassland and tall ruderal habitat (Ref 7 and Ref 8).	540m
Dinas Powis Castle Woodland SINC	Ancient semi-natural woodland.	558m
North of Cog Moors SINC	Ancient semi-natural woodland.	602m
Pop Hill SINC	Predominately ancient semi-natural broadleaved woodland	616m
Coed Twyncyn SINC	Broadleaved woodland. Support floral species including bluebells ( <i>Hyacinthoides non-scripta</i> ).	680m
Coed Clwyd-Gwyn South West of Michaelston le Pit SINC	Very large site of restored semi-natural and ancient replanted woodlands comprised of species including Field Maple ( <i>Acer campestre</i> ), Holly ( <i>Ilex aquifolium</i> ) and Wych Elm ( <i>Ulmus glabra</i> ) with a Hazel ( <i>Corylus avellana</i> ) understory. Very diverse ground flora and abundant bryophytes. European eel ( <i>Anguilla anguilla</i> ) present.	775m
Case Hill Wood SINC	Broadleaved woodland.	867m

Site Name	Reasons for Designation	Location in relation to the proposed development
Cadoxton Wetlands SINC	Site supports a mosaic of ponds, reedbeds, tall herb swamp, grassland, scrub and scattered trees. Supports a range of Section 7 species including wintering bittern ( <i>Botaurus stellaris</i> ).	942m
Cadoxton Ponds WTR	Two large reed-fringed ponds, a reed bed and considerable area of tall herb, scattered scrub and short perennial vegetation. Dominated by Common Reed ( <i>Phragmites australis</i> ).	950m
Coed Ysgubor-Goch SINC	Calcareous woodland dominated by Ash ( <i>Fraxinus excelsior</i> ) with some mature Pedunculate Oak ( <i>Quercus robur</i> ). Abundant Wych Elm with old Hazel stools and Holly below. Woodland floor heavily shaded, limited ground flora and bryophytes.	1402m
Cogan Pond SINC	Large pond supporting reedbed.	1470m
Cosmeston Lakes SINC	An extensive country park supporting a mosaic of habitats including species-rich calcareous grassland and neutral grassland, scrub, hedgerows, woodland, streams and ponds which all support a wide assemblage of species including many species listed on the Section 7 of the Environment (Wales) Act 2016.	1490m
Cadoxton River (part) SINC	A small section of tidal canalised watercourse. The banks comprise dense scrub (mostly Hawthorn ( <i>Crataegus monogyna</i> )) with tall ruderal vegetation. There are large stretches dominated by Common Reed ( <i>Phragmites australis</i> ).	1680m

### 3.3 Important Habitats

There are 23 areas of ancient semi-natural woodland, 15 areas of restored ancient woodland and two areas of ancient woodland site of unknown category within 2km of the proposed development. The nearest ancient semi-natural woodland is located within Cross Common approximately 375m west of the northern section of the proposed development.

Other important habitats within 2km include Natural Resources Wales (NRW) Priority Area (Coastal Saltmarsh), nearest area located 2km from the proposed development, NRW Priority Area (Enclosed Farmland), the nearest one being 800m from proposed development, and a B-line (pollinator wildlife corridor) is located within the southern section of the proposed development connecting to B-lines along the south coast of Vale of Glamorgan. B-lines are chosen for restoring and improving insect/pollinator wildlife corridors and may not currently be high-value.

### 3.4 Records of Protected and Notable Species

Desk study results for protected and notable species are discussed in Section 3.5 below.

### 3.5 Field Survey

#### 3.5.1 Site description

The proposed development comprises of amenity grassland, species poor semi-improved grassland, species-poor hedgerow, species poor hedgerows with trees, semi-natural broadleaved woodland, scrub, scattered trees, Cadoxton River, running water with marginal vegetation, a dry ditch and hardstanding in the form of roads and footpaths.

### 3.5.2 Semi-natural Broadleaved Woodland

Areas of semi-natural broad-leaved woodland are present along the northern, central and southern section of the proposed development adjacent to the roundabout. Canopy level tree species within the woodland consist of Oak (*Quercus spp*), Sycamore (*Acer pseudoplatanus*), Ash, Field Maple, English Elm (*Ulmus procera*) and Apple (*Malus sylvestris*).

Understorey habitat within the woodland is minimal, the dominant understorey species is Bramble (*Rubus fruticosus agg.*) and Hawthorn, Blackthorn (*Prunus spinosa*), Dog Rose (*Rosa canina agg.*) and Butterfly-bush (*Buddleia davidii*) is also present.

Ground flora species recorded in the woodland include Common Nettle (*Urtica dioica*), Yorkshire-fog (*Holcus lanatus*), Cock's-foot (*Dactylis glomerata*), Herb-Robert (*Geranium robertianum*), Ivy (*Hedera helix*) Hart's-tongue (*Asplenium scolopendrium*), Lord's-and-Ladies (*Arum maculatum*), Wild Teasel (*Dipsacus fullonum*), Great Willowherb (*Epilobium hirsutum*), Meadowsweet (*Filipendula ulmaria*), Pendulous Sedge (*Carex pendula*) and Nipplewort (*Lapsana communis*).



Figure 3 - Woodland located on the western side of Cardiff Road, Cadoxton River runs along the edge of the woodland (see Figure 5)



Figure 4 - Semi Natural Broadleaved Woodland



Figure 5 – Cadoxton River located within the woodland.

### 3.5.3 Scattered Broadleaved Trees

Scattered broadleaved trees are located adjacent to Cardiff Road within the northern and central section of the proposed development, species recorded include Ash, Oak, Conifer sp. and Sycamore.



Figure 6 – Scattered broadleaved trees adjacent to Cardiff Road

### 3.5.4 Hedgerow

There is a species-poor hedgerow located on the north-western boundary of the site to the west of the A4055 road which forms a field boundary. The hedgerow is dominated by Blackthorn along with Bramble.

Species poor hedgerow with trees are located adjacent to the footpath and Cardiff Road within the southern section of the proposed development, creating boundaries around horse and cattle grazed fields. The hedgerow is dominated by Hawthorn with Bramble, Field Maple, and Ash also present. Trees within the hedgerow include Sycamore, Ash, Oak, and Hawthorn. Other species recorded, Cock's-foot, Traveller's-joy (*Clematis vitalba*), and Common Reed. A dry ditch is located within the grazed fields east of the hedgerow, stands of Common Reed are present indicating that the ditch is wet during periods of sufficient rainfall.



Figure 7 - Species poor hedgerow and trees with grazed grassland field, adjacent to Cardiff Road.



Figure 8 - Species poor hedgerow with trees, dry ditch and species poor semi-improved grassland.

### 3.5.5 Species poor semi-improved grassland

An area of species poor semi-improved grassland is located within the southern section of the proposed development where the proposed development leaves Cardiff Road, at Green Lane and into horse and cattle grazed fields. Some areas of the field are dominated with Soft-Rush (*Juncus effusus*) and Hard Rush (*Juncus inflexus*), with some evidence of previous water logging indicating that the dry ditch located adjacent to the hedgerow does fill with water, occasionally flooding the fields. The grassland sward height varies and stands between 5cm to 10cm tall. Areas of scattered scrub are located around the boundaries of the fields adjacent to the hedgerow. Fly tipping was recorded in the field.



Species present include Cock's-foot, Perennial Rye-grass (*Lolium perenne*), Yorkshire-fog, White Clover (*Trifolium repens*), Lesser Celandine (*Ranunculus ficaria*), Creeping Buttercup (*Ranunculus repens*), Hoary Willowherb (*Epilobium parviflorum*), Daisy (*Bellis perennis*), Dandelion (*Taraxacum agg*) and Smooth Sow-thistle (*Sonchus oleraceus*).



Figure 9 – Grazed semi-improved grassland field with evidence of fly tipping.

A second parcel of species-poor semi-improved grassland is located on the northwest boundary of the site adjacent to a parcel of woodland which is parallel with the A4055 road. The grassland contains Perennial Rye-grass, Cock's-foot, False Oat-grass (*Arrhenatherum elatius*), Yorkshire-fog, Meadow-grass (*Poa* sp.), Wavy Hair-grass (*Deschampsia flexuosa*) and Timothy (*Phleum pratense*) in combination with White Clover, Sheep's Sorrel (*Rumex acetosella*) and Tufted Vetch (*Vicia cracca*),

### 3.5.6 Scrub

Areas of dense and scattered scrub are located within the woodland understorey and adjacent to hedgerows and footpaths. Species recorded include Bramble, Hawthorn, Blackthorn and Butterfly-bush.



Figure 10 – Scrub adjacent to footpath

### 3.5.7 Amenity Grassland

Amenity grassland is located on the roundabout on Cardiff Road and adjacent to footpaths occasionally throughout the proposed development. Species recorded include Annual Meadow-grass (*Poa annua*), Perennial Rye-grass, Dandelion and Daisy.



Figure 11 - Amenity grassland verge along footpath and road

### 3.5.8 Running Water

The proposed development crosses over Cadoxton River via a footbridge within the centre of the proposed development. The river continues to flow through the southern extent of the proposed development within a semi-improved grazed field.

There is a stream (running water) that runs adjacent to a parcel of woodland in the northwest of the site parallel with the A4055 road. The stream has marginal vegetation of Marsh Thistle (*Cirsium palustre*), Common Nettle, Horsetail (*Equisetum* sp.), Hedge Bindweed (*Calystegia sepium*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Creeping Cinquefoil (*Potentilla reptans*), Hogweed (*Heracleum sphondylium*), Great Willowherb (*Epilobium hirsutum*), Bulbous Buttercup (*Ranunculus bulbosus*), Lesser Burdock (*Arctium minus*), Hedge Bedstraw (*Galium album*), St John's Wort (*Hypericum perforatum*), Greater Ribwort Plantain (*Plantago lanceolata*) and Self-heal (*Prunella vulgaris*).



*Figure 12 – Image of Cadoxton River within the central area of the proposed development, image taken from footbridge*



*Figure 13 - Cadoxton River within grazed field in the southern section of the proposed development with scattered broadleaved trees along its banks*

### **3.5.9 Dry Ditch**

A dry ditch is located within grazed fields within the southern section of the proposed development, immediately adjacent to a hedgerow with trees. Although the ditch was dry, there was evidence of previous waterlogging in some of the fields, indicating that it can occasionally fill and flood the fields.

### **3.5.10 Other Habitat**

Hardstanding footpaths and roads are located predominately along the north-eastern, northern, and central section of the proposed development.



Figure 14 - Cardiff Road and footpath

### 3.5.11 Protected and Notable Species

A range of protected species were considered at an initial stage in planning the current scope of ecology work. Only those species with ranges within the geographical area of the proposed development and where suitable habitats are present within or adjacent to the proposed development are included below. Where confirmed presence was established or a likelihood of presence was anticipated, the relevant legislation is included in Appendix A.

#### 3.5.11.1 Protected and Notable Plant Species

The desk study returned records of Bluebell (*Hyacinthoides non-scripta*) and Jersey Cudweed (*Gnaphalium luteoalbum*), protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (WCA) (Ref 9). The closest record was Jersey Cudweed growing within a pavement 420m north-west from the proposed development and Bluebells 600m east at Pop Hill SINC.

No records of plant species listed under Section 7 of the Environment (Wales) Act 2016 were returned within 2km of the proposed development and none were identified during the survey.

#### 3.5.11.2 Algae

The desk study returned a single record of the marine algae Harpoon Weed (*Asparagopsis armata*) at Sully Bay approximately 1.8km south-east of the proposed development. Harpoon Weed is an invasive non-native species (INNS) that is listed under Schedule 9 of the WCA. No algae were identified during the survey and no habitat suitable for this marine species was identified during the survey.

#### 3.5.11.3 Bryophyte

The desk study returned records of five moss species listed under the Red Data Book (Wales) (Ref 10), including Dwarf Feather-moss (*Microeurhynchium pumilum*), Nicholson's Beard-moss (*Didymodon nicholsonii*) and Small-bud Bryum (*Bryum gemmiferum*), within 2km of the proposed development. The closest record is of Nicholson's Beard-moss on Green Lane (near Cog Moors Wastewater Treatment Works (WwTW)) 50m east of the proposed development. No particular mosses were noted during the survey, but it is possible these are present in the proposed development, in particular Nicholson's Beard-moss which is often found in pavements, driveways and rural lanes.

### 3.5.12 Protected Fauna and/or Species of Conservation Concern

#### 3.5.12.1 Terrestrial Invertebrates

The desk study returned records of 69 terrestrial invertebrate species, including 40 species listed under Section 7 of the Environment (Wales) Act 2016 such as shrill carder-bee (*Bombus sylvarum*), ghost moth (*Hepialus humuli*) and white-letter hairstreak (*Satyrion w-album*) within 2km of the study area. The closest record was for dusky thorn (*Ennomos fuscantaria*) found in a garden moth trap 50m east of the proposed development.

Deadwood within woodland within the proposed development is suitable to support beetles amongst other invertebrate species. Grassland, scrub and some understorey species (e.g. Butterfly-bush (*Buddleja davidii*)) within the woodland are suitable to support a range of butterfly species. Important food plants (e.g. Devil's-bit Scabious (*Succisa pratensis*)) for marsh fritillary were not recorded within the survey boundary. If left to grow the poor semi-improved grassland could be suitable to support a variety of bee species. The woodland within the proposed development is also suitable to support a range of moth species.

Although part of the proposed development falls within the margins of the B-line along the Vale of Glamorgan coast, the habitats within the proposed development are not considered high value to invertebrates and are unlikely to support a large number of priority/protected species that may be present in the area.

#### 3.5.12.2 Amphibians

The desk study returned records of common toad (*Bufo bufo*) and GCN within 2km of the proposed development. GCN is a European Protected Species under The Conservation of Habitats and Species Regulations 2017 (Ref 11). The closest records demonstrate that a medium sized population (i.e. between 11 and 99 GCN found during any one survey) is found at Pwll Erw-naw SINC 235m west of the proposed development.

The proposed development will require the construction of a crossing over Cadoxton River, within a grazed field in the southern section of the proposed development. The river was slow flowing at the time of the survey and did not support emergent vegetation, it is therefore unlikely to be used by breeding GCN or other amphibians.

There are three ponds (one at north of North Road SINC, one at Pwll Erw-naw SINC and one noted during the survey but outside the survey area (Target Note 1 on Drawing 10058585-ARC-XX-XXX-DR-E-00001-P01)) and a network of ditches present within 250m of the proposed development which may support breeding amphibians. Terrestrial habitats such as woodland and hedgerows are considered suitable for amphibian species during their terrestrial phases. These habitats provide cover from predation, foraging and potential hibernation sites.

#### 3.5.12.3 Reptiles

The desk study returned records of common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow-worm (*Anguis fragilis*) within 2km of the proposed development. The closest record was of slow worm in a residential garden 50m east of the proposed development.

The woodland, hedgerow, and field boundaries can be utilised by reptile species for foraging, cover from predation and hibernation, whilst more open areas may be used for basking.

#### 3.5.12.4 Birds

The desk study returned records of 40 bird species specially protected when nesting under Schedule 1 of the WCA including brambling (*Fringilla montifringilla*), barn owl (*Tyto alba*) and kingfisher (*Alcedo atthis*) within 2km of the proposed site. The closest breeding record was of a possible breeding Cetti's warbler (*Cettia cetti*) in Cog Moors approximately 400m east of the proposed development. There was also a record of kingfisher sighted on the Cadoxton River approximately 180m east of the proposed development.

The desk study returned records of 35 bird species listed under Section 7 of the Environment (Wales) Act 2016, including bullfinch (*Pyrrhula pyrrhula*), curlew (*Numenius arquata*) and dunnock (*Prunella modularis*).

The desk study returned records of 37 bird species listed on the Status of Birds in Wales Red list (Ref 12) including linnet (*Linaria cannabina*), kestrel (*Falco tinnunculus*) and hawfinch (*Coccothraustes coccothraustes*) within 2km of the proposed development.

The desk study also returned records of 72 bird species listed on the Status of Birds in Wales Amber list (Ref 12) including song thrush (*Turdus philomelos*), meadow pipit (*Anthus pratensis*) and skylark (*Alauda arvensis*) within 2km of the proposed development .

The section of Cadoxton River crossed by the proposed development was not considered suitable for kingfisher to use for nesting as the bank profile was too low and shallow and to support burrows. The hedgerow, scrub, woodland and trees present along the proposed development are all suitable to support a range of breeding birds. The grasslands within the proposed development may also support ground-nesting birds, but in most fields there was evidence of livestock grazing that could increase into spring reducing the suitability of this habitat for ground-nesting birds. The farmland habitat is also considered suitable to support foraging barn owls, but no suitable trees for nest sites were identified along the proposed development.

### 3.5.12.5 Bats

The desk study returned records of 13 bat species including common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), lesser horseshoe (*Rhinolophus hipposideros*), noctule (*Nyctalus noctula*) and brown long-eared bat (*Plecotus auritus*), within 2km of the proposed development. The closest record of a confirmed bat roost was for three male common pipistrelle bats 320m north-west of the proposed development.

Habitats located within the survey boundary are suitable for foraging and commuting bats, include Cadoxton River, a stream, hedgerows, scattered trees, woodland and poor semi-improved grassland. Some trees along the proposed development are of a suitable size and structure that they could support bat roosting features with one Oak tree noted in particular (Target Note 2 on Drawing 10058585-ARC-XX-XXX-DR-E-00001-P01). A number of trees also support dense Common Ivy on the trunk that could hide potential bat roosting features or provide superficial roosting opportunities. A ground level tree roost assessment was not completed during the survey.

### 3.5.12.6 Hazel Dormouse

The desk study returned two records of hazel dormouse (*Muscardinus avellanarius*) within 2km of the proposed development. The closest record was of a dormouse nest found at Cog Moors WwTW , 600m east of the proposed development. The proposed development is connected to the record via woodland and hedgerows.

The woodland and hedgerows within the proposed development are suitable to support foraging and breeding dormouse, a range of suitable food sources are present along the proposed development, including, Bramble, Hawthorn, Blackthorn and Oak. Woodland located immediately adjacent to Cardiff Road has limited understorey to support dormouse, but there is sufficient canopy cover to allow commuting.

### 3.5.12.7 Water Vole

The desk study returned a single record of water vole on Sully Brook 2km east of the proposed development. Sully Brook is connected to Cosmeston Lakes, 2.2km east of the proposed development, known to support a population of water vole (Ref 6).

No water vole burrows were observed during the survey where the proposed development crosses the River Cadoxton. The banks of the river were low and unvegetated in this section, the water was shallow at the time of the survey, but it was considered likely that when water levels rise, any burrows in this section (if present) would be regularly flooded out reducing the suitability of this area for water vole burrows. The bankside of the stream running adjacent to the parcel of woodland in the north of the site (option 2) has suitable bankside substrate present for water vole burrows but bankside habitats are considered sub-optimal and it is isolated from suitable habitats.

Bankside vegetation was grassy but grazed and short limiting foraging opportunities for water vole within the section of the river crossed by the proposed development. Suitable food sources were located nearby up and downstream from the proposed development and with the watercourse being linked to a known population

within Cosmeston Lakes there is potential for water vole to commute through the proposed development where it crosses the river.

#### 3.5.12.8 Otters

The desk study returned two records of otter (*Lutra lutra*) within 2km of the proposed development including field signs (spraint) at Cadoxton Ponds WTR 1.3km west of the proposed development and along Cadoxton River 1.3km north of the proposed development.

Cadoxton River is crossed by the proposed development and offers suitable habitat to support commuting and foraging otter and otter holts. Additionally, the stream in the north of site may also provide suitable commuting and foraging habitat for the species. No evidence of otter was recorded within the survey boundary and there were no features suitable to support otter holts in the immediate locality (i.e. 50m of where the river is crossed). Otters are considered likely to commute along the river and there may be holts nearby.

#### 3.5.12.9 Badgers

The desk study returned one record of badger (*Meles meles*) (roadkill fatality) 1.9km northeast of the proposed development.

Woodland and hedgerows are suitable to support badgers and their setts. Adjacent fields are also suitable to support foraging badger along the proposed development. Mammal paths were noted within the grassland, but they were narrow in nature and unlikely to support badgers, most likely created by fox (*Vulpes vulpes*). No evidence of badger was recorded during the survey, but given the suitability of habitats within and adjacent to the proposed development they may be present.

#### 3.5.12.10 Other mammals

The desk study provided records of polecat (*Mustela putorius*), hedgehog (*Erinaceus europaeus*) and harvest mouse (*Micromys minutus*) within 2km of the proposed development.

The hedgerow, scrub and woodland habitat is suitable to support breeding and foraging hedgehog. Woodlands, grassland and farmland are suitable to support polecat.

The grassland habitats within the proposed development are not considered optimal for harvest mouse as they are mainly heavily grazed semi-improved grassland, but however harvest mouse may use the woodland and scrub habitats.

### 3.5.13 Invasive Non-Native Species

The desk study returned records of 30 INNS within 2km of the proposed development including Himalayan Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*) and American mink (*Neovison vison*) within 2km of the proposed development.

No invasive plant species were recorded within areas surveyed, but the timing of the survey (before the main growing season) means that presence of INNS cannot be excluded in particular Himalayan Balsam along the watercourses. American mink may be present in the area, especially moving along the watercourses, but no field signs were observed.

## 4 Discussion

### 4.1 Potential Ecological Constraints

#### 4.1.1 Ecological Features Scoped Out

The following ecological features have been scoped out as not requiring further consideration with regard to the proposed active travel route (no likely significant effects are anticipated).

- **Statutory and Non-statutory Designated Sites:** All works will be localised along the route. There are no statutory and non-statutory designated sites located within survey boundary except the B-line. All sites are considered distant from the surveyed area and no impacts are anticipated from the proposed works with the exception of Pwll Erw-naw, Cadoxton River SINC and the B-line discussed below.
- **Invertebrates:** A range of habitats suitable to support invertebrates are present within the proposed development, but the habitats are relatively poor e.g. species poor semi-improved grassland. The clearance of vegetation will be localised with large areas of the same/similar habitats replicated within the wider area. It is therefore anticipated that there will be no significant impacts on priority and notable invertebrate species.
- **Protected and Notable Plant Species:** Woodland and grassland within the proposed development are suitable to support protected/notable species, but the clearance of vegetation will be localised within large areas of the same of similar habitats replicated within the wider area. There will be no significant impacts on the species recorded as part of the desk study.
- **Protected and Notable Plants, Bryophytes and Algae:** It is possible that some moss species of conservation concern (i.e. Red Data Book, Ref 10) are present within the proposed development, in particular Nicholson's Beard-moss, but the clearance will be localised with large areas of the same/similar habitats being retained in the wider area. No significant impacts are predicted.

#### 4.1.2 Ecological Features Scoped In

The following ecological features have been scoped in as needing further consideration with regard to the proposed active travel route.

- **Pwll Erw-naw SINC** is located approximately 10m from the proposed development. If construction works are required within Dinas Powys Skate Park there is the potential to pollute the pond which is designated for its population of great crested newt.
- **Cadoxton River SINC** is located downstream from the proposed development. Construction works in proximity to the river crossing have the potential to pollute the water and a significant event could impact the SINC and wildlife it supports.
- A **B-line** is located at the southern edge of the proposed development. Construction works may damage or lead to the loss of some of this habitat. The habitats in the area are not optimal for invertebrates but are more likely to have been noted for improvements/restoration as insect wildlife corridors.
- **Great Crested Newt (GCN):** GCN were recorded as part of the desk study. No waterbodies suitable to support breeding GCN were recorded during within the survey boundary; several waterbodies (ponds and ditches) are present within 250m of the proposed works. GCN surveys are required on all suitable waterbodies located within 250m of the proposed development. Other amphibian species may use slow flowing sections of Cadoxton River and ditches (if not dry) located within the proposed development boundary to breed. The woodland, hedgerows and field boundaries are also suitable to support all amphibians during their terrestrial phase. If any amphibian species are present, in the absence of mitigation they could be impacted during the works.
- **Reptiles:** Reptiles were recorded as part of the desk study within 2km of the proposed development. Habitats within the proposed development suitable to support reptiles include woodland, hedgerows, and field boundaries. In the absence mitigation, if reptiles are present, they may be negatively impacted during the works.
- **Birds:** The areas of woodland, hedgerows, scattered trees, scrub and grassland (ground nesting birds) within the proposed development are considered likely to support breeding birds. The core breeding bird



season for most UK species is from 1 March to 31 August inclusive (weather dependent). If vegetation clearance is undertaken within the proposed development during this period in the absence of mitigation, there will be potential for negative impacts on breeding bird species. Development is also likely to lead to the loss of bird breeding habitat.

- Bats: There were multiple records for bat species within 2km of the proposed development. Scattered trees, trees within hedgerows and woodland may have bat roosting potential. In the absence of mitigation if bats are present, they will be negatively impacted by any development through the loss of roosting sites and increased lighting along the route (if required).
- Hazel dormouse: Records for hazel dormouse were recorded as part of the desk study, with a record 600m from the proposed development located in connected habitat. In the absence of mitigation, if dormouse is present it could be negatively impacted during construction due to loss of habitat and post works (through disturbance and lighting along the route).
- Water vole: A known population of water vole is present within Cosmeston Lakes which is connected to Cadoxton River via Sully Brook. Cadoxton River is suitable to support commuting, foraging and burrowing water vole. If water vole is present, it may be negatively impacted by the development.
- Otter: There were two records of otter within 2km of the proposed development, both field signs recorded at Cadoxton Ponds WTR and Cadoxton River. Cadoxton River, which the proposed development crosses, along with the stream in the north of the site is suitable to support foraging and commuting otter. In the absence of mitigation if otter is present, it may be negatively impacted by the development.
- Badgers: A single badger record was identified within 2km of the proposed development. The woodland and adjacent fields are suitable to support foraging badger and badger setts. In the absence of mitigation if badger is present it may be negatively impacted by any development through the loss of badger setts, foraging habitat and disturbance (during and post works).
- Hedgehog, polecat and harvest mouse: Habitats within the proposed development are considered suitable for these species. In the absence of mitigation vegetation clearance and construction works have potential for negative impact on these species.

## 5 Recommendations for Further Surveys, Mitigation and Possible Enhancement

### 5.1 Further Surveys

#### 5.1.1 Habitat

A walkover survey is recommended in the field that could not be accessed by surveyors. A survey of habitat 30m from this field (if access is possible) is also recommended to survey for badger setts.

#### 5.1.2 Woodland, Scattered Trees and Hedgerow

If any works are proposed within 15m of any of the proposed development's trees, hedgerows or woodland, it is recommended that an arboricultural survey and impact assessment be undertaken to ensure that appropriate measures are put in place to safeguard retained trees and hedgerows in accordance with BS 5837: 2012 (Ref 13).

#### 5.1.3 Amphibians including Great Crested Newt

GCN surveys are required on all suitable waterbodies located within 250m from the proposed works. GCN eDNA surveys can be completed between mid-April – end of June. If GCN is confirmed to be present within any waterbodies, further survey work (bottle traps and torchlight surveys) may be necessary to assess the population size and a licence from NRW may be required for the potential injury/disturbance to GCN during vegetation clearance and the works and loss of terrestrial habitat.

If other amphibian species are recorded within the proposed development (e.g. common toad, common frog (*Rana temporaria*), palmate newt (*Lissotriton helveticus*)), sensitive vegetation clearance around field boundaries and hedgerows will be required to avoid potential injury and/or disturbance during vegetation clearance.

#### 5.1.4 Bats

Once the extent of the vegetation clearance has been confirmed all trees that will be impacted as part of the proposed development (to be felled/managed or located within proximity to new lighting along the proposed development) should undergo a ground level tree roost assessment to determine their suitability to support roosting bats. In turn, further surveys (aerial inspection, bat presence/absence surveys) may be required. If roosting bats are found to be present, a bat licence will be required from NRW before vegetation clearance can commence with mitigation and compensation for the loss of bat roosts required. Ground based bat tree assessments can be undertaken at any time of the year.

#### 5.1.5 Hazel Dormouse

A dormouse presence or likely absence survey is recommended in the woodland (if works are to impact this habitat), scrub and hedgerow along the proposed development to determine if dormouse is present within the proposed development boundary. Nest tubes should be installed in suitable habitat and checked once a month between April – November for a minimum of a six-month period. If a population of dormouse is confirmed to be present a licence will be required from NRW before vegetation clearance can commence and compensatory planting will be required.

#### 5.1.6 Badger

No signs of badger were recorded within 30m of the proposed development, but a small section of the proposed development could not be inspected due to access issues (field and woodland adjacent to Green Lane, Figure 2). Due to the lack of evidence within the hedgerows, fields and woodland (that could be surveyed), it is considered that a pre-construction badger survey would be sufficient approximately 10 weeks ahead of the works commencing, to determine if badgers or their setts have moved onto the survey boundary. If a badger sett is confirmed to be present, and it is considered that the sett will be impacted, a badger licence will likely be required from NRW before works can commence.

### **5.1.7 Otter**

An otter survey is required 200m upstream and downstream of where the proposed development crosses Cadoxton River (where access is possible) in addition to the stream within the north of the site. Signs of otter will be surveyed for; these include holts or laying up areas, spraints and jelly, slides, and footprints. Otter surveys can be undertaken at any time of the year. An otter licence will be required from NRW if otter holts will be negatively impacted as part of the proposed works.

### **5.1.8 Water Vole**

Water vole surveys are required 50m upstream and downstream from where the proposed development crosses over Cadoxton River.

A water vole habitat assessment can be undertaken at any time of the year, but presence or likely absence surveys must be undertaken during breeding season which runs from April to September.

Two surveys spread through the breeding season may be required to confidently determine presence or likely absence. Surveys will look for signs of water vole such as latrines, footprints, feeding remains and burrows.

## **5.2 Recommended Mitigation**

Detailed mitigation will be confirmed once additional surveys outlined in Section 5.1 are completed. The following mitigation is intended as a guide only and may be subject to change following the completion of survey work and detailed impact assessment.

### **5.2.1 SINC and B-line**

Construction works in Dinas Skate Park would be in proximity to the Pwll Erw-naw pond SINC.

Construction works in proximity to the Cadoxton River crossing have the potential to pollute the water and a significant event could impact the wildlife it supports and the Cadoxton River SINC located downstream from the river crossing.

Pollution prevention measures should be implemented where works are within 10m of Pwll Erw-naw pond SINC, Cadoxton River and any other minor watercourses.

To protect Pwll Erw-naw pond SINC, the Cadoxton River and the B-line no compounds, storage areas or access routes should be sited within these areas. To compensate for lost/damaged habitats within the B-line, replacement grassland should be attractive to invertebrates i.e. wildflower meadow seed mixes, where possible.

### **5.2.2 Habitats**

Works within 10m of the watercourses should comply with standard good site practices and pollution control measures, as outlined in Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (Ref 14) and Environmental Good Practice on Site (Ref 15) to ensure that watercourses and ponds are not adversely affected by dust, uncontrolled surface water run-off, inappropriate storage of materials and inappropriate refuelling of machinery.

Retained woodland and hedgerow habitats should be protected in line with protection measures detailed in the arboricultural survey report once completed, likely to include tree protective fencing around root protection zones.

### **5.2.3 Reptiles and Amphibians**

The woodland, scrub, hedgerow and field boundaries have the potential to support reptiles and amphibians (during their terrestrial phase). As there are likely to be small areas of suitable habitat lost and there is ample suitable habitat adjacent, these areas can be cleared using phased strimming to encourage reptiles and amphibians to move into the areas of retained habitat. As described below:

- Phase 1: The vegetation should be strimmed down to 150mm using hand tools only (i.e. brush-cutter/trimmer) with the arisings raked and removed from works footprint. Suitable refuges (e.g. rubble

piles, logs) should be dismantled by hand and removed from the works area). Vegetation clearance should begin at the edge of the works furthest away from areas of suitable reptile habitat and move systematically towards the area's most suitable for reptiles. The disturbance and vibration will encourage amphibians and reptiles to move out of the working corridor of their own accord. At this point the cleared area can either be left undisturbed for at least 24 hours or the ecologist can undertake an inspection to check for the presence of reptiles.

- Phase 2: Following an inspection or at least 24 hours, vegetation should be strimmed to ground level (using hand tools only). The arisings from this must be raked off and removed from the works footprint.

If GCN is found to be present then a more detailed approach to mitigation will need to be agreed with NRW via a European Protected Species licence application and implemented before and during construction.

#### **5.2.4 Birds**

The woodland, grassland, hedgerow, scrub and trees within the proposed development were considered likely to support breeding bird species during the breeding season. All bird species are protected from harm whilst breeding, with the core breeding season for most UK species from 1 March to 31 August (inclusive, weather dependent), it is recommended that all vegetation clearance works be undertaken outside of this period where possible.

If vegetation clearance works are required within the main breeding season, then a breeding bird check should be undertaken by a suitably qualified ecologist no more than 48 hours prior to the works being undertaken. If an active nest is found during the check, an exclusion cordon should be put in place around the nest and it must remain in situ until the chicks within the nest have fledged. If a Schedule 1 WCA bird species is found to be present the exclusion zone would need to be larger to ensure that the birds are not disturbed on the nest.

A Method Statement would be required for clearance of vegetation within the main breeding season. Habitat suitable for breeding birds should be incorporated into the landscape proposals for the proposed development to minimise the effects of habitat loss on breeding birds.

#### **5.2.5 Badger**

Any excavations should be covered at night, or a soil ramp or wooden plank installed to ensure that nocturnal animals can escape. Any animal burrows directly affected by the proposed development would need to be checked to ensure any animals have dispersed. If a badger sett is discovered in the dense vegetation works should stop immediately and advice sought from an ecologist.

#### **5.2.6 Hedgehog/Polecat/Harvest Mouse**

The woodland grassland and scrub within the proposed development were considered to be suitable for foraging and breeding hedgehog, polecat and harvest mouse.

Reasonable avoidance measures should be put in place to avoid harm to hedgehog, polecat and harvest mouse, such as ensuring that suitable refuges and potential hibernation sites (such as piles of vegetation and deadwood) are removed outside of the winter months. Additionally, during works, any incomplete excavations should be covered overnight, or a ramp provided to allow escape of any animals that may become trapped. This approach should be captured in a Method Statement. The landscape planting for the scheme should include the creation of habitats suitable for foraging hedgehog, polecat and harvest mouse and provide for their movement across the proposed development.

Phased clearance of long grassland (as per reptiles/amphibians) would encourage all small mammals such as harvest mouse to leave the area before construction commences.

### **5.3 Possible Enhancements**

#### **5.3.1 Habitat Creation/Re-instatement**

The proposed development would lead to the loss of green infrastructure, it is therefore recommended that an ecologist contributes to the evolution of the development and landscaping design (if required) to minimise biodiversity loss and to advise upon the provision of appropriate green infrastructure. The ecologist should ensure that wildlife corridors are maintained and created in particular reinforcing the Vale of Glamorgan coastal B-line through invertebrate attractive planting.

Measures to be considered within the design include the incorporation of bird and bat boxes, sensitive lighting strategy, tree replacement and new tree planting where feasible and wildlife attractive planting.

### **5.3.2 Bat Boxes**

Bat boxes should be installed within the retained trees. This would provide enhancement/replacement for the loss of potential roost features within woodland trees, that would potentially be removed. The bat boxes that are suitable are detailed below, but other makes of boxes would also be suitable:

- Schwegler 2F Bat Box or similar woodcrete boxes that are suitable for small species such as pipistrelle.
- Schwegler 2FN Bat Box or similar woodcrete boxes that are suitable for larger bat species and small species, the box has two entrances.

Woodcrete boxes have been recommended as they are constructed from a material which is long lasting, and the design of the boxes means they require no maintenance; however, other materials do have similar thermal properties and could be considered. Care should be taken to avoid using boxes that are not long lasting or require cleaning. All boxes require annual inspections to ensure they remain in situ and are fit for purpose.

### **5.3.3 Bird Boxes**

It is recommended that bird boxes be installed within the retained woodland trees. This will provide additional breeding opportunities to compensate for the loss of natural breeding habitats, should woodland along be removed. The bird boxes that are recommended are detailed below:

Schwegler 1B Bird Box or similar woodcrete boxes that are suitable for small species of bird.

### **5.3.4 Habitat Piles**

Habitat piles should be created in safe locations along the proposed development using materials cleared from the proposed development. This will provide suitable habitat for reptiles, hedgehog and a range of invertebrate species.

## 6 Conclusions

Habitats within the survey area are considered suitable to support hazel dormouse, foraging, commuting and roosting bats, badger, breeding birds, and hedgehog.

It is recommended that:

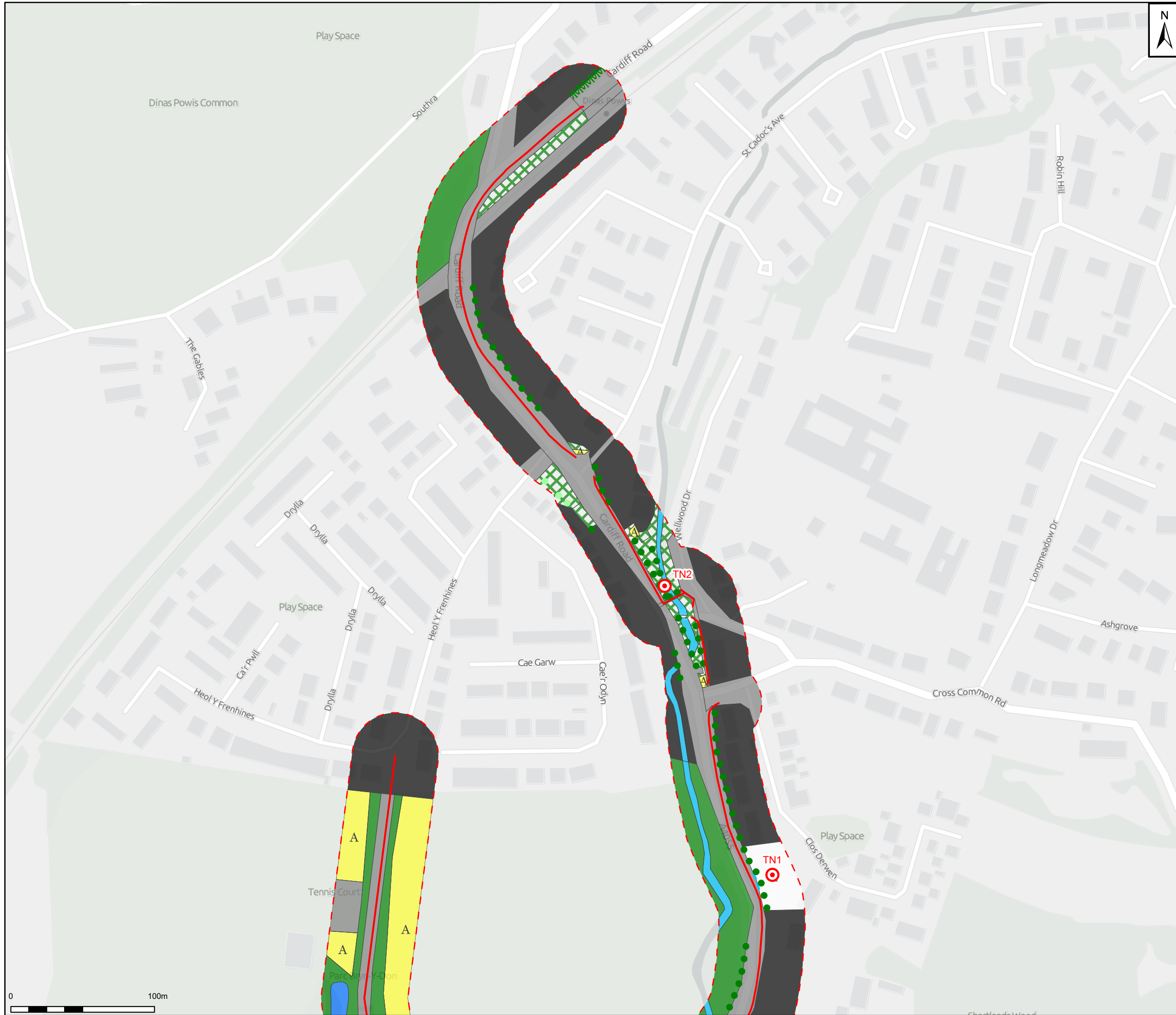
- A survey be undertaken within the field that could not be accessed by surveyors, and also access to habitat within 30m of the area.
- If any works are proposed within 15m of any of the proposed development's trees, hedgerows or woodland, an arboricultural survey and impact assessment be undertaken to ensure that appropriate measures are put in place to safeguard retained trees and hedgerows in accordance with BS 5837: 2012 (Ref 13).
- GCN surveys be undertaken on all suitable waterbodies located within 250m of the proposed development (mid-April to mid-June).
- Once the extent of the vegetation and tree clearance is confirmed, all trees impacted (felled/managed/located within proximity to new lighting installed) undergo a ground-based bat tree assessment, the results of which will determine if further surveys are required (e.g. aerial inspection, presence/absence surveys).
- A hazel dormouse survey be undertaken of suitable habitat along the proposed development (hedgerow, woodland and scrub) (April – November).
- A pre-construction badger survey be undertaken along the proposed development and within 30m of the proposed development in suitable habitat.
- An otter survey of Cadoxton River and the stream in the north of the site be undertaken where the active travel route crosses these waterbodies with a survey distance of 250m upstream and downstream of the proposed works (where access is possible).
- A water vole survey of Cadoxton River where the active travel route crosses with a survey distance of 50m upstream and downstream of the proposed works.
- A phased approach to vegetation clearance be adopted in areas of habitat identified as suitable for reptiles and amphibians (during their terrestrial phase). This should be formalised by a method statement. If GCN are present a licence will be required detailing specific mitigation.
- Vegetation clearance should be undertaken outside of the breeding bird season (March to August (inclusive)). If vegetation clearance works are required within this period, then a breeding bird check should be undertaken by a suitably qualified ecologist no more than 48 hours prior to the works being undertaken.
- Works within 10m of the watercourses should comply with standard good site practices and pollution control measures, as outlined in Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (Ref 14) and Environmental Good Practice on Site (Ref 15) to ensure that watercourses and ponds are not adversely affected by dust, uncontrolled surface water run-off, inappropriate storage of materials and inappropriate refuelling of machinery.
- New habitats of value to breeding birds, dormouse and bats should be created to replace that which is lost to the development; new grassland habitat could also be reinforced to enhance habitats in the B-line for invertebrates and provide opportunities for hedgehog, polecat and harvest mouse.
- Reasonable avoidance measures should be put in place to avoid harm to hedgehog such as ensuring that suitable refuges and potential hibernation sites (such as piles of vegetation and deadwood which are also suitable to support invertebrates such as beetles) are removed outside of the winter months.
- Additionally, during works, any incomplete excavations should be covered overnight, or a ramp provided to allow escape of any animals (badgers, hedgehog, other small mammals and amphibians) that may become trapped.

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**Phase 1 Habitat Plan (Drawing 10058585-ARC-XX-XXX-DR-E-00001-P01)**

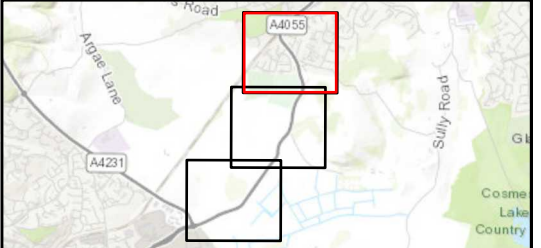




**Legend**

Site boundary	Woodland broadleaved semi-natural
Study area 30m	Scrub dense / continuous
Target note	Improved grassland
Scattered trees broadleaved	Running water
Scattered trees coniferous	Standing water
Broadleaved Parkland / scattered trees	Amenity grassland
Species poor hedgerow with trees	Buildings and residential gardens
Dry ditch	Other habitat

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 World Topographic Map: Esri UK, Esri, HERE, Garmin, USGS, NGA



Rev	Date	Description	Drawn	Check	Approv
02	13-12-23	INCLUSION OF OPTION 2	RP	JP	SW
01	10-03-23	INITIAL ISSUE	DP	JD	SW

Client:

**PROJECT:**  
BIGLIS TO DINAS POWYS ATR

**Site:** Biglis to Dinas Powys ATR      **Client:** Vale of Glamorgan County Borough Council

Registered office: 80Fen, 80 Fenchurch Street, London EC3M 4BY  
 www.arcadis.com

Coordinating Office: Cymru House, St Mellons Business Park, Fortran Road, Cardiff, CF3 0EY

Title:

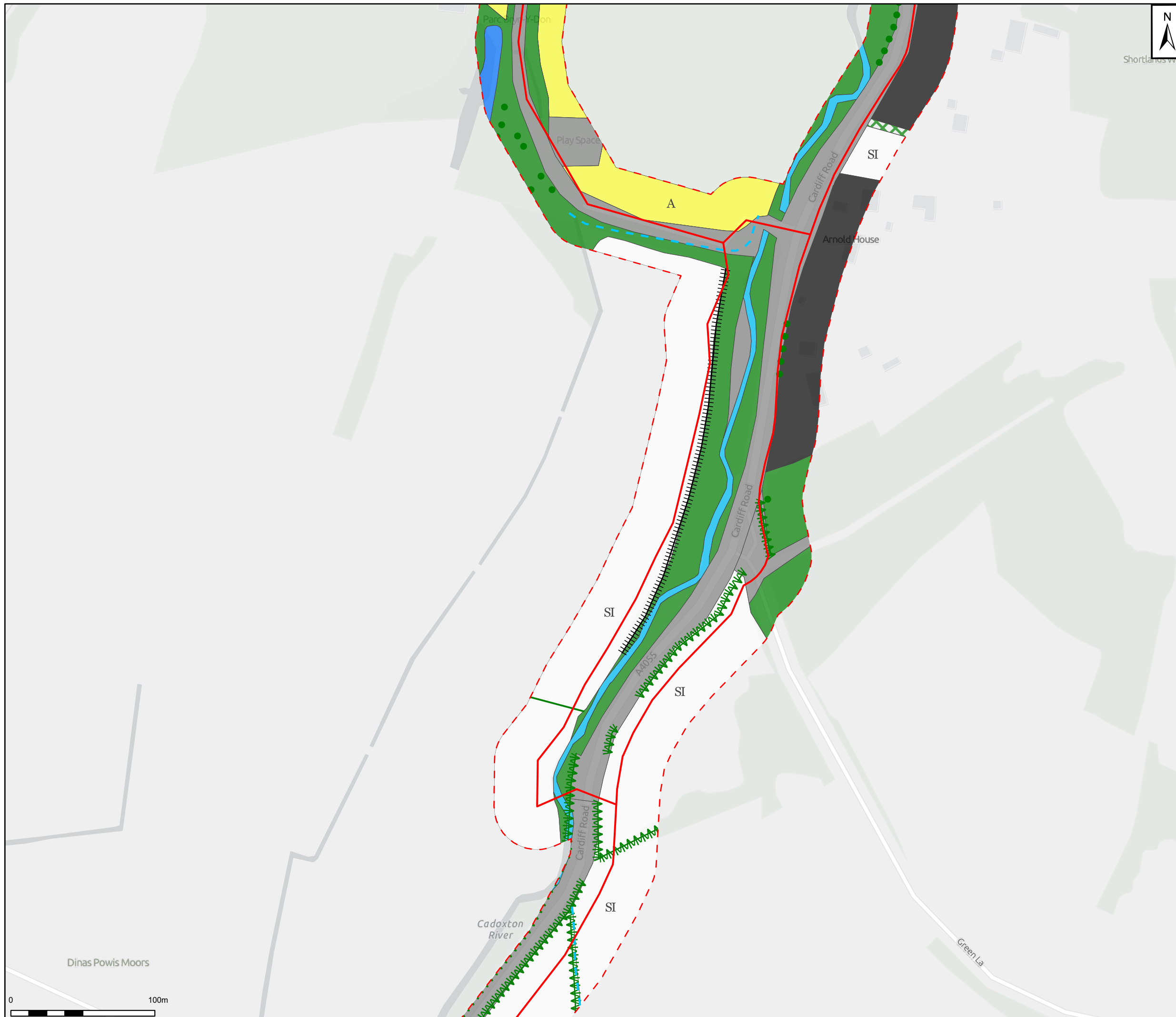
**Phase 1 Habitat Plan**  
**Biglis to Dinas Powys ATR**  
 Page 1 of 3

Designed	J D'Souza	Date	13 DEC 23	Signed
Drawn	R. Pakhare	Date	13 DEC 23	Signed
Checked	J Player	Date	13 DEC 23	Signed
Approved	S. Walters	Date	13 DEC 23	Signed
Scale:	1:2,500	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10058585	

Suitability Description: **For Information**

Drawing Number:	10058585-ARC-XX-XXX-DR-E-00001	Revision:	P02
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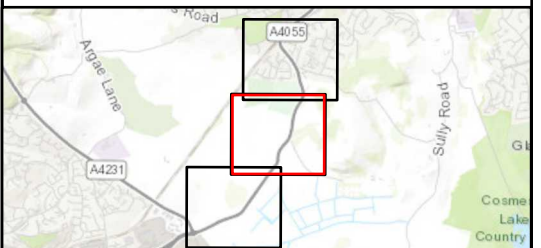




**Legend**

	Site boundary		Woodland broadleaved semi-natural
	Study area 30m		Scrub dense / continuous
	Scattered trees broadleaved		Poor semi-improved
	Broadleaved Parkland / scattered trees		Running water
	Species poor hedgerow with trees		Standing water
	Intact hedge - species-poor		Amenity grassland
	Fence		Buildings and residential gardens
	Dry ditch		Other habitat

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Rev	Date	Description	Drawn	Check	Approv
02	13-12-23	INCLUSION OF OPTION 2	RP	JP	SW
01	10-03-23	INITIAL ISSUE	DP	JD	SW

Client:

**PROJECT:**  
BIGLIS TO DINAS POWYS ATR

**Site:** Biglis to Dinas Powys ATR      **Client:** Vale of Glamorgan County Borough Council

Registered office: 80Fen, 80 Fenchurch Street, London EC3M 4BY  
 Coordinating Office: Cymru House, St Mellons Business Park, Fortran Road, Cardiff, CF3 0EY  
[www.arcadis.com](http://www.arcadis.com)

Title:

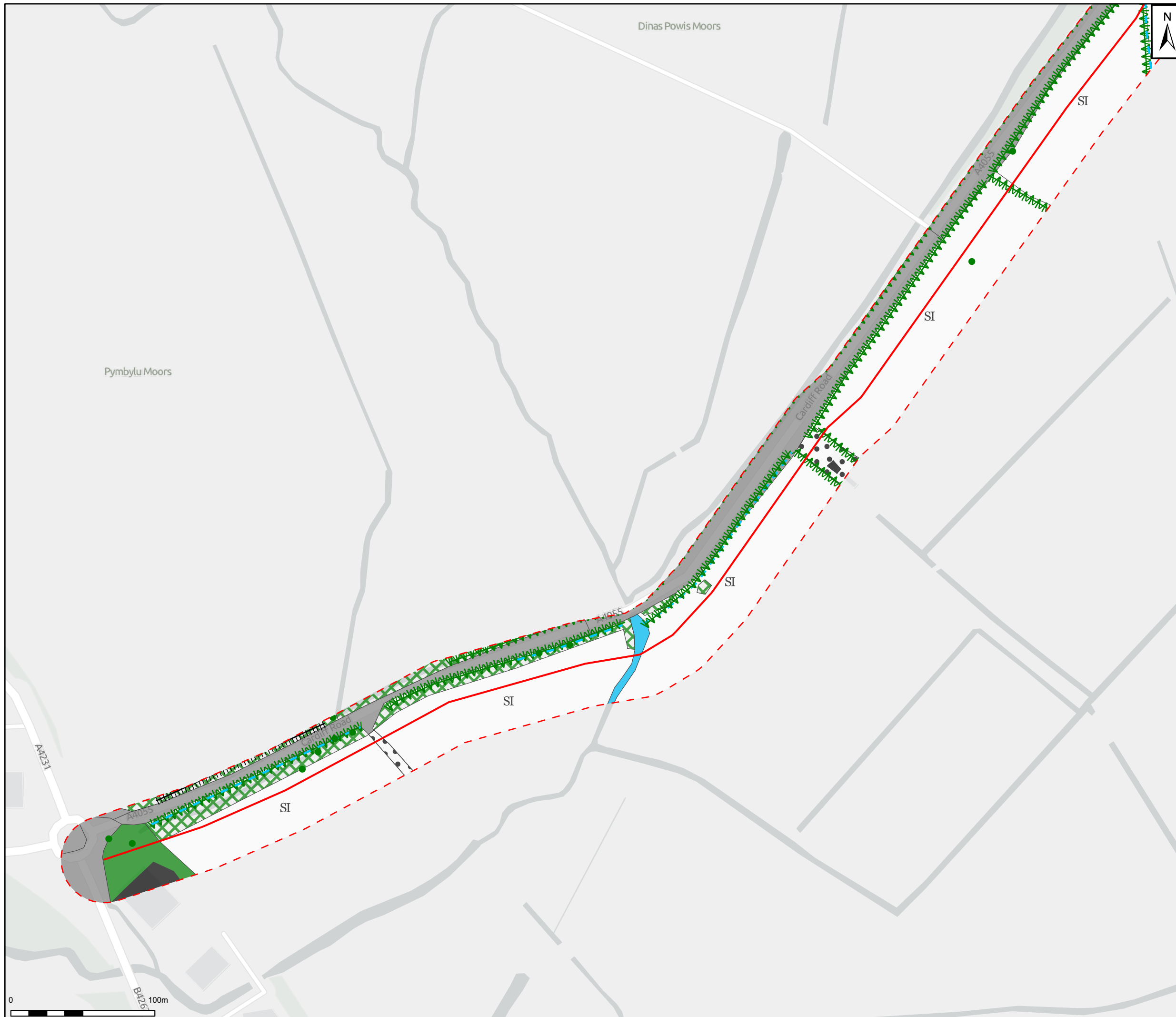
**Phase 1 Habitat Plan**  
**Biglis to Dinas Powys ATR**  
 Page 2 of 3

Designed	J D'Souza	Date	13 DEC 23	Signed
Drawn	R. Pakhare	Date	13 DEC 23	Signed
Checked	J Player	Date	13 DEC 23	Signed
Approved	S. Walters	Date	13 DEC 23	Signed
Scale:	1:2,500	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10058585	

Suitability Description: **For Information**

Drawing Number: 10058585-ARC-XX-XXX-DR-E-00001      Revision: **P02**

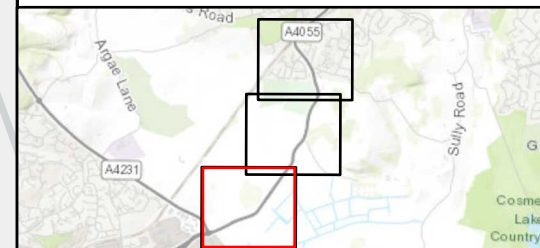




**Legend**

- Site boundary
- Study area 30m
- Scattered trees broadleaved
- Species poor hedgerow with trees
- Fence
- Dry ditch
- Woodland broadleaved semi-natural
- Scrub dense / continuous
- SI Poor semi-improved
- Running water
- Buildings and residential gardens
- Bare ground
- Other habitat

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Rev	Date	Description	Drawn	Check	Approv
02	13-12-23	INCLUSION OF OPTION 2	RP	JP	SW
01	10-03-23	INITIAL ISSUE	DP	JD	SW

Client:

**VALE of GLAMORGAN**  
**BRO MORGANNWG**

**PROJECT:**  
**BIGLIS TO DINAS POWYS ATR**

**Site:** Biglis to Dinas Powys ATR  
**Client:** Vale of Glamorgan County Borough Council

**ARCADIS**

Registered office:  
 80 Fen  
 80 Fenchurch Street  
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Title:

**Phase 1 Habitat Plan**  
**Biglis to Dinas Powys ATR**  
 Page 3 of 3

Designed	J D'Souza	Date	13 DEC 23	Signed
Drawn	R. Pakhare	Date	13 DEC 23	Signed
Checked	J Player	Date	13 DEC 23	Signed
Approved	S. Walters	Date	13 DEC 23	Signed
Scale:	1:2,500	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10058585	

Suitability Description:

**For Information**

Drawing Number: 10058585-ARC-XX-XXX-DR-E-0001  
 Revision: P02

## Appendix A

### Legislation and Policy

Ecological constraint	Rationale
<p>European Designated sites (Special Areas of Conservation, Special Protection Areas and Ramsar Sites)</p>	<p>Under the Conservation of Habitats and Species Regulations 2017 (as amended), an assessment is required where a plan or project may give rise to significant effects upon 'European Sites' including SACs, SPAs, and Ramsar sites. The process of assessing the implications of development on European Sites is known as Habitats Regulations Assessment (HRA).</p> <p>The initial stage of the HRA is Screening. This process initially identifies the likely impacts upon a European Site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts may be significant.</p> <p>Natural Resources Wales must be consulted in relation to the outcome of Screening. Unless the likelihood of a significant effect can be ruled out on the basis of objective information, then an Appropriate Assessment must be undertaken (this is the next stage of the HRA).</p>
<p>Nationally Designated Sites (Sites of Special Scientific Interest)</p>	<p>It is a legal requirement to apply for 'assent' from Natural Resources Wales for any works which could potentially damage the flora, fauna or features for which a SSSI is designated (under the Wildlife and Countryside Act (1981) (as amended)).</p>
<p>Non-native invasive Plants (Rhododendron, Giant Hogweed, Japanese Knotweed, certain species of Cotoneaster, Variegated Yellow Archangel, Canadian Waterweed, Japanese Rose, Monbretia, New Zealand Pigmyweed, Virginia Creeper, Water-fern etc.)</p>	<p>It is an offence under Section 14 of Wildlife and Countryside Act 1981 (as amended) to cause plants listed in Schedule 9 of this act to grow in the wild.</p> <p>Material contaminated with these species is classified as controlled waste under the Environmental Protection Act 1990 and should therefore be disposed of in an appropriately licensed landfill site.</p>
<p>European protected species (great crested newts, natterjack toad, sand lizard, smooth snake, bats, dormice, otters)</p>	<p>It is an offence under the Conservation of Habitats and Species Regulations 2017 to deliberately kill or injure a European protected species, to destroy breeding/ resting sites, or to deliberately disturb these species and affect their ability to survive, rear young, breed or hibernate.</p>
<p>Nationally protected species- those listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (Allis shade, twaite shad, great crested newt, natterjack toad, bats, dormice, otter)</p>	<p>It is an offence under the Wildlife and Countryside Act 1981 (as amended) to intentionally or recklessly disturb a species listed on Schedule 5 whilst it is in a place of shelter, or to obstruct access to a place of shelter.</p>
<p>Reptiles</p>	<p>It is an offence under the Wildlife and Countryside Act 1981 (as amended) to kill or injure common species of reptiles.</p>
<p>Nationally protected bird species- those listed under Schedule 1 of the Wildlife of the Wildlife and Countryside Act 1981 (as amended) (barn owl, peregrine falcon, red kite, kingfisher, firecrest etc.)</p>	<p>All breeding birds are protected whilst breeding as identified below. For those listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) it is also an offence to intentionally or recklessly disturb these birds at, on or near an active nest.</p>

Ecological constraint	Rationale
Breeding birds	It is an offence under the Wildlife and Countryside Act 1981 (as amended) to damage or destroy a bird's nest whilst it is in use, and to kill or injure a bird or destroy an egg.
Badgers	It is an offence under the Protection of Badgers Act (1992) to damage or destroy a badger sett; obstruct any entrance of a badger sett; and disturb a badger whilst it is occupying a badger sett.
<p>Policy MD9 Promoting Biodiversity</p> <p>Vale of Glamorgan Local Development Plan (2011-2026)</p>	<p>New development proposals will be required to conserve and where appropriate enhance biodiversity interests unless it can be demonstrated that: 1) the need for the development clearly outweighs the biodiversity value of the proposed development; and 2) the impacts of the development can be satisfactorily mitigated and acceptably managed through appropriate future management regimes.</p>
<p>Policy SP10 0 Built and Natural Environment</p> <p>Vale of Glamorgan Local Development Plan (2011-2026)</p>	<p>Development Proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including: 1) the architectural and/or historic qualities of buildings or conservation areas, including locally listed buildings; 2) Historic landscapes, parks and gardens; 3) Special landscape areas; 4) The Glamorgan Heritage Coast; 5) sites designated for their local, national and European nature conservation importance; and 6) Important archaeological and geological features</p>
<p>Policy MG10 Sites of Importance for Nature Conservation</p> <p>Vale of Glamorgan Local Development Plan (2011-2026)</p>	<p>Development proposals likely to have an adverse impact on sites of importance for nature conservation or priority habitats and species will only be permitted where it can be demonstrated that: 1) the need for the development clearly outweighs the nature conservation value of the proposed development; 2) the adverse impacts on nature conservation and geological features can be avoided; 3) appropriate and proportionate mitigation and compensation measures can be provided; and 4) the development conserves and where possible enhances biodiversity interests.</p>

## Appendix B

### Local Record Centre Data

Latin Name	Common Name	Designation
<b>Botanical Species</b>		
<i>Allium triquetrum</i>	Three-cornered Garlic	WCA9, INNS
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid	LBAP (BRG, CLY, TRA), LI(SEWBRcC), LI(VC47), LI(VC48, LS)
<i>Arum italicum subsp. neglectum</i>	Arum italicum subsp. neglectum	RDB1 (UK) - NT, RDB2 (UK) - S, LBAP (DEN, VOG), RDB1 (Wales) - CR
<i>Ballota nigra</i>	Black Horehound	LI(SEWBRcC)
<i>Blackstonia perfoliata</i>	Yellow-wort	LBAP (GWY), LI(SEWBRcC), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC52, LS)
<i>Bromopsis erecta</i>	Upright Brome	LBAP (BGW, CON), LI(SEWBRcC), LI(VC43), LI(VC47), LI(VC49, LR), LI(VC50, LS), LI(VC51, LS), LI(VC52, LR)
<i>Buddleja davidii</i>	Butterfly-bush	INNS
<i>Butomus umbellatus</i>	Flowering-rush	RDB1 (Wales) - VU, LBAP (CON), LI(SEWBRcC), LI(VC43), LI(VC51, LR), LI(VC52)
<i>Carex strigosa</i>	Thin-spiked Wood-sedge	LBAP (BRG), LI(SEWBRcC), LI(VC43), LI(VC47), LI(VC50, LR), LI(VC51, LR)
<i>Ceratophyllum demersum</i>	Rigid Hornwort	LBAP (BRG, CON), LI(SEWBRcC), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
<i>Chrysosplenium alternifolium</i>	Alternate-leaved Golden-saxifrage	LBAP (BGW, CDF), LI(SEWBRcC), LI(VC47), LI(VC50, LS)
<i>Cirsium eriophorum</i>	Woolly Thistle	LBAP (BRG), LI(SEWBRcC), LI(VC43)
<i>Clinopodium ascendens</i>	Common Calamint	LBAP (GWY, VOG), LI(SEWBRcC), LI(VC47), LI(VC49, LS), LI(VC50), LI(VC51, LR), LI(VC52, LR)
<i>Cotoneaster</i>	Cotoneaster	WCA9, INNS
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster	WCA9, INNS
<i>Crocsmia</i>	Montbretia	WCA9, INNS
<i>Crocsmia pottsii x aurea</i> = <i>C. x crocosmiiflora</i>	Montbretia	WCA9, INNS
<i>Daphne laureola</i>	Spurge-laurel	LBAP (GWY), LI(SEWBRcC), LI(VC47), LI(VC49, LS), LI(VC52, LS)
<i>Echium vulgare</i>	Viper's-bugloss	LBAP (BGW, GWY), LI(SEWBRcC), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LS)

## Biglis to Dinas Powys ATR

Latin Name	Common Name	Designation
<i>Euphorbia amygdaloides</i>	Wood Spurge	LI(SEWBRc), LI(VC43), LI(VC47), LI(VC50, LR), LI(VC51, LS)
<i>Fallopia japonica</i>	Japanese Knotweed	WCA9, INNS
<i>Ficaria verna var. bulbifer</i>	Ficaria verna var. bulbifer	LI(VC49, LS), LI(VC52, LS)
<i>Frangula alnus</i>	Alder Buckthorn	LBAP (GWY, NEW), LI(SEWBRc), LI(VC47), LI(VC48, LR), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR)
<i>Gnaphalium luteoalbum</i>	Jersey Cudweed	WCA8
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	INNS
<i>Hyacinthoides non-scripta</i>	Bluebell	WCA8, LBAP (ANG, CLY, CON, FLI, SNP, TRA, TRF)
<i>Hyacinthoides non-scripta x hispanica = H. x massartiana</i>	Bluebell	INNS
<i>Hypericum hirsutum</i>	Hairy St John's-wort	LI(SEWBRc), LI(VC48, LR), LI(VC49, LR)
<i>Impatiens glandulifera</i>	Himalayan Balsam	WCA9, INNS
<i>Iris foetidissima</i>	Stinking Iris	LI(SEWBRc), LI(VC51, LS)
<i>Lactuca virosa</i>	Great Lettuce	LBAP (CON), LI(SEWBRc), LI(VC50, LR)
<i>Leycesteria formosa</i>	Himalayan Honeysuckle	INNS
<i>Linum bienne</i>	Pale Flax	LBAP (BRG), LI(SEWBRc), LI(VC49, LR), LI(VC50, LR), LI(VC51, LS), LI(VC52, LS)
<i>Lonicera nitida</i>	Wilson's Honeysuckle	INNS
<i>Malva neglecta</i>	Dwarf Mallow	RDB1 (Wales) - NT, LBAP (BRG), LI(SEWBRc), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC52, LR)
<i>Medicago arabica</i>	Spotted Medick	LBAP (GWY), LI(SEWBRc), LI(VC49, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LR)
<i>Mercurialis annua</i>	Annual Mercury	LI(SEWBRc), LI(VC48, LR), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), LI(VC52, LR)
<i>Ophrys apifera</i>	Bee Orchid	CITES, LBAP (CLY, GWY, TRA, TRF), LI(SEWBRc), LI(VC47), LI(VC48, LR), LI(VC49, LS)
<i>Papaver dubium subsp. lecoqii</i>	Yellow-juiced Poppy	LI(SEWBRc), LI(VC52, LR)
<i>Paris quadrifolia</i>	Herb-Paris	LBAP (CDF, CON, FLI), LI(SEWBRc), LI(VC43), LI(VC47), LI(VC51, LS), LI(VC52, LR)

## Biglis to Dinas Powys ATR

Latin Name	Common Name	Designation
<i>Parthenocissus quinquefolia</i>	Virginia-creeper	WCA9, INNS
<i>Picris hieracioides</i>	Hawkweed Oxtongue	LI(SEWBRcC), LI(VC43), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR)
<i>Plantago media</i>	Hoary Plantain	LI(SEWBRcC), LI(VC43), LI(VC48, LR), LI(VC49, LR), LI(VC50, LS), LI(VC52, LR)
<i>Platanthera chlorantha</i>	Greater Butterfly-orchid	RDB1 (UK) - NT, LBAP (GWY, MON, TRA), LI(SEWBRcC), LI(VC43), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LR)
<i>Polypodium cambricum</i>	Southern Polypody	LBAP (ANG, CON, FLI, GWY, PEM), LI(SEWBRcC), LI(VC43), LI(VC47), LI(VC48, LR), LI(VC49, LS), LI(VC50, LS), LI(VC51, LR), LI(VC52, LS)
<i>Prunus laurocerasus</i>	Cherry Laurel	INNS
<i>Prunus padus</i>	Bird Cherry	LBAP (GWY), LI(SEWBRcC), LI(VC47), LI(VC49, LS)
<i>Ranunculus auricomus</i>	Goldilocks Buttercup	LI(SEWBRcC), LI(VC48, LR), LI(VC49, LS), LI(VC52, LS)
<i>Robinia pseudoacacia</i>	False-acacia	INNS
<i>Sedum album</i>	White Stonecrop	INNS
<i>Sinapis arvensis</i>	Charlock	RDB1 (Wales) - VU
<i>Sison amomum</i>	Stone Parsley	LI(SEWBRcC), LI(VC47), LI(VC49, LS)
<i>Sparganium emersum</i>	Unbranched Bur-reed	LBAP (GWY), LI(SEWBRcC), LI(VC49, LS), LI(VC51, LS)
<i>Spiranthes spiralis</i>	Autumn Lady's-tresses	RDB1 (UK) - NT, LBAP (CON, GWY, TRA), LI(SEWBRcC), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LR), LI(VC51, LS), LI(VC52, LS)
<i>Symphoricarpos albus</i>	Snowberry	INNS
<i>Torilis nodosa</i>	Knotted Hedge-parsley	LI(SEWBRcC), LI(VC47), LI(VC49, LS), LI(VC50, LR), LI(VC51, LR), LI(VC52, LS)
<i>Viburnum lantana</i>	Wayfaring-tree	LI(SEWBRcC), LI(VC51, LS)
<i>Vicia bithynica</i>	Bithynian Vetch	RDB1 (Wales) - EN, RDB1 (UK) - VU, RDB2 (UK) - S, LBAP (DEN, VOG), LI(VC50, LR), LI(VC51, LR)
<i>Vicia sylvatica</i>	Wood Vetch	LBAP (GWY, VOG), LI(VC49, LR), LI(VC51, LR)
<i>Viscum album</i>	Mistletoe	LBAP (CDF, TRF), LI(SEWBRcC), LI(VC48, LR), LI(VC51, LR)
<b>Algae and Bryophytes</b>		
<i>Asparagopsis armata</i>	Harpoon Weed	WCA9, INNS



## Biglis to Dinas Powys ATR

Latin Name	Common Name	Designation
<i>Bryum gemmiferum</i>	Small-bud Bryum	RDB1 (Wales) - LC, LI(BIS), LI(VC45, LR), LI(VC46, LR), LI(VC48, LR), LI(WWBIC)
<i>Campylopus introflexus</i>	Heath Star Moss	INNS
<i>Didymodon nicholsonii</i>	Nicholson's Beard-moss	RDB1 (Wales) - LC, LI(BIS)
<i>Oxyrrhynchium pumilum</i>	Dwarf Feather-moss	RDB1 (Wales) - LC, LI(VC43, LR)
<i>Plasteurhynchium striatulum</i>	Lesser Striated Feather-moss	RDB1 (Wales) - LC, LI(BIS), LI(VC35), LI(VC35, LR), LI(VC42, LR), LI(VC44, LR), LI(VC45, LS), LI(VC49, LR), LI(VC50, LR), LI(VC52, LR), LI(WWBIC)
<i>Syntrichia papillosa</i>	Marble Screw-moss	RDB1 (Wales) - LC, LBAP (CON, FLI)
<b>Invertebrates</b>		
<i>Acronicta psi</i>	Grey Dagger	S7, LBAP (GWY, VOG)
<i>Acronicta rumicis</i>	Knot Grass	S7, LBAP (GWY, VOG)
<i>Agonopterix atomella</i>	Greenweed Flat-body Moth	S7
<i>Agrochola lychnidis</i>	Beaded Chestnut	S7, LBAP (GWY, VOG)
<i>Allophyes oxyacanthae</i>	Green-brindled Crescent	S7, LBAP (GWY, VOG)
<i>Amphinemura standfussi</i>	Amphinemura standfussi	RDB2 (UK) - S
<i>Amphipoea oculea</i>	Ear Moth	S7, LBAP (GWY, VOG)
<i>Apamea remissa</i>	Dusky Brocade	S7, LBAP (GWY, VOG)
<i>Arctia caja</i>	Garden Tiger	S7, LBAP (GWY, VOG)
<i>Argolamprotes micella</i>	Bright Neb	RDB2 (UK) - N
<i>Argynnis paphia</i>	Silver-washed Fritillary	LBAP (BRG, CDF, CON, FLI, MON, NEW, POW, SWN), LI(SEWBRc), LI(VC43)
<i>Asteroscopus sphinx</i>	Sprawler	S7, LBAP (VOG)
<i>Atethmia centrigo</i>	Centre-barred Sallow	S7, LBAP (GWY, VOG)
<i>Bombus humilis</i>	Brown-Banded Carder Bee	S7, LBAP (CER, CON, FLI, GWY, PEM, POW, VOG)
<i>Bombus sylvarum</i>	Shrill Carder Bee	S7, RDB2 (UK) - NB, LBAP (CER, FLI, PEM, VOG)
<i>Brachytron pratense</i>	Hairy Dragonfly	LBAP (BRG, CLY, GWY, PEM, SNP), LI(BIS), LI(SEWBRc)
<i>Calamotropha paludella</i>	Bulrush Veneer	RDB2 (UK) - NB, LBAP (NEW)
<i>Calopteryx splendens</i>	Banded Demoiselle	LBAP (CLY, SNP), LI(BIS), LI(SEWBRc)

Biglis to Dinas Powys ATR

Latin Name	Common Name	Designation
<i>Calopteryx virgo</i>	Beautiful Demoiselle	LBAP (CLY, SNP), LI(BIS), LI(SEWBRcC)
<i>Caradrina morpheus</i>	Mottled Rustic	S7, LBAP (GWY, VOG)
<i>Celastrina argiolus britanna</i>	Holly Blue	LBAP (CON)
<i>Chiasmia clathrata</i>	Latticed Heath	S7, LBAP (GWY, VOG)
<i>Chiasmia clathrata clathrata</i>	Latticed Heath	S7, LBAP (GWY, VOG)
<i>Cirrhia icteritia</i>	Sallow	S7, LBAP (GWY, VOG)
<i>Coenonympha pamphilus</i>	Small Heath	S7, RDB1 (UK) - NT, LBAP (GWY, VOG)
<i>Conocephalus dorsalis</i>	Short-winged Cone-head	LBAP (BRG, TRF), LI(SEWBRcC)
<i>Conocephalus fuscus</i>	Long-winged Cone-head	LI(SEWBRcC)
<i>Cordulegaster boltonii</i>	Golden-ringed Dragonfly	LBAP (CLY, SNP), LI(BIS), LI(SEWBRcC)
<i>Deleaster dichrous</i>	Deleaster dichrous	RDB2 (UK) - NB
<i>Diarsia rubi</i>	Small Square-spot	S7, LBAP (GWY, VOG)
<i>Diloba caeruleocephala</i>	Figure of Eight	S7, LBAP (VOG)
<i>Ecliptopera silaceata</i>	Small Phoenix	S7, LBAP (GWY, VOG)
<i>Ennomos fuscantaria</i>	Dusky Thorn	S7, LBAP (GWY, VOG)
<i>Ennomos quercinaria</i>	August Thorn	S7, LBAP (GWY, VOG), LI(BIS)
<i>Erynnis tages</i>	Dingy Skipper	S7, RDB1 (UK) - VU, LBAP (BGW, BRG, CON, FLI, GWY, SWN, VOG), LI(SEWBRcC)
<i>Eudonia delunella</i>	Pied Grey	RDB2 (UK) - NB
<i>Forficula lesnei</i>	Lesne's Earwig	RDB2 (UK) - S, LBAP (BRG), LI(SEWBRcC)
<i>Harmonia axyridis</i>	Harlequin Ladybird	INNS
<i>Hemistola chrysoprasaria</i>	Small Emerald	S7, LBAP (GWY, VOG)
<i>Hepialus humuli</i>	Ghost Moth	S7, LBAP (GWY, VOG)
<i>Hoplodrina blanda</i>	Rustic	S7, LBAP (GWY, VOG)
<i>Hydraecia micacea</i>	Rosy Rustic	S7, LBAP (GWY, VOG)
<i>Hydroporus marginatus</i>	Hydroporus marginatus	RDB2 (UK) - S
<i>Ischnura pumilio</i>	Scarce Blue-tailed Damselfly	RDB1 (UK) - NT, LBAP (BGW, BRG, CLY, GWY, PEM, SNP, TRF), LI(BIS), LI(SEWBRcC)

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Latin Name	Common Name	Designation
<i>Lateroligia ophiogramma</i>	Double Lobed	LI(VC42)
<i>Leptoglossus occidentalis</i>	Western Conifer Seed Bug	INNS
<i>Leptophyes punctatissima</i>	Speckled Bush-cricket	LI(SEWBRcC)
<i>Lestes sponsa</i>	Emerald Damselfly	LBAP (CLY, SNP), LI(SEWBRcC), LI(VC42), LI(VC43), LI(VC47), LI(VC50)
<i>Leucania comma</i>	Shoulder-striped Wainscot	S7, LBAP (GWY, VOG)
<i>Lycia hirtaria</i>	Brindled Beauty	S7, LBAP (GWY, VOG)
<i>Malacosoma neustria</i>	Lackey	S7, LBAP (GWY, VOG)
<i>Melanargia galathea</i>	Marbled White	LBAP (SWN, VOG), LI(BIS)
<i>Melanchra persicariae</i>	Dot Moth	S7, LBAP (GWY, VOG)
<i>Melanthia procellata</i>	Pretty Chalk Carpet	S7, LBAP (GWY, VOG), LI(BIS)
<i>Mirificarma lentiginosella</i>	Greenweed Groundling	RDB2 (UK) - N
<i>Ophonus ardosiacus</i>	Ophonus ardosiacus	RDB2 (UK) - NB
<i>Orthetrum cancellatum</i>	Black-tailed Skimmer	LBAP (CLY, SNP), LI(BIS), LI(SEWBRcC)
<i>Psychomyia fragilis</i>	Psychomyia fragilis	RDB2 (UK) - N
<i>Pyrochroa coccinea</i>	Black-headed Cardinal Beetle	RDB2 (UK) - NB
<i>Rhizedra lutosa</i>	Large Wainscot	S7, LBAP (BRG, GWY)
<i>Satyrium w-album</i>	White-letter Hairstreak	WCA5, S7, RDB1 (UK) - EN, LBAP (BRG, FLI, NEW, SWN, VOG), LI(SEWBRcC)
<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	S7, LBAP (GWY, VOG)
<i>Spilosoma lubricipeda</i>	White Ermine	S7, LBAP (GWY, VOG)
<i>Spilosoma lutea</i>	Buff Ermine	S7, LBAP (GWY, VOG)
<i>Sympetrum danae</i>	Black Darter	LBAP (CLY, SNP), LI(BIS), LI(SEWBRcC)
<i>Sympetrum sanguineum</i>	Ruddy Darter	LBAP (CLY, SNP), LI(SEWBRcC), LI(VC42), LI(VC43), LI(VC47), LI(VC50)
<i>Timandra comae</i>	Blood-vein	S7, LBAP (VOG)
<i>Tyria jacobaeae</i>	Cinnabar	S7, LBAP (GWY, VOG)

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Latin Name	Common Name	Designation
<i>Watsonalla binaria</i>	Oak Hook-tip	S7, LBAP (GWY, VOG)
<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	S7, LBAP (GWY, VOG)
<b>Amphibians</b>		
<i>Bufo bufo</i>	Common Toad	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, TRA, VOG)
<i>Lissotriton helveticus</i>	Palmate Newt	WCA5, Bern, LBAP (ANG, CLY, CON, DEN, FLI, POW, TRA), LI(BIS)
<i>Lissotriton vulgaris</i>	Smooth Newt	WCA5, Bern, LBAP (CLY, CON, DEN, FLI, POW, TRA), LI(BIS)
<i>Rana temporaria</i>	Common Frog	HDir, WCA5, Bern, LBAP (ANG, CLY, CON, FLI, POW, TRA)
<i>Triturus cristatus</i>	Great Crested Newt	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CLY, CON, DEN, FLI, MON, POW, SNP, TRA, TRF, VOG, WRE)
<b>Reptiles</b>		
<i>Anguis fragilis</i>	Slow-worm	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)
<i>Natrix helvetica</i>	Grass Snake	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG), LBAP (ANG, CLY, DEN, FLI, POW, SNP, TRA, VOG)
<i>Zootoca vivipara</i>	Common Lizard	WCA5, S7, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)
<b>Birds</b>		
<i>Acanthis cabaret</i>	Lesser Redpoll	S7, LBAP (CON), LBAP (DEN, POW, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Accipiter gentilis</i>	Goshawk	WCA1.1, WCA9, CITES, LBAP (CLY, CON, POW, VOG)
<i>Actitis hypoleucos</i>	Common Sandpiper	WBR(RSPB), UKBAm(RSPB)
<i>Aegithalos caudatus</i>	Long-tailed Tit	WBAm(RSPB)
<i>Alauda arvensis</i>	Skylark	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Alcedo atthis</i>	Kingfisher	BDir1, WCA1.1, Bern, LBAP (CLY, CON, DEN, FLI, GWY, POW, TRA), WBAm(RSPB), UKBAm(RSPB)
<i>Alopochen aegyptiaca</i>	Egyptian Goose	WCA9, INNS

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Latin Name	Common Name	Designation
<i>Anas acuta</i>	Pintail	BDir21, WCA1.2, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Anas crecca</i>	Teal	BDir21, CITES, LBAP (ANG, CON, DEN, FLI, GWY), LBAP (ANG, DEN, FLI), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
<i>Anas platyrhynchos</i>	Mallard	BDir21, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Anser indicus</i>	Bar-headed Goose	WCA9, INNS
<i>Anthus pratensis</i>	Meadow Pipit	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)
<i>Anthus spinoletta</i>	Water Pipit	Bern, UKBAm(RSPB)
<i>Anthus trivialis</i>	Tree Pipit	S7, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Apus apus</i>	Swift	LBAP (BRG, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Ardea cinerea</i>	Grey Heron	LBAP (BRG, RCT), WBAm(RSPB)
<i>Arenaria interpres</i>	Turnstone	Bern, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Aythya ferina</i>	Pochard	BDir21, WBR(RSPB), LBAP (CON, POW), UKBR(RSPB)
<i>Aythya fuligula</i>	Tufted Duck	BDir21, LBAP (CON, POW, VOG), WBAm(RSPB)
<i>Aythya marila</i>	Scaup	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
<i>Botaurus stellaris</i>	Bittern	BDir1, WCA1.1, S7, Bern, LBAP (ANG, BBNP, CER, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Branta bernicla bernicla</i>	Dark-bellied Brent Goose	S7, LBAP (VOG), WBAm(RSPB)
<i>Branta canadensis</i>	Canada Goose	BDir21, WCA9, INNS
<i>Branta leucopsis</i>	Barnacle Goose	BDir1, WCA9, Bern, UKBAm(RSPB), INNS
<i>Bucephala clangula</i>	Goldeneye	BDir22, WCA1.2, LBAP (CON, POW), UKBAm(RSPB)
<i>Calidris alba</i>	Sanderling	Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)
<i>Calidris alpina</i>	Dunlin	Bern, WBR(RSPB), LBAP (CON, GWY, POW), LI(VC43), UKBAm(RSPB)
<i>Calidris maritima</i>	Purple Sandpiper	WCA1.1, Bern, LBAP (CON, VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Calidris pugnax</i>	Ruff	BDir1, BDir22, WCA1.1, LBAP (CON), WBAm(RSPB), UKBR(RSPB)
<i>Cettia cetti</i>	Cetti's Warbler	WCA1.1, LBAP (ANG, PEM, VOG)

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<i>Charadrius hiaticula</i>	Ringed Plover	S7, Bern, WBR(RSPB), LBAP (BBNP, CON, CRM, GWY, VOG), UKBR(RSPB)
<i>Chloris chloris</i>	Greenfinch	Bern, LBAP (CON, POW), WBAm(RSPB)
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	BDir22, S7, WBR(RSPB), LBAP (GWY, VOG), UKBAm(RSPB)
<i>Cinclus cinclus</i>	Dipper	Bern, LBAP (BRG, CLY, CON, MTR, POW, RCT, TRA), WBAm(RSPB), UKBAm(RSPB)
<i>Circus aeruginosus</i>	Marsh Harrier	BDir1, WCA1.1, CITES, LBAP (CON), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)
<i>Circus cyaneus</i>	Hen Harrier	BDir1, WCA1.1, S7, CITES, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, SNP, VOG), LBAP (BBNP, DEN, FLI, POW, SNP, VOG), LI(VC43)
<i>Clangula hyemalis</i>	Long-tailed Duck	BDir22, WCA1.1, RDB1 (UK) - VU, WBR(RSPB), UKBR(RSPB)
<i>Coccothraustes coccothraustes</i>	Hawfinch	S7, Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Coturnix coturnix</i>	Quail	BDir22, WCA1.1, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
<i>Cuculus canorus</i>	Cuckoo	S7, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, VOG), UKBR(RSPB)
<i>Curruca communis</i>	Whitethroat	WBR(RSPB), LBAP (CON, POW)
<i>Cygnus atratus</i>	Black Swan	WCA9, INNS
<i>Cygnus cygnus</i>	Whooper Swan	BDir1, WCA1.1, Bern, LBAP (CON, GWY, POW), UKBAm(RSPB)
<i>Delichon urbicum</i>	House Martin	Bern, LBAP (BRG, CON, POW, RCT, VOG), UKBAm(RSPB)
<i>Emberiza citrinella</i>	Yellowhammer	S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), UKBR(RSPB)
<i>Emberiza schoeniclus</i>	Reed Bunting	S7, Bern, LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Falco columbarius</i>	Merlin	BDir1, WCA1.1, Bern, CITES, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, POW), LI(VC43), UKBR(RSPB)
<i>Falco peregrinus</i>	Peregrine	BDir1, WCA1.1, Bern, CITES, LBAP (ANG, CLY, CON, GWY, PEM, POW, TRF, VOG), LI(VC43)
<i>Falco rusticolus</i>	Gyr Falcon	BDir1, WCA1.1, Bern, CITES

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<i>Falco subbuteo</i>	Hobby	WCA1.1, Bern, CITES, LBAP (CON, GWY, POW, VOG), LI(VC43)
<i>Falco tinnunculus</i>	Kestrel	S7, Bern, CITES, WBR(RSPB), LBAP (ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), LI(VC43), UKBAm(RSPB)
<i>Ficedula hypoleuca</i>	Pied Flycatcher	S7, WBR(RSPB), LBAP (CON, GWY, POW, SNP, VOG), UKBR(RSPB)
<i>Fringilla montifringilla</i>	Brambling	WCA1.1, LBAP (CON), WBAm(RSPB)
<i>Fulica atra</i>	Coot	BDir21, LBAP (BRG), WBAm(RSPB)
<i>Fulmarus glacialis</i>	Fulmar	Bern, LBAP (VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Gallinago gallinago</i>	Snipe	BDir21, LBAP (ANG, CON, DEN, FLI, GWY, POW), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
<i>Gavia arctica</i>	Black-throated Diver	BDir1, Bern, WBAm(RSPB), UKBAm(RSPB)
<i>Gavia immer</i>	Great Northern Diver	BDir1, WCA1.1, Bern, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Grus grus</i>	Crane	BDir1, WCA9, Bern, CITES, UKBAm(RSPB)
<i>Gulosus aristotelis</i>	Shag	Bern, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
<i>Haematopus ostralegus</i>	Oystercatcher	BDir22, LBAP (CON, GWY), WBAm(RSPB), LI(VC43), UKBAm(RSPB)
<i>Hirundo rustica</i>	Swallow	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB)
<i>Hydrobates pelagicus</i>	Storm Petrel	BDir1, Bern, LBAP (GWY, PEM), WBAm(RSPB), UKBAm(RSPB)
<i>Ichthyaetus melanocephalus</i>	Mediterranean Gull	BDir1, WCA1.1, Bern, LBAP (CON), WBAm(RSPB), UKBAm(RSPB)
<i>Larus argentatus</i>	Herring Gull	BDir22, S7, WBR(RSPB), LBAP (CON, GWY, POW, VOG), UKBR(RSPB)
<i>Larus cachinnans</i>	Caspian Gull	UKBAm(RSPB)
<i>Larus canus</i>	Common Gull	BDir22, WBR(RSPB), UKBAm(RSPB)
<i>Larus fuscus</i>	Lesser Black-backed Gull	BDir22, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)
<i>Larus marinus</i>	Great Black-backed Gull	BDir22, WBR(RSPB), UKBAm(RSPB)
<i>Larus michahellis</i>	Yellow-legged Gull	UKBAm(RSPB)
<i>Larus michahellis michahellis</i>	Larus michahellis michahellis	UKBAm(RSPB)

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Latin Name	Common Name	Designation
<i>Limosa lapponica</i>	Bar-tailed Godwit	BDir1, BDir22, S7, WBR(RSPB), LBAP (BBNP, CON, GWY, VOG), UKBAm(RSPB)
<i>Limosa limosa</i>	Black-tailed Godwit	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
<i>Limosa limosa limosa</i>	Limosa limosa limosa	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
<i>Linaria cannabina</i>	Linnet	S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, CER, CLY, DEN, FLI, PEM, VOG), LBAP (CON, GWY), UKBR(RSPB)
<i>Locustella naevia</i>	Grasshopper Warbler	S7, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)
<i>Loxia curvirostra</i>	Crossbill	WCA1.1, Bern, LBAP (CON, POW), LI(VC43)
<i>Lullula arborea</i>	Woodlark	BDir1, WCA1.1, S7, LBAP (BBNP, CER, POW)
<i>Lymnocyptes minimus</i>	Jack Snipe	BDir21, LBAP (CON, POW), WBAm(RSPB)
<i>Mareca penelope</i>	Wigeon	BDir21, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Melanitta nigra</i>	Common Scoter	BDir22, WCA1.1, S7, LBAP (ANG, BBNP, CER, CON, CRM, DEN, FLI, GWY, PEM, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Mergus serrator</i>	Red-breasted Merganser	BDir22, LBAP (CON, POW), WBAm(RSPB)
<i>Milvus milvus</i>	Red Kite	BDir1, WCA1.1, WCA9, CITES, LBAP (CON, CRM, GWY, POW), WBAm(RSPB)
<i>Morus bassanus</i>	Gannet	LBAP (CON, GWY, PEM), WBAm(RSPB), UKBAm(RSPB)
<i>Motacilla cinerea</i>	Grey Wagtail	Bern, LBAP (CLY, CON, POW, TRA), WBAm(RSPB), UKBR(RSPB)
<i>Motacilla flava</i>	Yellow Wagtail	S7, Bern, WBR(RSPB), LBAP (CON, DEN, FLI, POW, TRA, VOG), LI(VC43), UKBR(RSPB)
<i>Motacilla flava flavissima</i>	Yellow Wagtail	S7, WBR(RSPB), LBAP (DEN, FLI, TRA), LI(VC43), UKBAm(RSPB)
<i>Muscicapa striata</i>	Spotted Flycatcher	S7, Bern, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG), UKBR(RSPB)
<i>Numenius arquata</i>	Curlew	BDir22, S7, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG), LI(VC43), UKBR(RSPB)
<i>Numenius phaeopus</i>	Whimbrel	BDir22, WCA1.1, LBAP (CON, GWY), WBAm(RSPB), UKBR(RSPB)
<i>Nycticorax nycticorax</i>	Night-heron	BDir1, WCA9, Bern, INNS



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<i>Oenanthe oenanthe</i>	Wheatear	Bern, LBAP (BRG, CON, POW), WBAm(RSPB)
<i>Oxyura jamaicensis</i>	Ruddy Duck	WCA9, INNS
<i>Pandion haliaetus</i>	Osprey	BDir1, WCA1.1, CITES, LBAP (GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Panurus biarmicus</i>	Bearded Tit	WCA1.1, Bern, LBAP (CON, POW), WBAm(RSPB)
<i>Passer domesticus</i>	House Sparrow	S7, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Phalacrocorax carbo</i>	Cormorant	LBAP (CON, GWY, POW), WBAm(RSPB)
<i>Phoenicurus ochruros</i>	Black Redstart	WCA1.1, Bern, LBAP (GWY, VOG), WBAm(RSPB), UKBR(RSPB)
<i>Phoenicurus phoenicurus</i>	Redstart	Bern, LBAP (CON, GWY, POW, SNP), WBAm(RSPB), UKBAm(RSPB)
<i>Phylloscopus sibilatrix</i>	Wood Warbler	S7, WBR(RSPB), LBAP (CON, GWY, SNP, VOG), UKBR(RSPB)
<i>Phylloscopus trochilus</i>	Willow Warbler	WBR(RSPB), LBAP (CON), UKBAm(RSPB)
<i>Picus viridis</i>	Green Woodpecker	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB)
<i>Pluvialis apricaria</i>	Golden Plover	BDir1, BDir22, S7, WBR(RSPB), LBAP (BBNP, CON, CRM, FLI, GWY, POW, SNP, VOG), LI(VC43)
<i>Pluvialis squatarola</i>	Grey Plover	BDir22, WBR(RSPB), LBAP (CON, GWY), UKBAm(RSPB)
<i>Podiceps auritus</i>	Slavonian Grebe	BDir1, WCA1.1, Bern, WBR(RSPB), UKBR(RSPB)
<i>Poecile palustris</i>	Marsh Tit	S7, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), UKBR(RSPB)
<i>Prunella modularis</i>	Dunnock	S7, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)
<i>Puffinus puffinus</i>	Manx Shearwater	Bern, LBAP (CON, GWY, PEM), WBAm(RSPB), UKBAm(RSPB)
<i>Pyrrhula pyrrhula</i>	Bullfinch	S7, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBAm(RSPB)
<i>Regulus regulus</i>	Goldcrest	Bern, LBAP (CON, POW), WBAm(RSPB)
<i>Riparia riparia</i>	Sand Martin	Bern, LBAP (CON, DEN, FLI, GWY, POW, VOG), WBAm(RSPB)
<i>Saxicola rubetra</i>	Whinchat	Bern, WBR(RSPB), LBAP (BRG, CON, DEN, FLI, GWY, PEM, POW, RCT), UKBR(RSPB)

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<i>Scolopax rusticola</i>	Woodcock	BDir21, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, POW), LI(VC43), UKBR(RSPB)
<i>Somateria mollissima</i>	Eider	BDir22, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Spatula clypeata</i>	Shoveler	BDir21, CITES, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)
<i>Spatula querquedula</i>	Garganey	BDir21, WCA1.1, CITES, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Stercorarius parasiticus</i>	Arctic Skua	LBAP (CON), WBAm(RSPB), UKBR(RSPB)
<i>Sterna dougallii</i>	Roseate Tern	BDir1, WCA1.1, S7, Bern, WBR(RSPB), LBAP (ANG, BBNP, GWY), UKBR(RSPB)
<i>Sterna hirundo</i>	Common Tern	BDir1, Bern, LBAP (ANG, CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Sternula albifrons</i>	Little Tern	BDir1, WCA1.1, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY), UKBAm(RSPB)
<i>Streptopelia turtur</i>	Turtle Dove	BDir22, S7, CITES, WBR(RSPB), LBAP (BBNP, CON, GWY, MON, POW), UKBR(RSPB)
<i>Sturnus vulgaris</i>	Starling	BDir22, S7, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)
<i>Tadorna tadorna</i>	Shelduck	Bern, LBAP (CON, GWY, VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Thalasseus sandvicensis</i>	Sandwich Tern	BDir1, Bern, LBAP (ANG), LBAP (ANG, CON, GWY), WBAm(RSPB), UKBAm(RSPB)
<i>Tringa nebularia</i>	Greenshank	BDir22, WCA1.1, LBAP (CON, POW), UKBAm(RSPB)
<i>Tringa ochropus</i>	Green Sandpiper	WCA1.1, Bern, LBAP (CON, VOG), WBAm(RSPB), UKBAm(RSPB)
<i>Tringa totanus</i>	Redshank	BDir22, LBAP (ANG, CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)
<i>Turdus iliacus</i>	Redwing	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB)
<i>Turdus philomelos</i>	Song Thrush	BDir22, S7, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)
<i>Turdus pilaris</i>	Fieldfare	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB)
<i>Turdus torquatus</i>	Ring Ouzel	S7, Bern, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, VOG), LI(VC43), UKBR(RSPB)

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Latin Name	Common Name	Designation
<i>Turdus viscivorus</i>	Mistle Thrush	BDir22, Bern, WBAm(RSPB), UKBR(RSPB)
<i>Tyto alba</i>	Barn Owl	WCA1.1, WCA9, Bern, CITES, LBAP (ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE), LI(VC43)
<i>Uria aalge</i>	Common Guillemot	LBAP (CON, PEM), WBAm(RSPB), UKBAm(RSPB)
<i>Vanellus vanellus</i>	Lapwing	BDir22, S7, WBR(RSPB), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRF, VOG), LI(VC43), UKBR(RSPB)
<b>Bats</b>		
<i>Eptesicus serotinus</i>	Serotine	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (GWY, POW, TRA, TRF)
<i>Myotis brandtii</i>	Brandt's Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF)
<i>Myotis daubentonii</i>	Daubenton's Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)
<i>Myotis mystacinus</i>	Whiskered Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF)
<i>Myotis nattereri</i>	Natterer's Bat	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)
<i>Nyctalus leisleri</i>	Lesser Noctule	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)
<i>Nyctalus noctula</i>	Noctule Bat	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)
<i>Pipistrellus nathusii</i>	Nathusius's Pipistrelle	EPS, HDir, WCA5, Bern, RDB2 (UK), LBAP (ANG, DEN, FLI, SNP, TRA, TRF)
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CLY, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)
<i>Plecotus auritus</i>	Brown Long-eared Bat	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)
<i>Rhinolophus hipposideros</i>	Lesser Horseshoe Bat	EPS, ANII, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRA, TRF, VOG, WRE)

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Latin Name	Common Name	Designation
<b>Other Mammals</b>		
<i>Arvicola amphibius</i>	European Water Vole	WCA5, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VoG)
<i>Erinaceus europaeus</i>	West European Hedgehog	S7, Bern, LBAP (ANG, BGW, BRG, CON, FLI, GWY, NEW, POW, RCT, VOG)
<i>Lutra lutra</i>	Eurasian Otter	EPS, HDir, WCA5, S7, Bern, CITES, RDB2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG, WRE)
<i>Meles meles</i>	Eurasian Badger	BA, Bern, LBAP (CLY, CON, DEN, FLI, PEM, POW, TRF, WRE)
<i>Micromys minutus</i>	Harvest Mouse	S7, LBAP (BRG, CON, FLI, GWY, VOG), LI(BIS)
<i>Muscardinus avellanarius</i>	Hazel Dormouse	EPS, HDir, WCA5, S7, Bern, RDB2 (UK), LBAP (BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, TRA, TRF, VOG)
<i>Mustela putorius</i>	Polecat	HDir, S7, Bern, RDB2 (UK), LBAP (BGW, BRG, CON, FLI, GWY, NEW, POW, SNP, VOG)
<i>Neovison vison</i>	American Mink	WCA9, INNS
<i>Sciurus carolinensis</i>	Eastern Grey Squirrel	WCA9, INNS

## Abbreviations

BA = Protection of Badgers Act	HDir = EU Habitats Directive Species	WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species	LI (BIS) = Locally Important Species (as identified by local specialists) in BIS area
UKBAP = UK Biodiversity Action Plan Priority Species	NRW = Natural Resources Wales Priority Species	WCA5 = Wildlife and Countryside Act Schedule 5 Species	LI (BRYO-MON) = Locally or nationally scarce or rare bryophyte in Monmouthshire
UKBAP (R) = UK Biodiversity Action Plan Priority Species (Research only species)	RD1 (Wales) = Welsh Red Data Book listing based on IUCN guidelines	WCA8 = Wildlife and Countryside Act Schedule 8 Species	LI (VC##) = Locally Important Species (as identified by local specialists) in Vice County ##
BDir1 = EC Birds Directive Annex 1 Species	RD1 (UK) = UK Red Data Book listing based on IUCN guidelines	WCA9 = Wildlife and Countryside Act Schedule 9 Species	LI (VC##, LS) = Locally Scarce in Vice County ##
BDir21 = EC Birds Directive Annex 2.1 Species	RD2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce)	INNS = Invasive Non-Native Species	LI (VC##, LR) = Locally Rare in Vice County ##
BDir22 = EC Birds Directive Annex 2.2 Species	WBR (RSPB) = RSPB Welsh Red listed birds (not based on IUCN criteria)	WSG.P = Guidelines for the Selection of Wildlife Sites in South Wales - Primary species	LI (VC##, EX) = Extinct in Vice County ##
Bern = The Bern Convention on the Conservation of European Wildlife and Natural Habitats	WBAm (RSPB) = RSPB Welsh Amber listed birds (not based on IUCN criteria)	WSG.C = Guidelines for the Selection of Wildlife Sites in South Wales - Contributory species	LI (VC##, UR) = Under Recorded in Vice County ##
Bonn = The Bonn Convention on the Conservation of Migratory Species of Wild Animals Species	UKBR (RSPB) = RSPB UK Red listed birds (not based on IUCN criteria)	WVP = IUCN Threat Listing of Welsh Vascular Plants	
CITES = Convention on International Trade in Endangered Species	UKBAm (RSPB) = RSPB UK Amber listed birds (not based on IUCN criteria)	LBAP (xxx) = Local Biodiversity Action Plan Species (see key below)	
EPS = European Protected Species	S7 = Environment Act (Wales) Section 7 Species	LI (SEWBRc) = Locally Important Species (as identified by local specialists) in SEWBRc area	

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