# Land off De Braose Close, Danescourt, Cardiff

**FINAL DRAFT**

# Ecological Appraisal

Prepared by:
**The Environmental Dimension Partnership Ltd**

On behalf of:
**Taff Housing Association Limited**

September 2019
Report Reference:
**edp4188_r008**

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# Executive Summary

S1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership (EDP) on behalf of Taff Housing Association Limited (hereafter referred to as 'the Client'). This Appraisal considers the ecological implications of proposed development at land off De Braose Close, Danescourt, Cardiff (hereafter referred to as 'the Application Site'). Residential development comprising 45 residential dwellings together with associated infrastructure, public open space and woodland management is proposed.

S2 To establish the ecological baseline of the Application Site and subsequently inform a planning application submission, a Desk Study, Extended Phase 1 Habitat survey and further detailed surveys for reptiles, bats and dormouse *(Muscardinus avellanarius)* were completed between July 2017 and May 2018. To further update the baseline findings, an update Extended Phase 1 Habitat survey was undertaken on 14 March 2019 with respect to the Application Site itself, and on 15 August 2019 with respect to an additional parcel of woodland located offsite to the immediate north of the Application Site proposed as community woodland.

S3 No part of the Application Site is covered by any statutory designations. However, there are a number of such designations within the Application Site's potential zone of influence, the closest being Glamorgan Canal/Long Wood Sit of Specific Scientific Interest (SSSI) situated approximately 1km from the Application Site.

S4 The Application Site is not covered by any non-statutory designations, although there are several within 2km. Radyr Community Woodlands Site of Importance for Nature Conservation (SINC)/Ancient Semi Natural Woodland (ASNW) and the River Taff SINC are considered to be most pertinent, located circa 40m to the north-west and 50m to the east respectively at their closest points.

S5 The Application Site itself supports two semi-improved neutral grassland fields together with an extensive amount of encroaching scrub, in addition to scattered trees and a block of unmanaged woodland comprising its northern extent. The woodland area supports secondary developing woodland predominantly of a relatively young age and with sparse ground flora, and is subject to regular public use, with littering and ground disturbance widespread. With respect to the ecological value of the Application Site, the grassland fields are considered of limited ecological value, being species poor, limited in extent and subject to significant scrub encroachment. However, dense scrub and scattered trees aligning the south-western boundary of the Application Site, together with the woodland block forming the northern extent, comprise suitable wildlife corridors given their connectivity to Radyr Community Woodlands SINC/ASNW located beyond.

S6 The Application Site was found to support a generalist bat assemblage comprising common and widespread species utilising the Application Site predominantly for foraging purposes. With respect to bat roosting potential onsite, the majority of trees were assessed as having negligible potential, with a small number of trees having low potential

and one tree considered to have moderate bat roost potential. With respect to other protected and notable species, a low population of slow-worm (*Anguis fragilis*) is also confirmed present onsite, whilst those habitats present onsite likely support a generalist bird assemblage during the bird breeding season. No evidence of dormouse was recorded for the Application Site during the surveys, with only wood mouse (*Apodemus sylvaticus*) regularly identified over the course of the surveys.

S7 As such, specific proposals for the avoidance, mitigation and compensation of any predicted impacts have been provided. Whilst land take associated with the proposals will result in some erosion of woodland and scrub habitat, particularly across the northern extent of the Application Site, the layout has been sensitively designed to avoid those woodland areas of greatest arboricultural and ecological value, whilst incorporating sufficient offsets in the form of habitat buffers, new planting and sensitive landscaping onsite. Moreover, the proposals include the retention of a significant area of woodland habitat located offsite to the immediate north, secured as community woodland over the long term and thereby ensuring the maintenance of ecological connectivity across the Application Site to the wider landscape. Together such measures will seek to promote and further enhance existing biodiversity, in accordance with local and national policy.

S8 Accordingly, from the outset of the design process EDP has provided input to the masterplan to maximise ecological opportunities whilst considering any ecological constraints identified. Specific proposals for the avoidance, mitigation and compensation of any predicted impacts are considered further within this report and include: those already embedded within the illustrative masterplan; measures which should be incorporated at the construction stage; those which should be designed and specified within the landscaping scheme; and management measures to ensure biodiversity is maintained and further enhanced over the long term. Such requirements could be secured via appropriately worded conditions attached to any forthcoming planning consent.

# Section 1
# Introduction, Purpose and Context

1.1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership (EDP) on behalf of Taff Housing Association Limited (hereafter referred to as 'the Client'). This Appraisal considers the ecological implications of proposed development at Land off De Braose Close, Danescourt, Cardiff (hereafter referred to as 'the Application Site').

## Application Site Context

1.2 The Application Site is centred approximately at Ordnance Survey Grid Reference (OSGR) ST 142 793 within the local planning authority of Cardiff Council. The Application Site measures circa 2.88 hectares (ha) and is located within Danescourt, its residential area extending to the south and west of the Application Site, circa 5.5km to the north-west of Cardiff city centre. A railway line and the River Taff align the north-eastern edge of the Application Site, whilst woodland and scrub habitat extends northwards and encompassing the former footprint of Radyr Quarry (for which quarrying activities ceased around 1920), with such land used as a refuse tip thereafter.

1.3 The vast majority of the Application Site itself comprises semi-improved grassland, encroaching scrub and scattered trees. Such habitats are generally unmanaged, albeit with occasional grazing, in addition to a well-managed coniferous hedgerow forming part of the south-eastern boundary and demarcating the boundary of an adjacent residential property. The Application Site's northernmost extents predominantly support secondary woodland and associated scrub, its boundaries roughly defined by the former quarry edge. Public Rights of Way traverse the Application Site across its north-western extent in addition to running north-westwards through the Application Site along the full length of its south-western boundary.

## Planning Context

1.4 To inform a previous outline planning application (Planning Reference: 12/01454/DCO), an Extended Phase 1 survey and Reptile Survey Report was prepared by Soltys Brewster Ecology (SBE) in October 2011 (Report Reference: E1133401/R01). Following submission the local authority requested further bat activity surveys, completed during October 2012 by SBE (Report Reference E1133402/R01). These reports are provided at **Appendix EDP 1**. Planning consent was refused at that time due to concerns with the proposed access design; no ecological concerns were raised however.

1.5 To inform a new planning application submission for the Application Site's future residential development, an updated Ecological Appraisal was therefore considered necessary.

**Development Proposals**

1.6 The proposed development is described in further detail at **Section 4** with the proposed site layout included at **Appendix EDP 2**. In brief, 45 residential dwellings are proposed, together with associated infrastructure, public open space and woodland management, as further illustrated within the Green Infrastructure Strategy and Landscape Strategy provided at **Appendix EDP 3**.

1.7 The ecological sensitivities of the Application Site have influenced the final layout through an iterative design process. Thus, the masterplan incorporates a degree of 'inherent' mitigation to avoid or reduce the severity of potential ecological impacts.

**Scope of Appraisal**

1.8 This Ecological Appraisal describes the current ecological interest within and around the Application Site, which has been identified through standard desk and field-based investigations. It then considers the potential ecological impacts and opportunities for ecological enhancement based on the final masterplan (incorporating inherent mitigation) in the context of relevant legislation and planning policy. Finally, this Appraisal identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.

1.9 The remainder of this report is structured as follows:

- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the Application Site (with further details provided within Appendices and on Plans where appropriate);
- **Section 3** summarises the baseline ecological conditions (with further details also provided within Appendices and on Plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors;
- **Section 4** describes the development proposals, how the design has been influenced by ecological factors, EDP's input to the design process and key components of inherent mitigation;
- **Section 5** considers the potential impacts of the proposal on pertinent ecological features in the context of legislative, planning policy and biodiversity action planning considerations. Recommended mitigation and enhancement measures are provided for the current and possible future planning stages; and
- **Section 6** summarises the inherent and recommended additional mitigation measures and provides the overall conclusions of the Appraisal.

# Section 2
# Methodology (Baseline Investigations)

2.1 This section of the Ecological Appraisal summarises the methodologies employed in determining baseline ecological conditions within and around the Application Site. The Appraisal has been undertaken by appropriately qualified ecologists with reference to relevant best practice methodologies. Any limitations to those methodologies undertaken are detailed where necessary and typically relate to the timing of EDP's commission, the availability of access to parts of the Application Site or wider study area, and/or levels of public disturbance experienced during the survey period. Full details of the techniques and process adopted are, where appropriate, provided within Appendices and on Plans to the rear of this report.

### Desk Study and Consultation

2.2 The desk study is an important element of undertaking an initial ecological assessment of a site proposed for development, enabling the initial collation and review of contextual information such as designated sites, together with known records of protected and priority species.

2.3 The desk study involved collating biodiversity information from the following sources:

- South East Wales Biodiversity Records Centre (SEWBReC); and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website[1].

2.4 The desk study was undertaken during July 2017 and involved obtaining the following information:

- International statutory designations (10km radius around Application Site);
- National statutory designations (2km);
- Non-statutory local sites (2km);
- Annex II bat species[2] records (4km); and
- All other protected/notable species records (2km).

[1] www.magic.gov.uk
[2] Bat species listed in Annex II of the EC Habitats Directive, namely Greater horseshoe, Lesser horseshoe, Barbastelle and Bechstein's bats.

2.5 The above search areas are considered sufficient to cover the potential zones of influence[3] of the proposed development in relation to designated Sites, habitats and species.

2.6 In addition to the above, historic ecological reports prepared by SBE (E1133401/R01 and E1133402/R01) relating to a previous desk study, Extended Phase 1 survey, reptile surveys and bat surveys were also consulted.

**Extended Phase 1 Survey**

2.7 The survey technique adopted for the initial habitat assessment was at a level intermediate between a standard Phase 1 survey technique[4], based on habitat mapping and description, and a Phase 2 survey, based on detailed habitat and species surveys. The survey technique is commonly known as an Extended Phase 1 survey. This level of survey does not aim to compile a complete floral and faunal inventory for the Application Site.

2.8 The level of survey involves identifying and mapping the principal habitat types and identifying the dominant plant species present in each principal habitat type. In addition, any actual or potential protected species or species of principal importance are identified and scoped.

2.9 An Extended Phase 1 Habitat survey of the Application Site itself was initially completed on 7 July 2017 by a suitably experienced surveyor, and further updated on 29 May 2018 to include offsite woodland habitat immediately adjacent to the north (and comprising additional land under Client control).

2.10 To determine any material changes arising over the intervening period, the Application Site was revisited again on 14 March 2019, with an Extended Phase 1 Habitat Survey completed for both the Application Site itself and offsite woodland area to the immediate north on 15 August 2019, the latter considered necessary to inform its future management objectives as a community woodland.

**Detailed (Phase 2) Surveys**

2.11 The scope of the Phase 2 surveys undertaken was defined following the initial studies described above (desk study and Extended Phase 1 survey). Those surveys 'scoped in' as part of the Ecological Appraisal, based upon the findings of the 2017 Extended Phase 1 survey, are summarised in turn below. Other survey types which were not considered necessary/appropriate in this case, albeit commonly required as part of an Ecological Appraisal to inform development upon greenfield sites, are also discussed in turn in **Section 3**.

[3] Zone of Influence - the areas and resources that may be affected by the proposed development.
[4] Joint Nature Conservation Council (2004) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication).

2.12 The findings of the update surveys completed during 2019 confirmed no material changes to the status or management of those habitats supported by the Application Site. As such, the findings of those further detailed surveys scoped into the assessment and completed during 2017 and 2018, are considered to remain valid with respect to informing the development proposals.

***Botanical Survey***

2.13 During the initial Extended Phase 1 Habitat survey in 2017, a detailed botanical survey of the grassland fields was completed by a suitably qualified botanist utilising DAFOR methodology[5], during which all vascular plant species were recorded to DAFOR level. Vegetation communities identified were subsequently mapped and described in accordance with standard survey protocol[6]. Details of the botanical survey are provided at **Appendix EDP 4**.

***Bats***

2.14 During the initial Extended Phase 1 survey in 2017, habitats present within and adjacent to the Application Site were identified as having the potential to support foraging and commuting bats. The following surveys for bats were therefore undertaken with reference to best practice guidelines[7]:

- Manual, walked transect surveys conducted in August and September 2017, and in May 2018; and
- Automated, static detector surveys conducted in August and September 2017, and May 2018.

*Bat Activity Surveys: Manual, Walked Transect Surveys*

2.15 Dusk transect surveys were completed on 16 August 2017, 14 September 2017 and 3 May 2018. The 2018 transect route incorporated an extra section of woodland to the north following an extension to the Application Site boundary. With reference to best practice guidelines[8], dusk surveys were initiated at sunset and extended for at least two hours following sunset. Weather conditions experienced during the surveys are detailed within **Appendix EDP 5**.

2.16 During each of the surveys, a single transect route was walked by two experienced surveyors at a slow and steady pace, with routes designed to cover all suitable habitat features on the Application Site, including boundary woodland and hedgerows. Twelve

[5] DAFOR botanical survey technique – whereby occurrence of a species is recorded as Dominant, Abundant, Frequent, Occasional, or Rare.
[6] Joint Nature Conservation Council (2004) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication).
[7] Collins, J. (ed.) (2016). *Bat Surveys: for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust, London
[8] Collins, J. (ed.) (2016) Bat *Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition.* Bat Conservation Trust, London.

'listening stops' lasting approximately five minutes each were also incorporated within the transect route to ensure good quality recordings were obtained and to allow for observations of bat activity behaviour to be recorded.

2.17 All bats recorded were marked on survey maps to characterise the value of those habitats supported by the Application Site with respect to foraging and commuting bats. **Plans EDP 3a** to **3c** illustrate the transect route walked and stopping point locations during the surveys.

2.18 Activity surveys were conducted using an Elekon Bat Logger, with observations of the time, location, and activity of all bats seen or heard recorded. Bats were identified on the basis of their characteristic echolocation calls, which were recorded where appropriate and analysed using computer sonogram analysis (Bat Explorer) to confirm species identification. Species of Myotid bat (*Myotis* spp.) and long-eared bat (*Plecotus* spp.) are difficult to tell apart solely from their echolocation calls and were therefore grouped as such.

*Bat Activity Surveys: Automated, Static Detector Surveys*

2.19 Bat activity levels across the Application Site were also sampled using two automated Anabat Express bat detectors installed along the transect route between 24 and 29 August 2017 and between 22 and 27 September 2017, to supplement the transect data collated. Three Anabat Express detectors were also deployed between 03 and 08 May 2018, with the third detector deployed within an extra linear section of woodland following an extension to the Application Site boundary. All Anabat detectors were deployed for a minimum of five consecutive nights within key habitats, including within and adjacent to woodland habitat forming the Application Site's northern boundary, and along the scrub/woody edge on the western forming boundary. During deployment the external microphone was positioned away from adjacent vegetation clutter to maximise detection sensitivity. The locations of the static detectors are illustrated within **Plans EDP 3a** to **3c**.

2.20 All files were checked manually using sonogram analysis in accordance with published guidelines[9] to confirm the species identification of each bat call.

Limitations

2.21 The identification of calls and species using Analook software is dependent upon the quality of the recording made, which can be influenced by weather conditions such as rainfall and wind, as well as the distance of the bat from Anabat and the presence of obstructions through which the noise must pass i.e. trees and proximity of other noise sources such as roads.

[9] Russ (2012). *British Bat Calls, a guide to species identification*. Pelagic Publishing, Exeter.

2.22 During the August surveys, one of the Anabat Expresses only recorded for three nights; however, sufficient data was gathered throughout the entire survey period to make an assessment of the Application Site in terms of its use by bats.

*Investigations of Bat Roosting – Trees*

2.23 To determine the potential impacts of future development upon bats potentially roosting within trees across the Application Site, all suitable trees/tree groups[10] were subject to a ground level visual assessment with reference to current best practice guidance[11].

2.24 The tree survey involved a ground-based visual assessment of all suitable trees associated with the Application Site for the presence of, or potential to support, roosting bats. The survey was undertaken on 07 July 2017 and 31 May 2018 by a suitably qualified and licensed ecologist, with the findings further verified during the update Extended Phase 1 survey of the site completed on 14 March 2019.

2.25 Suitable features for roosting bats sought for during the assessment included:

- Loss/peeling/fissured bark;
- Natural holes e.g. rot holes and holes from fallen limbs;
- Woodpecker holes;
- Cracks/splits or hollow tree trunks/limbs; and
- Thick-stemmed ivy.

2.26 Signs of roosting bats sought for included:

- Bat/s roosting *in-situ*;
- Bat droppings within or beneath a feature;
- Staining around or beneath a feature;
- Oily marks (staining) around roost access points;
- Audible squeaking from the roost;
- Large/regularly used roosts or regularly used Application Sites may produce an odour; and
- Flies around the roost, attracted by the smell of guano.

[10]Where appropriate, trees within the woodland area were grouped during the assessment.
[11]Bat Conservation Trust (2016) Bat *Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition.* Bat Conservation Trust, London.

2.27 Based upon the results of the visual assessment and features/evidence identified, the following ratings for trees were used during the assessment:

- **Known or confirmed roost** - European Protected Species (EPS) licence required for works to tree to be completed lawfully;
- **High potential** - Tree supports one or more features that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time;
- **Moderate potential** - Tree supports one or more features that could be used by bats but are unlikely to support a roost type of high conservation status;
- **Low potential** - Tree supports one or more features that could be used by individual bats opportunistically, or is of sufficient size and age to contain such features; and
- **Negligible potential** - Negligible features likely to support roosting bats.

***Dormouse***

2.28 The Application Site supports woodland and scrub habitats which are well connected both across the Application Site and to the wider landscape. A nest tube survey of the Application Site was therefore undertaken to determine the presence of dormouse (*Muscardinus avellanarius*) and the extent of their usage of the Application Site.

2.29 Following best practice guidance[12], dormouse nest tubes were deployed within all woodland and scrub on and immediately adjacent to Application Site. Nest tubes were erected at between 1m and 2m heights above ground at approximately 20m intervals along linear habitat features and tied to suitable branches located well within the vegetation so as to avoid damage and/or disturbance by member of the public.

2.30 A total of 90 nest tubes, each comprising a wooden tray and nesting tube made from plastic tree guard material[13], were deployed across the Application Site on 08 August 2017. Given the generally high levels of public access across the Application Site, any tubes found missing during checks were replaced in their same locations, with exception to those tubes initially placed along the footpath aligning the south-western boundary given their increased visibility. No more than approximately 25 tubes required replacing over the course of the survey period.

2.31 Tubes were left *in situ* and checked during suitable weather conditions by experienced, Natural Resources Wales (NRW) licensed surveyors on three separate occasions in 2017 and two occasions in 2018, for evidence of use by dormouse, as summarised in **Table EDP 2.1** and further detailed at **Appendix EDP 6**. A further check was also undertaken during an update site visit on 14 March 2019, with dormouse tubes removed from site immediately thereafter.

[12]Bright, P.M., Morris, P. & Mitchell-Jones, T. (2006) *The dormouse Conservation Handbook*. English Nature.
[13]Specifications as per Mammal Society nest tube product.

**Table EDP 2.1**: Date and weather conditions during the dormouse survey visits.

| Visit | Visit Date | Index of Probability | Weather Conditions |
|---|---|---|---|
| Tube Deployment | 08.08.17 | N/A | Sunny, dry, mild |
| Visit 1 | 19.09.17 | 7 | Sunny, dry, mild |
| Visit 2 | 25.10.17 | 2 | Sunny, dry, mild |
| Visit 3 | 23.11.17 | 2 | Sunny, dry, warm |
| Visit 4 | 23.04.18 | 1 | Overcast, dry, warm |
| Visit 5 | 29.05.18 | 4 | Light drizzle, warm |
| Visit 6 (tube collection) | 14.03.19 | - | Light drizzle, warm |
| Total Survey Effort Score | | 16 points per 50 tubes | |

2.32 In accordance with best practice guidance, whereby the index of probability in detecting dormouse presence within nest tubes is calculated according to defined scores achievable per 50 tubes deployed per month, the above survey effort undertaken for the Application Site is considered to exceed the minimum score required of 20 (with a minimum score of 20.8 achieved[14]). Adopting a precautionary approach, total survey effort score has been calculated based on the deployment of 65 tubes (rather than the 90 nest tubes originally deployed) due to approximately 25 tubes being subject to disturbance by members of the public. Additionally, the retention of dormouse tubes onsite throughout the entirety of 2018, allowing for a final check during March 2019, is further considered to ensure a robust and up to date survey effort for the Application Site with respect to this species.

2.33 In addition, a comprehensive nut search for characteristically gnawed hazel (*Corylus avellana*) nuts was also carried out during each nest tube visit. Nut searches were undertaken beneath accessible fruiting hazel trees, with all nuts considered to be characteristic of dormouse collected and examined, using a hand lens for confirmation.

2.34 Evidence such as the presence of individuals, nests and/or food caches were recorded, together with any additional information including the weight and sex of all individuals where present and successfully caught. Incidental sightings of wood mouse (*Apodemus sylvaticus*) and their nests were also recorded, during which all tubes were emptied of wood mouse nests and individuals, cleaned and re-hung.

***Badger***

2.35 Badger (*Meles meles*) activity within the Application Site was assessed during the Extended Phase 1 Habitat survey on 07 July 2017 and throughout all survey visits to site, including update surveys undertaken during 2019. During the survey, any signs of badger activity such as holes, latrines, trails, snuffle holes and hairs on fencing or vegetation were recorded. Where holes of a size and shape consistent with badgers were identified, the following signs of badger activity were searched for in order to determine whether they were currently in active use:

[14]Taking into account the 2017 and 2018 dormouse season, a point score of 16 per 50 tubes deployed is achieved. Taking a precautionary approach, and assuming a minimum of 65 tubes remained in situ and undisturbed throughout the survey period, an equivalent point score of 20.8 (i..e 16 x (65/50)) is considered to have been achieved for the Application Site.

- Fresh spoil outside entrances;
- Old bedding material (typically dried grass) outside entrances;
- Holes being cleared of leaf litter;
- Badger guard hairs; and
- Fresh tracks leading to/from the holes.

***Reptiles***

*Terrestrial Refugia Survey*

2.36 The grassland, scrub and woodland habitat edges offer suitable habitat for common reptiles. As such, a terrestrial refugia survey was undertaken of the Application Site between August and early October 2017. A total of 28 refugia were deployed across the Application Site along all suitable habitat edges comprising grassland, scrub and woodland. The refugia comprised sheets of roofing felt measuring approximately 0.5m$^2$ in area.

2.37 Refugia were deployed on 24 August 2017, and subject to a total of seven checks undertaken between 04 September and 03 October 2017 by experienced ecologists during weather conditions considered suitable for common reptiles, in accordance with best practice guidelines[15]. Survey dates and weather conditions experienced during these surveys are provided in **Appendix EDP 7**.

[15]Froglife (1999) *Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10, Froglife, Halesworth

# Section 3
# Results (Baseline Conditions)

3.1 This section of the Ecological Appraisal summarises the baseline ecological conditions determined through the course of desk and field-based investigations described in **Section 2**. In particular, this section identifies and evaluates those ecological features/receptors that lie within the Application Site's potential zone of influence and which are pertinent in the context of the proposed development. Further technical details are, where appropriate, provided within Appendices and on Plans to the rear of this report.

## Designated Application Sites

3.2 Information regarding designated Sites was obtained during the Desk Study from the MAGIC website and SEWBReC. Statutory designations (those receiving legal protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

## Statutory Designations

3.3 Statutory designations represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).

3.4 No part of the Application Site is covered by any statutory designations. However, there are a number of such designations within the Application Site's potential zone of influence, as described below/summarised in **Table EDP 3.1**.

**Table EDP 3.1**: Statutory designations within the Application Site's potential zone of influence.

| Designation | Distance from Application Site | Interest Feature(s) |
|---|---|---|
| ***Ramsar*** | | |
| Severn Estuary | 8km (south-east) | Designated for quality of estuarine, mudflat, sandflat and salt meadow habitat, wildfowl and migratory fish species. |
| ***SAC*** | | |
| Cardiff Beech Woods | 3km (north-west) | Cardiff Beech Woods contains one of the largest concentrations of beech forests in Wales, and represent the habitat close to the western limit of its past native range in both the UK and Europe. |
| Severn Estuary | 8km (south-east) | Designated for quality of estuarine, mudflat, sandflat and salt meadow habitat and migratory fish species. |

| Designation | Distance from Application Site | Interest Feature(s) |
|---|---|---|
| ***SPA*** | | |
| Severn Estuary | 8km (south-east) | Populations of birds of European Importance including over-wintering and migratory species |
| ***SSSI*** | | |
| Glamorgan Canal/Long Wood | 1.1km (north) | This site is of special interest for its semi-natural broadleaved woodland dominated by beech and nutrient-rich standing open water of Glamorgan Canal. |
| Garth Wood | 3.2km (north-west) | The site is of special interest for its semi-natural broadleaved woodland. Lesser Garth Cave is one of two known UK locations for the nationally rare spider *Porrhomma rosenhaueri.* |
| Ty Du Moor | 3.3km (west) | The site is of special interest for its base enriched fen meadow vegetation. Supports populations of several species which are rare or uncommon in Glamorgan, including marsh helleborine (*Epipactis palustris)*, fragrant orchid (*Gymnadenia conopsea)* and yellow sedge (*Carex virudula* ss *brachyrrhyncha*). Broad-leaved cotton grass (*Eriophorum latifolium)* also occurs. |
| Castell Coch Woodlands and Road Section | 3.4km (north) | Of special interest for its beech woodland on limestone (part of the most westerly natural beech woodlands in Britain). |
| Ton Mawr And Taff's Well Quarries | 3.4km (north-west) | Of interest on geological grounds, for mineralization of quarry walls. |
| Ely Valley | 3.8km (south-west) | Of special interest for its population of the rare monk's hood (*Aconitum anglicum*). |
| Fforestganol A Cwm Nofydd | 3.8km (north-east) | Of special interest for its semi-natural broadleaved woodland. |
| Coed Y Bedw | 4.5km (north-west) | Of special interest for its beech woodland on limestone (part of the most westerly natural beech woodlands in Britain). |
| Llanishen and Lisvane Reservoir Embankments | 4.7km (north-east) | Of special interest for its diverse assemblage of grassland fungi, including over 25 species of waxcap. |
| Caeau Blaen-Bielly | 4.9km (north-west) | Of special interest for its species-rich neutral grassland and marshy grassland. |
| Severn Estuary | 8km (south-east) | Designated for quality of estuarine, mudflat, sandbanks, rocky platforms and saltmarsh habitat, wildfowl and migratory fish species. |

**Non-Statutory Designations**

3.5 Non-statutory designations are also commonly referred to in planning policies as 'local sites', although in fact these designations are typically considered to be importance at a county level. In Cardiff, such designations are named Sites of Importance for Nature Conservation (SINCs). Additional designated sites which should be considered at

this level include Local Nature Reserves (LNRs) and Ancient Semi-Natural Woodland (ASNW) where these are not covered by other designations.

3.6 No part of the Application Site is covered by any SINCs. However, there are a number of such designations within the Application Site's potential zone of influence as illustrated in **Plan EDP 1**. A summary is provided within **Table EDP 3.2**.

**Table EDP 3.2**: Non-statutory designations within the Application Site's potential zone of influence.

| Designation | Approx. Distance from Application Site | Interest Feature(s) |
|---|---|---|
| Radyr Community Woodlands SINC/ASNW | 40m (north-west) | Semi-natural oak/ash/alder and beech woodland on the steep slopes of River Taff with diverse ground flora. Middle section designated as part of Hermit Wood LNR. Wet woodland plant species present as well as ancient woodland indicators. This woodland is also designated as an Ancient Semi Natural Woodland (ASNW). |
| River Taff SINC | 50m (east) | Important river for migratory fish, otter, wildfowl and bankside vegetation. Major wildlife corridor, with bats, otter (*Lutra lutra*), Atlantic salmon *(Salmo salar)*, trout, grass snake (*Natrix natrix)* and kingfisher *(Alcedines)* recorded around the SINC. |
| Hailey Park SINC | 200m (north) | Grassland on eastern banks of River Taff. Qualifies as Lowland Meadow and Purple Moor-Grass and Rush Pasture. |
| Hermit Wood LNR | 400m (north-west) | Semi-natural oak/ash/alder woodland with diverse ground flora. |
| Radyr Cricket Ground and Fields SINC | 800m (north) | Semi-improved neutral grassland. Main interest feature is presence of various species of waxcap. |
| Former Llantrisant No.1 Branch Line SINC | 1.2km (south-west) | Abandoned railway line with ash secondary woodland with marshy areas. |
| Glamorganshire Canal LNR | 1.5km (north) | Nutrient-rich standing open water and semi-natural broadleaved woodland. |
| Fairwater Park SINC | 1.7km (south) | Streamside alder woodland and pond, with locally rare aquatic plants and great crested newt. |
| Melingriffith and Melingriffith Feeder SINC | 2.1km (north) | Secondary broadleaved woodland and feeder canal for the Old Melingriffith Tin Works. Numerous ancient woodland indicators present. |
| Whitchurch Green Fields SINC | 2.1km (north) | Semi-improved neutral grassland bounded on three sides by the Glamorgan Canal LNR. Numerous neutral grassland indicators present. Qualifies as Lowland Meadow. |
| Waterhall Plantation and Pond SINC | 2.2km (south-west) | Secondary beech/oak/alder woodland and larch plantation. Comprises disused railway line, stream, rough grassland, marsh and woodland plantation. Ancient woodland indicators and great crested newt present. |

| Designation | Approx. Distance from Application Site | Interest Feature(s) |
|---|---|---|
| Coed-y-Gof SINC | 2.6km (west) | Conifer plantation with small remnant areas of ancient semi-natural woodland and associated ground flora, including several ancient woodland indicators |
| Coryton Heronry Wood SINC | 2.6km (north-east) | Mixed woodland adjacent to Glamorganshire Canal LNR. Heron colony is primary feature. Wood warbler also present. |
| Mynydd Woods SINC | 3km (north-west) | Secondary oak/alder/birch woodland situated on steep slopes of railway bank and River Taff terraces. Numerous ancient woodland indicators present. |

**Habitats**

3.7 Information on habitats within and adjacent to the Application Site was initially obtained during the desk study and Extended Phase 1 Habitat survey completed during July 2017, as well as during subsequent update surveys of the Application Site and offsite woodland located to the immediate north, undertaken during May 2018, March 2019 and August 2019.

3.8 The distribution of the different habitat types within and adjacent to the Application Site is illustrated on **Plan EDP 2**, with illustrative photographs provided in **Appendix EDP 8**. The main habitat types present and immediately adjacent to the Application Site are described in turn below.

***Broadleaved Woodland***

3.9 The northernmost extent of the Application Site is primarily dominated by unmanaged, recently-established secondary woodland subject to regular public use. A well-used public footpath traverses this area with antisocial behaviour in the form of littering and ground disturbance widespread. This woodland comprises a mix of relatively young standards, likely arising due to self-seeding/regeneration (**W1**), as well as a small area of hazel coppice (**W2**). An additional band of establishing woodland is also present along the north-western boundary (**W3**), with a linear belt of mature tree standards (**W4**) forming the north-western most extent of the Application Site.

3.10 Woodland area **W1** comprises relatively young secondary woodland, although semi-mature specimens form its northern edge. Species supported include ash (*Fraxinus excelsior*), willow (*Salix sp.*), field maple (*Acer campestre*), hawthorn (*Crataegus monogyna*), sycamore (*Acer pseudoplatanus*), dogwood (*Cornus sanguinea*), pedunculate oak (*Quercus robur*) and silver birch (*Betula pendula*). Its ground flora is relatively sparce, being dominated by ivy (*Hedera helix)* and with bramble (*Rubus fruticosus* agg.) occurring frequently. Other occasional species present include male fern (*Dryopteris filix-mas*), hart's-tongue fern (*Phyllitis scolopendrium*), enchanter's nightshade (*Circaea lutetiana*), creeping buttercup (*Ranunculus repens*), willowherb species (*Epilobium sp.*), common nettle (*Urtica dioica*), lords-and-ladies

(*Arum maculatum*), cleavers (*Galium aparine*) and perforate St John's wort (*Hypericum perforatum*). Cotoneaster (*Cotoneaster sp.*), an invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), is also present along the western edge of **W1**.

3.11 Woodland area **W2** comprises a small area of formally coppiced hazel (*Corylus avellana*) (although no recent management is evident), with immature stands of pedunculate oak, ash, sycamore, holly (*Ilex aquifolium*), hawthorn and dogwood also noted. The ground flora here is also notably sparse, with forbs occurring rarely and dominated by ivy. Lady fern (*Athyrium filix-femina*), hart's-tongue fern, male fern, rough chervil (*Chaerophyllum temulum*) and wood dock (*Rumex sanguineus*) are also occasionally present, whilst cotoneaster occurs along its northern edge.

3.12 Woodland area **W3** comprises a small belt of establishing woodland along the western boundary of the Application Site, dominated by ash and oak, with sycamore, hawthorn and hazel also present. Bramble dominates the understorey, with dog rose (*Rosa canina*), honeysuckle (*Lonicera periclymenum*), hogweed (*Heracleum sphondylium*), ground elder (*Aegopodium podagraria*) and ivy frequently recorded.

3.13 Woodland area **W4** comprises a mature tree belt backing on to adjacent residential gardens to the south-west, located along Nicholson Webb Close. This mature woodland belt supports a number of standards including sycamore, hazel, ash, elder (*Sambucus nigra*), field maple, horse chestnut (*Aesculus hippocastanum*) and pedunculate oak. Its ground flora is relatively limited in extent, comprising predominantly ivy but with male fern, wood avens (*Geum urbanum*), bluebell (*Hyacynthoides non-scripta*), enchanter's nightshade and broadleaved dock locally abundant. Cleavers, lords-and-ladies, and nettle also occur occasionally. Box (*Buxus sp.*), laurel (*Prunus laurocerasus*) and cotoneaster also occasionally occur in association with curtilage boundaries, with laurel particularly dominant across its far western end. Scattered stands of Japanese knotweed (*Fallopia japonica*), an invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), also extend along the northern edge of this woodland area.

3.14 Beyond the Application Site and to the immediate north of woodland area **W4** lies an additional block of woodland comprising woodland areas **W5** and **W6**, most of which occur offsite and which separate the Application Site from Radyr Community Woodlands SINC/ASNW, situated circa 40m to its north-west at its closest point. Woodland habitat establishing across areas **W5** and **W6** encompass the former footprint of Radyr Quarry.

3.15 Woodland area **W5** lies immediately adjacent to **W4** and comprises predominantly semi-mature trees interspersed with occasional mature tree standards, its canopy dominated by ash, oak, willow (*Salix sp.*) and sycamore, with an understorey of blackthorn, hawthorn and hazel. Field maple, dogwood, silver birch, beech (*Fagus sylvatica*) and Norway maple (*Acer platanoides*) are also present. A relatively sparse ground flora dominated by ivy is also supported, with common nettle being locally-abundant throughout and bramble occurring frequently. Other occasional species include male fern, hart's-tongue fern, enchanter's nightshade, willowherb species (*Epilobium sp.*) and lords-and-ladies.

3.16 Woodland area **W5** transitions into woodland area **W6** as it extends north-westwards, beyond which such habitat is designated as Radyr Community Woodlands SINC/ASNW. Whilst of a similar species composition to woodland area **W5**, **W6** supports predominantly mature tree standards. The ground flora is more diverse here however, with wood avens, herb Robert (*Geranium robertianum*) and pendulous sedge (*Carex pendula*) recorded in addition to those species previously listed above for **W5**. Disturbance remains evident however, with bare ground common and public access regular, in addition to the dumping of garden waste particularly noticeable along its westernmost edge to the rear of residential properties off Timothy Rees/De Braose Close.

3.17 Overall, secondary woodland habitats associated with the Application Site and predominantly comprising woodland areas **W1** – **W3** exhibit limited structural diversity, comprising recently established woodland and scrub and supporting young and immature trees together with a species-poor ground flora dominated by ivy and bramble. Invasive species are also present whilst ground disturbance is relatively widespread. By contrast, woodland area **W4** forming the north-westernmost extent of the Application Site in addition to offsite areas adjacent (**W5** and **W6**), support better quality woodland habitat, their canopy comprising mature tree standards alongside a well-developed understorey and ground flora. More generally such habitats contribute to, and further strengthen, the existing habitat corridor provided by Radyr Community Woodlands SINC/ASNW extending north-westwards across the wider landscape, of value for a range of species including nesting birds and foraging, commuting and roosting bats. Woodland habitat associated with the Application Site is therefore considered to be of importance at the **Local** Level.

***Scrub Communities and Scattered Trees***

3.18 There are several areas of dense scrub throughout the Application Site, particularly along the western boundary of the Application Site in addition to encroachment of scrub across grassland fields from their vegetated boundaries. Scrub habitats are associated with grassland, tall ruderal vegetation and woodland edges, as further described below.

3.19 Scrub area **S1** occurs on the edge of the woodland and mainly comprises dense bramble, though self-seeded ash, hazel, oak and hawthorn also occur. Rank grassland is associated with the edge of this habitat, and includes frequent false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), knapweed (*Centaurea nigra*), red clover (*Trifolium pratense*), tufted vetch (*Vicia cracca*), herb Robert and mullein (*Verbascum sp.*).

3.20 Scrub area **S2** is dominated by buddleia (*Buddleja davidii*), with traveller's joy (*Clematis vitalba*), young ash saplings and common nettle (*Urtica dioica*) abundant, whilst dogwood, creeping bent (*Agrostis stolonifera*), hemp agrimony (*Eupatorium cannabinum*), ivy, hogweed and rosebay willowherb (*Chamerion angustifolium*) occasional.

3.21 Scrub area **S3** dominates the western boundaries of the Application Site and predominantly comprises bramble and raspberry (*Rubus idaeus*), with dogwood becoming more frequent to the south. Elder (*Sambucus nigra*), buddleia, hazel,

grey willow (*Salix cinerea*) and young ash are occasional. Other occasional species include traveller's joy, hemp agrimony, herb Robert, hogweed, male fern, Yorkshire fog (*Holcus lanatus*) and false oat-grass. Two semi-mature ash trees are also present here.

3.22 Scrub area **S4**, also on the western boundary, is dominated by bramble and mature dogwood. A number of scattered trees also occur, comprising semi-mature ash, sycamore and oak. Other occasional species include buddleia, holly, willow, cotoneaster, traveller's joy, field bindweed (*Convolvulus arvensis*), lords-and-ladies *(Arum maculatum*) and wood dock.

3.23 Scrub area **S5** located at the southern corner of the Application Site comprises encroaching scrub establishing from a remnant hedgerow, now outgrown and unmanaged. Species include hazel, ash, blackthorn and grey willow. Dog rose, apple (*Malus domestica*), wood avens and herb Robert are also present.

3.24 Scrub habitat forming the edges of the grassland fields themselves is dominated by bramble with occasional self-seeded saplings, including ash, oak and sycamore, as well as occasional hazel. Along the northern edge of grassland habitat buddleia dominates, establishing upon a raised earthen bank. Cleavers (*Galium aparine*), lesser celandine (*Ficaria verna*), lords-and-ladies, hogweed, false oat-grass, wood dock, perforate St John's wort, creeping thistle (*Cirsium arvense*), dogwood, hedged bindweed, wood avens, traveller's joy and rosebay willowherb were also recorded in association.

3.25 A significant area of dense bramble scrub reaching up to 2m in height (and thereby limiting access to enable accurate mapping of extents), is also present offsite to the north of the Application Site, located adjacent to the railway line and separating offsite woodland areas **W5** and **W6**. Dense stands of Japanese knotweed were also recorded in association with this area of bramble scrub, associated with the railway line fence.

3.26 With respect to scattered trees onsite, several align the footpath running north-west to south-east along the south-western boundary of the Application Site, in association with scrub areas **S3** and **S4**, in addition to scattered trees delineating the northern edge of the grassland field in association with scrub areas **S2**. Such trees including semi-mature standards of ash, oak, sycamore and apple, as well as numerous young ash and sycamore.

3.27 Scrub habitats **S1**, **S2**, **S5** encroaching the edge of the grassland field are of limited extent and of poor quality; however, such habitats do have potential value for wildlife such as nesting birds, reptiles and foraging bats, and as such are considered of importance at the **Site** level.

3.28 Scrub habitats **S3** and **S4** forming the south-western boundary of the Application Site however supports a number of scattered trees whilst providing a continuous linear feature and wildlife corridor across the Application Site to the wider landscape. Such habitats likely aid the dispersal of wildlife whilst offering refuge, foraging and nesting opportunities for species including common reptiles, bats and birds. Such areas are therefore considered to be of importance at the **Local** level.

***Hedgerow***

3.29 A single leyland (*X Cupressocyparis leylandii*) hedgerow forms part of the Application Site's eastern boundary at its southern end. Measuring approximately 5m high and 1m wide, the hedgerow is well managed and forms the boundary between the Application Site and an adjacent residential dwelling. Given its location, adjacent to grassland, scrub and woodland habitats, this hedgerow likely offers some, albeit limited, value for nesting birds and foraging bats and thus is of importance at the **Site** level.

***Semi-improved Neutral Grassland***

3.30 There are two fields separated by a post-and-wire fence, the majority of which are tussocky and semi-improved in character. Cock's-foot and Yorkshire fog dominate, with common bent (*Agrostis capillaris*) also occurring frequently; false oat-grass is occasional, with sweet vernal-grass (*Anthoxanthum odoratum*), couch and Timothy grass (*Phleum pratense)* occurring rarely. Broadleaved dock and ribwort plantain (*Plantago lanceolata*) are abundant, and bird's-foot trefoil (*Lotus corniculatus*), great willowherb (*Epilobium hirsutum*), creeping buttercup (*Ranunculus repens*) and cleavers (*Galium aparine*) locally abundant. Creeping cinquefoil (*Potentilla reptans*) is frequent, and common sorrel (*Rumex acetosa*) and common nettle are occasional. Rarely occurring forbs include common ragwort (*Senecio jacobaeae*), red clover (*Trifolium pratense*), ground elder (*Aegopodium podagraria*), yarrow (*Achillea millefolium*) and lesser stitchwort (*Stellaria graminea*).

3.31 The grassland sward across the northernmost field is considerably shorter, subject to fly-grazing by horses and dominated by sweet vernal-grass, common bent and ribwort plantain. Yorkshire fog is frequent, with common ragwort and selfheal occurring rarely.

3.32 Overall, grassland habitats onsite are generally dominated by rank grasses and of limited botanical diversity. The fields are otherwise unmanaged, although fly-grazing by horses was noted on occasion during the survey period. Whilst of some value to protected species including common reptiles, foraging bats and potentially foraging badger, given their limited extent and poor botanical quality, such habitats are of importance at the **Site** level only.

***Tall Ruderal Vegetation***

3.33 During the initial 2017 Extended Phase 1 Habitat survey, tall ruderal vegetation dominated the eastern corner of the Application Site, with bracken (*Pteridium aquilinum*) occurring on the railway line embankment in addition to creeping thistle abundant across the grassland fields. Whilst such habitats continue to dominate this area onsite, update visits during 2019 recorded the clearance down to ground level of vegetation along the railway embankment. Tall ruderal vegetation otherwise occurs in association with scrub habitats, including hemp agrimony, creeping thistle, common nettle, hogweed and rosebay willowherb.

3.34 In addition to scattered stands of Japanese knotweed occurring within woodland habitats dominating the northern extents of the Application Site, additional stands also occur at its southern extent, in association with the adjacent railway line.

3.35 Tall ruderal vegetation, whilst of some value to nesting birds and common reptiles, are generally limited in extent and botanical diversity, and thus of importance at the **Site** level only.

***Summary of Habitat Types***

3.36 A summary and qualitative assessment of those habitats assessed on and immediately adjacent to the Application Site is provided in **Table EDP 3.3**.

**Table EDP 3.3**: Summary of habitats within the Survey Area.

| Habitat or feature | Distribution within Survey Area | Intrinsic ecological importance |
|---|---|---|
| Broadleaved woodland – onsite (**W1** – **W4**) | Mainly secondary developing broadleaved woodland forming the northern and western boundaries of the Application Site. Mature standards present in association with **W4**. | Local, mainly developing woodland, but value elevated due to its connectivity to more mature woodland to north including Radyr Community Woodlands SINC/ASNW. |
| Broadleaved woodland – offsite (**W5** & **W6**) | Secondary broadleaved woodland located offsite to the immediate north; connects the Application Site to additional woodland extending northwards and incorporating Radyr Community Woodlands SINC/ASNW. | Local, contributing to the existing wildlife corridor associated with Radyr Community Woodlands SINC/ASNW. Mature trees and a relatively diverse ground flora supported. Of importance to protected and notable species such as nesting birds and foraging and roosting bats. |
| Scrub and Scattered trees (Areas **S1**, **S2** and **S5**). | Present throughout the Application Site. | Site, given limited botanical diversity and distinctiveness. |
| Scrub and Scattered trees (Areas **S3** and **S4**) | Linear belt of scrub habitat aligning the Application Site's south-western boundary. | Local, given its value as a linear feature and use as a wildlife corridor. Limited botanical diversity and distinctiveness. |
| Dense bramble scrub offsite | Substantial area of dense bramble scrub situated between Woodland **W5** and **W6**. | Site, given limited botanical diversity and distinctiveness. |
| Hedgerow | Along part of south-eastern boundary. | Site, comprising non-native hedgerow and limited diversity. |
| Semi-improved grassland | The predominant habitat within the south/south-east of the Application Site. | Site, due to low botanical diversity and distinctiveness. |
| Tall ruderal vegetation | Present within small isolated patches within north eastern corner of the Application Site. | Site, owing to low distinctiveness, low species diversity and small extent. |

3.37 As noted within **Table EDP 3.3**, the Application Site contains habitats ranging from **Site** to **Local** value. Whilst the woodland habitat occupying the northern extent of the Application Site is relatively young and establishing, with limited habitat structure, sparse ground flora and subject to regular public use (with littering and ground disturbance widespread), it is considered of importance at the **Local** Level given its contiguous nature with additional offsite woodland areas **W5**, **W6** and Radyr Community Woodlands SINC/ASNW located beyond. The scrub and scattered trees on the south-western boundary of the Application Site are also considered to have **Local** value given its linear nature and value as a wildlife corridor.

3.38 In addition to the above, habitats or other features of limited intrinsic value also require consideration in relation to their importance in supporting protected and/or notable species, as discussed further below.

**Protected and/or Notable species**

3.39 The likelihood of presence, or confirmed presence, of protected/and or notable wildlife species within the Application Site is summarised below with reference to Desk Study records, habitat suitability and detailed surveys where relevant. Further details are made available within appendices and plans where referenced.

3.40 Where a particular species or taxonomic group has been confirmed to be present, or presence is inferred based on habitat suitability, the ecological value or significance of the population or assemblage is assessed on a geographical scale.

***Breeding Birds***

3.41 Numerous records of bird species were retrieved during the desk study, including those that receive legal protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), and those that are of listed as Species of Conservation Concern in Wales[16] and/or on Section 7 of the Environment (Wales) Act 2016.

3.42 Schedule 1 species recorded within 1km include redwing (*Turdus iliacus*), goshawk (*Accipter gentilis*), fieldfare (*Turdus pilaris*) and kingfisher (*Alcedo atthis*).

3.43 Records of red-listed species include starling (*Sturnus vulgaris*), black-headed gull (*Chroicocephalus ridibundus*), bullfinch (*Pyrrhula pyrrhula*), pied flycatcher (*Ficedula hypoleuca*), grasshopper warbler (*Locustella naevia*), wood warbler (*Phylloscopus sibilatrix*), and kestrel (*Falco tinnunculus*). Amber-listed species include lesser redpoll (*Acanthis cabaret*), house sparrow (*Passer domesticus*), song thrush (*Turdus philomelos*), reed bunting (*Emberiza schoeniclus*) and tree pipit (*Anthus trivialis*).

[16]Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746

3.44 The scrub, hedgerow, trees and woodland habitats onsite are considered likely to support a generalist bird assemblage during the bird breeding season. The woodland and scrub habitats also include some berry producing species, of potential value to winter visitors such as redwing.

3.45 During the March 2019 update Extended Phase 1 Habitat survey, all birds seen or heard were recorded. Records of birds of conservation concern in Wales included the red-listed and amber-listed bullfinch and house sparrow, respectively. The following green-listed species were also recorded: blackbird (*Turdus merula*), blue tit (*Cyanistes caeruleus*), dunnock (*Prunella modularis*), goldfinch (*Carduelis carduelis*), great spotted woodpecker (*Dendrocopos major*), great tit (*Parus major*), robin (*Erithacus rubecula*), sparrowhawk (*Accipiter nisus*), wren (*Troglodytes troglodytes*) and wood pigeon (*Columba palumbus*).

3.46 The Application Site is considered to be of **Site** level importance with respect to its potential to support common and widespread bird species**.**

***Bats***

3.47 A number of records for bats, including confirmed bat roosts, were received from SEWBReC during the course of the desk study. The nearest roost record is from 2013, of an unknown species from a residential property approximately 638m to the north-east. Other pertinent roost records in close vicinity comprise:

- A brown long-eared (*Plecotus auritis*) bat roost of up to 17 individuals roosting in a building approximately 650m to the south-west in 2009. Small numbers of common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*P. pygmaeus*), as well as a *Myotis* species have also been recorded roosting in this property;

- A probable common pipistrelle maternity roost of 41 individuals in a residential property approximately 700m to the west from 2012;

- A soprano pipistrelle roost (no roost status disclosed) approximately 800m to the east (2016), and 850m to the west (2012);

- A male pipistrelle roost (species unknown) approximately 1km to the north in 2009; and

- A number of other small common pipistrelle and brown long-eared roosts have been recorded between 1km to 2km from the Application Site, with a larger common pipistrelle roost (up to 81 individuals) recorded approximately 1.8km to the east in 2009-2010.

3.48 The nearest Annex II bat roost record is from 2014, of lesser horseshoe (*Rhinolophus hipposideros*), approximately 3km to the south-west at St Fagan's Museum. There are also several other lesser horseshoe roosts between 3-4km, including maternity roosts recorded between 2008 and 2013.

3.49 There are numerous records of foraging bats within 2km, largely consisting of common and soprano pipistrelle along the River Taff recorded by Cardiff and Valleys Bat Groups as part of the Bats and Bikes project. Other species recorded foraging within 2km include noctule, Nathusius' pipistrelle (*Pipistrellus nathusii*) and *Myotis* species. The closest foraging record of an Annex II bat species is of a lesser horseshoe approximately 2.8km to the south. Greater horseshoe (*Rhinolophus ferrumequinum*) and barbastelle (*Barbastella barbastellus*) have been recorded foraging approximately 3.7km to the north.

3.50 The Soltys Brewster surveys of the Application Site undertaken in 2012 (report reference E1133402/R01) recorded foraging and commuting common pipistrelle, soprano pipistrelle, noctule, *Myotis* species and brown long-eared bats on the Application Site, with the majority of the calls being one of the two pipistrelle species.

*Bat Roosting Assessment: Trees*

3.51 The majority of the trees were assessed as having negligible potential for roosting bats as they do not contain any suitable crevices or cavities to be used as such, however there are a small number of trees with bat roost potential, as illustrated at **Plan EDP 2** and further described in **Table EDP 3.4** below.

**Table EDP 3.4**: Description of trees and roost potential.

| Tree number | Species | Description and Potential Roost Features | Evidence of bats | Roost Potential |
|---|---|---|---|---|
| Tree **T1** (Tree T16/T17 in EDP arboriculture report edp4188_r011) | Oak and ash | This item comprises a mature ash (T16) and oak (T17) growing into one another, resulting in a shallow cavity present where the two trees meet, of potential to support small numbers of bats on an occasional or adventitious basis. There was no evidence of such during the current survey, however. | Nil | Low |
| Tree **T2** (Tree group G30 in EDP arboriculture report edp4188_r011) | | A single horse chestnut with a hazard beam considered of moderate bat roost potential, located within tree group G30 adjacent to trees T33 and T34.<br>The hazard beam was inspected with an endoscope on 31 May 2018, with no evidence of bats recorded. | Nil | Moderate |
| Woodland **W4** | Oak and sycamore | Contains several trees with low bat roost potential, including an oak with shallow crevices, butt rot and knot holes, and trees of a size where features could occur but were not visible from ground level; extensive ivy occurs on a number of trees in this area. | Nil | Low |

*Bat Roosting Assessment: Buildings*

3.52 There are no buildings within the Application Site boundary. However, there is a stone underpass beneath the railway line to the immediate east of the Application Site boundary. The underpass is in good condition, with no gaps or cavities in the stonework that could be used by roosting bats. The underpass is open on both sides and does not go underground. The underpass is therefore not considered to support any features suitable for roosting bats.

*Bat Activity: Manual Transect Surveys*

3.53 Bat foraging and commuting activity recorded during each of the surveys undertaken during August and September 2017 and May 2018 are detailed within **Appendix EDP 5** and further illustrated within **Plans EDP 3a** to **3c**. A summary of the results is presented in **Table EDP 3.5**.

**Table EDP 3.5**: Approximate levels of bat activity recorded by surveyors on and adjacent to the Application Site.

| Bat species | Approximate number of individuals recorded across transects surveyed | | | | Relative abundance; associated feature(s) |
|---|---|---|---|---|---|
| | Aug 2017 dusk | Sep 2017 dusk | May 2018 dusk | Total | |
| Soprano pipistrelle | 11 | 13 | 14 | **38 (47%)** | Co-dominant; relatively widespread throughout the study area and associated with boundary features, especially along path to south-west. |
| Common pipistrelle | 12 | 12 | 15 | **39 (48%)** | Co-dominant; relatively widespread throughout the study area and associated with boundary features, especially along path to south-west. |
| *Myotis sp.* | 0 | 3 | 1 | **4 (5%)** | Main activity by underpass. Brief passes in woodland and along leyland hedge. |
| **Total** | **23** | **28** | **30** | **81** | |

3.54 At least three bat species were recorded during the manual transect surveys including common pipistrelle, soprano pipistrelle, and a *Myotis* species.

3.55 The vast majority of bat activity recorded was attributed in an equal proportion to both soprano pipistrelle (47%) and common pipistrelle (48%) bats, with a small proportion (5%) being a *Myotis* species.

3.56 Generally, bat activity was found to be relatively widespread across the Application Site, although peaks in activity for both species of pipistrelle were noted to the west of the Application Site along the footpath where foraging was frequent during all surveys. Soprano pipistrelle was recorded early during the August survey (4 minutes after sunset), possibly suggesting the presence of a roost nearby. During the September survey, the

*Myotis* species was recorded early flying in and around the railway underpass, along with a soprano pipistrelle; given the early times of these recordings relative to sunset (9 minutes and 11 minutes after sunset respectively), it also suggests that there are roosts nearby. The May 2018 survey followed a similar pattern, with foraging activity widespread throughout the Application Site, and soprano pipistrelle being recorded relatively early to the north-east, approximately 14 minutes after sunset.

3.57 Overall levels of bat activity are considered typical of a small Application Site comprising grassland, woodland and scrub habitats.

*Bat Activity – Automated, Static Detector Survey*

3.58 Results of the automated detector surveys completed during August and September 2017 and May 2018 are detailed within **Appendix EDP 5**. A summary of the results is presented in **Table EDP 3.6**.

**Table EDP 3.6**: Approximate levels of bat activity recorded by automated static detectors deployed on the Application Site for five consecutive nights in August and September 2017, and May 2018 (A1 – along footpath to the south; A2 – on southern boundary of woodland; A3 – along footpath to north).

| Bat Species | Month Deployed per Automatic Detector | | | Total | % of Total |
|---|---|---|---|---|---|
| | Aug 2017 A1/A2 | Sep 2017 A1/A2 | May2018 A1/A2/A3 | | |
| Common pipistrelle | 353/125 | 266/16 | 479/141/1095 | 2475 | 54% |
| Soprano pipistrelle | 41/189 | 40/9 | 311/40/996 | 1626 | 35% |
| Pipistrelle species | - | - | 29/2/0 | 31 | 1% |
| *Myotis sp.* | 29/104 | 116/4 | 37/6/40 | 336 | 7% |
| Long-eared bat | 69/16 | 8/0 | 5/3/0 | 101 | 2% |
| Noctule | 0/8 | 0/2 | 9/12/3 | 34 | 1% |
| **Total** | **934** | **461** | **3208** | **4603** | |

3.59 A total of five bat species/groups were recorded by the automated detectors deployed on Application Site. Bat activity recorded by the automated detectors was dominated by pipistrelle bats, totalling approximately 90% of all call registrations.

3.60 With respect to the remaining 10% of bat registrations, Myotid bat species accounted for 7%, with long-eared accounting for 2% and noctule accounting for approximately 1%.

*Evaluation*

3.61 Common pipistrelle bats are common and widespread across the UK, representing the most abundant species in the UK. Whilst having suffered significant historic declines, national population monitoring[17] indicates that their populations have increased since

[17] Bat Conservation Trust, 2018. The National Bat Monitoring Programme. Annual Report 2017.

1999. Common pipistrelle bats were found to be the co-dominant species utilising the Application Site during the manual activity surveys and were dominant in the automated surveys accounting for over half of the calls recorded. Common pipistrelle bats using the Application Site are therefore considered to be of **Local** Importance.

3.62 Soprano pipistrelle bats are widely distributed across the UK, and whilst having suffered significant historic declines, population monitoring[18] indicates that this species has been stable nationally since 1999[19]. Soprano pipistrelle bats were found to be the co-dominant species utilising the Application Site during the manual activity surveys, and account for 35% of the automated recordings. Soprano pipistrelle bats supported by the Application Site are therefore considered to be of **Local** Importance.

3.63 Myotid bat species occur throughout most of the UK, generally their populations considered to be either stable or increasing[20]. Small numbers of individuals of Myotid bats were recorded foraging during the September and May manual survey, and this species group accounted for 7% of the recorded calls during the automated surveys. The use of the Application Site by Myotid bat species is considered to be of **Site** Importance.

3.64 Brown long-eared bat is found throughout the UK, its populations considered to remain stable nationally[21]. Grey long-eared bat (*Plecotus austriacus*) is rarer, with most occurrences being in the south-west of England[22], though there is insufficient data to calculate population trends[23]. This genus was not recorded during the manual surveys, and only accounted for a small proportion of the automated calls (2%). Long-eared bats using the Application Site are therefore considered to be of importance at the **Site** level only.

3.65 Noctule bat is widespread across the UK, with its population and range considered to remain stable in the UK[24]. Only a low number of noctule bats were recorded during the automated surveys (1%), and this species was not recorded during the manual surveys. A far ranging species, noctule bats using the Application Site are, therefore, considered to be important at the **Site** level only.

3.66 Overall, the bat assemblage utilising the Application Site is dominated by individuals of widespread and common species utilising the Application Site primarily for foraging and commuting purposes, with the edge habitats being used the most frequently. There is a good level of activity from both common pipistrelle and soprano pipistrelle, with Myotid species, noctule and long-eared species only rarely recorded utilising the Application Site. Overall, the Application Site is considered to have importance at a **Local** level for bats.

[18] Bat Conservation Trust, 2019. The National Bat Monitoring Programme. Annual Report 2018.
[19] Bat Conservation Trust, 2019. The National Bat Monitoring Programme. Annual Report 2018.
[20] Bat Conservation Trust, 2019. The National Bat Monitoring Programme. Annual Report 2018.
[21] Bat Conservation Trust, 2019. The National Bat Monitoring Programme. Annual Report 2018.
[22] 3rd Report under Article 17 on implementation of the Habitats Directive in the UK, JNCC 2013.
[23] Bat Conservation Trust, 2019. The National Bat Monitoring Programme. Annual Report 2018.
[24] Bat Conservation Trust, 2019. The National Bat Monitoring Programme. Annual Report 2018.

***Dormouse***

3.67 The SEWBReC search returned one record of dormouse from 2011, approximately 1.7km to the north of the Application Site at Forest Farm.

3.68 The block of woodland forming the northern extent of the Application Site is considered to offer some opportunities for dormouse, albeit limited given the presence of only a sparse field layer and with public disturbance widespread, resulting in littering, ground disturbance and poor understorey connectivity in places. Nevertheless, its connectivity to better quality woodland offsite to the north (Radyr Court Woodlands SINC/ASNW), in addition to the presence of dense scrub onsite, suggests that the Application Site could offer potential foraging and dispersal opportunities for this species, likely on an opportunistic basis, should a population be present within the locality.

3.69 No evidence of dormouse activity was recorded for the Application Site however, either during the nest tube surveys or nut searches undertaken between August 2017 and May 2018. Several wood mouse nests, including nests occupied by at least three individuals were recorded during the surveys, the majority of which were found within tubes deployed within scrub habitat within the grassland fields.

3.70 A further inspection of the tubes prior to their removal during March 2019 did not identify any evidence of dormouse, with only a number of wood mouse individuals observed.

3.71 The full results of the dormouse survey undertaken of the Application Site are presented within **Appendix EDP 7**, with locations of nest tubes in **Plan EDP 4**.

3.72 Given the absence of evidence of dormouse in association with the Application Site, this species is not considered to pose a constraint to the development proposals and is thus not considered further within this report.

***Otter and Water Vole***

3.73 Eight records for otter (*Lutra lutra*) were returned in the data search. Only two of these were within a 2km radius of the Application Site from 2010 and 2014. These records were located approximately 1.1km and 1.8km, respectively, north-west of the Application Site along the River Taff. The remaining records were over 2km away from the Application Site with dates ranging from 2010-2016. Although the River Taff is within 50m of the eastern Application Site boundary, a main railway line and a busy section of the Taff Trail lie between and the likelihood of otter using the Application Site is considered low. No evidence of otter was recorded during the survey.

3.74 One record for water vole (*Arvicola amphibius*) was returned, which is approximately 1.6km from the Application Site dating from 2009 at Forest Farm. The lack of suitable habitats on the Application Site and barriers between any potentially suitable habitat mean that the presence of water vole on the Application Site itself is considered extremely unlikely. No evidence of water vole was recorded during the survey.

3.75 Otter and water vole are therefore not considered to pose a constraint to the development proposals and thus not considered further within this report.

***Badger***

3.76 Two records for badger (*Meles meles*) occur within 2km of the Application Site, the closest record from 2009 being situated 650m south-west of the Application Site.

3.77 The woodland/scrub habitats within the Application Site provide suitable habitat for setts, with grassland and scrub habitats comprising the remainder of the Application Site considered suitable for foraging and cover.

3.78 No evidence of badger was recorded however, with no setts present onsite nor other signs of activity detected. Whilst much of the scrub was too thick to inspect in detail, no evidence of badger movement through these habitats was recorded. A rabbit hole was, however, noted within the northern field along a raised bank.

3.79 Given their likely presence within the wider landscape however, combined with their opportunistic nature and the potential of the Application Site to provide suitable foraging opportunities, this species is considered to be of importance at the **Site Level** only.

***Other Mammals***

3.80 There are 80 records for hedgehog (*Erinaceus europaeus*) dating between 2008 and 2016 within the 2km radius of the Application Site. The closest record for hedgehog is approximately 200m north-west of the Application Site.

3.81 One record was returned for weasel (*Mustela nivalis*) within 2km radius of the Application Site from 2012, located approximately 1.5km north-west of the Application Site.

3.82 No evidence that the Application Site was used by hedgehog or weasel was found, though it contains suitable habitat for such. A fox was recorded within the grassland during the August bat transect. The Application Site could also be used by a wide range of common mammals, such as shrews, voles, and mice; there was evidence of rabbit activity across the northern grassland field.

***Amphibians/Great Crested Newt***

3.83 Numerous records for amphibians were returned in the desk study. A total of eleven records for great crested newt (*Triturus cristatus*) occur within a 2km radius of the Application Site all dating between 2008 – 2016, three of which are from ponds with one record being a terrestrial sighting, all the remaining records provide no details. Of these records, the closest is located approximately 700m north-east of the Application Site, on the opposite side of the River Taff, dating back to 2008. Given its distance away from the Application Site together with the presence of the river acting as a potential barrier, habitats within the Application Site are not considered to contribute to this population,

should it remain present. The next nearest record is located approximately 1.3km to the south-west, beyond a large housing estate.

3.84 Aside from great crested newt, five records for smooth newt (*Lissotriton vulgaris*) occurred all within 1km of the Application Site between 2008 and 2015. Twenty-eight records also exist in the 2km radius area for palmate newt (*Lissotriton helveticus*) (however 20 of these records relate to a single pond) ranging from 2008 – 2016. The closest record for smooth newt is approximately 570m north-east of the Application Site and the closest record for palmate newt was 580m north-east.

3.85 Sixty-six common toad (*Bufo bufo*) records exist from 2008 - 2016, the closest being approximately 50m north-west of the Application Site. (41 of these records are from one recorder's back garden). There were also 104 records for common frog (*Rana temporaria*) (37 of these are from one recorder's back garden). These records date from between 2008 – 2016 with the closest situated approximately 200m north-west of the Application Site.

3.86 There are no ponds within the Application Site, and none visible on Ordnance Survey (OS) maps within 500m. The closest pond is approximately 620m to the south-west beyond a housing estate, school and associated roads which are a significant physical barrier. There are also ponds approximately 700m to the north-west within Radyr Woods. While the grassland, scrub and woodland may have some value for common species such as common frog and common toad, none were recorded during the refugia surveys, whilst the likelihood of great crested newt occurring on the Application Site is considered extremely low. As such, great crested newt is not considered to pose a constraint to the development proposals and is thus not considered further within this report.

***Reptiles***

3.87 The data search returned a number of records for grass snake (*Natrix natrix*), slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) in the vicinity of the Application Site. A total of 16 grass snake records occurred within the 2km radius of the Application Site spanning 2008 – 2016. The closest of these was located 353m north-west of the Application Site. Twenty-one slow-worm records were returned, dating between 2008 and 2015, with the closest of these records occurring 71m north-west of the Application Site. Nine records were received for common lizard between 2008 and 2016 with the closest to Application Site 375m to the north-west.

3.88 Reptile surveys were undertaken on the Application Site by Soltys Brewster surveys in October 2011 (Report Reference: E1133401/R01). No reptiles were recorded during these surveys, though the lateness of the season in which these surveys were undertaken is acknowledged.

3.89 Reptile surveys completed during 2017 confirmed a maximum of four slow-worm individuals recorded during any one survey visit, with individuals concentrating predominantly along the scrub interfaces of the southern field. Juveniles were recorded in addition to adults. No other species of reptile were recorded however during the course of

the reptile surveys. The full results of the surveys undertaken are provided in **Appendix EDP 6** with their locations illustrated on **Plan EDP 5**.

3.90 Whilst a full population size assessment was not undertaken, given the relatively low numbers recorded over the course of the survey visits, it is considered that no greater than a low population of slow-worm are supported by the Application Site[25,26].

3.91 The distribution of slow-worm is considered to be relatively widespread in Wales[27]. The population supported by the Application Site is therefore considered to be of no greater than **Site** Level importance.

***Invertebrates***

3.92 Numerous records for priority/protected species of lepidoptera were returned in the desk study dating from 2008 – 2016. A single record for the protected marsh fritillary (*Euphydryas aurinia*) approximately 1.8km south-west of the Application Site was documented in 2016.

3.93 No invertebrates of note were recorded during the present survey. The Application Site is assessed as being likely to support a wide range of common and widespread invertebrate species, though the likelihood of any rare or protected species occurring is considered low.

***Notable Plants***

3.94 A number of notable plant and fungi species records were returned. This included 17 records for bluebell (*Hyacinthoides non-scripta)* from 2008 – 2016. The closest of these was 310m north-west of the Application Site. Other notable plants included a single record for fen orchid (*Liparis loeselii*) in 2009, fragrant orchid (*Gymnadenia conopsea*) in 2009, and the lichen *Parmotrema perlatum* in 2014. There are also historic records of Radyr hawkweed (*Hieracium radyrense*) approximately 20m to the north of the Application Site, with the most recent record being from 1985.

3.95 No rare or priority plants were recorded on the Application Site, though the invasive species Japanese knotweed is present in association with the eastern boundary extents of the Application Site adjacent to the railway line, in addition to scattered stands across its northern extent.

**Summary of Key Issues Arising from Survey Findings**

3.96 Based on the survey findings described above, the key ecological features/receptors pertinent to the development proposals are listed within **Table EDP 3.7**.

[25]Froglife (1999) *Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10, Froglife, Halesworth.
[26]Herpetofauna Groups of Britain and Ireland (1998). *Evaluating Local Mitigation/Translocation Programmes: Maintaining Best Practice and Lawful Standards*. HGBI Advisory Notes for Amphibian and Reptile Groups (ARGs).
[27]BTO (2011). *Research Report No.572: An examination of reptile and amphibian population sin gardens, the factors influencing garden use and the role of a 'Citizen Science' approach for monitoring their populations within this habitat.* BTO.

**Table EDP 3.7**: Key ecological features pertinent to the development proposals.

| Receptor | Key Attributes | Nature Conservation Value |
|---|---|---|
| ***Habitats*** | | |
| Broadleaved woodland | Secondary developing broadleaved woodland forming the northern boundary of the Application Site. Connects to more mature woodland leading to Radyr Community Woodlands SINC/ASNW. Provides foraging, commuting and roosting/nesting opportunities for bats and breeding birds. | Local |
| Scattered trees & dense continuous scrub (Areas **S3**, and **S4**) | Contributes to wider habitat mosaic and local biodiversity. Provides wildlife corridor to surrounding landscape. Used frequently by commuting/foraging bats. Also has value for common reptiles and nesting birds. | Local |
| Scattered trees & dense continuous scrub (Areas **S1**, **S2** and **S5**) | Contributes to wider habitat mosaic and local biodiversity. Used by foraging bats and has value for common reptiles and nesting birds. | Site |
| Semi-improved grassland | Contributes to wider habitat mosaic and local biodiversity, including providing habitat for small numbers of slow-worm and habitat for foraging bats. | Site |
| Tall ruderal vegetation | Contributes to wider habitat mosaic and local biodiversity. | Site |
| Hedgerow | Linear feature with value for foraging bats and nesting birds. | Site |
| ***Fauna*** | | |
| Bats | Commuting and foraging activity for assemblage of bat species recorded across the Application Site, though all species recorded are common and widespread. | Local (European Protected Species) |
| Breeding birds | Common and widespread species likely to nest within suitable habitats within the Application Site. | Site (protected by national legislation) |
| Reptiles | Small numbers of slow-worm recorded in grassland. | Site (protected by national legislation) |
| Badger | No evidence of badger, though dense scrub prevented detail inspection. Suitable habitat for foraging and setts. | Site |
| Other mammals: hedgehog and polecat | Habitats forming the peripheries of the Application Site provides suitable cover for these species. | Site |

# Section 4
# Details of Proposed Development

4.1 Having reviewed the baseline conditions, this section of the Ecological Appraisal provides pertinent details of the proposed development, in particular those aspects which have potential implications for the ecological features/receptors identified in **Section 3**. Where relevant, reference is made to the influence that ecological considerations have had in the scheme's design and any inherent mitigation which avoids or reduces the severity of potential ecological impacts.

## Development Proposals

4.2 The development is detailed within the proposed site layout provided at **Appendix EDP 2** and further illustrated within the Green Infrastructure Strategy and Landscape Strategy included at **Appendix EDP 3**. In summary, detailed planning consent is sought for the development of 45 residential dwellings together with associated infrastructure, public open space and woodland management.

## Proposed Habitat Loss

4.3 The Application Site totals circa 2.88 ha. Land take associated with the proposed built development, to include residential units, roads and associated infrastructure including rain gardens (amounting to 0.03 ha), totals 1.2 ha, equating to 42% of the total Application Site area.

4.4 Such development will therefore require the loss of both semi-improved grassland fields onsite, in addition to associated scrub areas **S1**, **S2** & **S5** and a good proportion of secondary woodland areas **W1** & **W2** occurring along the peripheries of the development footprint. In addition, an access road is also proposed through woodland area **W4** to the north-west, its alignment chosen to ensure maximum retention of mature trees of arboricultural and ecological value. Tree groups requiring complete or partial removal amounts to approximately 0.6 ha.

## Proposed Habitat Gain

### *Habitat Retention, Enhancement & Creation*

4.5 The proposals have sought to secure and protect as far as possible the vast majority of woodland and mature trees occurring onsite of arboricultural and ecological value, in addition to the retention of existing Public Rights of Way traversing the Application Site. Specifically, the alignment of the main access road extending north-westwards across the Application Site is positioned such that it maintains footpath access, whilst improving connections between Radyr Court Road to the south and Nicholson Webb Close to the

north-west, whilst avoiding mature trees occurring within this area, and particularly those associated with woodland area **W4** at its far north-western end. The Public Right of Way traversing north-west – south east along the northern boundary of the development footprint is also to be fully retained and secured.

4.6 Woodland and scrub habitats associated with the south-western boundary of the Application Site (i.e. woodland area **W3** and scrub areas **S3** and **S4**, totalling circa 0.8 ha), are also proposed for retention and enhancement, with scrub habitats immediately aligning the western edge of the proposed access road to be reduced in extent through selective scrub clearance so as to allow for the planting of new trees, shrubs and species-rich grassland along its length necessary to further strengthen and enhance this existing green corridor extending the full length of the Application Site. An informal footpath traversing this wooded area is also proposed, to provide an off-road access route whilst maximising recreational opportunities across the Application Site.

4.7 In addition, woodland habitat located within the Application Site to the immediate north and north-east of the development footprint, totalling circa 0.69 ha, is to be retained and subject to sensitive management, whilst also being sufficiently offset from the development edge through the provision of a habitat buffer measuring circa 15m in width, in accordance with the Cardiff Green Infrastructure SPG[28]. Such buffers total circa 0.13 ha and will accommodate new 'ecotone' planting, including trees, shrubs, scrub and grassland planting to enable the transition of habitats necessary to maximise habitat diversity and structure whilst strengthening key habitat corridors and maintaining woodland integrity. An additional block of native shrub planting totalling circa 0.03 ha is also proposed adjacent to the proposed pumping station situated to the immediate south of this habitat buffer, so as to further to maximise the existing green corridor aligning the Application Site's north-eastern boundary.

4.8 A number of rain gardens are also proposed across the development footprint itself, totalling circa 0.03 ha, allowing for the additional provision of new tree, shrub and grassland planting within the streetscape, thereby providing stepping stone habitats for the movement of wildlife across the development area including birds and invertebrates.

4.9 Furthermore all habitats proposed for retention, enhancement and creation across the Application Site will be subject to management over the long term by a Private Management Company.

4.10 In addition to the above, and to further compensate and mitigate for unavoidable losses across the Application Site, additional land under Client control, comprising offsite woodland habitat to the immediate north of the Application Site and totalling circa 2.56 ha (encompassing woodland areas **W5**, **W6** and associated scrub), is to be retained as a community woodland. The proposals thereby secure the retention of offsite land as woodland habitat over the long term, maximising habitat connectivity to Radyr Community Woodland SINC/ANSW to the north through maintaining habitat corridors along the River Taff and railway line adjacent. This offsite community woodland area will be subject

[28]Cardiff Green Infrastructure SPG. Ecology and Biodiversity. Technical Guidance Note (TGN). Consultation Draft June 2017; Adopted November 2017.

to restoration and enhancement through the control of invasive species and appropriate management of the woodland habitat itself, including scrub control, the principles of which are further detailed within the Community Woodland Strategy note submitted as part of the application (report reference edp4188_r011).

4.11 Together, the above measures are considered to ensure the maintenance of the continued functioning and ecological integrity of woodland and associated scrub habitat both on and adjacent to the Application Site.

4.12 EDP has provided input throughout the iterative design process such that the proposed layout incorporates important measures considered necessary to avoid, mitigate and/or compensate for any ecological impacts arising should such development be consented, in addition to detailing further recommended measures necessary to provide ecological enhancements over the long-term. Such measures have been designed to ensure that the proposal minimises impacts on biodiversity and provides net gains in biodiversity, wherever possible, as further discussed within **Section 5** of this Appraisal.

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# Section 5
# Predicted Impacts and Mitigation

5.1 This section of the Ecological Appraisal considers the likely impacts of the detailed layouts (included as **Appendix EDP 2** and further illustrated at **Appendix EDP 3**) on the existing ecological resource. Where impacts cannot be avoided by inherent mitigation alone, additional mitigation or enhancement measures are recommended which, if implemented, would as a minimum enable the proposed development to meet legislative and/or planning policy requirements.

5.2 Additionally, opportunities for the proposed development to enhance existing features, or provide opportunities for positive ecological gain, in accordance with the principles of Planning Policy Wales (Edition 10, December 2018) and Technical Advice Note 5: Nature Conservation and Planning (TAN5), are identified.

## Designated Application Sites

### *Statutory Designations*

5.3 Statutory designations receive legal protection under various international and national legislative instruments. This protection is also reflected in policies included within Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning (TAN5), which are given material consideration during the planning application process.

5.4 At the local level, the Cardiff Local Development Plan (adopted January 2016) includes Policy EN5 (Designated Application Sites) which states: *"Development will not be permitted that would cause unacceptable harm to Application Sites of international or national nature conservation importance".*

5.5 As described in **Section 3**, there are a number of statutory designations within the potential zone of influence of the Application Site. However, in consideration of the relatively small scale and nature of proposed development and distance of the Application Site from designated statutory sites (the nearest site is Glamorgan Canal/Long Wood SSSI approximately 1 km away), no significant impacts to statutory sites or their qualifying features are considered likely.

### *Non-Statutory Designations*

5.6 Non-statutory designations do not receive any formal legal protection. However, they do receive planning policy protection, as reflected in TAN5.

5.7 At the local level, the Cardiff LDP Policy EN5 states:

*"Development proposals that would affect locally designated Application Sites of nature conservation and geological importance should maintain or enhance the nature*

*conservation and/or geological importance of the designation. Where this is not the case and the need for the development outweighs the conservation importance of the Application Site, it should be demonstrated that there is no satisfactory alternative location for the development which avoids nature conservation impacts, and compensation measures designed to ensure that there is no reduction in the overall nature conservation value of the area or feature."*

5.8 Radyr Community Woodland SINC/ASNW is considered to be of most pertinence to the Application Site, located approximately 40m to the north-west of the Application Site at its closest point (to the proposed access road). The proposed retention of a substantial block of offsite woodland habitat to the immediate north of the Application Site as a community woodland, separating the development footprint from this SINC/ASNW and totalling 2.56 ha, will, however ensure the avoidance of direct adverse impacts upon this designation following any future development of the Application Site.

5.9 Additionally, further enhancements to woodland, tree and scrub habitat to be retained and further enhanced onsite through sensitive landscaping and planting are also proposed, thereby strengthening the wider woodland resource comprising a key green corridor across the wider landscape. The development proposals have also been designed to secure and further strengthen existing Public Rights of Way traversing the Application Site, in addition to providing an additional, informal access route to the west of the main access road through existing and newly planted habitats, thereby maximising recreational opportunities across the Application Site itself.

5.10 The River Taff SINC, whilst located approximately 50m east of the Application Site, is separated from the Application Site by the Taff Trail, a main railway line and associated vegetation located upon a raised bank which defines the Application Site's eastern and north-eastern boundaries. No adverse impacts are therefore anticipated to arise upon this SINC given its spatial separation from the Application Site together with the retention, enhancement and creation of woodland, tree and shrub habitats along the Application Site's north-eastern boundaries. Nevertheless, it is recommended that the proposals implement a sensitive lighting strategy to ensure no/limited light spill occurs within close vicinity of the River Taff. Where lighting is required along road/pedestrian routes, lighting columns should be sited within the development footprint itself and directed away from habitat edges to minimise disturbance and light spill. Lighting should include directional, timed and/or low-lux lighting, utilising shields and/or hoods where required. Such measures could be secured via planning condition attached to any future consent.

5.11 Hailey Park SINC is located approximately 200m to the north-east, on the opposite side of the River Taff. Given the relatively small scale of the development and its spatial separation from this SINC, and taking into account habitat measures proposed with respect to Radyr Community Woodland SINC/ASNW and the River Taff SINC, no significant impacts are considered likely to arise upon its qualifying features.

5.12 Although there are several other SINCs within 1km, given their distance and spatial separation from the Application Site, in addition to the relatively small scale of the proposals, no adverse impacts are anticipated to arise.

**Habitats**

5.13 There are several mechanisms through which habitats receive protection without the statutory and non-statutory designated Application Site frameworks. Priority habitats comprise those listed by the Welsh Government as being of key significance to sustain and improve biodiversity in Wales, as defined under Section 7 of Part 1 of the Environment (Wales) Act 2016. Priority Habitats receive protection as identified within policies set out in TAN5.

5.14 Additionally, the Local Development Plan includes a number of relevant policies requiring consideration including:

- KP18 (Natural Resources) – In the interests of the long-term sustainable development of Cardiff, development proposals must take full account of the need to minimise impacts on the city's natural resources and minimise pollution;
- EN4 (River Corridors) – The natural heritage, character and other key features of Cardiff's river corridors will be protected, promoted and enhanced, together with facilitation sustainable access and recreation;
- EN6 (Ecological networks and features of importance for biodiversity) – Development will only be permitted where it does not cause unacceptable harm to landscape features/networks of importance for landscape and nature conservation;
- EN7 (Priority habitats and species) – Development proposals that would have a significant adverse effect on habitats and species will only be permitted should the need for development outweigh the nature conservation importance of the site, there is no satisfactory alternative and/or effective mitigation measures are provided;
- EN8 (Trees, woodlands and hedgerows) – Development will not be permitted that would cause unacceptable harm to trees, woodlands and hedgerows of significant public amenity, natural or cultural heritage value, or that contribute significantly to mitigating the effects of climate change; and
- EN11 (Protection of Water Resources) – Development will not be permitted that would cause unacceptable harm to the quality or quantity of underground, surface or coastal waters.

5.15 In addition, Policy K16 (Green Infrastructure) requires the consideration of the existing green infrastructure resource and ensure the integrity and connectivity of green infrastructure is protected, enhanced and managed.

5.16 Cardiff Council's Green Infrastructure Supplementary Planning Guidance (SPG) further sets out a series of Technical Guidance Notes (TGNs) specific to Ecology and Biodiversity[29], River Corridors[30] and Trees and Development[31], which are of pertinence to the Application Site.

5.17 Habitats within the Application Site have been assessed through an Extended Phase 1 survey and detailed botanical survey. The Application Site contains secondary developing broadleaved woodland and scrub of **Local** ecological value, together with semi-improved neutral grassland, scrub, scattered trees, tall ruderal vegetation and a non-native hedgerow of ecological value at the **Site** Level only. Whilst of limited ecological value *per se*, such habitats likely provide suitable dispersal and foraging opportunities for protected and notable species, with woodland and scrub habitats contributing to existing wildlife corridors given its connectivity to Radyr Community Woodland SINC/ASNW.

5.18 With respect to the proposals, land take associated with the proposed built development totals 1.2 ha, equating to 42% of the total Application Site area. The vast majority of such losses relate to grassland and scrub habitat, with woodland losses restricted to secondary woodland areas **W1** & **W2** occurring along the peripheries of the development footprint, in addition to losses to woodland area **W4** necessary to accommodate the proposed access road to the north-west. Tree groups requiring complete or partial removal amounts to approximately 0.6 ha.

5.19 To compensate and mitigate for such losses, habitat retention, enhancement and creation measures are proposed, as previously detailed at **Section 4**. Such measures include: the sensitive siting of the development footprint so as to avoid impacting upon the vast majority of mature tree stock considered to be of arboricultural and ecological value, with circa 0.69 ha of woodland habitats retained to the north of the development footprint; the provision of a habitat buffer measuring circa 15m in width and accommodating ecotone planting to sufficiently offset the development footprint from such woodland habitats retained (totalling circa 0.13 ha); the retention and sensitive management of additional woodland and scrub habitat associated with the south-western boundary of the Application Site, totalling 0.8 ha; the provision of an additional block of native shrub planting, totalling circa 0.03 ha, to further to maximise the existing green corridor aligning the along the Application Site's eastern boundary; and the inclusion of additional tree and shrub planting across the development footprint itself, including within rain gardens, to provide further stepping stone habitat onsite.

5.20 Furthermore, all habitats proposed for retention, enhancement and creation across the Application Site will be subject to management over the long term by a Private Management Company.

[29]Cardiff Green Infrastructure SPG. Ecology and Biodiversity. Technical Guidance Note (TGN). Consultation Draft June 2017; Adopted November 2017.
[30]Cardiff Green Infrastructure SPG. River Corridors. Technical Guidance Note (TGN). Consultation Draft June 2017; Adopted November 2017.
[31]Cardiff Green Infrastructure SPG. Trees and Development. Technical Guidance Note (TGN). Consultation Draft June 2017; Adopted November 2017.

5.21 In addition to the above, and to further compensate and mitigate for unavoidable losses across the Application Site, additional land under Client control, comprising offsite woodland habitat to the immediate north of the Application Site and totalling circa 2.56 ha (encompassing woodland areas **W5**, **W6** and associated scrub), is to be retained as a community woodland. The proposals thereby secure the retention of offsite land as woodland habitat over the long term, maximising habitat connectivity to Radyr Community Woodland SINC/ANSW to the north through maintaining habitat corridors along the River Taff and railway line adjacent. This offsite community woodland area will be subject to restoration and enhancement through the control of invasive species and appropriate management of the woodland habitat itself, including scrub control, the principles of which are set out within the Community Woodland Strategy Report also prepared by EDP (report reference edp4188_r011), for submission alongside the planning application.

5.22 In addition to the above, the following additional recommendations for incorporation into the proposals are made:

- Landscaping works proposed within and/or adjacent to habitat buffers aligning woodland habitats to be retained within and immediately adjacent to the development footprint will be undertaken in accordance with sensitive working methodologies to be set out within a future Ecological Construction Method Statement (ECMS), prepared for the Application Site;

- Habitat buffers proposed adjacent to woodland edges will be sensitively landscaped to accommodate new planting to further strengthen and protect woodland features. Such planting should allow for the creation of transitional 'ecotone' habitats, including appropriate native tree and shrub species of local provenance in addition to the provision of species-rich grassland/meadow habitat sensitively managed to create a variety of heights necessary to maximise structural diversity. Such planting will be detailed within a soft landscaping scheme and managed in the long-term in accordance with a future Landscape and Ecological Management Plan (LEMP) prepared for the Application Site;

- Litter bins should be provided and sited along footpaths and/or within publicly accessible areas of open space so as to deter littering and attraction of vermin including rats and corvids which could otherwise predate wildlife;

- A sensitive lighting strategy should be implemented across the Application Site to ensure no/limited lighting provision where necessary adjacent to sensitive habitats, including woodland boundaries and habitat buffers. Where lighting is required along proposed highways this should be appropriately sited within the development footprint itself and away from habitat edges to minimise disturbance and light spill. Lighting should include directional, timed or low-lux lighting and ensure appropriate column heights necessary to minimise light spill. With respect to Public Rights of Way and informal footpaths proposed through wooded habitats onsite, lighting should be avoided altogether to ensure the adequate provision of dark corridors across the Application Site for light sensitive species including bats. Such measures could be

secured via planning obligations/conditions attached to any future outline consent; and

- Appropriate measures should also be employed with respect to Japanese knotweed, an invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) confirmed present within woodland habitat located across the northern extent of the Application Site. Such measures should seek to minimise the risk of its spread, with advice from a specialist contractor sought to ensure its appropriate treatment and eradication.

**Protected and/or Notable Species**

5.23 Certain species receive legal protection in the United Kingdom and are commonly known as 'protected species'. In reality, the level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.

5.24 In addition to protected species, there are other species/species-groups that do not receive legal protection, but which are notable owing to their conservation status. Such species include those listed by the Welsh Government as being of Principal Importance for the purposes of conserving biological diversity. Local authorities have a duty to have regard to such species under the Environment (Wales) Act. Details of any actual or potential notable species within the Application Site are identified below.

5.25 With respect to planning policy, protected and notable species are also afforded policy protection at a national level by TAN5, which requires planning authorities to ensure that such species are protected from the adverse effects of development.

5.26 Baseline investigations have identified a number of protected species implications for the Application Site, with bats, badger, breeding birds, and reptiles supported or potentially supported by those habitats present across the Application Site. These species/species groups are discussed in turn below.

***Bats***

*Legislation*

5.27 All species of British bat are listed as a European Protected Species (EPS) on Schedule 2 of the Conservation Regulations (Annex IV(a) to the Habitats Directive). This affords it protection under the Conservation of Habitats and Species Regulations 2017, making it an offence to:

(i) Deliberately capture, injure or kill a wild animal of an EPS; and

(ii) Deliberately disturb wild animals of a EPS wherever they are occurring, in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, to affect significantly the local distribution or abundance of the species to which they belong, or in the case of hibernating or migratory species, to hibernate or migrate; or damage or destroy a breeding Application Site or resting place of a wild animal of an EPS.

5.28 Additional protection for bats is also afforded under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place. In addition, eight of the 18 species of bat resident in the UK (greater horseshoe, lesser horseshoe, barbastelle, Bechstein's (*Myotis bechsteinii*), soprano pipistrelle, common pipistrelle, brown long-eared and noctule) are also listed as Priority species.

Roosting Bats

5.29 A number of trees exist across the Application Site, primarily associated with areas of woodland and scrub. The vast majority of trees are considered to have negligible bat roost potential, though tree **T1** and several trees within woodland **W4** are considered to have low potential to support roosting bats. In addition, tree **T2** located within group **G30** comprising **W4** is also considered to have moderate potential, although no evidence of current or previous bat roosting was found during the survey.

5.30 With respect to the proposals **T1** is to be lost whilst **T2** is to be retained and remains unaffected by the proposals. In addition, crown reduction work to trees with low bat roost potential located within woodland **W4** will also be required.

5.31 Given the transient nature of bat roosts, an update assessment of all trees associated with woodland **W4** subject to tree works and considered to have potential to support roosting bats, to include aerial inspections where necessary, will be undertaken by an NRW bat licensed ecologist immediately prior to the commencement of felling/tree works. Should a bat roost be confirmed, then all works will cease and a derogation licence (Development Licence) sought from NRW where required, with sufficient replacement roosting habitat provided.

5.32 Where no bat roost(s) are found but bat roosting potential remains, then as a precautionary measure it is recommended that these trees should be subject to a 'soft' felling methodology by a suitably qualified arboricultural contractor with experience of working with bats, following the advice of the suitably qualified and licensed ecologist and supervised where necessary. A soft felling methodology involves the following approach:

- The avoidance of cutting through cavities/potential roosting features – i.e. cutting above and below the feature when removing sections with suitable features;

- The gentle lowering of cut sections to ground to avoid violent movement of potential roosting features; and

- The retention of cut sections with potential roosting features on Application Site for 48 hours, with potential entrances not blocked i.e. facing away from the ground, before being removed or chipped.

5.33 Should any bats be discovered during the felling of these or any other trees, then works will necessarily cease and a suitably qualified and NRW bat licensed ecologist contacted for further advice. It may be necessary to obtain a development licence from NRW before works can continue.

5.34 Given the potential for trees to degrade/decay over time such that their potential to support roosting bats may increase, should the felling of trees occur more than 12 months since the previous bat roost assessment, then such trees should be subject to an update tree roost assessment by a suitably qualified and NRW bat licensed ecologist, with appropriate mitigation/precautionary measures followed.

5.35 Such precautionary working measures in relation to bats should be included within an Ecological Construction Method Statement for the Application Site, secured via condition.

5.36 Additionally, it is recommended that new bat roosting features be provided across the Application Site to further enhance the development for roosting bats. Schwegler bat boxes[32] should be installed upon suitable, mature trees retained along the peripheries of the Application Site and erected with a south-east/south-west facing aspect where possible and away from sources of artificial lighting. Bat box design to be installed across the Application Site should include 2F for smaller bats and 2FN for larger bats (or similar). Bat roost features (such as bat tubes/bricks and raised ridge/roof tiles), could also be incorporated into the exterior of buildings (such as garages) where practicable.

Foraging/Commuting Bats

5.37 Detailed bat activity surveys have confirmed that the Application Site supports foraging and commuting activity dominated by common and widespread bat species. Bat activity is notably associated with boundary features, including the dense scrub/scattered trees to the south-west and along the path adjacent to the woodland to the north. The underpass beneath the railway line is also used by commuting/foraging bats.

5.38 The conversion of a greenfield site to residential development, resulting in the loss of woodland and scrub habitat, coupled with potential disturbance impacts arising following occupation, will inevitably impact upon foraging and commuting bats utilising the Application Site boundary. However given the small size of the Application Site together with the limited extent of habitat loss relative to that to be retained, enhanced and sensitively managed over the long term so as to strengthen existing woodland habitats within the wider landscape, such impacts arising are not considered to be significantly detrimental to the local bat assemblage, comprising common and widespread species.

[32] http://www.nhbs.com/browse/search?title-type-facet%5B%5D=&term=bat+boxes

5.39 Nevertheless, given the sensitivities of bat species to artificial lighting, it is recommended that a sensitive lighting strategy be implemented to ensure that the illumination of suitable flight corridors be avoided as far as possible, in addition to the provision of 'dark corridors' adjacent to areas of retained vegetation, particularly along the south-western, northern and north-eastern boundaries. As discussed previously in relation to habitats, directional, timed or low-lux lighting should be incorporated across the development footprint to ensure minimal light spillage upon retained and newly created habitats within and adjacent to the development edge. Where lighting is required along roads situated adjacent to such habitat features, it is recommended for such columns/bollards to be located within the development footprint itself and away from habitat edges to minimise disturbance and light spill. Lighting should otherwise avoid Public Rights of Way and informal footpaths where they traverse through wooded habitats. Such a strategy will ensure that the functioning of retained and newly created habitat features as wildlife corridors is maintained. Such measures could be secured through sensitive detailed design and planning conditions/obligations.

5.40 In addition to the above recommendations, further enhancements are advised with respect to bats, as follows:

- Schwegler bat boxes[33] should be installed upon suitable, mature trees retained along the peripheries of the Application Site including within adjacent woodland habitat. Bat boxes should be erected away from sources of artificial lighting and with a south-east/south-west facing aspect where possible. Bat box design to be installed across the Application Site should include 2F for smaller bats and 2FN for larger bats (or similar). Additionally, it is recommended for bat roost features (such as raised ridge and roof tiles), to be incorporated into the exterior of buildings where possible; and

- Any future planting plan prepared for the Application Site should include the provision of night-scented flowers, climbing plants and flowering shrubs where possible, given their attractiveness to nocturnal insects upon which bats feed. Species to be considered include hawthorn, evening primrose (*Oenothera* spp.), lavender (*Lavendula* spp.), buddleia (*Budleja* spp.), honeysuckle (*Lonicera* spp.), ivy and night-scented stock (*Matthiola* spp.).

***Dormouse***

*Legislation*

5.41 The hazel dormouse is listed as a European Protected Species, thereby receiving protection under the Conservation of Habitats and Species Regulations 2017. Additional protection is also afforded to this species under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly disturb dormouse whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place. This species is also listed as a Priority species.

[33]http://www.nhbs.com/browse/search?title-type-facet%5B%5D=&term=bat+boxes

5.42 No evidence of dormouse was recorded during the targeted nest tube surveys and nut searches. However a precautionary clearance[34] methodology should be followed as far as possible, with above-ground tree, shrub and scrub clearance undertaken between 1 November and 31 March so as to avoid the main dormouse active and bird breeding bird breeding seasons, followed by the removal of below-ground root balls and stumps between May and early October (i.e. avoiding the main dormouse and reptile hibernation periods). Where such timings are considered impracticable, particularly where targeted clearance is required to facilitate site enabling works, then such clearance should follow the advice of a suitably qualified ecologist and be subject to pre-commencement checks and supervision.

5.43 The details of all necessary precautionary working measures in relation to dormouse should be included within an Ecological Construction Method Statement for the Application Site, secured via condition.

***Badger***

*Legislation*

5.44 Badgers and their setts receive protection under the Protection of Badgers Act 1992, which protects badgers from deliberate harm and injury. The protection afforded to badgers is primarily due to animal welfare issues and not due to concerns over their unfavourable nature conservation status. Restrictions under this act which apply to development include any killing, injuring, possession or cruel treatment to badgers, any interference to a sett through damage or destruction, any obstruction of access to any entrance of a sett, or any disturbance to a badger whilst it is occupying a sett.

5.45 No evidence of badger was recorded onsite. Whilst the development will result in the loss of semi-improved neutral grassland and thus potential foraging habitat, such impacts are not considered to be significant given the limited extent and quality of such losses and retention of better-quality habitats adjacent.

5.46 Given the mobility and widespread nature of these species however, an update walkover survey of the Application Site by a suitably qualified ecologist immediately prior to the commencement of vegetation clearance/site enabling works is recommended to determine whether any new setts have been established during the interim period.

***Breeding Birds***

*Legislation*

5.47 All wild birds, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

(i) Intentionally kill, injure or take any wild bird;

[34]Bright, P., Morris, P. & Mitchell-Jones, T (2006). *The Dormouse Conservation Handbook, 2nd Edition*. English Nature, Peterborough.

(ii) Take, damage or destroy the nest of any wild bird while it is in use or being built;

(iii) Take, damage or destroy the egg of any wild bird; or

(iv) To have in one's possession or control any wild bird (dead or alive), or egg or any part of a wild bird or egg.

5.48 In addition, further protection is afforded to those wild bird species listed on Schedule 1, prohibiting any intentional or reckless disturbance to these species while it is nest building, or at a nest containing eggs or young, or to recklessly disturb the dependent young of such a bird. A number of species are also included as Priority species.

5.49 Given the protection afforded to all breeding birds, their nests, eggs and young, sensitive vegetation clearance required during the pre-construction and construction phases of development should be timed to avoid the main bird breeding season (i.e. March to August inclusive). Should this seasonal constraint prove impracticable, then vegetation clearance outside of this period should only commence following the advice and under supervision of a suitably qualified ecologist. Pre-commencement checks for active nests will be required prior to any vegetation clearance occurring during the main bird breeding season, with appropriate buffers marked out around active nests or nests under construction, until all eggs have hatched, and chicks fledged. Such protection measures in relation to breeding birds should be included within an Ecological Construction Method Statement for the Application Site, secured via condition.

5.50 In addition, it is further recommended that bird boxes be installed upon suitable retained trees across the Application Site, in addition to the inclusion of fruit-bearing and flowering native tree, shrub and grassland species within any future planting plan prepared for the Application Site at the detailed design stage.

***Reptiles***

5.51 All species of common reptile (including common lizard (*Zootoca vivipara*), slow-worm, grass snake (*Natrix natrix*) and adder (*Vipera berus*), receive at least limited protection from harm under the Wildlife and Countryside Act, 1981 (as amended), making it an offence to cause intentional killing and injuring of these species. In addition, these species are also listed as priority species.

5.52 A low population of slow-worm is supported by the Application Site, with a maximum of four individuals recorded during any one visit. The footprint of the new development will therefore need to be subject to a suitable reptile mitigation strategy ahead of the construction.

5.53 Details of the reptile mitigation strategy will therefore necessarily form part of the Ecological Construction Method Statement to be prepared for the Application Site, and will follow the below principles:

- Prior to commencement, a site visit will be undertaken by a suitably qualified ecologist to determine the status of all habitats onsite considered suitable to reptiles, necessary to determine the most appropriate methodology going forward with respect to ensuring harm to reptiles is avoided during any future habitat clearance of the construction footprint;

- A suitable receptor site located outside of the construction footprint, either within suitable habitat to be retained elsewhere onsite, or within the offsite community woodland adjacent, will be identified;

- Habitat enhancement measures (including the creation of reptile hibernacula, log and brash piles) will be implemented within the identified receptor site where necessary, so as to maximise its existing carrying capacity to accommodate additional common reptiles. Such measures will be completed prior to commencement of habitat clearance across the construction footprint;

- Where required, above-ground removal of scrub habitats and other woody vegetation encroaching across the grassland fields will be completed under the supervision of a suitably qualified ecologist (Ecological Clerk of Works (ECoW)). Below-ground removal of root balls, stumps and other suitable refugia remaining will be completed between late April and early October so as to avoid the main reptile hibernation season and subject to a prior finger-tip search by the ECoW. Any reptiles identified during such works will be translocated by hand to the identified receptor site for release on the same day;

- Reptile exclusion fencing will be installed around the peripheries of the construction footprint between late April and early October (i.e. during the main reptile active season) following the advice of the ECoW, with reptile refugia deployed therein so as to facilitate commencement of a capture and translocation exercise prior to habitat clearance works; and

- Thereafter, a reptile translocation exercise, incorporating habitat manipulation measures where necessary to facilitate to displacement of individuals towards reptile refugia, will be undertaken by the ECoW during the main reptile active season, with all individuals captured by hand and immediately released within the receptor site.

5.54 Following completion of the translocation exercise and/or displacement methodologies, clearance of grassland habitats across the construction footprint will be undertaken in accordance with those methodologies detailed below:

- To prevent harm/injury to common reptile species potentially present onsite, all vegetation clearance will be undertaken during the main reptile active season and under supervision of a suitably qualified ecologist, hereafter referred to as the Ecological Clerk of Works (ECoW);

- Any potential reptile refugia remaining within the construction footprint will be carefully dismantled using hand tools, hand-held machinery or untracked, light machinery to facilitate efficient supervision;
- All remaining grassland habitat located within the proposed development footprint will be subject to directional cutting over two phases. Specifically, an initial cut of grassland habitat will be undertaken using hand-held machinery, reducing vegetation height down to a minimum of 175mm, with clearance commencing from the centre of the fields and directed towards adjacent habitat to be retained along its peripheries. A second cut of the proposed footprint areas will be undertaken immediately thereafter, with vegetation cut to ground level as far as possible, ensuring heights not exceeding 30mm;

- All arisings will be removed from the construction footprint and vegetation will be maintained thereafter at a height no greater than 30mm through regular mowing or strimming or as bare ground, so as to discourage common reptiles from returning; and

- In the event any reptiles are identified during site clearance these will be captured by hand and immediately released into the receptor site.

**Summary of Predicted Impacts and Principal Mitigation Measures**

5.55 The potential impacts on valued ecological features (accounting for inherent mitigation), and recommended additional mitigation measures, in line with legislative and planning policy requirements, are summarised in **Table EDP 5.1**.

**Table EDP 5.1**: Summary of Ecological Impacts and Proposed Mitigation Measures.

| Feature | Impacts | Inherent mitigation | Additional mitigation and/or enhancement |
|---|---|---|---|
| Radyr Community Woodlands SINC/ASNW | Damage and degradation during the construction phase and following occupation. | Avoidance, retention and provision of habitat buffers to onsite woodland to be retained, with buffers measuring circa 15m to offset development away from woodland resource to the north. Retention, enhancement and creation of habitats and access routes across the Application Site to maximise provision of publically accessible green space onsite. Retention of offsite woodland habitat to immediate north, to be managed as a community woodland over the long-term, thereby further securing this key habitat corridor over the long term. | Protection of sensitive habitats onsite during construction through ECMS. Enhancement through provision of ecotone (transitional) planting within habitat buffers in accordance with a detailed soft landscape scheme and LEMP. Development of a sensitive lighting strategy to reduce light spill to sensitive habitats. |
| River Taff SINC | Disturbance impacts along the river arising from elevated lighting and noise during both the construction and operation phases. | Habitat retention and buffering. | Development of a sensitive lighting strategy to reduce light spill to sensitive habitats. |

| Feature | Impacts | Inherent mitigation | Additional mitigation and/or enhancement |
|---|---|---|---|
| Secondary developing broadleaved woodland | Loss, damage and degradation during the construction phase and continued degradation of habitats during the operational phase. | Avoidance and retention of woodland habitats and mature trees of greatest Arboricultural and ecological value as far as possible through sensitive siting of the development. Buffering of retained woodland onsite by 15m, with such habitats to accommodate ecotone planting. Retention of offsite woodland habitat to immediate north, to be managed as a community woodland over the long-term, thereby further securing the overall woodland resource in the long term. | Protection of sensitive habitats to be retained during construction through ECMS. Enhancement of existing habitats to be retained through additional planting in accordance with a landscape strategy and LEMP. Development of a sensitive lighting strategy to reduce light spill to sensitive habitats. |
| Linear scrub and scattered trees on south-western boundary | Loss, damage and degradation during the construction phase and continued degradation of habitats during the operational phase. Potential damage of root protection zones during the construction phase. | Targeted retention of trees of greatest arboricultural and ecological quality across the Application Site. | Protection of retained trees and their associated root protection areas during construction through ECMS. Tree/shrub planting within habitat buffers, rain gardens and the development footprint itself to bridge gaps whilst maintaining existing wildlife corridors in accordance with a landscape strategy and LEMP. Development of a sensitive lighting strategy to reduce light spill to sensitive habitats. |

| Feature | Impacts | Inherent mitigation | Additional mitigation and/or enhancement |
|---|---|---|---|
| Bats | Degradation and loss of linear habitat features used for foraging/ commuting during construction. Disturbance impacts arising from elevated lighting and noise during both the construction and operation phase. Loss of/works to trees with low bat roost potential. | Avoidance, retention and buffering of retained woodland, with habitat buffers to accommodate ecotone planting. Targeted retention of trees of greatest arboricultural and ecological quality across the Application Site, including those with bat roost potential. Retention of offsite woodland habitat to immediate north, to be managed as a community woodland over the long-term thereby further securing the overall woodland resource in the long term. | Protection of sensitive retained habitats during construction through ECMS. Enhancement of existing habitats through additional planting in accordance with a landscape strategy and LEMP. Development of a sensitive lighting strategy to reduce light spill to sensitive habitats. Additional surveys of trees to be felled/worked and sensitive clearance in accordance with ECMS. |
| Badger, breeding birds & common reptiles | Killing/injury during the construction phase. Disturbance during both construction and operation. Loss of habitat. | Avoidance, retention and buffering of retained woodland, with habitat buffers to accommodate new tree, shrub and grassland planting. Targeted retention of trees of greatest arboricultural and ecological quality across the Application Site. Retention of offsite woodland habitat to immediate north, to be managed as a community woodland over the long-term thereby further securing the overall woodland resource in the long term. | Protection through avoidance and implementation of precautionary working measures during the pre-construction and construction phases, as detailed within the ECMS. Enhancement of existing habitats through new planting and sensitive habitat management in accordance with the future landscape strategy and LEMP. |

# Section 6
# Summary and Conclusions

6.1 This section of the Ecological Appraisal summarises the Ecology Strategy for the proposed development in terms of inherent and recommended additional mitigation measures, and provides the overall conclusions of the Appraisal.

## Summary of Ecology Strategy

### *Inherent Mitigation Embedded in the Masterplan and Further Recommended Detailed Design Measures*

6.2 The following design principles are currently embedded within the detailed layout (**Appendix EDP 2**) and further illustrated within the Green Infrastructure Strategy and Landscape Strategy (**Appendix EDP 3**) prepared for the Application Site, as previously detailed in **Sections 4** and **5**:

- The sensitive siting of the development footprint so as to avoid impacting upon the vast majority of the mature tree stock considered to be of arboricultural and ecological value, ensuring the retention of circa 0.69 ha of woodland habitat primarily located across the northern extents of the Application Site;

- The provision of a habitat buffer measuring no less than 15m in width located along the north-eastern boundary of the Application Site designed to offset the proposed development footprint from retained woodland habitat adjacent, in accordance with the Cardiff Council Green Infrastructure Supplementary Planning Guidance (SPG). Habitat buffers will include 'ecotone' planting, comprising trees shrubs, scrub and grassland planting to enable the transition of habitats necessary to maximise habitat diversity and structure whilst strengthening key habitat corridors and maintaining the integrity of the adjacent woodland block;

- The provision of an additional block of native shrub planting, totalling circa 0.03 ha, to the immediate south of the proposed 'ecotone' buffer so as to further to maximise the existing green corridor aligning the Application Site's north-eastern boundary;

- The retention and sensitive management of additional woodland and scrub habitat associated with the south-western boundary of the Application Site, totalling 0.8 ha, with scrub habitats immediately aligning the western edge of the proposed access road to be reduced in extent through selective scrub clearance so as to allow for the planting of new trees, shrubs and species-rich grassland along its length necessary to further strengthen and enhance this existing green corridor extending the full length of the Application Site. An informal footpath traversing this wooded area is also proposed here, to provide an off-road access route whilst maximising recreational opportunities across the Application Site;

- The inclusion of additional tree and shrub planting across the development footprint itself, including within rain gardens (totalling circa 0.03 ha) and within the streetscape, providing further stepping stone habitat for the movement of wildlife such as birds and invertebrates across the development area; and

- The retention and enhancement of existing Public Rights of Way traversing the northern and western extents of the Application Site, allowing for improvements to existing footpath connections across the Application Site to the wider surrounding area, whilst also providing additional informal (mown) routes through newly planted and landscaped areas onsite.

6.3 In addition to the above, and to further compensate and mitigate for unavoidable losses across the Application Site, additional land under Client control, comprising offsite woodland habitat to the immediate north of the Application Site and totalling circa 2.56 ha (encompassing woodland areas **W5**, **W6** and associated scrub), will be secured over the long-term for use as a community woodland. Its retention will thereby ensure habitat connectivity to Radyr Community Woodland SINC/ANSW to the north is maximised, through maintaining habitat corridors along the River Taff and railway line adjacent. This offsite community woodland area will be subject to restoration and enhancement through the control of invasive species and appropriate management of the woodland habitat itself, including scrub control, the principles of which are set out within the Community Woodland Strategy Report also prepared by EDP (report reference edp4188_r010), for submission alongside the planning application.

6.4 Additional detailed design measures recommended include the following:

- New tree, shrub and species-rich grassland planting proposed across the Application Site should comprise native species of local provenance, including those known to be resilient to climate change, with newly planted areas designed to protect and strengthen existing ecological networks and habitat corridors on and adjacent to the Application Site so as to maximise foraging and dispersal routes for wildlife including bats, birds and reptiles;

- The implementation of a sensitive lighting strategy necessary to ensure the spillage of artificial lighting upon sensitive ecological habitats to be retained is minimised as far as possible, with lighting along footpaths traversing woodland, tree and shrub habitats to be avoided so as to provide permanently dark corridors through the Application Site for use by light sensitive species;

- The installation of bat and bird boxes upon suitable mature trees to be retained across the Application Site, aimed at further enhancing roosting opportunities for the local bird and bat assemblages;

- The inclusion of purpose-built hibernacula and refugia within retained habitats identified as being a suitable receptor site to accommodate translocated individuals of common reptiles where necessary in future; and

- The installation of litter bins sited along footpaths and other publicly accessible areas of open space so as to deter littering and attraction of vermin including rats and corvids which could otherwise predate wildlife.

6.5 The above principles could be secured through appropriately worded conditions attached to any forthcoming planning consent requiring the submission of a detailed soft landscape scheme and Landscape, Ecological and Arboricultural Management Plan (LEAMP).

***Construction Measures***

6.6 An Ecological Construction Method Statement should also be prepared for the Application Site, to be secured by condition attached to any forthcoming planning consent, to include the following:

- Measures to physically protect retained habitats on and immediately adjacent to the Application Site, with valued habitats suitably protected through the establishment of Ecological Protection Zones (EPZs) and use of protective fencing and signage, together with the identification of responsibilities for their installation and maintenance during the pre-construction and construction periods;

- Measures to prevent adverse changes to water quality and flow of aquatic features on adjacent to the Application Site during the pre-construction and construction period, with reference to the Environment Agency's Pollution Prevention Guidelines[35], including PPG1 'General guide to the prevention of pollution', PPG5 'Works and maintenance in or near water', PPG6 'Pollution prevention guidance for working at construction and demolition sites', and PPG21 'Pollution incident response planning';

- The location of any work compound(s) and storage areas, including the storage of any fuel, chemicals, plant or machinery onsite, and regarding the use of artificial lighting (including security lighting);

- Details of species and habitat specific working methodologies as previously outlined above with respect to common reptiles including slow-worm and bats, and with respect to woodland habitats onsite, to ensure the avoidance of harm to these features, for implementation/consideration during all pre-construction and construction phases;

- Further precautionary working methodologies in relation to breeding birds, badger and other notable wildlife potentially present onsite, for implementation/consideration during all pre-construction and construction phases;

[35]PPGs were withdrawn in December 2015; however, they remain the main source of information regarding best practice with respect to pollution prevention. A replacement guidance series, comprising Guidance for Pollution Prevention (GPPs), are currently in development however, and should be referred to where available. Pollution advice listed at https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg should also be referred to.

- The inclusion of appropriate measures for employment onsite with respect to Japanese knotweed, an invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) confirmed present within woodland habitat located across the northern extent of the Application Site. Such measures should seek to minimise the risk of its spread, with advice from a specialist contractor sought to ensure its appropriate treatment and eradication;

- Measures regarding newly planted areas with respect to their locations, planting and establishment; and

- A timetable of all key tasks to be undertaken as part of pre-construction and construction works taking into account all species and habitat sensitivities.

***Restoration, Enhancement and Maintenance Measures***

6.7 A future LEAMP should also be prepared for the Application Site, to be secured by condition attached to any forthcoming planning consent, to include:

- Those ecological management prescriptions for defined management compartments to be retained and/or created within the Application Site, including retained woodland, scrub, buffer (ecotone) habitats and footpaths across the northern extent and aligning the south-western boundary;

- The monitoring of biophysical changes to sensitive habitats including; terrestrial succession and scrub encroachment across newly planted areas; control of invasive species; and the management of recreational impacts including littering, erosion and damage, with identified remedial measures to address any significant issues;

- The monitoring of bird and bat boxes and reptile hibernacula installed across the Application Site as biodiversity enhancements; and

- Any additional monitoring requirements of species and habitats where required/identified.

**Overall Conclusions**

6.8 EDP's desk and field-based baseline investigations, have demonstrated that the habitats and species present within and around the Application Site are not considered to pose an 'in principle' constraint to the proposed development that is the subject of this Appraisal.

6.9 However, EDP's surveys have identified a number of valuable habitat features and protected species which will require consideration should planning consent be forthcoming, to accord with relevant wildlife legislation and planning policy including Planning Policy Wales TAN5 which sets out policies specific to the protection of biodiversity and geological conservation through the planning system, requiring the

conservation and enhancement of the natural environment at all levels whilst ensuring no net loss to natural heritage.

6.10 Accordingly, from the outset of the design process, EDP has contributed to the design of the masterplan assessed by this report which accompanies the planning application. Specific proposals for the avoidance, mitigation and compensation of any predicted impacts are considered and summarised above. These measures include: those already embedded within the Proposed Site Layout and Green Infrastructure Strategy; measures which should be incorporated at the construction stage; those which should be designed and specified within the landscaping scheme; and management measures to ensure that the design vision is achieved in the long term. Such requirements could be secured via appropriately worded conditions attached to any forthcoming planning consent.

6.11 Overall therefore, given the small scale of the development proposals and scope of those compensation, mitigation and enhancement measures proposed, EDP considers that the scheme offers sufficient opportunities for ecological enhancement necessary to compensate and mitigate for those losses proposed, whilst ensuring that the favourable conservation status of protected and notable species likely supported by the Application Site can be maintained over the long-term.

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# Appendix EDP 1
# Soltys Brewster Survey Reports
# (E1133401/R01 and E1133402/R01)

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COOKE AND ARKWRIGHT

# LAND AT RADYR COURT JUNCTION, CARDIFF

## EXTENDED PHASE 1 HABITAT SURVEY AND REPTILE SURVEY REPORT



24 OCTOBER 2011

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|---|---|---|---|---|---|---|
| 1 | | Initial Draft | 31 October 2011 | Annabelle Phillips | Dr. M Watts (Director) | |

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## SUMMARY

Soltys Brewster Ecology were commissioned to undertake an ecological appraisal of a parcel of land at Radyr Court in Cardiff, in order to inform a planning application for residential development. The site was surveyed in 2011 to identify the existing ecological constraints/ opportunities associated with the current development proposals.

Desk based consultation confirmed that the survey area does not hold any form of statutory or non-statutory conservation designation. A number of conservation sites were located within the surrounding area including the River Taff Site of Importance for Nature Conservation (SINC) and the Radyr Community Woodlands SINC, with the Glamorgan Canal/ Long Wood Site of Special Scientific Interest (SSSI) located approximately 1km to the north of the site. The application site did not hold any records of protected or notable flora and fauna, although there were numerous records of bird and bat species in the local area (500m radius). Otters *Lutra lutra* have been recorded approximately 50m to the east of the site along the River Taff, although the high levels of disturbance at the site by both people and dogs are likely to discourage Otters from using the site. Historic records of Radyr Hawkweed *Hieracium radyrense* were located within close proximity to the site boundary but more recent surveys suggest the plant no longer exists in this location.

The site walkover confirmed that the site was dominated by poor semi-improved grassland, dense scrub, woodland and scattered trees. In terms of development potential the areas of poor semi-improved grassland and dense scrub were considered of limited ecological interest and represent the most suitable parts of the site for development. The woodland was considered of ecological interest in the context of the site and the surrounding area and is likely to provide resources for nesting birds and foraging/ commuting bats. It is recommended that these features are retained and protected where practicable with an appropriate buffer strip and root protection zones during any construction works.

The grassland and scrub habitats on site were considered potentially suitable to support common reptile species. However reptile surveys undertaken in October 2011 found no evidence to suggest that the site is currently being used by reptiles.

Other considerations include the avoidance of the bird-breeding season (March-August) for any tree/ scrub removal and the design of site lighting to limit light spill onto any retained areas of woodland. A number of invasive species including Japanese Knotweed *Fallopia japonica* and Cotoneaster *Cotoneaster sp* were noted on site and a programme of treatment/ eradication as part of the development would be recommended.

## 1.0 INTRODUCTION

1.1. Soltys Brewster Ecology were commissioned by Cooke and Arkwright to undertake an ecological appraisal of a parcel of land at Radyr Court in Cardiff, which has been proposed for residential development. The survey area is located to the west of the River Taff, adjacent to existing residential areas, and is centred at grid reference ST142 793.

1.2. This report presents the findings of an ecological desk study, Extended Phase 1 Habitat survey and targeted surveys for reptiles undertaken in 2011 and outlines the ecological constraints/opportunities associated with development on the site.

## 2.0 METHODOLOGY

2.1. In order to establish the baseline ecological conditions on site and in the adjoining habitats, a combination of desk-based consultation, Extended Phase 1 Habitat survey and targeted surveys for reptiles were undertaken in September and October 2011.

### Desk study

2.2. The desk study primarily involved consultation with the South East Wales Biodiversity Records Centre (SEWBReC) to identify any records of rare, protected or notable flora and fauna within the proposed development boundary and surrounding 1 km area. The search criteria also included information relating to the location and citation details (where available) for any sites designated for their nature conservation interest such as Sites of Special Scientific Interest (SSSIs) or Sites of Importance for Nature Conservation (SINCs). A search for relevant information available via the internet, and other sources, such as the Phase 1 Survey of Wales (CCW 2005), was also undertaken.

### Extended Phase 1 Habitat Survey

2.3. The fieldwork was undertaken on 29th September 2011 and followed standard Phase 1 Habitat Survey protocol (JNCC, 1990) as amended by the Institute of Environmental Assessment (1995). All habitats within the proposed development site were classified and mapped as accurately as possible. All habitats considered to have potential to support rare, protected or otherwise notable species of flora and fauna were noted, as

were any direct signs of these species (e.g. Eurasian Badger *Meles meles* setts and dung-pits). Incidental observations of birds on the site or flying over were also recorded.

2.4. A map of habitats was drawn up and target notes were used to identify features of ecological interest. Where possible, habitats were cross-referenced to any relevant important UK priority habitats or local habitats adopted by the local Biodiversity Action Plan.

2.5. Additionally any species listed as a pernicious weed under Schedule 9, Section 14 of the Wildlife and Countryside Act 1981 (as amended) were also noted and mapped during the field survey. Examples of such species include Japanese Knotweed *Fallopia japonica* and Himalayan Balsam *Impatiens glandulifera*.

**Reptile surveys**

2.6. A reptile presence/absence survey was undertaken based on the recommendations described by Froglife (1999) and involved the deployment and subsequent checking of artificial refugia (typically 0.5 x 0.5 m squares of roofing felt). Refuges were deployed within potentially suitable grassland and scrub edge habitat across the site.

2.7. These refuges were set out on 29th September 2011 and following a settling in period were subsequently checked a total of seven times between the 03rd and 18th October for basking and sheltering reptiles under suitable environmental conditions.

## 3.0 RESULTS

**Desk Study**

3.1 The data provided by SEWBReC confirmed that the site did not contain any statutory or non-statutory nature conservation designations. The Glamorgan Canal/ Long Wood Site of Special Scientific Interest (SSSI) is located approximately 1km to the north of the site, which supports an artificial wetland ecosystem, adjoining river terrace and beech woodland. Given the physical separation from the application site the SSSI is not considered of particular ecological relevance. The SEWBReC data also identified the woodland/ scrub habitats directly adjacent to the northwest of the site as ancient semi-natural woodland/ planted ancient woodland.

3.2 The Cardiff County Council Online Mapping Portal (http://isharemaps.cardiff.gov.uk/ishare/start_page.asp) identified a number of Sites of Importance for Nature Conservation (SINCs) in the surrounding area including

the River Taff SINC approximately 50m to the east and the Radyr Community Woodlands SINC 150m to the northwest. The River Taff is of importance for migratory fish, Otter *Lutra lutra* and wildfowl, with the bankside vegetation acting as a wildlife corridor. Radyr Community Woodlands includes semi-natural woodland, rough grassland and ponds with part of the site forming the Hermit Wood Local Nature Reserve. Other SINCs in the surrounding area include Hailey Park (approximately 200m north, semi-improved neutral grassland), Radyr Cricket Grounds and Fields (approximately 550m north, an important site for waxcaps) and the Former Llantrisant No.1 Branch Line (approximately 700m to the southwest, calcareous Ash woodland).

3.3 The SEWBReC species data confirmed that there were no records of protected or otherwise notable flora and fauna specifically associated with the survey site. Radyr Hawkweed *Hieracium radyrense* has been recorded approximately 20m to the north of the site with the most recent record in 1985, but more recent surveys (1998/ 1999) found no evidence that the plant still exists in this location, with shade from colonising trees likely to have caused the decline (Hutchinson and Rich, 2005). Otter have been recorded approximately 50m to the east of the site along the River Taff. However, the river is separated from the site by a railway line and the high level of disturbance at the site by both people and dogs is likely to discourage Otters from using the site. Other records within close proximity to the site include House Martin *Delichon urbicum*, Eurasian Sparrowhawk *Accipiter nisus*, Barn Swallow *Hirundo rustica*, Great Cormorant *Phalacrocorax carbo*, Common Toad *Bufo bufo*, West European Hedgehog *Erinaceus europaeus*, unspecified bat species *Chiroptera sp* and Purple Hairstreak Butterfly *Neozephyrus quercus*.

3.4 Other records within 1km of the site include Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *P. pygmaeus*, Noctule *Nyctalus noctula* and Daubenton's *Myotis daubentonii* bats. Numerous bird species are associated with the surrounding area including Grasshopper Warbler *Locustella naevia*, Common Kingfisher *Alcedo atthis*, Lesser Spotted Woodpecker *Dendrocopos minor*, Hawfinch *Coccothraustes coccothraustes*, Spotted Flycatcher *Muscicapa striata*, Black Redstart *Phoenicurus ochruros*, Wood Warbler *Phylloscopus sibilatrix*, Tree Pipit *Anthus trivialis*, European Nightjar *Caprimulgus europaeus* and Common Cuckoo *Cuculus canorus*. Other species recorded include Slow Worm *Anguis fragilis*, Grass Snake *Natrix natrix*, Adder *Vipera berus*, Great Crested Newt *Triturus cristatus* and Bluebell *Hyacinthoides non-scripta*.

3.5 Most of these records were associated with habitats in areas other than the site and were not considered of particular relevance to the proposed development based on the known habitat preferences of the species listed above, the physical separation from the development site and the site conditions. However, records of mobile species such as birds and bats in the surrounding area are considered of some relevance to the site,

and in particular the trees and woodland, which may provide nesting habitat for birds/ foraging and commuting habitat for bats locally. A copy of the SEWBReC summary maps are provided in Appendix I.

3.6 The Phase 1 data of Wales (2005) identified the site as scrub, broad-leaved plantation woodland, semi-improved neutral grassland and buildings and indicated that a limited range of habitats were present in the surrounding area, mainly comprising of roads, buildings, amenity grassland and broad-leaved semi-natural woodland with the River Taff running to the east of the site. It should be noted that while the Phase 1 of Wales data is a useful tool for identifying broad habitat types, it is not appropriate for site assessment in the absence of a survey to verify existing conditions as inconsistencies in the data have been documented.

**Extended Phase 1 Habitat Survey**

3.7 The distribution and extent of habitats within and adjacent to the site is illustrated in Figure 1 with accompanying target notes in Appendix II. The application site itself consisted of poor semi-improved grassland with areas of woodland, scattered trees and dense scrub.

*Poor semi-improved grassland*

3.8 The poor semi-improved grassland on site (Plate 1 and Front Cover, Target Note 1) was of limited diversity and dominated by Yorkshire Fog *Holcus lanatus* and Cocksfoot *Dactylis glomerata* with False Oat Grass *Arrhenatherum elatius* and Creeping Bent *Agrostis stolonifera* also present. Herb species included Ribwort Plantain *Plantago lanceolata*, Creeping Buttercup *Ranunculus repens*, Self Heal *Prunella vulgaris*, Common Knapweed Centaurea nigra, Common Sorrel *Rumex acetosa* and Yarrow *Achillea millefolium*. Bramble *Rubus fruticosus* scrub was encroaching upon the grassland from the field boundaries.

*Woodland, scattered trees and scrub*

3.9 The north and west of the site was dominated by dense scrub and broad-leaved semi-natural woodland. The woodland included species such as Ash *Fraxinus excelsior*, Oak *Quercus robur*, Hazel *Corylus avellana*, Willow *Salix sp*, Hawthorn *Crataegus monogyna* and Dogwood *Cornus sanguinea* (Plate 2, Target Notes 10 and 12). The ground flora was limited, being dominated by Ivy *Hedera helix* with Ash saplings, Bramble and Dog Rose *Rosa Canina* scrub.

3.10 The dense scrub across the site was dominated by Bramble with Dogwood, Raspberry *R. idaeus* and Traveller's Joy *Clematis vitalba* also present (Plate 3, Target Notes 2, 7, 8, 9 and 11).


Key:

- Site Boundary
- ① Target Note
- Broad-leaved semi-natural woodland
- Scattered broad-leaved trees
- Dense/continuous scrub
- Species-poor hedge
- SI Poor semi-improved grassland
- Fence

Dominant Species Codes:

Ca: Hazel (*Corylus avellana*)
Cm: Hawthorn (*Crataegus monogyna*)
Cos: Dogwood (*Cornus sanguinea*)
Dg: Cocks Foot (*Dactylis glomerata*)
Fe: Ash (*Fraxinus excelsior*)
Hl: Yorkshire Fog (*Holcus lanatus*)
Qr: Oak (*Quercus robur*)
Rf: Bramble (*Rubus fruticosus*)
Ri: Raspberry (*Rubus idaeus*)

| client/project | drawing | | | |
|---|---|---|---|---|
| Cooke and Arkwright<br>**Radyr Court, Cardiff** | Figure 1.<br>Phase 1 Habitat Survey | | | |
| drawing no | revision | scale | drawn | date |
| E1133401/Pre/S/001 | * | NTS@A3 | AP | Oct 2011 |


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3.11 The site included a number of scattered establishing/ semi-mature Oak, Ash and Sycamore trees (Plate 2, Target Notes 2, 7, 8 and 11). Two Apple trees *Malus domestica* were also present within the poor semi-improved grassland fields (Target Note 3).

3.12 A Leylandii *Cupressocyparis leylandii* hedge separated the site form the adjacent residential properties to the east (Target Note 3).

**Plate 1. Poor semi-improved grassland (Target Note 1)**

*Invasive non-native plants*

3.13 Japanese Knotweed was noted along the railway to the east of the site (Target Note 5) with a small area of Cotoneaster *Cotoneaster sp.* within the woodland to the north (Target Note 13). Japanese Knotweed and Cotoneaster are highly invasive species and under Schedule 9, Section 14 of the Wildlife and Countryside Act 1981 (as amended) it is an offence "to plant or otherwise encourage" their growth. This could include cutting the plant or roots and disturbing surrounding soil if not correctly managed. Under the Environmental Protection Act 1990, Japanese Knotweed is classed as a controlled waste and as such must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.

**Plate 2. Woodland to the north of the site (Target Note12)**

**Plate 3. Scrub dominated by Bramble and Hawthorn with scattered establishing trees (Target Note 11)**

**Fauna**

3.14 In the course of the survey, a search of field signs for protected or notable species was undertaken and the potential of the habitats to support these species considered. In the context of this report, these species meet any of the following criteria:

- Species protected by British or international law;
- UK BAP Priority Species or local BAP species;
- Nationally rare or nationally scarce species;
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red or Amber Lists);

*Badgers*

3.15 No evidence of Badgers or use of the site by Badgers was found during the site survey.

*Bats*

3.16 The key features across the site with regards to bats were the trees and woodland which are likely to provide good foraging and commuting habitat, particularly due to the proximity to the River Taff which acts as a wildlife corridor for a variety of bat species. The trees on site lacked suitable cracks or holes that could be exploited by roosting bats.

*Birds*

3.17 During the survey a number of bird species were noted including Chaffinch *Fringilla coelebs*, House Sparrow *Passer domesticus*, Wood Pigeon *Columba palumbus* and Blackbird *Turdus merula* (full list in Appendix II). The hedgerow and trees on site are likely to offer nesting opportunities for breeding birds.

3.18 Although none of the bird species noted would be considered particularly rare the House Sparrow is included on the Red List of species of Conservation Concern in the UK (Eaton *et al.* 2009) and on the Amber List in Wales (Johnstone *et al.* 2010) as well as being cited as a Priority Species on the UK Biodiversity Action Plan (BAP).

*Reptiles*

3.19 The areas of poor semi-improved grassland and scrub habitats on the application site were considered suitable to support common reptile species (e.g. Slow Worm *Anguis fragilis*). However reptile surveys undertaken in October 2011 found no evidence that reptiles are currently using the site, although a number of adult and juvenile Common Toad *Bufo bufo* were found beneath the refuges (Table 1). Records of Slow Worm, Grass Snake and Adder were revealed via the desk study. The closest record is of Slow Worm

approximately 300m to the northwest of the site, although this record is separated from the site by the River Taff.

**Table 1. Results of reptile presence/ absence surveys**

| Visit | Date | Time | Temp (°C) | Weather | Reptiles | Notes |
|---|---|---|---|---|---|---|
| | 29/09/2011 | | | | | Refugia deployed |
| 1 | 03/10/2011 | 16:30 | 14.0 | Overcast | 0 | |
| 2 | 06/10/2011 | 09:30 | 10.0 | Sunny | 0 | |
| 3 | 07/10/2011 | 11.30 | 13.0 | Overcast | 0 | |
| 4 | 13/10/2011 | 11.15 | 14.0 | Overcast | 0 | 1 juvenile toad |
| 5 | 14/10/2011 | 09.00 | 14.0 | Overcast | 0 | 1 adult toad |
| 6 | 17/10/2011 | 10:00 | 15.0 | Sunny spells | 0 | 1 adult and 1 juvenile toad |
| 7 | 18/10/2011 | 09.00 | 10.0 | Sunny | 0 | Refuges collected |
| **Total** | | | | | **0** | |

## 4.0 POLICIES AND PLANS

4.1 The following local and national planning policy relating to nature conservation and biodiversity are considered of relevance to the current proposals.

### Planning Policy Wales (2011)

4.2 This document set out the land use planning policies of the Welsh Assembly Government with Chapter 5 dealing with Conserving and Improving Natural Heritage and Coast. The advice contained within PPW is supplemented for some subjects by Technical Advice Notes (TAN's), with TAN 5 addressing Nature Conservation.

### Technical Advice Note 5 (2009)

4.3 TAN 5 identifies a number of key principles, which the town and country planning system in Wales should incorporate those relevant are detailed below:

- integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time (PPW 5.1.3 and 5.1.4);
- ensure that the UK's international obligations for site, species and habitat protection are fully met in all planning decisions (PPW 5.3.8-10);
- look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally (PPW 5.1).

### Natural Environment and Rural Communities Act 2006

4.4 Section 40 of the Natural Environment and Rural Communities Act 2006 (the NERC Act) places a duty ('the biodiversity duty') on every public authority - including a local authority and a local planning authority – to have regard to the purpose of conserving biodiversity (which also includes restoring or enhancing a population or habitat).

4.5 Furthermore, a public authority must take such steps - as appear to Welsh Ministers to be reasonably practicable - to further the conservation of the 538 species and habitats included in the list published by Welsh Ministers under Section 42 of the NERC Act. Statutory duties under the NERC Act are supported by the commitments laid out in the UK Biodiversity Action Plan, Wales Environment Strategy and Action Plan and Wales Biodiversity Framework.

**Local Planning Policy**

**Cardiff Unitary Development Plan (to 2016)**

4.6 The deposit version of the Unitary Development Plan (UDP) was dated October 2003 and sets out the authorities planning policies up to 2016. Although the UDP is due to be replaced by the Local Development Plan (LDP) Welsh Government guidance indicates that the deposited UDP may remain a consideration in development control decisions until such time as the LDP is adopted. Policies within the UDP which are considered of relevance to this site are detailed below:

*Policy 2.45: Trees, woodland and hedgerows*
*Development will not be permitted that would cause unacceptable harm to trees, woodlands or hedgerows.*

*Policy 2.47: Sites of local importance for nature conservation*
*Development will not be permitted that would cause unacceptable harm to sites of local importance for nature conservation.*

*Policy 2.48: Biodiversity*
*Development will not be permitted that would cause unacceptable harm to habitats or other features of the landscape identified as priorities in the UK or Local Biodiversity Action Plan, or otherwise of major importance for wildlife. Where development is permitted, the management and enhancement of such habitats and features will be encouraged.*

4.7 In addition, guidance within the Cardiff Supplementary Planning Guidance - Biodiversity Part 1 (Cardiff Council, 2011) recommends:

*Schemes should be designed to avoid harm to important species and habitats, including designated sites, protected species and biodiversity priority species during construction as well as operation. Wherever possible, this should include:*

- *Maintaining existing features of interest.*
- *Maintaining and enhancing corridors and links to adjacent/neighbouring habitats – to prevent species becoming isolated and vulnerable.*

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 The combination of desk and field surveys undertaken at the Radyr Court site identified a limited range of habitat types including poor semi-improved grassland, dense scrub, scattered trees and broad-leaved semi-natural woodland. The areas of poor semi-improved grassland and scrub were considered to be of generally low ecological value and represent areas of good development potential within the site.

5.2 The areas of woodland are likely to function as locally important nesting habitat for birds and foraging and commuting habitat for bats and other species. It is recommended that the trees and woodland are retained as far as practical. Retention of an appropriate buffer zone between the development and retained features that would allow adequate root protection for trees and shrubs would help to minimise the impacts of the development on these features and any wildlife associated with them.

5.3 The reptile surveys undertaken in October 2011 found no evidence that reptiles are currently using the site and a likely absence of this group from the site could reasonably be concluded. Survey work was undertaken in the latter part of the survey season (under suitable conditions) and whilst the results would suggest that a large/notable reptile population was absent, the presence of individual/small numbers of reptiles could not be precluded. Accordingly, whilst specific mitigation measures for common reptiles would not need to be adopted, it is recommended that, prior to commencement of development at the site a repeat survey is undertaken and/or an appropriate site clearance method is agreed & adopted that would minimise the risk to any animals present. All common reptile species, are afforded protection against killing or injury under the Wildlife and Countryside Act 1981 (as amended) and the adoption of the precautionary approach described above would be recommended - these measures could be controlled by a suitably worded planning condition.

5.4 Given the likelihood of a number of bird species breeding on the site any proposed site clearance works of trees or scrub should be undertaken outside the bird-breeding season (i.e. clearance possible between September and February inclusive).

5.5 Any proposed street lighting to be erected as part of a future development should be designed/ oriented to avoid illuminating retained woodland and trees along the boundaries of the site in consideration of their likely function as both bat and bird foraging and commuting habitats. Further advice on lighting and bats is included in Appendix III of this report.

5.6 A programme of treatment/ eradication for the invasive non-native plant species found at the site including Japanese Knotweed and Cotoneaster would be recommended as part of the development.

5.7 Other considerations for site development would include the use of bird and bat boxes to provide some biodiversity benefit as a result of the development and consideration of enhancement measures such as the planting of native species in landscaping areas and the use of diverse seed mixtures for areas of public open space or within lawns/ gardens where practicable.

## REFERENCES

Cardiff Council (2003) *Cardiff Unitary Development Plan (to 2016) – Deposit Written Statement.* Dated October 2003.

Cardiff Council (2011) *Supplementary Planning Guidance – Biodiversity Part 1: Policy Guidance.* Approved June 2011.

Countryside Council for Wales CCW (2005). *Habitats of Wales. Phase 1 Data 1979-1997. Lowlands and Uplands.* CD ROM available from CCW, Bangor.

Eaton, M. A. Brown, A. F. Noble, D.G. Musgrove, A. J. Hearn, R. Aebischer, N. J. Gibbons, D.W. Evans, A. & Gregory, R.D. (2009) *Birds of Conservation Concern 3: The Population Status of Birds in the United Kingdom, Channel Islands and Isle of Man* British Birds 102: 296-341

Froglife (1999) *Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation.* Froglife Advice Sheet 10. Froglife, Halesworth.

Hutchinson, G. & Rich, T. C. G (2005). Conserving Britain's Biodiversity: *Hieracium radyrense* (Asteraceae), Radyr Hawkweed. Watsonia 25: 403–407

Institute for Environmental Assessment (1995). *Guidelines for Baseline Ecological Assessment.* E & FN Spon, Hong Kong.

Johnstone IG, Thorpe RI & Noble DG,(2010) *The state of birds in Wales 6.* RSPB Cymru, Cardiff.

Joint Nature Conservation Committee (JNCC) (1990). *Handbook for Phase 1 Habitat Survey. A technique for environmental audit.* JNCC, Peterborough.

Mitchell-Jones, A.J. (2004). *Bat mitigation guidelines; January 2004.* English Nature. Peterborough.

## APPENDIX I DESK-STUDY INFORMATION RECEIVED FROM SEWBREC


## BIODIVERSITY INFORMATION SEARCH (SPECIES AND DESIGNATED SITES):

## RADYR COURT, CARDIFF
## ST142793

- Centre of Search Area
- 1km Search Buffer
- Priority & Protected Species
- Other Species of Conservation Concern
- Species of Local Conservation Concern
- Special Area of Conservation
- Site of Special Scientific Interest
- Local Nature Reserve
- Candidate Local Conservation Concern
- Ancient Semi-Natural Woodland (ASNW)/ Planted Ancient Woodland Site (PAWS)
- Country Park
- Unitary Authority Boundary



Plot produced 11/10/2011 on behalf of Soltysbrewster Ecology by:

SEWBReC
SOUTH EAST WALES BIODIVERSITY RECORDS CENTRE
CANOLFAN CofNODION FIOAMRYWIAETH DE DWYRAIN CYMRU

## APPENDIX II TARGET NOTES TO ACCOMPANY PHASE 1 HABITAT SURVEY MAP

| Target Note | Description/Comment |
|---|---|
| *Birds Seen/Heard*: Magpie, Blackbird, Carrion Crow, Wood Pigeon, Blue Tit, House Sparrow, Chaffinch and Robin. | |
| 1 | Poor semi-improved grassland with species including Yorkshire Fog, Cocks Foot, Creeping Bent, Broad-leaved Dock, Ribwort Plantain, Common Nettle, Creeping Buttercup, Self Heal, Creeping Thistle, Hogweed, Common Knapweed, Mouse Ear, Yarrow, Common Ragwort, Common Sorrel and Common Nettle. |
| 2 | Bramble scrub with occasional establishing Ash and Sycamore trees. Hazel adjacent to road to south may have formed part of a remnant hedge. |
| 3 | Tall Leylandii hedge adjacent to existing residential property. Apple tree growing adjacent to hedge with another along fence to south of field. |
| 4 | Strip of disturbed ground with colonising species including Yorkshire Fog, Creeping Bent, Annual Meadow Grass, Common Knapweed, Ribwort Plantain, White Clover, Willowherb, Common Ragwort, Buddleja and Bramble. |
| 5 | Area of Japanese Knotweed. Other species adjacent to railway line include Bramble, Buddleja, Bracken, Willowherb and Common Nettle. |
| 6 | Pedestrian bridge under railway line. No cracks in stonework suitable to support roosting bats. Adjacent scrub includes Bramble, Bracken, Willow and Common Nettle. |
| 7 | Scrub dominated by Bramble and tall Dogwood with Travellers Joy and Field Bindweed and scattered trees including Ash, Sycamore and Oak. |
| 8 | Scrub dominated by Bramble, Raspberry, Travellers Joy and Dogwood with occasional Elder, Buddleja, Hazel Coppice and establishing Ash trees. |
| 9 | Scrub with Bramble, Travellers Joy, Common Nettle, Willowherb, and Hemp Agrimony. |
| 10 | Narrow strip of establishing woodland dominated by Ash and Oak with Sycamore, Hawthorn, Hazel, Bramble, Dog Rose and Honeysuckle. |
| 11 | Scrub dominated by Bramble with Hawthorn and Hazel coppice and establishing Ash and Oak trees. |
| 12 | Establishing broad-leaved semi-natural woodland with species including Oak, Hazel, Ash, Willow, Hawthorn, Sycamore, Silver Birch, Field Maple, Dogwood and Honey Suckle. Ground flora dominated by Ivy with Herb Robert, Ash saplings, Bramble and Dog Rose scrub. |
| 13 | Cotoneaster and Spotted Laurel in woodland. |

## APPENDIX III ADVICE SHEET ON THE USE OF STREET LIGHTING AND BATS

**The following advice in relation to residential lighting where bats may be an on-site or influencing factor is based up on information contained within an article by Emery (2008) and available via Urbis lighting (http://www.urbislighting.co.uk/).**

Firstly in terms of light source, the use of Low Pressure Sodium (SOX) is recommended, as these lamps emit light at a single wavelength with a very low amount of UV meaning that very few insects are attracted to this light source. This light also has a minimal effect on the bats. However, the use of these light sources is currently being phased out.

Next best would be High Pressure Sodium (SON) as these lamps emit light over a slightly broader wavelength spectrum attracting more insects but as these are a more intense light source they have a greater effect on bats. There are ranges of metal halide lamps available and they are classed as white light sources, these emit light at wavelengths across the colour spectrum but can also emit high levels of UV. These can attract large numbers of insects and are also a closer match daylight meaning these have an even greater impact on bats (avoid these types).

The lighting types recommended would be 8m Column heights (rather than 10m - however, see notes below) using (in order of preference) external rear louvres, or internal rear louvres, or 120mm rear shields. Either flat or curved glass protectors may be used with the former being preferred, as light spillage is marginally less than curved. However, there may be conflicts with using some louvres (plus, spacing will be reduced and so more lighting columns may be required, therefore increasing costs).

Units may be obtained from numerous suppliers, as the above-mentioned items are standard items. However, talking to Matt Emery from Urbis Lighting with regards to bats is recommended. He is a lighting engineer firstly with an interest in bats and how light influences their behaviour and this information is also recommended by the Institute of Lighting Engineers (ILE) http://www.ile.org.uk/.

### FURTHER NOTES

***Lower Mounting Height***

This option is easily implemented and would generally result in a reduced column cost.

In comparison studies between 10m and 8m column heights, the overall spread of light has been reduced by lowering the column height, however due to the lower mounting height the intensity of the light on the road has been increased with the higher illuminance values spreading further. This option reduces the column spacing by 20% resulting in more columns being required thereby neutralising the benefit of the lower unit costs.

***Louvres – External***

External louvres are used with a flat protector so there is no spacing constraint from the optic. As with the shields mentioned below, these are externally mounted so there are increased stresses on the supporting columns and brackets from additional wind loading. As with the internal louvres (see below) an additional unit cost will incur.

In comparative studies, the external louvre almost completely blocks all the light emitted behind the units. However, this does have a greater effect on the column spacing achievable as large amounts of light are being blocked. Excellent for light sensitive species of bats (i.e. *Myotis sp.*). Urbis therefore recommends the use of its ZX2 and ZX3 product designs that have been proven to reduce light on a road scheme in the Sirhowey Valley, Caerphilly.

***Louvres - Internal***

Internal louvres are not available with a flat protector due to the limited space available inside the optic. Louvres are a specially designed accessory with each one requiring testing resulting in higher additional costs per unit than any of the other options described here.

In comparative studies, the internal rear louvre greatly reduces the spread of light behind the units. However it does reduce the column spacing achievable, this is because the louvre is blocking the light emitted from the optic making the luminaire less efficient.

***Rear Shield***

Shields are becoming more widely available on a range of luminaires but as they are an accessory they incur an extra cost per luminaire. The longer the length of the shield the more effective it is, however the increased surface area causes greater stresses on the supporting column and bracket due to wind loading.

In comparative studies, the shield has helped reduce the spread of light behind the lighting column by almost 40%. However, the column spacing is reduced by 20% resulting in the possibility of more columns being required and also there is an increased unit cost for the accessory.

***Using Flat Glass Protectors***

The majority of Traffic Route luminaires are available with a flat glass protector option, so this method of limiting light emitted at high angles is easily available at little or no extra cost on unit prices. However the range of protectors typically used on traffic route lighting include curved bowls due to their less restrictive light distribution.

In comparison studies results show that there is little effect on the spread of light when a flat protector is used to light roads. This is due to the decreased column spacing required to still achieve the required lighting specification on the road increasing the intensity of the light in the area. The decrease in column spacing will also mean that extra columns could be required on longer stretches of road increasing costs.

## REFERENCES

Bat Conservation Trust. (2008). *Bats and Lighting in the UK; Version 2, January 2008.* http://www.bats.org.uk/

Emery, M. (2008). *Effect of Street Lighting on Bats.* Urbis Lighting Ltd., 2 January 2008. http://www.urbislighting.com/

COOKE AND ARKWRIGHT

# LAND AT RADYR COURT JUNCTION, CARDIFF

BAT SURVEY REPORT

17 OCTOBER 2012


soltysbrewster ECOLOGY

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COOKE AND ARKWRIGHT

# LAND AT RADYR COURT JUNCTION, CARDIFF

# BAT SURVEY REPORT

Document Ref: E1133402/R01 – 17 OCTOBER 2012

| Issue | Revision | Stage | Date | Prepared by | Approved by | Signed |
|---|---|---|---|---|---|---|
| 1 | | Initial Draft | 16 October 2012 | Annabelle Phillips | Dr. M Watts (Director) | [redacted] |
| 2 | Inclusion of design parameters plan | Final Draft | 17 October 2012 | Annabelle Phillips | Dr. M Watts (Director) | [redacted] |

## CONTENTS

## 1.0 INTRODUCTION

1.1. Soltys Brewster Ecology were commissioned by Cooke and Arkwright to undertake a bat activity survey on a parcel of land at Radyr Court in Cardiff, which has been proposed for residential development. The survey area is located to the west of the River Taff, adjacent to existing residential areas, and is centred at grid reference ST142 793.

1.2. The Extended Phase 1 Habitat Survey undertaken by Soltys Brewster in September 2011 (SBE, 2011) revealed that the site was dominated by poor semi-improved grassland, dense scrub, woodland and scattered trees. The site is bordered by residential development to the west and a railway line and the River Taff to the east.

1.3. The woodland and scrub habitats on site were identified in the 2011 report as having potential to support foraging/ commuting bats and, as part of the consultation post submission of planning, the local authority requested that bat activity surveys were undertaken to inform on general use of the site by bats. This report details the result of the bat activity surveys undertaken in early October 2012 and outlines any ecological constraints/opportunities associated with development on the site with particular regard to bats. Further investigation into the potential of the trees on site to support roosting bats was also undertaken as part of the current survey although none with particular roosting potential were identified as part of the 2011 survey.

## 2.0 METHODOLOGY

*Bat activity survey*

2.1. Dusk and dawn bat activity surveys were undertaken at the site on 01st/02nd October 2012 by two suitably qualified surveyors. The evening/dusk activity survey commenced observation 15 minutes before sunset and ran up to 120 minutes into the night, with dawn surveys commencing 90 minutes prior to sunrise and finishing at sunrise.

2.2. Surveyors undertook walked transects of the land within the application boundary to ensure complete coverage of the site (see transect routes in Figure 1). Broadband bat detectors (Petterson D240x) were used during the survey visit and bat calls were recorded (Creative Zen V+ MP3) and analysed using appropriate sonogram analysis software (Wavesurfer).

2.3. In addition to the manual detector survey, two automated bat detectors (Anabat SD2) were deployed within suitable foraging and commuting habitat on site during the survey visit (for locations see Figure 1). These detectors were left *in-situ* overnight to record bat activity in these locations.

2.4. The optimum period for bat surveys generally runs between April and September, with October identified as a sub-optimal month for survey (BCT, 2012). Although October is outside the optimal period for bat activity surveys it was agreed with the local authority ecologist that surveys could be undertaken in early October subject to suitable weather conditions. Weather conditions were not considered a constraint on the current survey with light winds (Beaufort 1-2) and maximum temperatures of 15°c and minimum of 13.5°c recorded. Light showers were recorded between 1855-1910h and 2005- 2008h on the 1st and from 0545- 0555h on the 02nd October, although this did not affect bat behaviour at the site (see subsequent sections).

*Tree survey*

2.5. A ground-based check (using binoculars as appropriate) of the trees on site for their potential to support roosting bats was also undertaken. The results of the survey were recorded via means of target notes including a description of the trees present and any features considered to offer potential roosting opportunities for bats. This survey was undertaken at the request of the local authority to supplement the findings of the 2011 report, which indicated that none of the trees at the site were considered as having particular features for use by roosting bats.

## 3.0 RESULTS

*Bat activity survey*

3.1 During the evening activity survey on 01st October a total of 25 separate bat observations were made by the surveyors (Figure 1). From both in-field and sonogram analysis it was determined that these calls were made by foraging and commuting Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Myotid *Myotis sp.* and Brown Long-eared bats *Plecotus auritus*, with 18 of the 25 calls relating to Common and Soprano Pipistrelle. The first bat recorded was a single Common Pipistrelle at 1857h, approximately 8 minutes after sunset (1849h) commuting along the western boundary of the site.

3.2 During the dawn activity survey undertaken on the 02nd October a total of 4 separate bat observations were made by the surveyors. In-field and sonogram analysis confirmed the calls were made by 3 foraging and commuting Soprano Pipistrelle and 1 Myotid bat. The last bat recorded was a Myotid at 0700h, approximately 16 minutes prior to sunrise (0716h), commuting west across the site.


**Key**

- Transect route
- A — Anabat location
- Broad-leaved semi-natural woodland
- Scattered broad-leaved trees
- Dense/continuous scrub
- Species-poor hedge
- Fence
- Site Boundary

**Bat Species Recorded**

| | |
|---|---|
| CP | Common Pipistrelle |
| SP | Soprano Pipistrelle |
| BLE | Brown Long-eared |
| MY | Myotid |

| client/project | drawing |
|---|---|
| Cooke and Arkwright<br>**Radyr Court, Cardiff** | Figure 1.<br>Bat Activity Survey Plan |

| drawing no. | revision | scale | drawn | date |
|---|---|---|---|---|
| E1133402/Pre/S/001 | * | NTS@A3 | AP | Oct 2012 |


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3.3 The Anabat deployed along the southern boundary of the site recorded a total of 64 bat passes, including 50 Common Pipistrelle, 11 Soprano Pipistrelle, 2 Brown Long-eared and 1 Noctule bat *Nyctalus noctula*. The first bat recorded was a Common Pipistrelle at 1915h, approximately 26 minutes after sunset (1849h). The last bat recorded was a Soprano Pipistrelle at 0643h, approximately 33 minutes prior to sunrise (0716h).

3.4 The Anabat deployed along the northern boundary recorded 24 bat passes, including 13 Soprano Pipistrelle, 9 Common Pipistrelle, and 2 Myotid bats. The first bat recorded was a Soprano Pipistrelle at 1911h, approximately 22 minutes after sunset (1849h). The last bat recorded was a Common Pipistrelle at 0225h, approximately 4 hours 51 minutes prior to sunrise (the Anabat status file indicated the Anabat ran successfully until 0705h).

*Tree survey*

3.5 The ground based inspection of the trees on site found they were generally too immature to have developed features suitable for use by roosting bats, with no mature trees present within the site boundary. Tree species were dominated by Ash, with Sycamore, Oak, Hazel coppice, Hawthorn and Field Maple also present. No cracks or holes suitable for use by roosting bats were noted in any of the trees. Some trees had a light cover of Ivy *Hedera helix*, although this was not considered sufficiently dense (in terms of stem cover) to provide opportunities for roosting bats. Full descriptions of the trees on site can be found in Appendix I.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 The bat activity surveys recorded foraging and commuting bats across the site and the site is considered likely to function as a foraging resource or commuting corridor for a variety of species, confirming the assumption made as part of the Phase 1 Habitat Survey (SBE, 2011). The site layout is yet to be finalised, however the Design Parameters plan (Appendix II) indicates that some areas of trees and woodland could be retained as part of the development (for example within the landscape/ movement corridor). Given the availability of other suitable habitat in the surrounding area (e.g. Radyr Woods and the River Taff) a local foraging resource would be maintained.

4.2 It is recommended that where practicable trees are retained. The use of an appropriate buffer zone that would allow adequate root protection for trees and shrubs would help to minimise the impacts of the development on these features and any wildlife associated with them.

4.3 Given the presence of notably light intolerant bat species (Myotid and Brown-Long-eared bats), any proposed street lighting to be erected as part of a future development should be designed/ oriented to avoid illuminating retained woodland and trees along the boundaries of the site in consideration of their function as bat foraging and commuting habitats. Further advice on lighting and bats is included in Appendix III of this report.

4.4 The tree survey identified no features such as cracks, holes or dense Ivy cover that would offer roosting opportunities for bats within the site. However, consideration should be given to use of the trees and scrub by nesting birds, and as such the clearance of these features should be undertaken outside the bird-breeding season (i.e. clearance possible between September and February inclusive).

4.5 Given the use of the site by foraging bats, provision of roosting opportunities as part of the new development would also be appropriate, with bat boxes installed on retained trees or incorporated into the design of the new buildings.

## REFERENCES

Bat Conservation Trust (2012) Bat Surveys – Good Practice Guidelines.

Mitchell-Jones, A.J. (2004) *Bat mitigation guidelines; January 2004*. English Nature. Peterborough.

Soltys Brewster Ecology (2011) Land at Radyr Court Junction, Cardiff – Extended Phase 1 Habitat Survey Report. Report dated 31 October 2011.

## APPENDIX I TARGET NOTES AND TARGET NOTE PLAN TO ACCOMPANY TREE SURVEY

| Target Note | Description/Comment |
|---|---|
| 1 | Semi-mature apple tree. No cracks or holes noted. Negligible potential to support roosting bats. |
| 2 | Semi-mature Apple tree. No cracks or holes noted. Negligible potential to support roosting bats. |
| 3 | Mature Oak. Light covering of Ivy noted, but no access available to survey tree fully. Out-side site boundary and unlikely to be impacted as a result of development. |
| 4 | Unmanaged and outgrown hedge with species including Hazel, Ash and Blackthorn. No potential to support roosting bats. |
| 5 | Small number of establishing Ash trees along field boundary. Trees too immature to support features which could be exploited by roosting bats. |
| 6 | Dense Bramble scrub with occasional Dogwood, Willow and Ash trees. All trees semi-mature with no cracks or holes suitable for roosting bats. Negligible potential to support roosting bats. |
| 7 | Semi-mature Oak with light cover of Ivy. Negligible potential to support roosting bats. |
| 8 | Small number of establishing Sycamore trees along field boundary. Trees too immature to support features which could be exploited by roosting bats. |
| 9 | Semi-mature Sycamore. No cracks or holes noted. Negligible potential to support roosting bats. |
| 10 | Semi-mature Ash with light cover of Ivy leaf. No cracks or holes noted. Negligible potential to support roosting bats. |
| 11 | Tall Dogwood scrub. |
| 12 | Semi-mature Ash trees growing along boundary of existing residential house to the west. No trees sufficiently large to support cracks or holes suitable for use by roosting bats. |
| 13 | Semi-mature Oak and Ash growing into one another. No cracks or holes noted in either tree. Negligible potential to support roosting bats. |
| 14 | Establishing Ash trees along field boundary. Too immature to support features suitable for use by roosting bats. |
| 15 | Semi-mature Oak tree. No cracks or holes noted. Negligible potential to support roosting bats. |
| 16 | Semi-mature Ash trees. Light cover of Ivy – not sufficiently dense to offer roosting opportunities for roosting bats. |
| 17 | Hazel coppice with Dogwood and Hawthorn scrub. Not sufficiently large to support cracks or holes suitable for use by roosting bats. |
| 18 | Area of woodland dominated by semi-mature Ash with occasional Oak, Sycamore, Hazel Coppice and Hawthorn. All trees establishing to semi-mature and no cracks or holes suitable for use by roosting bats were noted. Negligible potential to support roosting bats. |
| 19 | Establishing to semi-mature woodland with tree species including Sycamore, Oak, Hawthorn, Hazel Coppice, Silver Birch and Field Maple with Dogwood and Bramble scrub. No cracks or holes suitable for use by roosting bats were noted, trees generally too immature to support such features. |
| 20 | Bramble scrub and establishing trees with species including Oak, Ash, Sycamore Hawthorn, Hazel coppice and Cherry. Trees too immature to support features such as cracks or holes which could be exploited by roosting bats. |
| 21 | Hazel coppice with establishing to semi-mature Ash, Sycamore, Willow and |

| | |
|---|---|
| | Hawthorn. No cracks or holes suitable for use by roosting bats. Negligible potential to support roosting bats. |
| 22 | Semi-mature Ash tree. Light cover of Ivy, but not considered sufficiently dense to provide suitable roosting opportunities for bats. No cracks or holes notes. Negligible potential to support roosting bats. |
| 23 | Semi-mature multi-stem Field Maple. No cracks or holes suitable for use by roosting bats. Negligible potential to support roosting bats. |
| 24 | Semi-mature multi-stem Sycamore and Ash trees. Very light cover of Ivy on Ash tree and no suitable cracks or holes suitable for use by roosting bats noted. Negligible potential to support roosting bats. |
| 25 | Semi-mature Ash tree. Light cover of Ivy, although not considered sufficiently dense to provide roosting opportunities for bats. |
| 26 | Area dominated by Hazel coppice with occasional Hawthorn and Dogwood. Trees too immature to support features which could be exploited by roosting bats. |


**Key**

- Target Note
- Broad-leaved semi-natural woodland
- Scattered broad-leaved trees
- Dense/continuous scrub
- Species-poor hedge
- Fence
- Site Boundary

| | | | | |
|---|---|---|---|---|
| client/project: Cooke and Arkwright **Radyr Court, Cardiff** | | drawing: Tree Survey Plan | | |
| drawing no.: E1133402/Pre/S/002 | revision: * | scale: NTS@A3 | drawn: AP | date: Oct 2012 |

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# APPENDIX II DESIGN PARAMETERS PLAN


**KEY**

- Boundary of application
- Landscape/ movement corridor
- Development zone
- Development side/rear to address existing
- Vehicular access point
- Pedestrian access point (2)
- Min. 10m rear gardens
- Attenuation area/ open space

Nathaniel Lichfield & Partners
Planning. Design. Economics.

| | |
|---|---|
| Project | Radyr Court Road |
| Title | **Plan 4: Design Parameters** |
| Client | |
| Date | April 2012 |
| Scale | 1:1250 @ A3 |
| Drawn by | SG |
| Drg. No | IL30748-008 |

N

CL30748-002

## APPENDIX III ADVICE SHEET ON THE USE OF STREET LIGHTING AND BATS

**The following advice in relation to residential lighting where bats may be an on-site or influencing factor is based up on information contained within an article by Emery (2008) and available via Urbis lighting (http://www.urbislighting.co.uk/).**

Firstly in terms of light source, the use of Low Pressure Sodium (SOX) is recommended, as these lamps emit light at a single wavelength with a very low amount of UV meaning that very few insects are attracted to this light source. This light also has a minimal effect on the bats. However, the use of these light sources is currently being phased out.

Next best would be High Pressure Sodium (SON) as these lamps emit light over a slightly broader wavelength spectrum attracting more insects but as these are a more intense light source they have a greater effect on bats. There are ranges of metal halide lamps available and they are classed as white light sources, these emit light at wavelengths across the colour spectrum but can also emit high levels of UV. These can attract large numbers of insects and are also a closer match daylight meaning these have an even greater impact on bats (avoid these types).

The lighting types recommended would be 8m Column heights (rather than 10m - however, see notes below) using (in order of preference) external rear louvres, or internal rear louvres, or 120mm rear shields. Either flat or curved glass protectors may be used with the former being preferred, as light spillage is marginally less than curved. However, there may be conflicts with using some louvres (plus, spacing will be reduced and so more lighting columns may be required, therefore increasing costs).

Units may be obtained from numerous suppliers, as the above-mentioned items are standard items. However, talking to Matt Emery from Urbis Lighting with regards to bats is recommended. He is a lighting engineer firstly with an interest in bats and how light influences their behaviour and this information is also recommended by the Institute of Lighting Engineers (ILE) http://www.ile.org.uk/.

### FURTHER NOTES

***Lower Mounting Height***

This option is easily implemented and would generally result in a reduced column cost.

In comparison studies between 10m and 8m column heights, the overall spread of light has been reduced by lowering the column height, however due to the lower mounting height the intensity of the light on the road has been increased with the higher illuminance values spreading further. This option reduces the column spacing by 20% resulting in more columns being required thereby neutralising the benefit of the lower unit costs.

***Louvres – External***

External louvres are used with a flat protector so there is no spacing constraint from the optic. As with the shields mentioned below, these are externally mounted so there are increased stresses on the supporting columns and brackets from additional wind loading. As with the internal louvres (see below) an additional unit cost will incur.

In comparative studies, the external louvre almost completely blocks all the light emitted behind the units. However, this does have a greater effect on the column spacing achievable as large amounts of light are being blocked. Excellent for light sensitive species of bats (i.e. *Myotis sp.*). Urbis therefore recommends the use of its ZX2 and ZX3 product designs that have been proven to reduce light on a road scheme in the Sirhowey Valley, Caerphilly.

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In comparative studies, the shield has helped reduce the spread of light behind the lighting column by almost 40%. However, the column spacing is reduced by 20% resulting in the possibility of more columns being required and also there is an increased unit cost for the accessory.

***Using Flat Glass Protectors***

The majority of Traffic Route luminaires are available with a flat glass protector option, so this method of limiting light emitted at high angles is easily available at little or no extra cost on unit prices. However the range of protectors typically used on traffic route lighting include curved bowls due to their less restrictive light distribution.

In comparison studies results show that there is little effect on the spread of light when a flat protector is used to light roads. This is due to the decreased column spacing required to still achieve the required lighting specification on the road increasing the intensity of the light in the area. The decrease in column spacing will also mean that extra columns could be required on longer stretches of road increasing costs.

## REFERENCES

Bat Conservation Trust. (2008). *Bats and Lighting in the UK; Version 2, January 2008.* http://www.bats.org.uk/

Emery, M. (2008). *Effect of Street Lighting on Bats.* Urbis Lighting Ltd., 2 January 2008. http://www.urbislighting.com/

# Appendix EDP 2
# Proposed Site Layout
# (Drawing Nos. (SK)001P, September 2019)

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# Legend

EXTERNAL WORKS

DENOTES EXTENT OF ACCESS ROAD WITH TARMACADAM FINISH.

DENOTES EXTENT OF CONCRETE BRICK PAVIORS LAID HERRINGBONE FASHION.

DENOTES EXTENT OF 600X600X50MM P.C PAVING SLABS.

DENOTES EXTENT OF CAR PARKING BAYS WITH CONCRETE INTERLOCKING BLOCK PAVIORS LAID HERRINGBONE FASHION.
ALL BAYS 2.4m WIDEX 4.8m DEEP.

WALLING + FENCING

DENOTES 2.1m HIGH CLOSE BOARDED S.W. FENCE TO B.S. 1722,PART 5 WITH TIMBER POSTS AND RAILS.

DENOTES 1.2m HIGH CLOSE BOARDED S.W. TIMBER FENCING TO B.S. 1722 PART 5, BETWEEN PRIVATE GARDENS WITH TIMBER POSTS + RAILS. PROVIDE 1.5m HIGH FENCE BETWEEN PRIVATE GARDENS FOR THE 1st 2m FROM THE DWELLING TO FORM A PRIVACY SCREEN.

DENOTES 1.8m HIGH CLOSE BOARDED S.W. FENCE TO B.S. 1722,PART 5 WITH TIMBER POSTS AND RAILS.

GALVANISED MILD STEEL BLACK PAINTED RAILING - PROVIDE 900mm HIGH RAILING+GATES.

DENOTES 2.1m HIGH BRICK WALL FENCING.

DENOTES 2.1m HIGH STEEL RAILINGS WITH 450x450mm BRICK PIERS AT 3m C/S

# notes

THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING ARCHITECTS DRAWINGS:

| | |
|---|---|
| (90)001 | SITE LOCATION PLAN |
| (SK)001 | PROPOSED SITE LAYOUT 1:500 |
| (SK)002 | TREE CONSTRAINTS LAYOUT 1:500 |
| (SK)003 | PROPOSED FLOOR PLANS - BLOCK 1 |
| (SK)004 | PROPOSED FLOOR PLANS - BLOCKS 2, 6, 8 & 9 |
| (SK)005 | PROPOSED FLOOR PLANS - BLOCKS 3 & 11 |
| (SK)006 | PROPOSED FLOOR PLANS - BLOCKS 4, 10, 12 & 14 |
| (SK)007 | PROPOSED FLOOR PLANS - BLOCK 5 |
| (SK)008 | PROPOSED FLOOR PLANS - BLOCKS 13 & 15 |
| (SK)009 | PROPOSED FLOOR PLANS - BLOCK 7 |
| (SK)010-13 | PROPOSED STREET ELEVATIONS |
| (SK)014 | PROPOSED SECTIONS |
| (SK)015 | PROPOSED SITE LAYOUT 1:200 |
| (SK)016 | PROPOSED SITE LAYOUT 1:200 |

**SCHEDULE OF ACCOMMODATION**

| | | | |
|---|---|---|---|
| A | HOUSE TYPE 'A' | 5P 3B | 10 No |
| B | HOUSE TYPE 'B' | 4P 2B | 27 No |
| C | HOUSE TYPE 'C' | 6P 4B | 02 No |
| D | COMMUNAL FLAT TYPE 'D' | 2P 1B | 06 No |

TOTAL No. OF UNITS **45 No**

DENOTES SITE BOUNDARY

DENOTES 15M BUFFER ZONE FROM THE WOODLAND AREA ON NORTHERN BOUNDARY.

DENOTES 15M NO DWELLING ZONE FROM THE CENTRE OF THE PUMPING STATION.

TYPICAL TYPE 3 PUMPING STATION LAYOUT.

SHED TYPES


NETWORK RAIL MINIMUM DISTANCE OF 2m FROM BOUNDARY TO PROPOSED DEVELOPMENT

179350N
179300N
179250N
179200N
179150N
314100E
314150E
314200E
314250E
314300E
314350E

DE BRAOSE CLOSE
NICHOLSON WEBB CLOSE
BLETHIN CLOSE
RADYR COURT

PROPOSED SITE LAYOUT

## Notes

This drawing is copyright.
All dimensions to be checked prior to construction or manufacture.
Any discrepancies to be reported immediately to the Architect.
Do not scale this drawing. Refer to figured dimensions only.

| Rev | Description | Date |
|---|---|---|
| A | PROPOSED ROAD LAYOUT REVISED. | 11.06.2019 |
| B | TO WOODLAND AREA TO NORTHERN BOUNDARY. BUFFER ZONE REDUCED TO INTRODUCE | 12.06.2019 |
| C | PROPOSED SCHEDULE OF ACCOMMODATION REVISED. | 18.06.2019 |
| D | ROAD LAYOUT REVISED. FOOTPATH AMENDED. | 09.07.2019 |
| E | ROAD LAYOUT INCREASED TO 6m | 10.07.2019 |
| F | ROAD LAYOUT REVISED | 17.07.2019 |
| G | BLOCK 1 PLAN AND LOCATION REVISED. TREE SURVEY UPDATED. | 24.07.2019 |

## Specification

This drawing must be read in conjunction with 'Drawing Specification Notes' Bill of Quantities.
Building Regulations.
This drawing must be read in conjunction with all related Architects consultant's and specialist's drawings and documents.

| Rev | Description | Date |
|---|---|---|
| H. | PROPOSED SITE LAYOUT REVISED. | 06.08.2019 |
| J. | PROPOSED SITE LAYOUT REVISED. | 12.08.2019 |
| K. | BOUNDARY WALLS AMENDED. SECTION LINES ADDED | 22.08.2019 |
| L. | 2m NETWORK RAIL BOUNDARY DISTANCE ADDED | 28.08.2019 |
| M. | LAYOUT AMENDED | 29.08.2019 |
| N. | MAIN ROAD LAYOUT AMENDED TO COMPLY WITH NR BOUNDARY REQUIREMENT | 03.09.2019 |
| P. | STEEL + BRICK PIER BOUNDARY FENCE TO WALK UP FLATS ADDED | 06.09.2019 |

Sheet: PROPOSED SITE LAYOUT
Date: SEP 2019
Scale: 1:500
Job No: —
Sheet No/Revision: (SK)001P
Drawn/Checked: NP/DD


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Client: TAFF HOUSING ASSOCIATION

Job: PROPOSED RESIDENTIAL DEVELOPMENT AT DANESCOURT HOUSING

# Appendix EDP 3
# Green Infrastructure Strategy
# (edp4188_d0023a 06 September 2019 EB/KH)
# and Landscape Strategy
# (edp4188_d0025 02 September 2019 EB/KH)

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Ecotone provides a transitional landscape between new proposals and the existing woodland habitat at the northern extent of the site, defined by the course of the existing footpath route. Within this area the scale and density of planting grades down from the existing woodland edge. Informal pedestrian access is provided through mown footpaths through meadow grassland.

Retention of northern woodland and green edge along north-eastern boundary retains connection with the adjacent railway embankment and the blue-green corridor of the River Taff beyond.

Tree and shrub species proposed within the ecotone, along the south-western slope and on the edge of existing woodland, are native and of local provinence to allow proposals to blend into their context both visually and ecologically. Street trees are non-natives, but cultivars of similar native species, for example Acer campastre 'Elsrijk' and Sorbus 'Sunshine'.

Existing stands of Japanese Knotweed within the site boundary are to be removed to aid the control of invasive species along the adjacent Taff River Corridor.

Proposals aim to bring retained vegetation and woodland (including that of the Community Woodland to the north) into long term maintenance, by a combination of local community groups and private management companies, to improve the quality of habitats present.

Existing Public Right of Way (PRoW) routes through the site are to be retained, with a new off-road footpath provided along the south-western slope to retain the availability of a woodland character walkway through the site.

Rain gardens, and associated tree planting, within the streetscape provide 'hopping points' for wildlife across the development area.

North-west to south-east green connection is retained across the site through the retention of a green corridor alongside the railway embankment, and retention and enhancement of woodland vegetation along the site's south-western slope.

Green Infrastructure Areas

- Northern Woodland (0.69ha)
- Ecotone (0.13ha)
- South-western Slope (0.80ha)
- Rain Gardens (0.03ha)
- New Planting (0.03ha)

Inset: Not to Scale

0 500m

- Site Boundary (2.88ha)
- Additional Land Within Client Control (2.56ha) - Provided as Community
- Development Area (1.20ha)

Green Infrastructure Elements

- Retained Woodland (0.64ha)
- Retained Vegetation (0.59ha)
- Proposed Tree Planting
- Proposed Native Shrub Mix (0.07ha)
- Proposed Low Shrub (0.05ha)
- Proposed Woodland Floor Mix (0.07ha)
- Proposed Meadow Planting (0.14ha)
- Amenity Grass (0.03ha)
- Rain Garden (0.03ha)
- Footpaths (0.06ha)
- Hailey Park Recreation Ground
- Existing PRoW Links (with Footpath Numbers)
- Retained Pedestrian Links
- On-site Green Connections
- River Taff/Railway Green Corridor
- River Taff Blue Corridor

client
**Taff Housing Association**

project title
**Land off De Braose Close, Danescourt, Cardiff**

drawing title
**Plan EDP 3: Green Infrastructure Strategy**

| | | | |
|---|---|---|---|
| date | **09 SEPTEMBER 2019** | drawn by | **EB** |
| drawing number | **edp4188_d023a** | checked | **KH** |
| scale | **1:2,000 @A3** | QA | **CR** |

the environmental dimension partnership
Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk

De Braose Close

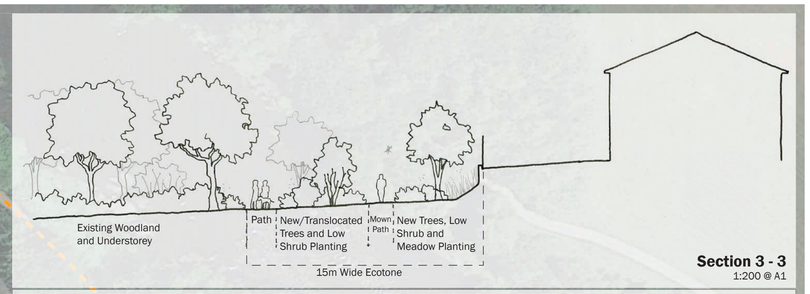
Nicholson Webb Close

Blethin Close

Radyr Court Road

Off-site land within applicant control proposed as new 'Community Woodland', to be managed by a local community group or private management company as appropriate. Area has potential to include a forest school facility and interpretation boards along informal routes.

Vertical railings between the apartment garden space and the ecotone divide the private and public space whilst providing security to apartment buildings and surveillance over the ecotone area.




**Section 3 - 3**
1:200 @ A1

15-metre wide 'Ecotone' provided between woodland edge and new built form, creating a transitional landscape between the two elements. Planting to include native tree, shrub and scrub planting, as well as areas of species rich meadow grassland, to create a staggered mosaic of habitats. Informal access will be available through mown routes.

Ecotone Planting Palette


Existing stands of Japanese knotweed along the eastern site boundary are to be removed as part of proposals.

Rain gardens will include a mixture of shrub, grass and herbaceous species of low maintenance requirements. Planting will provide seasonal interest and value for pollinators, as well as amenity value for new residents through street greening and water run-off cleaning. Planting of semi-mature tree specimens will provide instant maturity and biodiversity value to streetscapes.

Rain Garden Planting Palette


Tall hedgerow surrounding adjacent property is to be protected to maintain privacy of adjacent residents.

Pedestrian and cycle only through-route onto Radyr Court.

Woodland Planting Palette


South-western slope to be planted with woodland understorey species and shrub. Existing scrub to be cut back and managed, with spiky cover retained along the site's boundary to provide protection to rear gardens of adjacent residencies. Proposed footpath, traversing the slope, runs alongside and replaces the existing PRoW route through the site, with planting designed to allow surveillance of the route from new properties. The route allows for the future re-establishment of the Penrys Pilgrimage Way, with potential for interpretation features to explain the route's history.

Proposed footpath through woodland of the south-western boundary to be informally surfaced with bark chip to provide stronger delineation of route.

Retention and reinforcement of south-western vegetation heavily filters the available intervisibility between existing properties of Blethin Close and Nicholson Webb Close, and the new properties of the proposal.

Over time, tree planting within the streetscapes will aid the break up of new rooflines within views from Hailey Park to the east.

Street Tree Palette



Section 1 - 1

Section 2 - 2

Section 3 - 3

N

0 50m

Site Boundary
Additional Land Within Applicant Control
Existing Trees
Existing Vegetation/ Scrub
Proposed Tree Planting
Proposed Woodland Floor Planting
Proposed Low Shrub
Proposed Meadow Planting
Retained Footpath Links
Proposed Hedgerow
Proposed Rain Gardens
Amenity Grass
Front Gardens
Native Shrub Mix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| | |
|---|---|
| date | **02 SEPTEMBER 2019** |
| drawing number | **edp4188_d025** |
| scale | **Refer to scale bar** |
| drawn by | **EB** |
| checked | **KH** |
| QA | **CR** |

client
**Taff Housing Association**

project title
**Land off De Braose Close, Danescourt, Cardiff**

drawing title
**Plan EDP 4: Landscape Strategy**

# Appendix EDP 4
# DAFOR Assessment of Grassland

**Grassland Fields**

| Common Name | Latin Binomial | DAFOR (Dominant, Abundant, Frequent, Occasional, or Rare) |
|---|---|---|
| Cock's-foot | *Dactylis glomerata* | D |
| Yorkshire fog | *Holcus lanatus* | D |
| Common bent | *Agrostis capillaris* | F |
| False oat-grass | *Arrhenatherum elatius* | O |
| Sweet vernal-grass | *Anthoxanthum odoratum* | R |
| Common couch | *Elytrigia repens* | R |
| Timothy | *Phleum pratense* | R |
| Broadleaved dock | *Rumex obtusifolius* | A |
| Ribwort plantain | *Plantago lanceolata* | A |
| Bird's-foot trefoil | *Lotus corniculatus* | LA |
| Great willowherb | *Epilobium hirsutum* | LA |
| Creeping buttercup | *Ranunculus repens* | LA |
| Cleavers | *Galium aparine* | LA |
| Creeping cinquefoil | *Potentilla reptans* | F |
| Common sorrel | *Rumex acetosa* | O |
| Common nettle | *Urtica dioica* | O |
| Common ragwort | *Senecio jacobaea* | R |
| Red clover | *Trifolium pratense* | R |
| Ground elder | *Aegopodium podagraria* | R |
| Yarrow | *Achillea millefolium* | R |
| Lesser stitchwort | *Stellaria graminea* | R |

**Grassland Fields - northernmost extent**

| Common Name | Latin Binomial | DAFOR (Dominant, Abundant, Frequent, Occasional, or Rare) |
|---|---|---|
| Sweet vernal-grass | Anthoxanthum odoratum | D |
| Common bent | *Agrostis capillaris* | D |
| Ribwort plantain | *Plantago lanceolata* | D |
| Yorkshire fog | *Holcus lanatus* | F |
| Common ragwort | *Senecio jacobaea* | R |
| Selfheal | *Prunella vulgaris* | R |

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# Appendix EDP 5
# Bat Activity Surveys

**Walked Transect Surveys**

| Temperature (ºC) | Wind speed (Beaufort Scale) | Cloud cover (%) | Precipitation |
|---|---|---|---|
| **Dusk Activity Survey**: 16.08.17 | | | |
| 14.4 at start; 12.9 at end | 0 | 0 | 0 |
| **Dusk Activity Survey**: 14.09.17 | | | |
| 13.1 at start; 10.2 at end | 0 | 50-75 | Light drizzle at 20:20, stopped at 20:25 |

**Dusk Activity Survey**: 16.08.17 **Start**: 20:35 **Finish**: 22:35

| Bat Species | No. of bats | Activity noted | Time of activity | Stop point | Activity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Heard not seen (HNS) | Commuting | Foraging | Direction | Nos. passes |
| Soprano pipistrelle | 1 | | 20:39 | 1 | x | | | | |
| Soprano pipistrelle | 2 | Foraging at 4m high above scrub. Constant activity to 20:50. | 20:45 | 2 | | | x | | Many |
| Soprano pipistrelle | 1 | Foraging above tree canopy | 20:52 | 2-3 | | | x | | |
| Common pipistrelle | 1 | | 21:00 | 3-4 | x | | | | |
| Soprano pipistrelle | 1 | | 21:00 | 3-4 | x | | | | |
| Common pipistrelle | 1 | | 21:02 | 4 | x | | | | |
| Common pipistrelle | 1 | Foraging low at 1m along footpath | 21:08 | 4-5 | | | x | | |
| Soprano pipistrelle | 1 | | 21:08 | 4-5 | | | x | | |
| Common pipistrelle | 1 | | 21:16 | 5 | x | | | | |
| Common pipistrelle | 1 | Along footpath edge above scrub in rough grass field | 21:17 | 5-6 | | x | | | |
| Common pipistrelle | 1 | | 21:22 | 6 | x | | | | |

| Bat Species | No. of bats | Activity noted | Time of activity | Stop point | Activity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Heard not seen (HNS) | Commuting | Foraging | Direction | Nos. passes |
| Soprano pipistrelle and common pipistrelle | 1 of each | Continuous interspersed activity until 21:27 | 21:22 | 6 | x | | | | |
| Common pipistrelle | 1 | | 21:35 | 7 | x | | | | |
| Soprano pipistrelle | 1 | | 21:36 | 7 | x | | | | |
| Common pipistrelle | 1 | | 21:43 | 8 | x | | | | |
| Soprano pipistrelle and common pipistrelle | 3 bats | | 21:47 | 8 | x | | | | |
| Common pipistrelle | 1 | | 21:54 | 9 | x | | | | |
| Soprano pipistrelle | 1 | | 21:59 | 10 | x | | | | |
| Common pipistrelle | 1 | High above hedge | 22:01 | 10 | | x | | | |
| Common pipistrelle | 1 | | 22:07 | 11 | x | | | | |
| Soprano pipistrelle and common pipistrelle | 1 of each | | 22:15 | 12 | x | | | | |
| Soprano pipistrelle and common pipistrelle | 1 of each | Continuously heard until 22:28. Calls interspersed. | 22:23 | 6 | x | | | | |

**Dusk Activity Survey**: 14.09.17 **Start**: 19:25 **Finish**: 21:31

| Bat Species | No. of bats | Activity noted | Time of activity | Stop point | Activity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Heard not seen (HNS) | Commuting | Foraging | Direction | Nos. passes |
| Soprano pipistrelle | 1 | Moving NE | 19:32 | 1-2 | | x | | | |
| Myotis sp. | 1 | Foraging around underpass | 19:34 | 2 | | | x | | |
| Soprano pipistrelle | 1 | Foraging through and around tunnel | 19:36 | 2 | | x | | | |
| Common pipistrelle | 3 | Foraging around trees | 19:39 | 2-3 | | | x | | |
| Myotis sp. | 1 | | 19:44 | 3 | x | | | | |
| Soprano pipistrelle | 1 | Foraging along path | 19:50 | 4 | | | x | | |
| Soprano pipistrelle | 1 | Foraging along path | 19:53 | 4 | | | x | | |
| Common pipistrelle | 1 | Foraging along path | 19:57 | 4-5 | | | x | | |
| Common pipistrelle | 1 | | 20:00 | 5 | x | | | | |
| Common pipistrelle | 1 | Foraging over scrub | 20:01 | 5 | | | x | | |
| Common pipistrelle | 1 | Foraging over scrub | 20:02 | 5 | | | | | |
| Common pipistrelle and soprano pipistrelle | 1 of each | | 20:03 | 5 | x | | | | |
| Common pipistrelle | 1 | Foraging along path | 20:07 | 6 | | | x | | |
| Common pipistrelle | 1 | Constant foraging along path | 20:08 | 6 | | | x | | |
| Common pipistrelle | 1 | | 20:09 | 6 | x | | | | |
| Soprano pipistrelle | 1 | | 20:12 | 6 | x | | | | |
| Common pipistrelle | 1 | | 20:20 | 7 | x | | | | |
| Soprano pipistrelle | 1 | | 20:31 | 8-9 | x | | | | |
| Soprano pipistrelle | 1 | | 20:33 | 9 | x | | | | |

| Bat Species | No. of bats | Activity noted | Time of activity | Stop point | Activity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Heard not seen (HNS) | Commuting | Foraging | Direction | Nos. passes |
| Soprano pipistrelle | 1 | | 20:35 | 9 | | | | | |
| Common pipistrelle | 1 | | 20:39 | 9-10 | x | | | | |
| *Myotis sp.* | 1 | | 20:41 | 10 | x | | | | |
| Common pipistrelle | 1 | | 20:43 | 10 | x | | | | |
| Soprano pipistrelle | 1 | | 20:44 | 10 | x | | | | |
| Common pipistrelle | 1 | | 20:45 | 10 | x | | | | |
| Soprano pipistrelle | 1 | | 20:47 | 11 | x | | | | |
| Common pipistrelle | 1 | | 20:48 | 11 | x | | | | |
| Soprano pipistrelle | 1 | | 20:59 | 12 | x | | | | |
| Common pipistrelle | 1 | | 21:04 | 6 | x | | | | |
| Common pipistrelle | 1 | | 21:06 | 5-1 | x | | | | |
| Soprano pipistrelle | 1 | | 21:07 | 5-1 | x | | | | |
| Soprano pipistrelle | 1 | | 21:15 | 1-4 | | | | | |
| Common pipistrelle | 1 | | 21:16 | 1 | x | | | | |
| Common pipistrelle | 2 | | 21:18 | 5 | x | | | | |
| Soprano pipistrelle | 1 | | 21:22 | 5 | x | | | | |
| Common pipistrelle | 1 | | 21:27 | 6 | x | | | | |
| Soprano pipistrelle | 1 | | 21:30 | 6 | x | | | | |

**Automated Detector Survey**

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 24 Aug | 25 Aug | 26 Aug | 27 Aug | 28 Aug | | |
| 1 | Common pipistrelle | 94 | 143 | 116 | Fail | Fail | 353 | 72% |
| | Soprano pipistrelle | 28 | 5 | 8 | Fail | Fail | 41 | 8% |
| | *Myotis sp.* | 13 | 8 | 8 | Fail | Fail | 29 | 6% |
| | Long-eared bat | 16 | 41 | 12 | Fail | Fail | 69 | 14% |
| | **Total** | 151 | 197 | 144 | Fail | Fail | 492 | |

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 24 Aug | 25 Aug | 26 Aug | 27 Aug | 28 Aug | | |
| 2 | Common pipistrelle | 14 | 16 | 32 | 29 | 34 | 125 | 28% |
| | Soprano pipistrelle | 7 | 69 | 15 | 35 | 63 | 189 | 43% |
| | *Myotis sp.* | 0 | 69 | 27 | 1 | 7 | 104 | 23% |
| | Long-eared bat | 3 | 1 | 3 | 2 | 7 | 16 | 4% |
| | Noctule | 1 | 0 | 2 | 4 | 1 | 8 | 2% |
| | **Total** | 25 | 155 | 79 | 71 | 112 | 442 | |

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 22 Sep | 23 Sep | 24 Sep | 25 Sep | 26 Sep | | |
| 1 | Common pipistrelle | 26 | 47 | 30 | 82 | 81 | 266 | 62% |
| | Soprano pipistrelle | 24 | 11 | 0 | 0 | 5 | 40 | 9% |
| | *Myotis sp.* | 7 | 33 | 26 | 39 | 11 | 116 | 27% |
| | Long-eared bat | 2 | 2 | 2 | 0 | 2 | 8 | 2% |
| | **Total** | 59 | 93 | 58 | 121 | 99 | 430 | |

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 22 Sep | 23 Sep | 24 Sep | 25 Sep | 26 Sep | | |
| 2 | Common pipistrelle | 0 | 4 | 4 | 1 | 7 | 16 | 52% |
| | Soprano pipistrelle | 0 | 3 | 1 | 3 | 2 | 9 | 29% |
| | *Myotis sp.* | 0 | 4 | 0 | 0 | 0 | 4 | 13% |
| | Long-eared bat | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| | Noctule | 0 | 0 | 1 | 0 | 1 | 2 | 6% |
| | **Total** | 0 | 11 | 6 | 4 | 10 | 31 | |

**Walked Transect Surveys**

| Temperature (ºC) | Wind speed (Beaufort Scale) | Cloud cover (%) | Precipitation |
|---|---|---|---|
| **Dusk Activity Survey**: 03.05.18 | | | |
| 11.2 at start; 10.1 at end | 1 | 95 at start<br>90 at end | 0 |

**Dusk Activity Survey**: 03.05.19 **Start**: 20:39 **Finish**: 22:39

| Bat Species | No. of bats | Activity noted | Time of activity | Stop point | Activity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Heard not seen (HNS) | Commuting | Foraging | Direction | Nos. passes |
| Soprano pipistrelle | 1 | | 20:53 | 2-3 | | X | | | |
| Soprano pipistrelle | 1 | | 20:54 | 2-3 | X | | X | | |
| Soprano pipistrelle | 2 | | 20:57 | 2-3 | | | X | | |
| Soprano pipistrelle | 2 | Continuous activity until 21:03 | 21:00 | 3 | | | X | | |
| Common pipistrelle | 1 | | 21:06 | 3-4 | X | | | | |
| Common pipistrelle | 1 | | 21:08 | 4 | | X | | | |
| Common pipistrelle | 1 | High above treeline | 21:11 | 4 | | X | | | |
| Common pipistrelle | 1 | Continuous activity along track | 21:14 | 4-5 | X | | | | |
| Common pipistrelle | 1 | | 21:18 | 5 | X | | | | |
| Soprano pipistrelle | 1 | | 21:19 | 5 | X | | | | |
| Soprano pipistrelle | 2 | Foraging over scrub – continuous activity until 21:23 | 21:20 | 5 | X | | | | |
| Common pipistrelle and Soprano pipistrelle | 1 of each | Heard along entire footpath from points 5 to 6 | 21:24 | 5-6 | | | X | East | |
| Soprano pipistrelle | 1 | | 21:32 | 5-6 | X | | | | |
| common pipistrelle | 1 | | 21:35 | 6 | | X | | | |
| Soprano pipistrelle | 1 | | 21:36 | 6 | X | | | | |

| Bat Species | No. of bats | Activity noted | Time of activity | Stop point | Activity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Heard not seen (HNS) | Commuting | Foraging | Direction | Nos. passes |
| common pipistrelle | 3 bats | | 21:38 | 6 | X | | | | |
| Soprano pipistrelle | 1 | | 21:38 | 6-7 | X | | | | |
| common pipistrelle | 1 | | 21:40 | 6-7 | X | | | | |
| Soprano pipistrelle | 1 | | 21:44 | 7 | X | | | | |
| Common pipistrelle | 1 | | 21:44 | 7 | X | | | | |
| Common pipistrelle and *Myotis sp.* | 1 of each | | 21:46 | 7 | X | | | | |
| Common pipistrelle | 1 | | 21:52 | 7-8 | X | | | | |
| Common pipistrelle | 1 | | 21:53 | 7-8 | X | | | | |
| Common pipistrelle | 1 | | 21:54 | 7-8 | X | | | | |
| Soprano pipistrelle | 1 | | 22:18 | 10 | X | | | | |
| Soprano pipistrelle | 1 | | 22:19 | 10-11 | X | | X | | |
| Common pipistrelle and Soprano pipistrelle | 1 of each | | 22:24 | 11 | X | | | | |
| Soprano pipistrelle | 1 | | 22:30 | 11-12 | X | | | | |
| Soprano pipistrelle | 1 | | 22:34 | 12 | X | | | | |
| Common pipistrelle | 1 | | 22:37 | 12 | X | | | | |

**Automated Detector Survey**

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 03 May | 04 May | 05 May | 06 May | 07 May | | |
| 1 | Common pipistrelle | 89 | 112 | 87 | 87 | 104 | 479 | 55% |
| | Soprano pipistrelle | 67 | 61 | 96 | 50 | 37 | 311 | 36% |
| | *Pip sp.* | 10 | 9 | 2 | 1 | 7 | 29 | 3% |
| | *Myotis sp.* | 3 | 12 | 10 | 10 | 2 | 37 | 4% |
| | Long-eared bat | 0 | 3 | 0 | 2 | 0 | 5 | 1% |
| | Noctule | 3 | 0 | 2 | 3 | 1 | 9 | 1% |
| | **Total** | 172 | 197 | 197 | 153 | 151 | 870 | |

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 03 May | 04 May | 05 May | 06 May | 07 May | | |
| 2 | Common pipistrelle | 47 | 20 | 34 | 20 | 20 | 141 | 69% |
| | Soprano pipistrelle | 10 | 13 | 5 | 4 | 8 | 40 | 20% |
| | *Pip sp.* | 2 | 0 | 0 | 0 | 0 | 2 | 1% |
| | *Myotis sp.* | 2 | 1 | 1 | 0 | 2 | 6 | 3% |
| | Long-eared bat | 0 | 0 | 2 | 1 | 0 | 3 | 1% |
| | Noctule | 4 | 2 | 2 | 4 | 0 | 12 | 6% |
| | **Total** | 65 | 36 | 44 | 29 | 30 | 204 | |

| Position | Bat Species | Number of Bat Passes Recorded per Night | | | | | Total | %of Total |
|---|---|---|---|---|---|---|---|---|
| | | 03 May | 04 May | 05 May | 06 May | 07 May | | |
| 3 | Common pipistrelle | 253 | 233 | 255 | 137 | 217 | 1095 | 51% |
| | Soprano pipistrelle | 92 | 55 | 220 | 127 | 502 | 996 | 47% |
| | *Myotis sp.* | 13 | 20 | 3 | 3 | 1 | 40 | 2% |
| | Noctule | 2 | 1 | 0 | 0 | 0 | 3 | 0.1% |
| | **Total** | 360 | 309 | 478 | 267 | 720 | 2134 | |

# Appendix EDP 6
# Reptile Refugia Survey Results

**Weather Conditions**

| Visit Date | Start Time | Finish Time | Air Temp Range (°C) | Wind Speed (Beaufort) | Cloud Cover (%) | Rain |
|---|---|---|---|---|---|---|
| 04.09.17 | 11:30 | 12:00 | 16-16.5 | 1 | 100 | Nil |
| 08.09.17 | 15:30 | 16:00 | 14-15 | 0 | 10 | Nil |
| 14.09.17 | 17:30 | 18:00 | 13-15 | 0 | 40 | Nil |
| 18.09.17 | 12:45 | 13:15 | 15.7-15.8 | 0 | 100 | Nil |
| 22.09.17 | 12:30 | 13:30 | 15.8-16 | 0-1 | 20 | Nil |
| 28.09.17 | 14:00 | 14:30 | 18 | 2 | 20-30 | Nil |
| 03.10.17 | 09:30 | 10:30 | 13-15 | 0-2 | 20-30 | Nil |

**Findings**

| Visit | Visit Date | Amphibians | Reptiles | | | | | Incidental Sightings |
|---|---|---|---|---|---|---|---|---|
| | | | Grass Snake | | Slow-worm | | | |
| | | | Adult | Juvenile | Adult Female | Adult Male | Juvenile | |
| 1 | 04.09.17 | - | - | - | - | - | 1 | - |
| 2 | 08.09.17 | - | - | - | - | - | - | - |
| 3 | 14.09.17 | - | - | - | - | - | - | - |
| 4 | 18.09.17 | - | - | - | 3 | - | - | 1 x fox |
| 5 | 22.09.17 | - | - | - | 3 | - | 1 | - |
| 6 | 28.09.17 | - | - | - | - | - | - | - |
| 7 | 03.10.17 | - | - | - | - | - | - | - |
| **Maximum Count Per Visit** | | | | | **3** | | **1** | **-** |
| **Maximum Count Per Species Per Visit** | | **-** | **-** | | **4** | | | **-** |

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# Appendix EDP 7
# Dormouse Survey Results

| Evidence recorded | Check 1: 19.09.17 | Check 2: 25.10.17 | Check 3: 23.11.17 | Check 4: 23.04.18 | Check 5: 29.05.18 | Check 6 14.03.19 |
|---|---|---|---|---|---|---|
| **Dormouse individual** | None | None | None | None | None | None |
| **Dormouse nest** | None | None | None | None | None | None |
| **Dormouse-gnawed hazel nuts** | None | None | None | None | None | None |
| **Other small mammals/nests** | Several wood mouse nests in scrub around edges of southern field. Three individuals also recorded as well as a food cache. | Several wood mouse nests in scrub around edges of northern and southern grassland fields. Food cache and three individuals also recorded. | None. Seven tubes within woodland habitat occupied by roosting birds (wren and blue tit); no nests. | One wood mouse nest located within scrub encroaching the grassland field. | None. | Several wood mouse individuals recorded, particularly within tubes deployed around the edges of the grassland fields. |

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# Appendix EDP 8
# Site Photographs

**Photo EDP 1**: View to north-east along southern boundary of Application Site (Radyr Court Road).

**Photo EDP 2**: View northwards across the southernmost field comprising Application Site. Leyland hedgerow to right of photo demarcates adjacent curtilage boundary.

**Photo EDP 3**: View to east across northern field. Palisade fencing next to railway line and adjacent curtilage boundary forms the eastern boundary of the Application Site.

**Photo EDP 4**: View from north across southernmost field comprising the Application Site towards Radyr Court Road.

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| **Photo EDP 5**: View across northern grassland field. Scrub and woodland habitats predominate across the northern extents of the Application Site. | **Photo EDP 6**: Scrub encroachment into grassland fields prolific. |
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| **Photo EDP 7**: Scrub management evident adjacent to eastern boundary of Application Site and railway line. | **Photo EDP 8**: View to south along footpath running through the western boundary of the Application Site adjacent to grassland fields. |
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| **Photo EDP 8**: View to north along footpath running through the western boundary of the Application Site adjacent to grassland fields. | **Photo EDP 9**: Japanese knotweed evident along eastern boundary of Application Site adjacent to railway line. |

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| **Photo EDP 10**: Scattered stands of Japanese knotweed evident across northern extent of Application Site in association with scrub habitats. | **Photo EDP 11**: Scattered stands of Japanese knotweed also present within woodland to north. |
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| **Photo EDP 11**: Typical view of woodland habitat comprising northern extents of the Application Site. Bare ground widespread with public access prevalent. | **Photo EDP 12**: Typical view of footpaths through woodland habitat comprising northern extents of the Application Site. |
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| **Photo EDP 13**: Public access route through woodland habitat across northern boundaries of the Application Site. | **Photo EDP 14**: Secondary developing woodland and regeneration. |

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| **Photo EDP 15**: Secondary developing woodland and regeneration. | **Photo EDP 16**: Mature trees predominate at north-western end. |

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# Plans

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| **Plan EDP 1** | Locally Designated Sites<br>(edp4188_d002b 03 September AG/KH) |
| **Plan EDP 2** | Phase 1 Habitat Survey<br>(edp4188_d003b 09 September AG/KH) |
| **Plan EDP 3a** | Bat Transect (August 2017)<br>(edp4188_d004b 03 September AG/KH) |
| **Plan EDP 3b** | Bat Transect (September 2017)<br>(edp4188_d005b 03 September AG/KH) |
| **Plan EDP 3c** | Bat Transect (May 2018)<br>(edp4188_d019a 03 September AG/KH) |
| **Plan EDP 4** | Dormouse Surveys<br>(edp4188_d006b 03 September AG/KH) |
| **Plan EDP 5** | Reptile Surveys<br>(edp4188_d007b 03 September AG/KH) |

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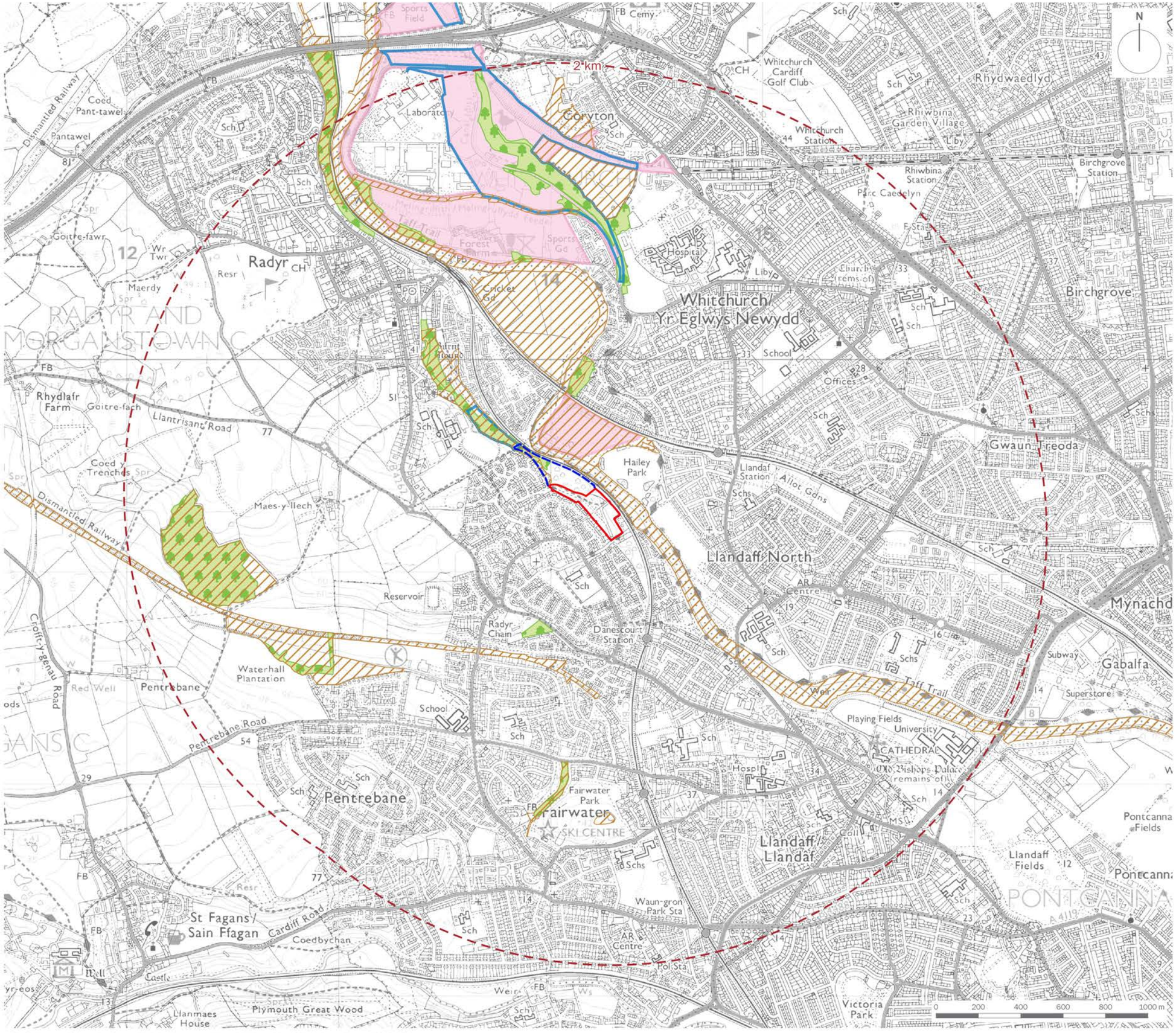


Site Boundary

Additional Land within Client Control

2km Detailed Study Area

Sites of Importance for Nature Conservation

Local Nature Reserve

Country Parks and Gardens

Ancient Woodland

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 1: Locally Designated Sites**

| | | | |
|---|---|---|---|
| date | **03 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d002b** | checked | **KH** |
| scale | **1:17,500 @ A3** | QA | **CR** |

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Site Boundary

Broadleaved Woodland

Dense Scrub

Rf Dense Bramble Scrub

Bare ground

Tall Ruderal Vegetation

SI Poor semi-improved Grassland

Fj Japanese Knotweed

Fence

Coniferous Hedgerow

Scattered Broadleaved Tree

T1 Tree with Low Bat Roost Potential

T2 Tree with Moderate Bat Roost Potential

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 2: Phase 1 Habitat Survey**

| | | | |
|---|---|---|---|
| date | **09 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d003b** | checked | **KH** |
| scale | **1:2,000 @ A3** | QA | **CR** |

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Site Boundary

Additional Land within Client Control

Transect Routes

Automated Detector Location and microphone dirction

Bat Observations

Soprano pipistrelle

Common pipistrelle

Soprano Pipistrelle Commuting Activity

Soprano Pipistrelle Foraging Activity

Common Pipistrelle Commuting Activity

Common Pipistrelle Foraging Activity

Note: Individual representations do not necessarily indicate individual bats.

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 3a: Bat Transect (August 2017)**

| | | | |
|---|---|---|---|
| date | **03 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d004b** | checked | **KH** |
| scale | **1:1,200 @ A3** | QA | **CR** |

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Site Boundary

Additional Land within Client Control

Transect Route

Automated Detector Location and microphone direction

Bat Observations

Soprano Pipistrelle

Common Pipistrelle

Myotis Sp

Soprano Pipistrelle Commuting Activity

Soprano Pipistrelle Foraging Activity

Common Pipistrelle Commuting Activity

Common Pipistrelle Foraging Activity

Myotis Sp Foraging Activity

Note: Individual representations do not necessarily indicate individual bats.

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 3b: Bat Transect (September 2017)**

| | | | |
|---|---|---|---|
| date | **03 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d005b** | checked | **KH** |
| scale | **1:1,500 @ A3** | QA | **CR** |

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Site Boundary

Additional Land within Client Control

Transect Routes

Automated Detector Location and microphone direction.

Bat Observations

Soprano Pipistrelle

Common Pipistrelle

Myotis Sp

Soprano Pipistrelle Commuting Activity

Soprano Pipistrelle Foraging Activity

Common Pipistrelle Commuting Activity

Common Pipistrelle Foraging Activity

Note: Individual representations do not necessarily indicate individual bats.

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 3c: Bat Transect (May 2018)**

| | | | |
|---|---|---|---|
| date | **03 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d019a** | checked | **KH** |
| scale | **1:1,200 @ A3** | QA | **CR** |

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Site Boundary

Additional Land within Client Control

Dormouse Tube (x90)

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 4: Dormouse Surveys**

| | | | |
|---|---|---|---|
| date | **03 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d006b** | checked | **KH** |
| scale | **1:1,200 @ A3** | QA | **CR** |

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Site Boundary

Additional Land within Client Control

Reptile Mat Locations

Slow-worm Locations

2 Numbers of Slow Worms Found

client

**Taff Housing Association**

project title

**Land off De Braose Close, Danescourt, Cardiff**

drawing title

**Plan EDP 5: Reptile Surveys 2017**

| | | | |
|---|---|---|---|
| date | **03 SEPTEMBER 2019** | drawn by | **AG** |
| drawing number | **edp4188_d007b** | checked | **KH** |
| scale | **1:1,200 @ A3** | QA | **CR** |

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Landscape Institute
Registered practice

IEMA Transforming the world to sustainability

URBAN DESIGN GROUP REGISTERED PRACTICE