LAND AT CROSS COMMON ROAD, DINAS POWYS: PROPOSED DEVELOPMENT

PRELIMINARY ECOLOGICAL APPRAISAL

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Land at Cross common Road: Proposed Housing Development

Preliminary Ecological Appraisal

Document control

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NON -TECHNICAL SUMMARY

An ecological appraisal was undertaken of land at Cross Common Road, Dinas Powys. The work included assessments of the habitats on site, the potential for protected species to be present and initial assessments of any potential impacts on those habitats and species present.

The site mainly compromises of semi-improved grassland, with frequent species such as common bent (*Agrostis capillaris*), crested dog's tail (*Cynosurus cristatus*) and common knapweed (*Centaurea nigra*). The southern part of the site is inundated with water and a spring runs along the southern boundary of field 1. The site is bounded by unmanaged hedgerows/scrub.

There are a number of mature trees on site that have either ivy cladding or provide cavities/hollows suitable for roosting bats for both summer roosting and hibernation purposes. It is likely that bats use the unmanaged hedgerows/scrub and woodland edge adjacent to the site for foraging and commuting. It is not possible at this stage to ascribe any level of impact (adverse or otherwise) as the layout and design have not yet been finalised; however, it is likely that the boundsary trees will be retained and the infield trees lost.

Suitable habitat for dormice is present onsite including nesting materials and food sources. The habitat also provides good connectivity to the wider landscape. There are no records of dormice in the immediate vicinity, however it is considered that there is the potential for them to be present. No further surveys are considered necessary providing the existing boundaries of the site are retained and the recommendations provided in this report are followed.

The site provides habitats that are broadly suitable for reptiles including basking areas along site boundaries and they may use tussocky grassland, debris and fallen timber beneath the unmanaged hedgerows/scrub as refugia. However, there is only limited potential for hibernation due to the wet nature of the ground. Further surveys will be needed before any works can begin.

There are no water bodies on the site which could offer suitable breeding habitat for great crested newts or other amphibians. However, there are conformed breeding records within 500m of the site; there is anecdotal evidence of great crested newts in ponds of properties along Cross Common Road. The site does offer great crested newts suitable terrestrial habitat and hibernation sites. Further surveys will be needed before works can begin.

The site and adjacent woodland may be used by foraging otters due to the close proximity of the River Cadoxton but it is considered unlikely that the proposed development will have any impact on otter.

No evidence of badgers was recorded from the site. No further surveys are required although a pre-commencement check is recommended to ensure that individuals of this species have not started using the site since the issue of this report.

The unmanaged hedgerows and scrub, where dense enough, has the potential to support nesting birds. Works should be undertaken outwith the breeding bird season.

1 INTRODUCTION

1.1 OBJECTIVE

The objectives of this report are to:

- Collate and analyse existing ecological information relating to the site;
- Secure previously unknown ecological information relating to the site by undertaking field surveys; and
- Using the information gathered to determine whether there will be any impacts (both positive and negative) and the significance of those impacts on the species and habitats present.

The assessment has been undertaken in accordance with the Guidelines for Preliminary Ecological Appraisal (2nd Ed) (Institute of Ecological and Environmental Management (IEEM) 2012) and the *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM 2006).

1.2 METHODOLOGY

To achieve the objectives set out above, the following actions were taken:

- Field based assessments in respect of
    1. Bats;
    2. Dormouse;
    3. Great crested newt;
    4. Otter;
    5. Badger;
    6. Breeding birds;
    7. Reptiles; and
    8. Habitats

The impact assessment has been undertaken by individual ecological feature i.e. each subject is discussed and assessed separately and summarised in conjunction with the others.

1.3 SITE DESCRIPTION

Photos are at Appendix A.

The site is approximately 2.15ha in size and is located in Dinas Powys, south west of Cardiff (centred on NGR ST 154704; Figure 1). The site compromises of four fields, field one is a poor semi improved grassland, currently used as horse turnout, with scrub/hedgerow boundaries. Field two is part of a residential garden, consisting of a lawn with scattered shrubs and a single Ornamental dogwood (*Cornus sanguinea*). Field three is a semi –improved neutral grassland situated on a gently sloping aspect from east to west. The Bramble (Rubus fruticosus) scrub boundaries consist predominantly of Blackthorn (Prunus spinosa), with remnants of Hazel (Corylus avellana), Elder (Sambucus nigra) and Pedunculate oak (Quercus robur). Field four is a semi- improved neutral grassland, fringed by woodland, the woodland consisting frequently of Blackthorn and Bramble, the occasional Hawthorn (Crataegus monogyna), Hazel, Sycamore (Acer pseudoplatanus), and White popular (Populus alba), with locally abundant patches of Brooklime, (Veronica beccabunga) and Floating sweet-grass (Glyceria fluitans).

South of the site is Shortlands Wood (SINC), which leads to open fields with scrub/hedgerow boundaries, providing relatively intact connectivity towards the wider wooded landscape. To the west of the site is the A4055 which runs parallel with the Cadoxton River and neighbours Parc Bryn-Y-Don

which again provides relatively good connectivity to the wider landscape to the west. North of the site is a large built up residential area.

Figure 1 - location of the site (individual numbered)

Imagery©2015, map data ©2015 Google

1.4 PROPOSED DEVLOPMENT

It is understood that the development proposal for the site is a new housing estate to be built, with up to 50 houses (Figure 2).

This Ecological Appraisal assumes that the majority of the site will be impacted by the development but existing boundaries will be retained where possible.

Figure 2 - Outline proposed development

1.5 STUDY AREA

The field survey looked at the development area itself with a 10m buffer. A biological records search was undertaken (specification at Table 1).

SEARCH CRITERIA	SEARCH BUFFER
Protected and Priority Species *EU and UK legally protected species, Section 42 (NERC Act, 2006) species, UK BAP Species*, CITES species, Badger Protection Act.*	2500m
Other Species of Conservation Concern *Red Data Book and Nationally Scarce species, EC Birds Directive, BONN Convention Species.*	1000m
Locally Important Species *Local BAP species, locally rare and scarce species (as identified by local experts).*	1000m
Statutory Designations *e.g. Ramsar, SAC, SPA, SSSI, NNR, AONB, LNR.*	5000m
Local Designations *e.g. Wildlife Trust Reserves, SINCs, Wildlife Sites.*	2500m

2 REGULATORY FRAMEWORK

2.1 INTERNATIONAL

European Union legislation requires that member states designate sites for the protection of habitats and species included in the annexes of both Council Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive) and Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). This legislation is implemented in the UK by the Conservation of Habitats and Species Regulations 2010 (as amended) ("the Habitat Regulations"). This results in sites being designated as Special Areas of Conservation (SACs) and Special Protection Areas respectively (SPAs).

2.2 NATIONAL (UK)

The Wildlife and Countryside Act 1981 (as amended) allows sites to be designated as Sites of Special Scientific Interest (SSSI) for one or all of the following categories:

- Flora;
- Fauna;
- Habitat; and
- Geological importance.

European designated sites are automatically designated as SSSIs prior to their designation.

The relevant legislation includes:

- The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended);
- The Conservation of Habitats and Species Regulations 2010 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- Countryside and Rights of Way Act 2000;
- Wild Mammals (Protection) Act 1996;
- The Protection of Badgers Act 1992; and
- The Hedgerow Regulations 1997.

Biodiversity Action Plans (BAPs) are tools which are used to monitor, manage and enhance those habitats and species which are of significance to an area or organisation, The United Kingdom BAP lists a number of priority habitats and species which are of conservation concern.

Section 40 of the Natural Environment and Rural Communities Act 2006 (as amended) requires all public bodies to have regard wherever possible to conserving biodiversity. Section 42 of the Act requires that a list of habitats and species of Principle Importance for the Conservation of Biological Diversity in Wales be produced.

2.3 NATIONAL (WALES)

Planning Policy Wales (Welsh Assembly Government, 2002) and Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning (Welsh Assembly Government, September 2009) set out the protection given to wildlife (sites, habitats and species) by the planning system operational in Wales.

3 DESK STUDY

3.1 SUMMARY

There are both statutorily and non-statutorily designated sites within 2.5km of the proposed development.

3.2 BACKGROUND

A desk study provides background information on historical and current biological data which can identify ecological constraints, mitigation, and biodiversity enhancement opportunities.

3.3 METHODOLOGY

The South East Wales Biodiversity Records Centre (SEWBReC) was consulted in order to provide biological information on the presence of locally designation sites within 2.5km of the site, statutorily designated sites within 5km and protected and priority species within 2.5kms. Details of species of conservation concern and locally important species were requested from within a 1km search area.

The Multi-Agency Geographical Information System (MAGIC) website (www.magic.gov.uk) was also consulted for any additional information. The Local Biodiversity Action Plan (LBAP) for the Vale of Glamorgan was also reviewed.

3.4 CONSTRAINTS

There were no constraints to the data search.

3.5 RESULTS

3.5.1 Statutorily protected sites

3.5.1.1 European and United Kingdom designated sites

There are eleven European or UK designated sites within 5km of the proposed development.

Table 3.1 - European and UK designated sites within 5km of the development site

Site Name	Designation
Severn Estuary (Wales)	Ramsar Wetland of International importance
Severn Estuary/Môr Hafren (Wales)	Special Area of Conservation
Severn Estuary (Wales)	Special Protected Area
Barry Woodlands	Site of Special Scientific Interest
Cog Moors	Site of Special Scientific Interest
Cwm Cydfin, Leckwith	Site of Special Scientific Interest
Hayes Point to Bendrick Rock	Site of Special Scientific Interest
Cosmeston Lakes	Site of Special Scientific Interest
Penarth Coast	Site of Special Scientific Interest
Severn Estuary	Site of Special Scientific Interest
Sully Island	Site of Special Scientific Interest

3.5.2 Non-statutory designations

One Country Park, Cosmeston Lakes, and one Wildlife Trust Reserve is present within 5km of the proposed development.

There are 19 Sites of Importance for Nature Conservation (SINCs) within 5km of the proposed development.

Table 3.2 - SINCs within 5km of the proposed development.

Site	Distance
Cadoxton Wetlands	Within 5km
Case Hill Wood	Within 2.5km
Coed Clwyd	Within 2.5km
Coed Twyncyn	Within 2.5km
Coed Ysgubor-Goch	Within 2.5km
Cog Moors	Within 2.5km
Cogan Pond	Within 2.5km
Cosmeston Lakes	Within 2.5km
Cross Common	Within 1km
Dinas Powis Castle Woodland	Within 2.5km
Dinas Powys Moors	Within 1km
Downs Wood	Within 2.5km
North of Cog Moors	Within 1km
North of North Road	Within 2.5km
North of Pop Hill	Within 1km
Pond 11 Biglis moors	Within 1km
Pop Hill	Within 1km
Pwll Erw-naw	Within 1km
Shortlands Wood	Within 1km

The details of protected species records returned were extensive and are summarised in section 5.5.2 below.

3.5.3 Species: Local Biodiversity Action Plan

The Local Biodiversity Action Plan for the Vale of Glamorgan Council lists a number of species. The species relevant to the proposed development site are listed below and are taken directly from the LBAP.

3.5.3.1 Bats

There are currently 17 species of bat recognised as being resident in Britain. All British bats are protected by law. Populations of all species are thought to have declined in recent years and all are UK BAP Species. Action Plans have been prepared for barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteinii*), greater mouse-eared (*Myotis myotis*), pipistrelle (*Pipistrellus* sp.), greater horseshoe (*Rhinolophus ferrumequinum*), and lesser horseshoe bats (*Rhinolophus hipposideros*).

Of the 17 species in Britain six are endangered or rare and six others are vulnerable. Amongst the rarer bat species in Britain are the greater horseshoe bat and the lesser horseshoe bat. South Wales is a stronghold for both of these species. In the Vale of Glamorgan current data on bats is sketchy. Two species of pipistrelle (i.e. bats echolocating at the two pipistrelle frequencies) are known to be present at Cosmeston Lakes Country Park and pipistrelles are reported to be widespread around woodland and buildings along the Glamorgan Heritage Coast (see Pipistrelle SAP) The noctule is also reported to be widespread in woodland, scrub and hedgerows along the Glamorgan Heritage coast and are found at Cosmeston Lakes Country Park. The brown long eared bat and the Daubenton's bat are both recorded at Cosmeston Lakes Country Park, and are reported to be local along the Glamorgan Heritage Coast, the brown long eared recorded in woodland and the Daubenton's bat in woodland and along river margins. The whiskered bat is also recorded to be local along the

Glamorgan Heritage Coast in woodland and along river margins. Two colonies of the lesser horseshoe bat are known in the Vale.

3.5.3.2 Dormouse

The dormouse is a small mammal, about 7cm in length, recognisable by its brown/gold coloured fur, thick furry tail and bulging black eyes. It lives in deciduous woodlands with a well-developed shrub layer and overgrown hedgerows and it depends on this woody scrub layer to move around and search for food, climbing and travelling between woody stems and branches. Dormice are nocturnal and spend the day sleeping in nests up to 5m from the ground. They feed on fruit, pollen, flowers, nuts and occasionally insects, and a diagnostic sign of their presence is a hole with a smooth inner edge in a hazelnut shell. Dormice hibernate in winter until April or May and are also capable of lowering their body temperature to save energy if weather conditions and low food supplies prevent them from foraging. They breed in summer and an average female dormouse produces one or two litters a year each averaging about four young.

Over the last 100 years, the dormouse has undergone a decline in the UK, resulting in extinction across seven English counties. This decline has been attributed to a number of factors including loss and fragmentation of suitable woodland habitats, changes in woodland management practices which lead to a reduction in the shrub layer such as the cessation of coppicing, and climatic factors. The dormouse is now rare in the UK and occurs in scattered populations across southern Britain. In Wales the dormouse is at the edge of its British range and is thought to be scarce. Until recently, it was thought that the latest record in the Vale of Glamorgan was in hazel scrub at Old Castle Down in 1975. Since then there have been several likely sightings in the Cowbridge area, though these have not been confirmed. Evidence of dormice has been confirmed at the southern extremity of Hensol Forest, through the discovery of hazelnuts showing the distinctive dormouse teethmarks (October, 2001, WTSWW). It is possible that this species is under-recorded in the Vale, since past surveys have concentrated on evidence of hazel nut foraging in deciduous woodland. It is now known that dormice are to be found in hedgerows and even conifer woodland and may consume other food.

3.5.3.3 Great crested newt

The great crested newt is the largest of the three native newt species which occur in the UK, and is distinguishable by its black and often warty skin, speckled with tiny white dots. Males are particularly distinctive in spring, when they develop a high crest along their back with a serrated edge, and silvery blue streaks along their tail. Great crested newts spend time both on land and in water, and feed on small water creatures such as water fleas and shrimps, as well as various small land invertebrates. Water is an essential requirement for breeding, and sexually mature adults always return to their birth pond to breed. Eggs are laid on underwater plant leaves near the waters edge between February and early August. Tadpoles hatch from eggs four weeks later, taking about three months to develop into young newts which are sufficiently mature to leave the water. Great crested newts go into hibernation in winter in October / November, usually on land, re-emerging again in the spring.

The UK is a stronghold for great crested newt populations world-wide. Although, still quite widespread in the UK, great crested newt numbers have declined considerably over the last 50 years, mainly as a result of loss of suitable breeding ponds, particularly as a result of agricultural changes involving drainage, infilling and chemical pollution. In Wales, the great crested newt is found from Clwyd to Glamorgan. Although most frequent in Wales in the ponds of eastern Clwyd, many ponds are thought to be breeding sites within the Vale of Glamorgan. Great crested newts are considered to be widespread throughout the Vale of Glamorgan. WTSWW records include 19 sites, mainly in the southern part of the Vale, including Rhoose, Castle upon Alun valley, Dyffryn Gardens and Amelia Trust Farm.

3.5.3.4 Song Thrush

The song thrush is a resident, breeding bird in the UK, typically of gardens, woods and hedgerows. It is easily recognisable by its speckled breast and is well known for its melodious song. It nests in trees or scrub and feeds on soil invertebrates, in particular molluscs and earthworms.

Although still common and widespread in the UK, the song thrush has declined by more than 50% in the numbers of breeding birds in southern England. The decline is recorded mostly from farmland populations, but also from woodlands and gardens The reasons behind the decline are not clear, but factors thought to be important include a reduction in the amount of recently tilled farmland which offers suitable feeding habitat due to a shift to autumn sown cereal crops, hedgerow destruction, a reduction in the availability of prey items due to the use of pesticides, indirect poisoning through the use of slug pellets, and climatic factors. The decline has been less apparent in Wales, which is now a stronghold for the song thrush in the UK. In the Vale of Glamorgan, the song thrush is still common and widespread and breeding populations are known along the entire length of the Glamorgan Heritage Coast.

3.5.3.5 Otter

The European otter is a one of our largest carnivores, with adults measuring up to 1.5m in length and attaining a body weight of up to 10kg. Otters spend their entire life in or near water, using a range of aquatic habitats including lakes, ponds, rivers, streams, wetlands, estuaries and coastline. They are territorial and each otter occupies and defends a large home range of between 10 and 40km of water course, in which it feeds and breeds. The diet of the otter is mainly fish, but also includes small mammals, birds and amphibians. Otters are generally nocturnal and spend the day resting in suitable resting sites including tree root systems, riverbank burrows and waterside vegetation. They have no fixed breeding season and recruitment to the population is very slow, as adult otters do not breed until their second year and many live for only another two years after that. Otters give birth in a burrow or “holt” lined with reeds, grass and moss. They produce litters of between one and four young, but cub mortality is very high.

Otters were once widespread throughout the UK, but have declined due to a number of factors. Historically otters suffered due to persecution by man. Otter hunting continued until 1977, but numbers had declined rapidly in the previous decades, with a collapse in 1957, due mainly to pollution of watercourses by organochloride pesticides, as well as loss of suitable bank habitat. Following the ban on these chemicals in the late 1970s and early 1980s, the number of otters has increased. The UK current distribution, including Wales, is patchy, but a general recovery has been observed nationally, probably as a result of improvements in water quality. Although estimates of numbers are not available for the Vale of Glamorgan, the otter has been detected in a number of water courses across the region, including the Thaw and Ely river systems, whilst unfortunately road deaths account for a number of sightings. It is thought that otters probably occur in low numbers throughout the Vale but are increasing. Breeding was confirmed on the River Thaw in 2001 and breeding habitat and holts there in spring, 2002.

4 PROTECTED SITES

4.1 STATUTORY AND NON-STATUTORY DESIGNATIONS – EVALUATION, IMPACT CHARACTERISATION AND ASSESSMENT

It is considered that only those sites within close proximity to the development site or with access directly from it will be considered in this section of the report.

Shortlands Wood SINC lies adjacent to the eastern boundary of the site but it does not fall within the development boundary.

It is considered that the proposed development will have no adverse impacts on this site, providing the integrity of the site's boundaries is maintained. Therefore, they will not be included further in this report.

5 PHASE 1 HABITAT SURVEY

5.1 SUMMARY

The following habitats were recorded across the survey area:

- Poor semi-improved grassland
- Residential garden
- Semi-improved neutral grassland
- Woodland
- Tall ruderal
- Mature trees

(Habitat map can be found at Appendix C)

The potential for the following protected species on or adjacent to the site was recorded, including habitats suitable for:

- Bats;
- Dormouse;
- Great crested newt (terrestrial life cycle phase);
- Otter;
- Badger;
- Breeding birds; and
- Reptiles

5.2 BACKGROUND

The Phase 1 habitat survey was carried out to assess the existing habitats, identify any protected habitats or species that may be present, determine the impact of the proposed works on them, and identify any mitigation measures that may be necessary. This was done by undertaking both a desk study and field survey.

The survey was undertaken during September 2014

Phase 1 habitat survey is a way of recording the basic habitat data to form a baseline level of knowledge of the ecology of a site and provide recommendations for future surveys if considered necessary.

5.3 METHODOLOGY

5.3.1 Desk study:

A biological data search was undertaken. Refer to section 3 above.

5.3.2 Field survey:

Experienced surveyors from Celtic Ecology carried out a habitat assessment and mapping exercise in September 2014 using the Phase 1 habitat survey technique. Features of note are assigned Target Notes and referenced accordingly and described at Appendix B. Nomenclature follows Stace, C. (1997) *New Flora of the British Isles* (2nd ed.). The plant species were assessed in areas for their abundance using the DAFOR scale:

(D) Dominant
(A) Abundant
(F) Frequent

(O) Occasional
(R) Rare

5.4 CONSTRAINTS

There were no constraints to the field survey. However, it should be noted that the site was visited at a time of year when some botanical species are not evident. Additionally the site is subjected to intense grazing by horses and ponies; these animals reduce the vegetation height considerably, which when combined with ground poaching, making identification more difficult in some instances. Over time, grazing by horses will reduce the botanical diversity of a site.

5.5 RESULTS

Full species lists for each habitat can be found at Appendix B

5.5.1 Habitats

The following habitats were found on the site and the map can be located at Appendix A ,a full species list is included in Appendix B ,individual fields referred to can be located using the plan in Appendix D and photographs can be found in Appendix E.

5.5.1.1 Poor semi-improved grassland

Poor semi-improved grassland can be found to the north of the site (field 1), which has a relatively short sward with evidence of horse grazing and local nutrient enrichment where locally abundant stands of creeping thistle are found. The area consists of relatively few grasses with a large number of forbs, typically associated with this type of habitat growing on relatively fertile neutral substrate. Frequent species encountered include Yorkshire fog (*Holcus lanatus*), creeping buttercup (*Ranunculus repens*) and white clover *(Trifolium repens*). There is the occasional presence of species such as perennial rye grass (*Lolium perenne*) and ribwort plantain (*Plantago lanceolata*).

5.5.1.2 Residential Garden/Amenity grassland

Field two forms part of a garden lawn and compromises of Yorkshire fog (*Holcus lanatus*) and perennial rye-grass. The occasional shrub is scattered throughout the lawn, namely; hawthorn and a single ornamental dogwood (*Cornus* sp).

5.5.1.3 Unmanaged hedgerows/scrub

Many of the field boundaries are defined by unmanaged hedgerows that have given over to lines of scrub and occasional standard, rather than remaining as a stock proof boundary. Species here include blackthorn (*Prunus spinosa*), pedunculate oak (*Quercus robur*), elder (*Sambucus nigra*) and hazel (*Corylus avellana*).

5.5.1.4 Standards

Mature standard trees standard were observed across the site; species included pedunculate oak and sycamore (*Acer pseudoplatanus*).

5.5.1.5 Tall Ruderal

Successional vegetation has begun to encroach on an area of land along the boundaries of the poor semi-improved grassland (field 1). Species here include but are not limited to creeping thistle, false oat-grass (*Arrhenatherum elatius*), common ivy (*Hedera helix*) and bramble (*Rubus fruticosus* agg.).

5.5.1.6 Woodland/Woodland edge

The western/eastern boundaries of the site are flanked by woodland. This habitat is frequently made up of blackthorn with the additional presence of hazel, sycamore and hawthorn. Patches of scrub are located along the embankments of the woodland edge on the eastern side of the site; frequent species include bramble and rosebay willow herb (*Chamerion angustifolium*). Other species include enchanter's nightshade (*Circaea lutetiana*) and traveller's-joy (*Clematis vitalba*).

5.5.1.7 Semi-improved neutral grassland

The southern and eastern extent of the site (fields 3 & 4) are categorised as semi-improved neutral grassland. They consist of frequent species such as common bent (*Agrostis capillaris*), crested dog's tail and common knapweed. The southern part of the site was inundated with water at the time of writing.

5.5.2 Protected species assessment

5.5.2.1 Bats

The woodland and scrub/hedgerow boundaries are likely to provide good foraging and commuting routes to the wider landscape for bats. Single trees that are heavily clad in ivy exist throughout the site, along with isolated semi-mature trees with features such as wood pecker holes, torn limbs and splits, which may provide suitable roosting opportunities for a number of bat species. The closest bat roost is 255m from site (Natterer's/Whiskered).

5.5.2.2 Dormouse

There are currently no records of dormice within 2.5km of the proposed development. However, the networks of unmanaged hedgerows are thought to provide good habitat and connectivity for dormice.

5.5.2.3 Great crested newt

The closest record of great crested newt is 254m to the west of the site while anecdotal evidence of great crested newt has been accumulated from garden ponds along Cross Common Road. No ponds were identified on site so it is unlikely to be of any significance for breeding purposes. However, it is possible that they use the site along with other common species of amphibian (common toad (*Bufo bufo*), palmate newt (*Lissotriton helveticus*), common frog (*Rana temporia_*) at the very least, occasionally whilst foraging and commuting and also possibly as a wintering species within fallen logs/debris from the unmanaged hedgerows/scrub.

5.5.2.4 Otter

The data search revealed 2 records of otter within 5km of the site, the nearest record being 758m from the proposed development, to the south west of the site along the A4055 adjacent to the Cadoxton River. If otters travel further up the Cadoxton River, they may use the site as a foraging area during certain times of the year. It may also be possible that the scrub on the site and the adjacent woodland could be used as a temporary place of shelter (lying up).

5.5.2.5 Badger

Badgers have been recorded at 1866m from site. No setts or definitive evidence of badger was found during the assessment; however the site does offer potential for sett building and foraging habitat. It is possible that badgers pass through the site periodically whilst foraging and commuting but the site is considered unlikely to be of any significance for badger.

5.5.2.6 Reptiles

There are only two records of reptiles; namely Slow worm within 2.5km of the site. However, this low number is likely to be a result of a lack of survey and under-recording rather than true absence. The detection of reptiles can often be difficult in the field without recourse to further reptile surveys. As a result confidence is usually bestowed via assessments of habitats with respect to their potential for reptiles. The variable habitat structure on site appears superficially suitable for supporting common reptiles and the site has good connectivity to the surrounding area. It is considered likely that reptiles are present on site.

5.5.2.7 Breeding birds

The data search returned a relatively extensive set of records within 1km of the site, some of which have been recorded relatively close to the site. Kingfishers (*Alcedo atthis*) are active along the River Cadoxton and have been recorded 141m from site. The mature trees, woodland and unmanaged hedgerows/scrub are considered suitable as nesting habitats for a wide range of common tree and scrub-nesting birds.

5.6 HABITATS - EVALUATION, IMPACT CHARACTERISATION AND ASSESSMENT

5.6.1 Semi-improved grassland

5.6.1.1 Semi-improved grassland - evaluation

This species composition of this habitat is typical of the management associated with ponies. Typically, species diversity is low and declining due to continuous grazing and ground disturbance (poaching). The species recorded from this site are common and widespread. This habitat type is common in the local area and wider region.

It is considered that it is of a **low** ecological value at a **local** level.

5.6.1.2 Semi-improved grassland - impact characterisation

It is not known at this time what form and layout the development will take. Therefore it is not possible to ascribe any impacts. However, it is likely that a significant majority of this habitat will be lost to the development.

5.6.1.3 Semi-improved grassland - impact assessment without mitigation

It is considered that there is likely to be a **significant permanent adverse** impact on this habitat

5.6.1.4 Semi-improved grassland - potential mitigation measures

Mitigation measures will include the following:

- Minimisation of the amount of poor semi-improved grassland lost;
- Undertaking additional planting to increase the botanical species diversity;
- Implementing appropriate management to ensure the ongoing botanical diversity of the retained and enhanced grassland

5.6.1.5 Semi-improved grassland - impact assessment with mitigation

It is considered that with mitigation there will be a **certain moderate long term adverse** impact on this habitat due to the amount of grassland lost.

5.6.1.6 Semi-improved grassland - significance of the impact

Without mitigation:

It is considered that the significance of the impact is **large**.

With mitigation:

It is considered that the significance of the impact is **slight**.

5.6.2 Residential Garden / Amenity grassland

5.6.2.1 Residential garden / amenity grassland - evaluation

This species composition of this habitat is very variable and depends on what individual owners have planted. Species present, while including native examples, are likely to be represented largely by cultivars of non-native species; the ecological value of these species is again variable and usually linked to those species which can utilise them, primarily invertebrates and birds. This habitat type is very common in the local area and wider region.

It is considered that it is of a **low - medium** ecological value at a **local** level.

5.6.2.2 Residential garden / amenity grassland - impact characterisation

It is not known at this time what form and layout the development will take. Therefore it is not possible to ascribe any impacts. However, it is likely that the majority of this habitat will be lost to the development.

5.6.2.3 Residential garden / amenity grassland - impact assessment without mitigation

It is considered that there is likely to be a **likely significant permanent adverse** impact on this habitat.

5.6.2.4 Residential garden / amenity grassland - potential mitigation measures

Mitigation measures will largely be based on the expected replacement of garden habitats as part of the development's operational phase. However, this cannot be relied on and so additional mitigation measures may include (but not be limited to) the following:

- Minimisation of the amount of habitat lost;
- Undertaking additional planting as part of a landscape proposal to increase the botanical species diversity;
- Implementing appropriate management to ensure the ongoing botanical diversity of the retained and enhanced grassland

5.6.2.5 Residential garden / amenity grassland - impact assessment with mitigation

It is considered that with mitigation there will be a **likely moderate long term positive** impact on this habitat due to the amount of replacement habitat created in individual gardens following a short term significant adverse impact.

5.6.2.6 Residential garden / amenity grassland - significance of the impact

Without mitigation:

It is considered that the significance of the impact is **slight**.

With mitigation:

It is considered that the significance of the impact is **neutral**.

5.6.3 Unmanaged hedgerows / scrub

5.6.3.1 Unmanaged hedgerows / scrub - evaluation

Hedgerows are a priority habitat in the Vale of Glamorgan Biodiversity Action Plan; despite this, they are also a habitat of principal importance in Wales as described in Section 42 of the Natural Environment and Rural Communities Act (2006). The hedges on the site are primarily lines of mature trees with little typical hedgerow vegetation. Even so, they provide a continuous canopy habitat in their own right and acting as links between what would otherwise be isolated habitats.

5.6.3.2 Unmanaged hedgerows / scrub - impact characterisation

It is currently anticipated that the hedges will be retained in their existing locations. It is not known where the site is to be accessed, the two possibilities being from Cross Common Road via the existing gate or a new access from Cardiff Road. It should also be assumed that all in-field scrub will be lost

5.6.3.3 Unmanaged hedgerows / scrub - impact assessment without mitigation

It is considered that there will be a **likely moderate medium short term adverse** impact on this habitat.

5.6.3.4 Unmanaged hedgerows / scrub - potential mitigation measures

Mitigation measures will revolve around:

- Only removing those parts of hedgerows where it is absolutely necessary for access and minimising the length lost;
- Minimising the amount of and scrub clearance wherever possible;
- Scrub should be allowed to re-grow wherever possible;
- Where natural regeneration is not possible, scrub should be replanted, the area of planting being at least equal to the area lost; and

Planting should use native species of local provenance to replace those species lost

5.6.3.5 Unmanaged hedgerows / scrub - impact assessment with mitigation

It is considered that there will be a **likely low medium short term adverse** impact on this habitat.

5.6.3.6 Unmanaged hedgerows / scrub - significance of the impact

Without mitigation:

It is considered that the significance of the impact is **slight**.

With mitigation:

It is considered that the significance of the impact is **neutral**.

5.6.4 Standard trees

5.6.4.1 Standard trees - evaluation

Mature standard trees standard were observed across the site; species included pedunculate oak hybrid poplar (*Populus x Canadensis*) and sycamore (*Acer pseudoplatanus*).

Trees, either hedgerow or infield standards, are used by a range of wildlife including bats and birds as well as a large variety of invertebrates. The trees present on the site are generally found on the lines of old field boundaries and where the ground conditions are not good enough, probably in this case due to water levels, for normal agricultural grassland to become established.

5.6.4.2 Standard trees - impact characterisation

It is currently considered that the trees in the site boundaries will be retained unless there is a specific reason to either fell or prune them and that therefore there will be **no adverse** impact on them.

It is understood that the outline proposals (as in Figure 2 above) require the felling of the trees in the woodland block between Fields 1 & 3 and in Field 3.

5.6.4.3 Standard trees - impact assessment without mitigation

Boundary trees - it is considered that there will be a **certain significant permanent adverse** impact on this habitat.

In field trees - it is anticipated that there will be a **certain major long term adverse** impact on in-field trees should they be lost.

5.6.4.4 Standard trees - potential mitigation measures

Mitigation should comprise the following:

- Avoidance of felling trees wherever possible;
- Replacing felled trees with semi-mature standard trees where appropriate using similar species of as local a provenance as possible. Where hybrid poplars are to be lost, it is proposed that they are replaced with black poplar (*Populus nigra*); efforts should be made to ensure that both male and female trees are planted;
- Implementing a arboricultural management plan to benefit retained trees and associated wildlife and biodiversity; and
- Ensure all works are undertaken in accordance with BS5387 *Trees in relation to Trees in relation to design, demolition and construction*.

5.6.4.5 Standard trees - impact assessment with mitigation

Boundary trees: it is anticipated that there will be an **certain medium term short term adverse** impact.

In field trees - it is anticipated that there will be a **certain major long term adverse** impact on in-field trees should they be lost.

5.6.4.6 Standard trees - significance of the impact

Without mitigation:

It is considered that the significance of the impact is **moderate**.

With mitigation:

It is considered that the significance of the impact is **slight**.

5.6.5 Tall Ruderal vegetation

5.6.5.1 Tall ruderal vegetation - evaluation

Successional vegetation has beginning to encroach patches of land along the boundaries of the poor semi-improved grassland (field 1). Species here include but are not limited to creeping thistle, false oat-grass (*Arrhenatherum elatius*), common ivy (*Hedera helix*) and bramble (*Rubus fruticosus* agg.).

The area of this habitat is small and the species within it are common and widespread. It is therefore considered that it is of **low local** ecological importance

5.6.5.2 Tall ruderal vegetation - impact characterisation

It is anticipated that this habitat will be lost in its entirety to the development.

5.6.5.3 Tall ruderal vegetation - impact assessment without mitigation

It is considered that there will be a **certain negligible permanent adverse** impact on this habitat as a result of the development at a local level.

5.6.5.4 Tall ruderal vegetation - potential mitigation measures

Mitigation will be based around replacement through natural regeneration in suitable areas.

5.6.5.5 Tall ruderal vegetation - impact assessment with mitigation

It is considered that there will be a **certain short term minor** adverse impact on this habitat.

5.6.5.6 Tall ruderal vegetation - significance of the impact

Without mitigation:

It is considered that the significance of the impact is **slight**.

With mitigation:

It is considered that the significance of the impact is **neutral**.

6 PROTECTED SPECIES

6.1 BATS

6.1.1 Summary

No specific bat surveys were carried out at the time of the site visit; however, it is considered highly likely that the boundaries and woodland edges of the site will be utilised by bats for foraging and commuting.

A number of trees were identified as having potential roost features, including:

- Hollows/cavities
- Split / broken limbs; and
- Ridged and gnarly bark.

There were also roosting features identified that may be suitable for hibernation purposes.

6.1.2 LEGISLATION

All British bats and any place used for shelter or protection, or a breeding site or resting place (their roosts) are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Species and Habitats Regulations 2010 (as amended). Roosts are protected whether or not bats are present.

Where a European protected species or group such as bats is present, a development may only proceed, under a licence issued by the Natural Resources Wales who is the appropriate authority responsible for issuing licences under the above Regulations.

6.1.3 Bats – evaluation, impact characterisation and assessment

6.1.3.1 Bats – evaluation

Bats are protected by international and domestic legislation, a reflection of their increasingly threatened status; bats are therefore of **high international** value.

There are no confirmed roosting features on the development site. There are, however, a number of trees on the site which provide suitable bat roosting habitat due to the features that they display. These trees are therefore of potentially **high** ecological value.

Given the probable use of the unmanaged hedgerows/scrub by bats, providing existing boundaries are retained there will be no need for any further bat surveys. Individual trees with potential roosting features will need further surveys should any felling/modification occur. These surveys may include:

- Ground based assessment;
- Tree climb and inspect; and
- Activity (emergence / dawn return to roost) surveys.

It is noted that the trees on the boundary between Fields 1 & 3 and those in the woodland area of Field 3 are likely to be removed for safety reasons. Mitigation in the form of tree planting has been proposed for their loss as part of the recommendation. If features suitable for bats are found then the tree loss mitigation will need to be modified to take account of this. Pole mounted bat boxes may be required.

If bats are found to be present and using the trees for roosting purposes, a Natural Resources Wales will be required prior to any felling or pruning work being undertaken.

6.1.3.2 Bats – impact characterisation

Providing existing boundaries and trees with potential roosting features are retained there will be limited loss of foraging/commuting routes for bats.

If trees with roost features are subject to felling or modification it is possible that there will be a direct impact (loss) on bat roosting habitat.

It is possible that foraging, roosting and commuting activity along the site's boundaries may be adversely impacted as a result of potential increased lighting levels during the operational phase of the development.

6.1.3.3 Bats - impact assessment without mitigation

It is not possible to accurately characterise any impacts resulting from the loss of trees without first undertaking further surveys of those trees which are to be lost as a result of the development.

There would be a **probable moderate medium term adverse** impact at a **site** level on bats as a result of the loss of foraging habitat and increased post development site lighting.

6.1.3.4 Bats – potential mitigation measures

At the time of writing it is not known if bats are roosting within any of the features identified or if these features will be affected by the proposed development and further assessments of trees will be needed before works can proceed. It is proposed to undertake the following actions:

- Any and all lighting will be directed away from hedges, trees and landscaping and / or baffled to remove / minimise impacts on flight lines and reduce overall light spill;
- Lighting will be minimised and be of type which causes least impact on bats wherever possible;
- All vegetation and tree clearance will be minimised to retain as much of the existing habitat as possible;
- Trees will be felled during the winter months to reduce the chances that bats will be present at the time of felling;
- Bat boxes will be erected on suitable buildings within the proposed development and on trees or poles around the perimeter of the site to provide suitable roosting opportunities;
- All felling and pruning operations will be supervised by a licensed bat ecologist; and
- A licensed bat ecologist will be "on call" for the duration of the project in the event that bats are discovered, in which case the work will cease immediately, Natural Resources Wales will be contacted. A development licence may be required prior to any further work being carried out. No further work will be undertaken without the approval of NRW.

6.1.3.5 Bats - impact assessment with mitigation

It is considered that there will be an **unlikely major medium term adverse** impact on bats at a **local** level as a result of trees with potential for bats to be present being subject of felling or arboricultural work.

6.1.3.6 Bats - significance of the impact

Without mitigation

It is considered that the impact would be of a **moderate** significance.

With mitigation

It is considered that the impact would be of a **neutral** significance.

6.2 DORMOUSE

6.2.1 Summary

The site provides potentially good habitat for dormice with good connectivity to the wider landscape. The site is relatively diverse and capable of providing dormice with good nesting materials and food.

6.2.2 Legislation

Dormice, any place used for shelter or protection, or a breeding site or resting place are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Species and Habitats Regulations 2010. The places of shelter are protected whether or not the animals are present.

Where a European protected species such as dormouse is present, a development may only proceed, under a licence issued by Natural Resources Wales who is the appropriate authority responsible for issuing licences under the above Regulations.

6.2.3 Dormouse – evaluation, impact characterisation and assessment

6.2.3.1 Dormice - evaluation

Dormice are protected by international and domestic legislation which reflects their generally low numbers and the decreasing amount of suitable habitat available to them. They are therefore of **high international** value.

There are no dormouse records in the data search records for the site and surrounding area; however, there is suitable habitat present within the site in the form of unmanaged hedgerows containing bramble and hazel and also providing good connectivity to the wider landscape. It should be noted that the hedges, particularly that along the Cardiff Road boundary are generally thin and gappy and while the canopy is continuous, this lower density of hedge material reduces the amount of suitable available habitat. As a result the site is regarded as being of **low** potential importance to dormice.

6.2.3.2 Dormice - impact characterisation

Exact details of the proposed development are not available at the time of writing, but it is anticipated that the connectivity of boundary features will be retained; however, if any unmanaged hedgerows or scrub is to be removed it may result in the introduction of breaks in commuting and dispersal routes for dormice using the site to transit from one area to another. Additionally, operational requirements will require lighting to be installed which could result in increased disturbance to dormice using the site boundaries for commuting and dispersal.

6.2.3.3 Dormice - impact assessment without mitigation

It is considered that there would be an **unlikely major medium term adverse** impact on dormice at a **local** level as a result of habitat loss and / or arboricultural work.

There would be a **possible moderate adverse** impact at a **site** level on dormice as a result of breaks within the existing ecological networks (hedge and scrub habitats) and increased post development disturbance.

6.2.3.4 Dormice – potential mitigation measures

It is proposed to implement the following working practices:

- All vegetation clearance (where required), will be carried out during the winter months (October to February inclusive) to ensure that adverse impacts on dormice are minimised;

- Any and all lighting will be directed away from retained trees and boundaries to reduce light impacts;
- All vegetation clearance will be minimised in order to retain as much of the existing habitat as possible. Where breaks in the boundaries are required, a canopy link will need to be retained over the break; if a canopy link is not possible, a dormouse bridge will need to be installed; and
- An appropriately experienced ecologist will be "on call" for the duration of the project in the unlikely event that a dormouse or dormice are found on site, in which case the relevant work will cease immediately, Natural Resources Wales (NRW) will be contacted. A development licence may be required prior to any further work being carried out. No further work will be undertaken without the approval of NRW.

6.2.3.5 Dormice - impact assessment with mitigation

It is considered that there will be an **unlikely minor short term adverse** impact on dormice at a **local** level as a result of habitat loss and / or arboricultural work.

There will be an **unlikely minor short term adverse** impact at a **site** level on dormice as a result of the loss of foraging habitat and increased post development site lighting.

6.2.3.6 Dormice - significance of the impact

Without mitigation

It is considered that the impact would be of a **moderate** significance.

With mitigation

It is considered that the impact will be of a **slight** significance.

6.3 GREAT CRESTED NEWT

6.3.1 Summary

There are no records of this species from the site. There is no suitable breeding habitat (ponds or other water bodies) on the site; there is suitable terrestrial habitat present.

There are records of this species from within 500m, the closest being 254m to the west, indicating that animals are likely to use the site during the terrestrial phase of their life cycle.

There are anecdotal records of great crested newts in ponds in the rear gardens of houses on Cross Common Road within 50m of the site's north eastern boundary (pers. comm. Erica Dixon (VoG Ecologist)).

6.3.2 Legislation

Great crested newts, any place used for shelter or protection, or a breeding site or resting place are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Species and Habitats Regulations 2010 (as amended). The places of shelter are protected whether or not the animals are present.

Where a European protected species such as great crested newt is present, a development may only proceed, under a licence issued by Natural Resources Wales who is the appropriate authority responsible for issuing licences under the above Regulations

6.3.3 Great crested newt – evaluation, impact characterisation and assessment

6.3.3.1 Great crested newt – evaluation

Great crested newts are protected under European legislation and are therefore of **high international** ecological importance.

The site provides suitable terrestrial habitat and overwintering sites, but no breeding sites.

As the majority of great crested newts usually remain within 50m of their breeding pond, animals from the known population to the west are unlikely to be found on the development site as there is sufficient suitable terrestrial habitat adjacent to that pond. Additionally, the Cadoxton river and Cardiff Road are likely to act as barriers to movement.

However, the potential presence of great crested newts from the ponds of gardens of properties along Cross Common Road in the terrestrial phase of their life cycle (unconfirmed anecdotal records) cannot be discounted unless further surveys demonstrate otherwise.

It is therefore recommended that:

- the presence of ponds in the gardens be confirmed;
- a Habitat Suitability Index (HSI) assessment be carried out on all of the ponds thereby found ponds; and
- eDNA testing be undertaken of the water in those ponds to determine the likely presence / absence of great crested newts;
- should these assessments combined show that the presence of great crested newts is unlikely, no further survey work would be required. If likely presence is established, bottle trapping of the ponds to establish a population estimate would be required.

It should be noted though that the efficiency of eDNA testing has not been tested in ponds which are subject to water replacement and / or filtration as part of normal fishpond management and so the technique may not be appropriate. In this case, normal bottle trapping, egg searching, torch light

surveys and / or netting may be required. If access to the ponds is not possible, then a terrestrial refuge survey of the development site would be required to demonstrate likely absence.

Should great crested newts be discovered in these ponds, it would be likely that a development licence from Natural Resources Wales would be necessary.

Undertaking a terrestrial refuge search on its own has the liability to result in a high chance of false negative results due to the large area over which animals could disperse and the ready availability of natural refugia on the site.

6.3.3.2 Great crested newt – impact characterisation

It is not possible to characterise with any certainty what the impacts on great crested newts would be if they were found to be present in the ponds on land immediately adjacent to the site.

If they are not present in these ponds, it is considered that there will be no impacts on this species due to the distance from the breeding habitat and the presence of sufficient existing habitat in proximity to the ponds to ensure the continuing success of the population to the west of teh development site.

6.3.3.3 Great crested newt - impact assessment without mitigation

It is considered that there may be a **slight** impact on this species as a result of the proposed development.

6.3.3.4 Great crested newt – potential mitigation measures

Further surveys will be needed before any specific mitigation can be detailed. However, it is anticipated that should it be necessary, the following measures be implemented:

- retention of a terrestrial habitat buffer (of at least 5m wide) alongside the north eastern boundaries of the site as possible by establishing a no development and construction no go area along those boundaries;
- managing the retained habitats of the site to benefit great crested newts (primarily as tussocky grassland) and maintaining habitat links along the boundaries between the adjacent gardens and retained hedges;
- provision of a dry culvert under any site access onto Cross Common Road;
- ensuring no lighting of the retained habitat; and
- should an otter or otters be seen at any time during the construction process, relevant works will cease until Natural Resources Wales have been consulted and an appropriate way forward has been agreed.

(These measures would also ensure a buffer is maintained for other species, particularly bats, as well as ensuring that the retained hedgerow boundaries are buffered during the construction process in line with BS5837 *Trees in relation to design, demolition and construction*).

6.3.3.5 Great crested newt - impact assessment with mitigation

If great crested newts are not likely to be present on the site, it is considered that there will be a **neutral** impact on this species as a result of the proposed development.

It is not possible to determine a likely impact if great crested newts are present as the status of the population is not known.

6.3.3.6 Great crested newt - significance of the impact

Without mitigation

If great crested newts are not present, it is considered that the significance of the impact of the development would be **neutral**.

If great crested newts are present the impact remains to be determined.

With mitigation

It is considered that the impact of the development will be of a **neutral** significance if great crested newts are not present.

If great crested newts are present the impact remains to be determined.

6.4 OTTER

6.4.1 Summary

There are no suitable aquatic habitats on the site for otters. It is considered possible that the Cadoxton River could be used as a dispersal corridor and therefore the scrub habitats on site may be used for foraging or lying up.

The closest record of this species in the data search was a single animal found dead on the A4055 Cardiff Road approximately 800 to the south of the proposed development site. No evidence of otter was observed during the current survey.

6.4.2 Legislation

Otters, any place used for shelter or protection, or a breeding site or resting place are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 (as amended). Their places of shelter are protected whether or not the animals are present.

Where a European protected species such as otter is present, a development may only proceed, under a licence issued by Natural resources Wales who is the appropriate authority responsible for issuing licences under the above Regulations.

6.4.3 Otter – evaluation, impact characterisation and assessment

6.4.3.1 Otter – evaluation

Otters are protected by international and domestic legislation, a reflection of their general rarity and are therefore of **high international** value.

The Cadoxton River may be utilised by otters, which runs directly adjacent to the site. Although it is not connected to the river directly, it is possible that the pond in the sports ground to the west of the site may also be used for foraging and lying up.

The site and adjacent woodland could therefore be used as temporary (overnight) lying up / foraging habitat by otters.

However, given the lack of otter sign, paucity of records and more suitable habitat further afield, it is considered that the development site is of **low** value for this species.

6.4.3.2 Otter – impact characterisation

It is considered that if the site access is from Cross Common Road there will be no adverse impacts to otters, their breeding places or places of shelter.

It is possible that if the access comes in from Cardiff Road and a bridge is required over the Cadoxton River, there would be the potential for there to be very limited loss of bankside cover habitat.

There may be some loss of suitable lying up habitat as a result of scrub clearance from the site and an interruption to habitat connectivity between the River and Shortlands Wood on the eastern boundary of the site.

6.4.3.3 Otter - impact assessment without mitigation

It is considered that there will be an **extremely unlikely short term minor adverse** impact on this species as a result of the proposed development.

6.4.3.4 Otter – potential mitigation measures

No specific mitigation will be required; however, the following measures should be implemented in order to minimise disturbance:

- There will be no lighting of the Cadoxton River channel and bankside vegetation. Should lighting be required for a site access onto Cardiff Road, it will be baffled to prevent light spill into the channel and away from bankside vegetation to minimise disturbance as a result of light;
- All retained scrub, hedge and woodland habitats will remain unlit;
- There will be no night working;
- Any excavations will be covered overnight or where this is not possible, a means of escape will be provided; and
- An appropriately experienced ecologist will be "on call" for the duration of the project in the unlikely event that an otter or otters are found on site, in which case the relevant work will cease immediately and Natural Resources Wales will be consulted. A development licence may be required prior to any further work being carried out. No further work will be undertaken without the approval of NRW.

6.4.3.5 Otter - impact assessment with mitigation

It is considered that there will be a **neutral** impact on this species as a result of the proposed development.

6.4.3.6 Otter - significance of the impact

Without mitigation

It is considered that the impact would be of a **neutral** significance.

With mitigation

It is considered that the impact will be of a **neutral** significance.

6.5 BADGER

6.5.1 Summary

No evidence of badger was observed at any point on or adjacent to the site; there are records of badger from within 2.5km of the site, but of the three records, two are historic (pre 1980) and a long way away (over 1.8kms) and the third and most recent is from over 2km away to the south west.

6.5.2 Legislation

Badgers are protected under the Protection of Badgers Act 1992, mainly to prevent cruelty to badgers as a result of badger baiting. (They are also listed on Appendix III of the Bern Convention). It is an offence:

- to wilfully kill, injure, take (capture), possess or cruelly ill-treat a badger;
- to attempt to do so; or
- to intentionally or recklessly interfere with a sett.

(Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett).

A development licence is required for works which may disturb or destroy a badger sett. Disturbance may include working near a sett.

6.5.3 Badger – evaluation, impact characterisation and assessment

6.5.3.1 Badger - evaluation

Due to the legislation afforded to them, it is considered that badgers are of **high national** importance.

No evidence of use by badgers was observed on the site and with only limited potential for them to create setts on the site, the interest of the site lies mainly in the foraging habitat it provides.

It is therefore considered that the site may be used only very occasionally by badgers and that the site is of **negligible** importance for this species.

6.5.3.2 Badger - impact characterisation

The proposed development will result in the loss of grassland which could be a potential foraging habitat for badgers. However, it is considered that there will be **no** adverse impacts on badgers or their setts due to the lack of evidence of their presence. This species will not be considered further in this report.

6.5.3.3 Badger - impact assessment without mitigation

Not applicable.

6.5.3.4 Badger – potential mitigation measures

No mitigation is required. However, it is recommended that the following measures are adopted if required:

- A suitably experienced ecologist will undertake a pre-clearance check of the site to determine whether there is any new evidence of badger activity and undertake further survey work and / or mitigation as required;

- An ecologist will be "on call" for the duration of the project and will be consulted in the event that should badgers be observed. Development licences will be sought if necessary; and
- Excavations will be covered overnight / when not being used or provided with a means of egress useable by badgers.

6.5.3.5 Badger - impact assessment with mitigation

Not applicable.

6.5.3.6 Badger - significance of the impact

Without mitigation

Not applicable.

With mitigation

Not applicable.

6.6 BREEDING BIRDS

6.6.1 Summary

A number of species of bird have been recorded near the site. It is probable that breeding birds will utilise the unmanaged hedgerows/scrub and woodland habitat on and immediately adjacent to the site.

6.6.2 Legislation

In Britain, all naturally occurring species (including hawfinches) are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs, and it is an offence to:

- Intentionally kill, injure or take a wild bird;
- Intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built; and
- Intentionally take or destroy the egg of any wild bird.

In addition, birds listed on Schedule 1 of the above legislation, such as the red kite (*Milvus milvus*), are afforded further protection, and it is an offence to:

- Intentionally or recklessly disturb the bird whilst nest building or while at (or near) a nest with eggs or young; and
- Disturb the dependant young of such a bird.

Some birds however are exempt from this protection for certain purposes.

6.6.2.1 Breeding birds – evaluation, impact characterisation and assessment

Due to the legislative protection afforded to them, breeding birds are considered be of **medium – high national** importance.

There is suitable habitat for birds to utilise for breeding in unmanaged/hedgerows/scrub boundaries and adjacent woodland.

Within the context of the site, it is considered that breeding birds are of **medium local** importance as the species recorded nearby and likely to use the site are considered to be representative of the range and extent of the habitats available.

6.6.2.2 Birds - impact characterisation

The impacts are likely to be primarily associated with the removal and reduction of the number of opportunities available to breeding birds in terms of nesting area, cover / shelter and foraging.

If vegetation removal was to be undertaken during the breeding season, there is the potential for birds to be disturbed killed or injured and / or their nests to be disturbed, damaged or destroyed.

6.6.2.3 Breeding birds - impact assessment without mitigation

It is considered that there will be a **certain moderate short term adverse** impact on this species as a result of the loss of potential breeding (nesting) and foraging habitat and a **probable short term minor adverse** impact should birds be killed, injured or disturbed during vegetation clearance works.

6.6.2.4 Birds – potential mitigation measures

It is recommended that the following mitigation measures are implemented:

- Site clearance (vegetation removal) will only be undertaken outwith the breeding bird season (i.e. only between October and March inclusive). Where this is not possible, clearance may only take place following an ecological assessment and approval and only in areas where no breeding birds are present. Where breeding birds are present, no clearance will be allowed within 20m of the nest site);
- Habitat enhancement of any retained boundaries to increase the floral diversity will increase the range of invertebrates; both measures would increase the amount of foraging habitat available to bird species; and
- The post-development landscaping plan should aim to increase biodiversity levels.

6.6.2.5 Breeding birds - impact assessment with mitigation

It is considered that there will be a **certain minor short term adverse** impact on this group as a result of the loss of nesting and foraging habitat and a neutral impact as a result of vegetation clearance.

6.6.2.6 Breeding birds - significance of the impact

Without mitigation

It is considered that the impact would be of a **slight** significance.

With mitigation

It is considered that the impact will be of a **neutral** significance.

6.7 REPTILES

6.7.1 Summary

No reptiles were recorded from the site as part of the biological records search; however reptiles (slow worm) were recorded within 2.5km of the site. No reptile survey has been carried out to date, however, certain aspects of the site indicates that the site is potentially of some value to reptile species.

The habitat assessment looked for features which would be attractive to reptiles such as:

- South facing banks;
- Varied profile ground form;
- Basking areas;
- Vegetation cover;
- Structurally diverse vegetation;
- Potential hibernation sites;
- Evidence of suitable prey sources;

6.7.2 Legislation

The four common species (slow worm (*Anguis fragilis*), grass snake (*Natrix natrix*), common lizard (*Lacerta vivipara*) and adder (*Vipera beris*)) are protected by the Wildlife and Countryside Act 1981 (as amended) against killing, injury and sale.

Smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) are not found in this area, having very specific geographical distribution within the United Kingdom, and so will not be referred to in this report despite the higher legislative protection afforded to them

6.7.3 Reptiles – evaluation, impact characterisation and assessment

6.7.3.1 Reptiles - evaluation

Reptiles are protected by UK legislation and therefore they are of **medium** to **high national** ecological importance.

Overall the site appears to be of **low - moderate** value to reptiles; the majority of the site, and in particular fields 1 & 4 (those closest to Cardiff Road) appear to have a clayey soil, and therefore remains wet for some time following rain; this is exacerbated by the grazing and poaching by horses. Despite this, it should be assumed that reptiles (in particular grass snake, common lizard and slow worm) will make use of certain aspects of the site through the year, particularly the scrub, tussocky grassland and boundary features. It is recommended that further surveys be undertaken in order to provide more information on the range of species present and provide an indication of actions required during the site clearance work.

6.7.3.2 Reptiles - impact characterisation

Habitat suitable for reptiles will be lost as a result of the site clearance phase of the proposed development. Reptiles may be killed or injured during site clearance, the construction period and the operational period if they are present in the area.

6.7.3.3 Reptiles - impact assessment without mitigation

It is considered that there will be a **certain moderate short term local adverse** impact on reptiles as a result of site clearance and habitat loss.

6.7.3.4 Reptiles – possible mitigation measures

At the time of writing, it is not known if a translocation is considered necessary and further surveys will be needed, at the very least, the following measures may need to be adopted:

- Vegetation clearance will be minimised wherever possible; the retention of a buffer along the boundaries will provide foraging habitat for all the species of reptile likely to be found on the site;
- Tree clearance will be undertaken during the winter so as to avoid the reptile active season and the ground will not be disturbed, i.e. root balls/stumps will be left in situ until reptile active season and routes to clear trees will be designated to minimised subterranean disturbance;
- Clearance will be conducted in accordance with a Method Statement (Appendix D) to ensure that should reptiles and / or amphibians be found during the course of site clearance or any other development activity, they will not be harmed and can be adequately cared for and released to a suitable area at a suitable time of year; and
- Post development landscaping will provide two hibernaculum (excavated pit infilled with logs and rubble, topped with brash and covered over with the soil arisings and turf) as described in Appendix E in the retained buffers along the site boundaries as described in section 6.3.3.4.

6.7.3.5 Reptiles - impact assessment with mitigation

It is considered that there will be a **certain minor short term adverse** impact on this group as a result of the loss of refugia and foraging habitat, and a neutral impact as a result of vegetation clearance.

6.7.3.6 Reptiles - significance of the impact

Without mitigation

It is considered that the impact could potentially have a **moderate** significance.

With mitigation

It is considered that the impact will be of a **neutral** significance.

7 CONCLUSION AND RECOMMENDATIONS

Overall, the site is considered to be of low ecological value.

There is at the very least, moderate potential for bats to use some of the cavities/hollows of the trees as roosts during summer months and possibly for winter hibernation. Further bat surveys will be required of all trees to be felled or pruned before any felling or arboricultural work work can commence.

There are no records of dormice within the 2.5km search buffer of the site. However, the site appears to possess good connectivity to the wider landscape and contains mature fruiting hazel along its boundaries. Providing the majority of existing boundaries are retained and efforts are focussed on maintaining connectivity where breaks in hedgerows are needed, no further dormice surveys will be required. If it is not possible to retain connectivity, green bridges may need to be put in place.

There is no suitable breeding habitat for great crested newts within the site boundaries, however, there are records (conformed and anecdotal) of breeding populations within 250m of the site. The site has the potential to offer foraging opportunities for great crested newts during certain times of the year. As such further surveys will be necessary to determine whether great crested newts are present or likely to be present in the ponds on the neighbouring land through the use of habitat assessment and eDNA testing of the water. If great crested newts are present or likely to be present further surveys will be required to determine their population status; if access to the ponds is not possible, terrestrial refuge searching will be required. (This can be combined with the recommended reptile surveys).

Otters may use the site as a temporary lying up site/foraging site due to proximity of the Cadoxton River, but are unlikely to be impacted on by proposed works.

There is no evidence of badgers on or near the site and therefore no setts will be disturbed as a result of works, but they may use the site for occasional foraging.

Nesting birds are likely to be using the scrub, hedgerows and trees, so vegetation clearance should take place outside of the breeding bird season.

The site has a range of habitats that are broadly suitable for the common occurring reptile species and therefore reptile presence must be assumed. There may be a need for surveys to determine the species present on the site result in the recommendation of a presence or likely absence survey of the site for reptiles before works can proceed.

A Natural Resources Wales development licence may be needed if a European protected species is identified on the site or is likely to be impacted in either construction activities or the operational phase (e.g. bats, great crested newt).

Wherever possible, vegetation clearance should be minimised with that not cleared being retained and enhanced for nature conservation purposes.

8 REFERENCES

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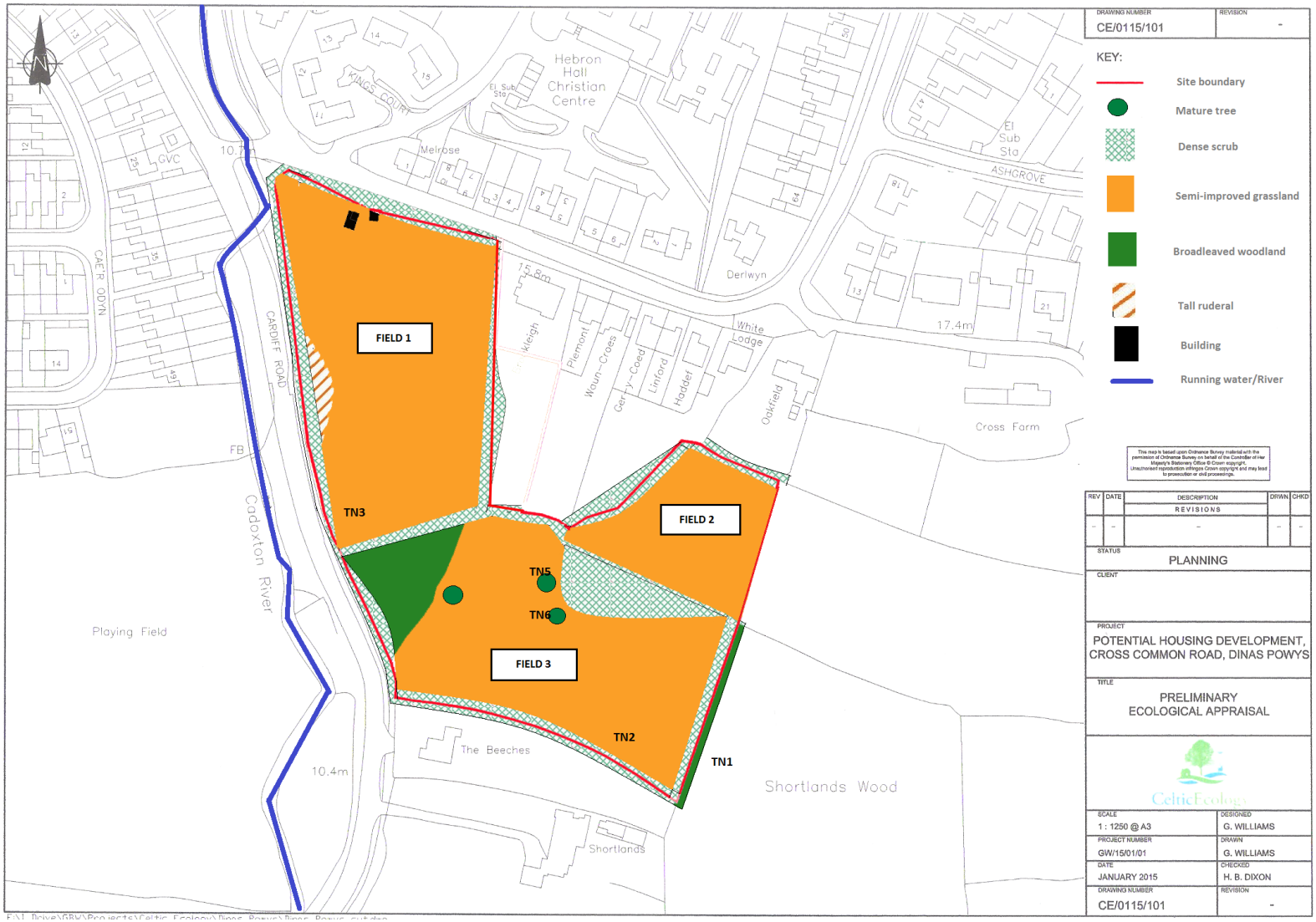
APPENDIX A - PHASE 1 HABITAT SURVEY MAP



APPENDIX B - SPECIES LISTS

Field 1: Poor semi-improved grassland

Scientific name	Common name	Abundance	Comments
Acer pseudoplatanus	Sycamore	R	Saplings
Achillea millefolium	Yarrow	R	
Agrostis stolonifera	Creeping bent	O	
Alopecurus pratensis	Meadow foxtail	R	
Arctium lappa	Greater burdock	R	
Arrhenatherum elatius	False oat-grass	R/LA	
Bellis perennis	Daisy	R	
Calystegia sepium	Hedge bindweed	R	
Cerastium fontanum	Common mouse-ear	R	
Chenopodium album	Fat-hen	R	
Cirsium arvense	Creeping thistle	R/LA	
Cirsium vulgare	Spear thistle	R	
Dactylis glomerata	Cock's-foot	R	
Dipsacus fullonum	Wild teasel	R	
Geranium pyrenaicum	Hedgerow crane's-bill	R	
Geranium robertianum	Herb-Robert	R	
Heracleum sphondylium	Hogweed	R	
Sisymbrium officinale	Hedge mustard	R	
Holcus lanatus	Yorkshire-fog	F	
Lolium perenne	Perennial rye-grass	O	
Odontites vernus	Red bartsia	R/LA	
Phleum pratense	Timothy	R	
Picris echioides	Bristly oxtongue	R	
Plantago lanceolata	Ribwort plantain	O	
Plantago major	Greater plantain	R	
Poa annua	Annual meadow-grass	R/LA	
Polygonum aviculare	Knotgrass	R/LA	
Potentilla anserina	Silverweed	O	
Potentilla reptans	Creeping cinquefoil	R/LA	
Prunella vulgaris	Selfheal	O	
Pulicaria dysenterica	Common fleabane	R/LA	
Ranunculus acris	Meadow buttercup	R	
Ranunculus repens	Creeping buttercup	F	
Rosa canina	Dog-rose	O	
Rubus fruticosus agg.	Bramble	R	
Rumex obtusifolius	Broad-leaved dock	O	
Senecio jacobaea	Common ragwort	R	
Taraxacum officinale agg.	Dandelion	O	
Trifolium repens	White clover	F	
Urtica dioica	Common nettle	O/LA	
Persicaria maculosa	Redshank	R	
Acer campestre	Field maple	O	Boundary
Acer pseudoplatanus	Sycamore	O	Boundary
Corylus avellana	Hazel	O	Boundary
Cornus sanguinea	Dogwood	O	Boundary
Crataegus monogyna	Hawthorn	O	Boundary
Fraxinus excelsior	Ash	O	Boundary

Hedera helix	Common ivy	O/LA	Boundary
Populus alba	White poplar	O/LA	Boundary
Populus x Canadensis	Hybrid black-poplar	O	Boundary
Prunus spinosa	Blackthorn	O	Boundary
Quercus robur	Pedunculate oak	R	Boundary
Sambucus nigra	Elder	R	Boundary

Field 2: Residential gardens

Scientific Name	**Latin Name**	**Abundance**	**Comments**
Crataegus monogyna	Hawthorn	O	
Cornus sanguinea	Dogwood	O	
Cornus sp.	Ornamental dogwood	R	
Holcus lanatus	Yorkshire-fog	F	
Lolium perenne	Perennial rye-grass	F	
Tamus communis	Black bryony	R	

Field 3: Semi- improved neutral grassland

Latin name	**Common Name**	**Abundance**	**Comment**
Field 3 - Semi-improved neutral grassland, located on a gently sloping aspect.			
Achillea millefolium	Yarrow	O	
Agrimonia eupatoria	Agrimony	O	
Agrostis capillaris	Common bent	F	
Agrostis stolonifera	Creeping bent	F	
Anthoxanthum odoratum	Sweet vernal-grass	R	
Centaurea nigra	Common knapweed	F	
Cynosurus cristatus	Crested dog's-tail	F	
Hypochaeris radicata	Cat's-ear	O	
Lotus corniculatus	Common bird's-foot-trefoil	O	
Odontites vernus	Red bartsia	O	
Phleum pratense	Timothy	O	
Plantago lanceolata	Ribwort plantain	O	
Potentilla anserina	Silverweed	R	
Prunella vulgaris	Selfheal	F	
Pulicaria dysenterica	Common fleabane	R/LA	
Rumex obtusifolius	Broad-leaved dock	R/LA	edges
Senecio jacobaea	Common ragwort	R	
Trifolium pratense	Red clover	O	
Urtica dioica	Common nettle	R/LA	edges
Corylus avellana	Hazel	O	Boundary
Rubus fruticosus agg.	Bramble	F	Boundary
Prunus spinosa	Blackthorn	F	Boundary
Quercus robur	Pedunculate oak	R	Boundary
Sambucus nigra	Elder	R	Boundary

Field 4: Semi-improved neutral grassland

Scientific Name	Latin Name	Abundance	Comments
Agrimonia eupatoria	Agrimony	R	
Agrostis capillaris	Common bent	F	
Agrostis stolonifera	Creeping bent	O	
Anthoxanthum odoratum	Sweet vernal-grass	O	
Festuca gigantea	Giant fescue	R	
Calystegia sepium	Hedge bindweed	R/LA	
Carex pendula	Pendulous sedge	R	
Centaurea nigra	Common knapweed	F	
Circaea lutetiana	Enchanter's-nightshade	R	
Cynosurus cristatus	Crested dog's-tail	O	
Dactylis glomerata	Cock's-foot	R	
Filipendula ulmaria	Meadowsweet	R/LA	
Holcus lanatus	Yorkshire-fog	R/LA	
Lathyrus pratensis	Meadow vetchling	O/LA	
Lotus corniculatus	Common bird's-foot-trefoil	O/LA	
Mentha aquatica	Water mint	O	
Odontites vernus	Red bartsia	O	
Phleum pratense	Timothy	O	
Plantago lanceolata	Ribwort plantain	O	
Potentilla reptans	Creeping cinquefoil	O	
Prunella vulgaris	Selfheal	R	
Pulicaria dysenterica	Common fleabane	O/LA	
Ranunculus repens	Creeping buttercup	R/LA	
Rhinanthus minor	Yellow-rattle	O	
Rumex acetosa	Common Sorrel	R	
Rumex obtusifolius	Broad-leaved dock	R	
Senecio jacobaea	Common ragwort	R	
Stachys sylvatica	Hedge woundwort	R	
Urtica dioica	Common nettle	R/LA	
Acer pseudoplatanus	Sycamore	O	Wood edge
Circaea lutetiana	Enchanter's-nightshade	R/LA	Wood edge
Cirsium vulgare	Spear thistle	R	Wood edge
Clematis vitalba	Traveller's-joy	R/LA	Wood edge
Corylus avellana	Hazel	O	Wood edge
Crataegus monogyna	Hawthorn	O	Wood edge
Epilobium hirsutum	Great willowherb	O	Wood edge
Eupatorium cannabinum	Hemp-agrimony	R/LA	Wood edge
Glyceria fluitans	Floating sweet-grass	R/LA	Wood edge
Heracleum sphondylium	Hogweed	R	Wood edge
Populus alba	White poplar	**O**	Wood edge
Prunus spinosa	Blackthorn	F	Wood edge
Quercus robur	Pedunculate oak	R	Wood edge
Rubus fruticosus agg.	Bramble	F	Wood edge
Sambucus nigra	Elder	R	Wood edge
Veronica beccabunga	Brooklime	R/LA	Wood edge

APPENDIX C - SITE PHOTOS

Plate 1 - Cadoxton River, adjacent to western boundary of site

Plate 2 - Field 1 viewed from the east

Plate 3 - Field 2 with surrounding scrub hedgerows

Plate 4 - Mature tree located on one of the site boundaries

APPENDIX D - TARGET NOTES

Target note	Description
TN1	Shortlands Wood (SINC)
TN2	Ant hills located in field 4
TN3	Spring running at the southern boundary of field 1
TN4	Piles of rubble/debris may be suitable for reptiles
TN5	Mature tree with woodpecker hole suitable for bat use
TN6	Mature tree with potential roost feature

APPENDIX E - METHOD STATEMENT: SITE CLEARANCE & REPTILES

1. Following habitat assessment, it was considered that the site has the potential to support reptiles (particularly slow worm (*Anguis fragilis*), common lizard (*Lacerta vivipara*) and grass snake (*Natrix natrix*)). The presence of these species should be assumed (unless otherwise determined by survey), hence the need for a Method Statement to ensure that works are carried out in such a way as to avoid harm to these species.

2. Trees and understorey vegetation will be cleared from directly affected areas only e.g. areas to be built on or forming part of any landscaping scheme where they cannot be retained.

3. Trees and understorey vegetation will be cleared to ground level using chainsaws and / or brushcutters and saved to create two hibernacula on retained / unaffected land; excess material will be taken off site and disposed of appropriately. (This will be carried out during November-February to minimise impacts on roosting bats and nesting birds).

4. All ground breaking operations affecting potential or discovered hibernacula (e.g. rubble piles, tree stumps and roots) on site will only be cleared once day time temperatures are consistently over 12°C for a period of at least seven days as otherwise reptiles may be killed or injured as a result of inconsistent (low) temperatures (during the day and night) and low prey availability. Potential hibernacula will only be dismantled by hand unless the supervising ecologist gives the approval for machine dismantling.

5. Clearance of grassland (with the exception of potential hibernation features) will be undertaken in the winter months to avoid killing and injuring reptiles (and amphibians, including great crested newts).

6. If reptiles are observed within the clearance area during the works, a decision on how to deal with them will be made on site in light of the conditions on site at the time and the state of the animals themselves. There are three options for dealing with them:

    - It may be possible to leave the animals alone to find their own way into cover, depending on where they are seen, what they are doing and their apparent activity levels; or

    - Capture, remove from site and take into temporary captivity until such time as they can be released adjacent to the cleared area (a vivarium has been prepared in case it is required); or

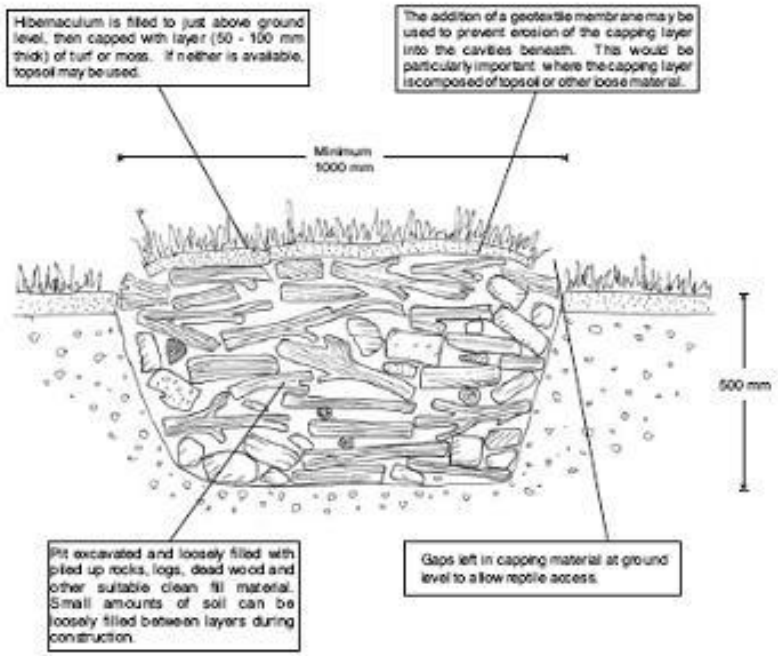
    - Should conditions allow, capture and translocate the animals to a safe area immediately adjacent to the site.

7. The vegetation clearance will be supervised by a suitably experienced ecologist.

APPENDIX F - REPTILE HIBERNACULA DESIGN OPTIONS

Hibernaculum on free-draining ground

Where ground conditions allow, the hibernaculum should be incorporated into a shallow pit. This design is more likely to remain frost-free, and will be less obtrusive and thus unlikely to be subject to interference.



Hibernaculum on impermeable ground

Where ground conditions are impermeable, then an 'above-ground' or mounded design should be utilised in order to prevent the hibernaculum from flooding. This design should also be used if it is not possible to excavate a pit for any other reason.