

LEIROS PARK, NEATH

ECOLOGICAL IMPACT ASSESSMENT

1.0 ECOLOGY

INTRODUCTION

- 1.1 This Ecological Impact Assessment (EcIA) has been prepared by Bay Ecology on behalf of Hale Construction and addresses the potential ecological effects of the proposed development at Leiros Park Mawr, Neath (Appendix 1)(hereafter referred to as 'the application site') on the existing ecological features within the application site, which comprises a full planning application. The chapter includes a summary of the current conditions found within the surveyed area, a valuation of the ecological features and an indication of impacts and mitigation associated with the construction and operation of the proposed residential development. The structure of the report and the assessment methodology is based on current best practice guidelines described by the Chartered Institute of Ecology & Environmental Management (CIEEM, 2018).
- 1.2 The scope of the Ecological Impact Assessment (EcIA) has been developed based on:
- Consideration of any ecological features , focusing on those for which there is legal or planning policy in favour of protection or enhancement;
 - Data on sites of national and county importance within 1- 2km of the proposed development boundary;
 - Data on notable flora and fauna; for example, legally protected, nationally rare/scarce, county rare/scarce, Local (Swansea) and UK Biodiversity Action Plan, and other species of conservation concern within 1 - 2km of the proposed development boundary; and
 - Review of Masterplan (Appendix 2) and its effect on ecological features.
- 1.3 The development site occupies an area of approximately 10ha situated outside Rhyddings outside Neath (Appendix 1). The land within the site boundary was comprised of habitats predominantly associated with its agricultural use, including improved bordered by a combination of broadleaf woodland, treelines and unmanaged hedgerows and bracken/scrub banks. Smaller areas of scrub and woodland were also located in the southern extent of site as well as allotments and a stone barn. The site is bordered by an area of Ancient Semi-natural Woodland along the eastern boundary but is separated from the designation by some marginal broadleaf woodland; whilst agricultural land is located to the north and west with residential properties located to the south.

ASSESSMENT METHODOLOGY

- 1.4 As described within the EcIA Guidelines (CIEEM 2018), a key objective of an EcIA is to identify ecological features (i.e. habitat, species and ecosystem), which are considered to be important and potentially affected by the project. Ecological features can be important for a variety of reasons and a development project can impact an important ecological feature in any number of possible ways. However it is only necessary to describe in detail the impacts that are likely to be significant. Where a potential effect is identified, its significance is determined and the effect on the particular feature evaluated as positive (beneficial) or negative (adverse) at the relevant geographical scale (national, local etc.).
- 1.5 The potential impacts during construction and operation of the proposed development on identified ecological receptors comprise:
- Direct loss of habitats;
 - Isolation and fragmentation of habitats;

- Changes in artificial light levels; and
- Increased disturbance from construction, traffic and people,
- Changes in hydrology;
- Contamination of watercourses/hydrology.

- 1.6 Potentially sensitive ecological features are identified through the collation of baseline data from surveys and existing records. Once the features are identified information on their legal and policy, conservation and distribution status, plus any known trends (i.e. population or migratory) are considered to measure their value.

Assessment Criteria

- 1.7 All ecological features are described (including conservation status, status on site, sensitivity, planning and legal protection etc.) and assigned a value. The scale of value for ecological resources used in the present assessment is as follows:
- International and European;
 - National (Wales);
 - Regional (South Wales);
 - County/Local Authority (Neath Port Talbot Council);
 - Local (Rhyddings);
- 1.8 All resources valued above have been given a threshold of value (in this case Local is the lowest level) and are considered in terms of whether any effects are likely to be ecologically significant or not. Activities associated with the development are likely to cause significant ecological effects and it is therefore necessary to identify associated changes and their implications in terms of extent, magnitude, duration, timing, frequency and reversibility for valued ecological features.
- 1.9 For the purpose of this EclA, 'significant effect' is an effect that either supports or undermines (positive or adverse impact/effect) biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. In broad terms, for the purpose of EclA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general (CIEEM, 2018). Where development impacts are identified which could have significant effects on a given ecological feature, the 'mitigation hierarchy' of avoidance, mitigation and compensation is applied. In the current assessment the impacts are presented in the absence of and following mitigation. The assessment of impact on a given ecological feature following mitigation (the residual impact) is presented as the overall assessment for that feature.
- 1.10 The assessment within the Ecological Impact Assessment has been undertaken using best practice guidelines (September 2018. Version 1.1 – Updated September 2019) published by the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 1.11 The CIEEM guidelines (2018) for Ecological Impact Assessment (EclA) represent current best practice and their use as part of this EclA is considered appropriate. Terms used to assign value to a given ecological feature and to assess the impact of the proposed development within these guidelines may differ from those used within other chapters of this Environmental Statement.

Consultation

- 1.12 The scope of the EclA was established in correspondence with Neath Port Talbot post review of Hawkeswood Ecology & Phlorum Limited Survey Report conducted between 2016 & 2018 (Appendix 3). This verified the scope of the surveys undertaken at the site in 2020, the results of which have been used to inform the assessment within this report.
- 1.13 In order to provide a robust application the requirement and scope for EclA has been self-screened with the requirement for specific ecological surveys and assessment based on existing biological records, previous survey data for the site and the results of the Extended Phase 1 Habitat Survey undertaken in April 2015 and an updated walkover survey conducted in January 2018 .

Information Sources

- 1.14 In order to provide an ecological context for the site, ecological records were requested from the South East Wales Biodiversity Records Centre (SEWBRc). Records were requested in relation to sites designated for their nature conservation interest (both statutory and non-statutory), as well as records of protected or otherwise notable flora and fauna.
- 1.15 Habitat and species action plans listed in the UK Biodiversity Action Plan (BAP) and the Priority Habitats and Species lists within the Environment Wales Act (2016) were also consulted with regards to species or habitats that are potentially present on the site or in the surrounding study area. Other sources of information were also utilised as appropriate to identify protected or notable nature conservation sites in the wider area.
- 1.16 An original preliminary ecological assessment of the application site was conducted by Hawkeswood Ecology in July 2016, with an updated walkover conducted in 2018 (Appendix 3). Hawkeswood Ecology also conducted a Reptile Presence & Absence Survey in 2016, whilst Phlorem Limited conducted emergence/activity surveys in September 2016 & 2018 on a stone barn located onsite and around the site footprint.
- 1.17 The Extended Phase 1 Habitat survey and targeted protected species surveys undertaken to inform the current assessment were focused on the area within and immediately adjacent to the red line plan (see Appendix 1).

Extended Phase 1 Habitat Survey

- 1.18 The fieldwork was undertaken on 01st May 2020 by a suitably experienced ecologists¹ and incorporated all the land within the proposed development site boundary and areas immediately adjacent to it (where access was possible). The field survey was based on the standard Phase I Habitat survey technique (Joint Nature Conservation Committee (JNCC) 1990) as amended by the Institute of Environmental Assessment (1995). All habitats were classified and described by means of Target Notes and any 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. Badger *Meles meles* setts and dung-pits). The distribution and extent of habitat features and associated target notes are shown on the Phase I mapping in Appendix 4, with Photos located in

¹ Full Member of the Chartered Institute of Ecology & Environmental Management (CIEEM)

Appendix 5. The survey also incorporated a subjective, ground-based assessment of the potential of larger boundary trees to support roosting bats. The tree assessment was aided by the use of close-focus binoculars and a high powered torch (1 million candlepower) where required to check for features such as cracks, splits, rot holes etc.

1.19 Trees that were assessed for their bat potential were categorised in relation to the bat roosting features (Bat Conservation Trust (BCT), 2016²). The categories are as follows:

- **Known or confirmed roost;**
- **High** – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a regular basis;
- **Moderate** – A structure or tree with one or more potential roost sites that could be used by bats but are unlikely to support a roost of high conservation status;
- **Low** – Trees of sufficient size and age to support potential roost features (PRFs) but with none seen the ground or features seen with only very limited roosting potential. Or, a structure with one or more potential roost sites that could be used by individual bats opportunistically;
- **Negligible** – Trees or structures with negligible habitat features, unlikely to be used by roosting bats.

Where possible, habitats were cross-referenced to any relevant important UK priority habitats or local habitats adopted by the local Biodiversity Action Plan.

1.20 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*.

Bat Activity Survey

1.21 The application site was predominantly comprised of agricultural land and as such was considered to be of 'moderate' bat habitat quality'. However, a review of the bat activity surveys conducted to date (Phlorum Limited, 2016 & 2018) identified moderate activity onsite attributed to two common bat species (Common & Soprano Pipistrelle (*Pipistrellus pipistrellus* & *Pipistrellus pygmaeus*) and as such three dusk bat activity transects were considered sufficient to identify the levels activity and bat species utilising site. In total three dusk activity surveys were conducted between June and August 2020 during the optimal survey months (April-August inclusive), to ascertain the level of use of the site by bats; the bat species present and the resources the site provides e.g. commuting habitat/ foraging resource.

1.22 To identify areas of activity on site, a walked transect was undertaken that incorporated all accessible areas of the site footprint and generally followed linear features (i.e. hedgerows, footpaths and site boundaries). The surveys were conducted on the 14th May, 15th July and 11th August 2020 by a team of 2 surveyors, which was considered adequate to ensure habitat coverage (Appendix 6).

² The Bat Surveys for Professional Ecologist: Good Practise Guidelines 3rd edition 2016.

- 1.23 This scope of work is based on best practice guidelines (BCT, 2016) and the findings from the Phase I habitat survey, which identified features of value for roosting (trees) and foraging/commuting bats. Dusk surveys commenced at sunset and ran for at least 120 minutes. The Surveys were conducted using Anabat Express and Echometer Touch 2 detectors that were used to allow both in field and office based sonogram analysis of bat calls. All calls were recorded and identified on computer-based sonogram analysis software (Wavesurfer) and BatClassify.
- 1.24 In addition, automated detector surveys were also undertaken on the two hedgerows & single treeline, which separate the improved grassland fields, and are to be breached as part of the proposed development (Appendix 2) and included *in situ* automated bat detectors (Anabat Express). On each occasion the automated detectors were left for between 5-6 consecutive nights (12th – 16th June, 30th July – 5th August & 11th - 16th September 2020). The location of the automated detectors is shown in Appendix 7. All calls were recorded and identified on computer-based sonogram analysis software (Analog or Wavesurfer).
- 1.25 A ground based inspection of the trees on site for their potential to support roosting bats was undertaken as part of the Extended Phase 1 Habitat survey conducted 01st May 2020 (Appendix 4 & 5). A number of the large mature trees of moderate/high bat roost potential were identified in the eastern boundary broadleaf, and within the southern extent of site associated with the allotments and running ditch. However, these tree are to be retained as part of the development (Appendix 4 & 8 (Phase 1 Map & Tree Impact Plan respectively)). The survey identified a number of trees, located within the footprint of the proposed development, as having low/moderate potential to support roosting bats, and as such a targeted bat dusk emergence bat activity survey was conducted on the trees. The surveys were conducted on the 13th August, 20th August and 9th September 2020. See Appendix 9 for tree and surveyor location and date of survey.
- 1.26 The development will result in the demolition of a stone barn located in the southern extent of the site (Appendix 4 & 5), and as such an updated building inspection was conducted on the 01st May & 11th August 2020 with particular regard to roosting bats and nesting birds. The building survey comprised an external and internal inspection of the barn. However, the southern extent of the barn could not be accessed at the time of the internal. The inspection was conducted by a suitably experienced and licensed ecologist³. In order to establish the potential presence of roosting bats (or nesting birds) at the buildings, the survey aimed to identify:
- if bats are, or have been, present within the building and, if so, which species are present;
 - the type of roost (e.g. day roost, feeding perch, night roost, hibernaculum);
 - how bats use the buildings (e.g. location of, exit and entrance points to potential roosts); and
 - the intensity of use (e.g. likely number of bats, time and duration of use).
- 1.27 External surveys at the site involved the use of binoculars and ladder to identify possible access/entry points into the buildings and aimed to identify any evidence of use by bats such as droppings, staining, prey remains etc. The internal survey searched for similar evidence of current or historical use by bats. The survey was undertaken from ground-level around the exterior of the buildings and was assisted by the use of close-focus binoculars and a high powered torch (1 million candlepower). The southern extent of the barn could not be accessed at the time of the August internal inspection.

³ Full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) and NRW licence holder (Ref: S087154/1).

- 1.28 The surveyor searched for roost evidence (droppings, staining, scratch marks, etc.) as described above and an assessment of the building's potential to support nesting birds was also undertaken. The scope of the bat inspection survey, including timing and survey effort, was based on guidelines published by the Bat Conservation Trust (2016). The potential of the building to support roosting bats was determined based on the following categories (BCT 2016):
- **Known or confirmed roost**
 - **High** - A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
 - **Moderate** – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
 - **Low** – A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically.
 - **Negligible** – Negligible habitat features on site likely to be used by roosting bats.
- 1.29 To supplement the building inspection survey at the stone barn, two separate dusk emergence surveys were undertaken on 13th August and 09th September 2020 respectively.

Breeding Birds

- 1.30 The Survey Methodology was based on a combination of the Common Bird Census (CBC) and Breeding Bird Survey (BBS) with an experienced surveyor walking a transect around site within 100m of all areas of the site. Surveys commenced at dawn and involved a mixture of walked transects and periods of fixed point observation. A total of three breeding bird survey visits were completed; on the 1st May, 27th May and 17th June 2020. Survey visits commenced from dawn (this early start time was to record territorial singing passerines).

Dormice

- 1.31 The Hawkeswood Ecology Preliminary Ecological Assessment concluded that further Dormice surveys were not required onsite as Dormice records within the area do not exist, and the lack of hedgerow network connectivity, combined with the Vincent Wildlife Trust (2001) predictive map did not predict their presence in this location. Whilst the Site does contain suitable plant species for dormice, the lack of connectivity in the hedgerow network would be likely to limit their presence in this area in any event. No records of Dormice were identified within a 2km radius of site. The species shall not be discussed further in the report.

LEGISLATIVE AND PLANNING POLICY CONTEXT

- 1.32 The following national planning policy relating to nature conservation and biodiversity are considered of relevance to the area surveyed and to the proposed residential development.

National Planning Policy

- 1.33 In terms of planning policy, a number of over-arching policies are of relevance not least of which are those described within Planning Policy Wales (PPW), which sets out 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.

Planning Policy Wales (2016)

- 1.34 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.
- 1.35 TAN 5 identifies a number of key principles, which the town and country planning system in Wales should incorporate those relevant are detailed below:
- *Work to achieve nature conservation objectives through a partnership between local planning authorities, Natural Resources Wales (NRW), voluntary organisations, developers, landowners and other key stakeholders;*
 - *Integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time;*
 - *Ensure that the UK's international obligations for site, species and habitat protection are fully met in all planning decisions;*
 - *Look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally;*
 - *Promoting approaches to development which create new opportunities to enhance biodiversity, prevent biodiversity losses, or compensate for losses where damage is unavoidable. Minimising or reversing the fragmentation of habitats and improving habitat connectivity through the promotion of wildlife corridors;*
 - *Local planning authorities should seek to protect trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality ;*
 - *The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat.*

Environment Act (Wales) (2016)

- 1.36 Part 1 of the Environment Act Wales came into force in May 2016 and sets out the approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

Section 6 - Biodiversity and resilience of ecosystems duty

- 1.37 Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'.

Section 7 - Biodiversity lists and duty to take steps to maintain and enhance biodiversity

- 1.38 This section lists living organisms and types of habitat in Wales which are considered of key significance to maintaining and enhancing biodiversity in relation to Wales. The Welsh Ministers are required to take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps.

Local Planning Policy

- 1.39 The LDP for Neath Port Talbot was adopted in 2016 superseding the Unitary Development Plan, and provides the basis for decisions on land use planning in the County Borough up to 2026. Policies of relevance to the development include:

Policy SP 15

Biodiversity and Geodiversity. Important habitats, species and sites of geological interest will be protected, conserved, enhanced and managed through the following measures:

1. The identification of the following Internationally and Nationally designated sites within the County Borough to enable their protection:
 - (a) *Special Areas of Conservation (SACs) and Ramsar Sites;*
 - (b) *Sites of Special Scientific Interest (SSSIs);*
 - (c) *National Nature Reserves (NNRs).*
2. The identification and protection of sites of regional and local importance;
3. The protection of important natural heritage features.

Policy EN 6

Important Biodiversity and Geodiversity Sites Development proposals that would affect Regionally Important Geodiversity Sites (RIGS), Local Nature Reserves (LNRs), Sites of Interest for Nature Conservation (SINCs), sites meeting SINC criteria or sites supporting Local Biodiversity Action Plan (LBAP) or S42 habitats or species will only be permitted where:

1. They conserve and where possible enhance the natural heritage importance of the site; or

2. The development could not reasonably be located elsewhere, and the benefits of the development outweigh the natural heritage importance of the site. Mitigation and/or compensation measures will need to be agreed where adverse effects are unavoidable.

Policy EN 7

Important Natural Features Development proposals that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows / field boundaries, watercourses or ponds will only be permitted where:

1. Full account has been taken of the relevant features in the design of the development, with measures put in place to ensure that they are retained and protected wherever possible; or
2. The biodiversity value and role of the relevant feature has been taken into account and where removal is unavoidable, mitigation measures are agreed.

BASELINE CONDITIONS

- 1.40 The ecological baseline was established by identifying the valued and sensitive ecological features within the boundary of the proposed development and in adjoining areas by a combination of desk study and field surveys as described in preceding sections. The desk study consultation via the South East Wales Biodiversity Records Centre included the extent of the site and surrounding 2km area. The field surveys were confined to the habitats within and immediately adjacent to the application boundary.
- 1.41 The following ecological features were identified as being present within or in close proximity to the survey area and to have the potential to be impacted by the development. They were assigned value based on their status in policy, conservation status, distribution, trends, rarity, potential value and professional judgement/interpretation.

Statutory and Non Statutory Nature Conservation Designations Designated Sites

- 1.42 Data provided by the SEWBRc confirmed that the site did not contain any statutory nature conservation designations. However, Crymlyn Bog Special Area of Conservation (SAC) & Ramsar site and Pant Y Sais Site of Special Scientific Interest (SSSI) is located approximately 5.4km south west of the site; whilst Crymlyn Burrows SSSI and Earlswood Road Cutting and Ferryboat Inn Quarries are located approximately 6.2 km and 5.9km south west of site (respectively). Due to the nature and physical separation of the proposed development from the designations and lack of hydrological connectivity it was considered that there would be no adverse impact upon the designations. These designations will not be considered further in this assessment.
- 1.43 The Tennant Canal, Neath Estuary and Catwg Wetland Site of Importance for Nature Conservation (SINC) was located 0.7-0.85km south east of site. However, no direct impacts from the proposed development were considered likely due to the nature and physical separation of the proposed development. Two boundary running ditches were identified onsite (southern and eastern boundaries). However, it was unclear whether there was any hydrological connectivity with the offsite SINC.

Protected species records

- 1.44 Desk study data identified a number of protected and notable species within 2km of the site with a variety of bird, mammal, amphibian, reptile and invertebrate species recorded. Notable bird species recorded included singing Sky Lark *Alauda arvensis* located 0.5km north of site in a field, a Lapwing *Vanellus vanellus* located 1km south of site on a grazing marsh and Barn Owl *Tyto Alba* located 0.5km south of site in the eastern woodland corridor margin.
- 1.45 A number of bat species were located within a 1km radius of site that were generally comprised of foraging and commuting Pipistrelle *Pipistrellus sp.* with some roosts within residential properties also identified.
- 1.46 Other notable species included a Water Vole *Arvicola amphibius* record near the Laundry Bridge Cadoxton, Slow-worm *Anguis fragilis*, Otter *Lutra lutra* on the Tenant Canal, multiple Hedgehog *Erinaceus europaeus* records associated with the residential housing estate, Brown Hare *Lepus europaeus* and Badger *Meles meles* records. The more mobile species such as bats, birds etc. were considered to be of some relevance to the proposed development site given the habitats/ecological features present.

Bay Ecology

Field Survey

- 1.47 The land within the site boundary was comprised of habitats predominantly comprised of improved grassland fields, which are bordered by Ancient Semi Natural Woodland, broadleaf woodland treelines, bracken & bramble banks and unmanaged species poor defunct hedgerows; whilst a small heavily grazed poor semi-improved grassland field was located at the western extent of the site. A historic farmyard was located at the southern extent of the application site with only a stone barn and ruined walls remaining. The associated land was being utilised as allotments and other storage and had been colonised by scrub with a boundary of mature trees along a former farm lane. A shaded running ditch/stream was located along the southern extent of site and flowed from east to west. The distribution and extent of habitat features and associated target notes are shown on the Phase I mapping in Appendix 4.

Improved Grassland

- 1.48 The site was predominately comprised of four large improved grassland fields (see Appendix 4 for Phase 1 Map and Appendix 5 for Photo 1-4). The sward was dominated by Perennial Rye Grass *Lolium perenne* and species such as Yorkshire Fog *Holcus Lanatus* to a lesser extent. Due to its limited species composition and uniformity this habitat is considered to have negligible ecological value.

Acid Grassland

- 1.49 A small enclosed field was located at the western extent of the site, which had been heavily grazed by sheep and horses (Appendix 4 for Phase 1 Map, Target Note 34 and Appendix 5 for Photo 5). The grassland was well drained due to the field steeply descended from north east to south west towards, and contained anthills, which suggested the relatively unimproved nature of the field (Appendix 4 for Phase 1 Map and Appendix 5 for Photo 6). The field was generally botanically poor and contained such species as Sheep Sorrel *Rumex acetosella*, Yarrow *Achillea millefolium*, Common Bent *Agrostis capillaris*, Common Cat's ear *Hypochaeris radicata*, *Sphagnum sp.* and Sedge species *Carex sp.* with a margin of Bracken *Pteridium aquilinum* and Gorse *Ulex europaeus* (Target Note 35).
- 1.50 The acid grassland field was considered potentially meeting SINC criteria due to the historic unimproved nature of the field with anthills present, and on a precautionary basis, the field would be considered to be of importance at the County geographical scale.

Poor semi-improved grassland

- 1.51 The grassland located south of the acid grassland field was generally flatter in aspect and more shaded from the adjacent mature trees located along the southern running ditch (Appendix 4 for Phase 1 Map and Appendix 5 for Photo 7). The grassland was dominated in areas by bracken. The grassland included such species such as Pignut *Conopodium majus*, Selfheal *Prunella vulgaris*, White Clover *Trifolium repens* and Hawkbit species *Leontodon sp.*

Bracken

- 1.52 Areas of Bracken occurred as a component of the ground flora associated with the majority of hedgerows/margins onsite (Appendix 4 for Phase 1 Map and Appendix 5 for Photo 8). Small patches are also present along the western site boundary in association with woodland and scrub. The importance or ecological value of Bracken as a component of the hedgerows across the site is assessed for these features (hedgerows) as the stands present were considered to have limited intrinsic value in isolation (Negligible importance).

Species Poor Hedgerows

- 1.53 The majority of the hedgerow onsite separated the individual improved grassland fields and were generally unmanaged and defunct with banks of Bracken and Bramble *Rubus fruticosus* evident (Appendix 4 for Phase 1 Map, Target Notes 13 & 24 and Appendix 5 for Photo 9 & 10). The hedgerows were considered to be species poor and were generally dominated by Hawthorn *Crataegus monogyna*, Holly *Ilex aquifolium*, Oak *Quercus robur*, Hazel *Corylus avellane* and Silver Birch *Betula pendula*.
- 1.54 The defunct species-poor hedgerows are considered an important connective and linear feature within the wider countryside, although intrinsically were not particularly diverse and are considered to have ecological importance in a Local context.

Broadleaved semi-natural woodland

- 1.55 A broadleaf woodland corridor was located along the eastern boundary of site (Appendix 4 for Phase 1 Map, Target Notes 10, 11, 17 & 19 and Appendix 5 for Photo 11 & 12). The majority of the woodland was part of a strip of Ancient Semi-natural Woodland, which extended offsite to the north and south of the eastern boundary (Appendix 10). The woodland was dominated by such species as Sessile Oak *Quercus petraea*, Turkey Oak *Quercus cerris*, Silver Birch and Sycamore *Acer pseudoplatanus* with an associated margin of Bramble, Bracken and Willowherb *Epilobium* sp.. Smaller stands of woodland were located on the western boundary of site (Target Note 29).
- 1.56 The boundary woodlands are considered to be a key ecological feature within and adjacent to site and likely to support a variety of mammal, bird and invertebrate species; with some of the offsite eastern boundary woodland designated as Ancient Semi Natural Woodland and as such the resource across the application site was considered to be of County importance.

Treelines

- 1.57 A number of mature treelines were located on the site (Appendix 4 for Phase 1 Map and Appendix 5 for Photo 13 -16), and were generally located along the southern extent of site, and bordering the north eastern improved grassland field (Target Notes 19, 37, 41-46). The eastern treelines was dominated by Sessile Oak, whilst the southern treelines were more diverse in nature and comprised of Sycamore, Sessile Oak, Willow and Ash.
- 1.58 The treelines are considered to be a key ecological feature within the site and likely to support a variety of mammal, bird and invertebrate species. Collectively the treeline resource across the application site was considered to be of Local importance.

Scrub/Tall Ruderal Habitat

- 1.59 An area of scrub/tall ruderal habitat was located at the south eastern extent of site and was dominated by bramble, Bracken, Nettle and Willowherb sp. (Appendix 4 for Phase 1 Map & Target Notes 6 and Appendix 5 for Photo 17), whilst corridors of scrub were associated with the former farm yard area located at the southern extent of site and was comprised of bramble, Willow and Hazel scrub (Target Note 46). The scrub resource across the application site was likely to support a variety of mammal, bird and invertebrate species and considered to be of Local importance.

Running water

- 1.60 A running water ditch/stream ran along the length of the southern boundary treeline onsite and was generally shaded (Appendix 4 for Phase 1 Map & Target Notes 47 and Appendix 5 for Photo 18). The associated riparian vegetation was comprised of Ferns *Polypodiopsida* sp.& bramble and

other woodland ground flora that the stream flowed through. A further running stream flowed offsite to the east through a woodland corridor and was culverted at a field entrance (Target Note 18 & Photo 19). The small streams on the boundary of site are designated, along with all watercourses within NPT as a SINC since Rivers and Streams are listed as habitats of principal importance in Wales (Environment Wales Act, 2016). However, the feature was of limited ecological interest and as such was considered to be of Local/County importance.

Standing Water

- 1.61 A small standing water pool was located at the southern extent of site and associated with the former farmyard and was located adjacent to the running water ditch that flowed along the southern boundary (Appendix 4 for Phase 1 Map & Target Notes 48 and Appendix 5, Photo 20). The pool was heavily silted and choked from the adjacent vegetation with Floating sweet-grass *Glyceria fluitans* evident. The habitat supports no significant botanical interest and is only likely to function as a limited habitat resource for the local wildlife and as such is considered only to be a feature of Negligible/Local ecological importance.

Invasive species

- 1.62 Species listed as invasive on Schedule 9 of the Wildlife and Countryside Act (1981) were noted during the survey. A large stand of Japanese Knotweed was associated with the former farmyard area (Target Note 28 & Photo 21) and Himalayan Balsam *Impatiens glandulifera* was identified in several areas around site (Target Note 19, 31 & 48). These species were considered of little or no ecological importance or value but their presence on site would require consideration in order to comply with the legislation to prevent further spread.

Fauna

Reptiles

- 1.63 A reptile surveys conducted by Hawkeswood Ecology in 2016⁴ within the former farmyard site identified no presence of Common Reptile specie. However, the small area of scrub/tall ruderal habitat (Target Note 6) and field margins containing Bracken and bramble around site were considered potentially suitable habitat capable of supporting small numbers of isolated common reptile species. The desk study identified a single Slow-worm record within a residential garden within 0.8km of the site, which is cited as priority species on the UK Biodiversity Action Plan (BAP) and are included on Section 7 Priority Species list in the Environment (Wales) Act 2016.
- 1.64 All common species of reptile are protected against killing or injury under Schedule 5 (sections 9(1) and 9(5)) of the Wildlife and Countryside Act 1981 (as amended). Common Lizard are listed as a priority species in the UK Biodiversity Action Plan and are included on the Section 7 Priority Species list in the Environment (Wales) Act 2016. Based on the absence of reptiles during the conducted reptile survey and limited/isolated habitats associated with margins, the site is considered to be of Negligible/Local ecological importance for reptiles.

Badgers

- 1.65 No Badger *Meles meles* setts were evident onsite and no evidence of badger latrines or foraging were identified within the site boundary. The site is considered to offer good potential foraging habitat for Badgers, whilst the boundary features (woodland) offer suitable habitat for badger

⁴ Hawkeswood Ecology (2016). Reptile Presence Absence Survey, Land at Leiros Park, Neath. November 2016.
Ref: HE/88/2015

setts. However, there was no Badger activity recorded onsite and as such the site is considered to be of Local importance. Multiple records of Badger were identified within 1km radius of site.

Bats

Activity surveys results

- 1.66 The species recorded during the three bat activity transects and their locations are displayed in Appendix 11. In general the bat activity was low/moderate across site, with relatively small numbers of bat passes recorded during the transect activity surveys, with the recorded calls considered to be produced by a small number of bat species. This was considered to be consistent with the agricultural nature of the majority of site, which was mainly composed of improved grassland fields.
- 1.67 It was evident throughout the three activity surveys that the highest bat activity (most number of bat passes/observations) was associated with the July and August 2020 surveys with significantly fewer bat passes associated with the May 2020 survey. It should be noted that the number of bat passes does not necessarily correlate with bat numbers. From the activity surveys the majority of the bat activity was associated with southern treeline, which extends along the boundary as well as the north eastern mature boundary woodland/treelines (Appendix 11); all of which were utilised as commuting and foraging habitat with constant Pipistrelle sp. activity recorded. It was evident that reduced activity was identified along the northern extent of site, which generally didn't possess mature hedgerows, treelines and woodland; as well as reduced activity along the internal hedgerows and treeline, which separate the improved grassland fields.
- 1.68 From both in-field and sonogram analysis it was determined that the majority of bat calls were made by foraging and commuting Common Pipistrelle *Pipistrellus pipistrellus* and to a lesser extent Soprano Pipistrelle *Pipistrellus pygmaeus*. It was considered that a number of the Pipistrelle sp. were generally roosting offsite within the southern residential housing estate. The other calls recorded were created by Noctule *Nyctalus noctule* and *Myotis sp.* considered to be Natterer's bat *Myotis nattereri*. The majority of the *Myotis sp.* were identified along the southern boundary offsite gravel road that runs along the southern boundary treeline and is an access road for the former farm building located offsite to the south, which is utilised as a residential dwelling; and in the former farmyard located at the southern extent of site. The gravel road and former farmyard were generally absent of any artificial lighting and utilised as dark foraging and commuting corridors. During the evening activity surveys weather conditions were considered of no constraint to the survey.

Automated Detector surveys

- 1.69 Anabat Express units were deployed as indicated in Appendix 7 with description of the results provided in Table 1. In total four species of bats were positively recorded including Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared bat and Noctule along with smaller numbers of *Myotis sp.* calls and individual unidentified large bat calls. An individual Greater Horseshoe Bat *Rhinolophus ferrumequinum* was also located along the treeline on the 13th September 2020 (Appendix 7, Table 1), whilst individual Nathusius's Pipistrelle *Pipistrellus nathusii* were recorded along the eastern defunct hedgerow (Anabat A3) on the 14th June 2020 and along the western defunct hedgerow (Anabat A1) on the 3rd August 2020. From call analysis it was identified overall 80% of all bat passes recorded made by Common Pipistrelle, whilst overall 98% of the bat passes were made by both Common and Soprano Pipistrelle. The majority of the *Myotis sp.* calls were

considered to be made by Natterer's bat and Daubenton's bats *Myotis daubentonii* from sonogram analysis. It should be noted that the number of bat passes does not necessarily correlate with bat numbers.

- 1.70 The maximum number of bat passes recorded in a single location was 3631 passes recorded by anabat A2 located along a central treeline on site between the 11th and 15th September 2020 (Appendix 7, Table 1), and included 2697 Common Pipistrelle, 880 Soprano Pipistrelle, 46 *Myotis* sp., 5 Brown Long-eared bat, 1 Noctule, 1 unidentified large bat and a single Greater Horseshoe bat call. A marked increase in bat activity across the three anabat locations was recorded during the September survey. It was evident from the automated survey results that anabat A2, which was located along the central mature treeline between the improved grassland fields, consistently recorded the most bat passes. However, the Anabat (A2) malfunctioned during the June 2020 survey due to a SD card failure with no data recorded (Table 1).

Table 1: Summary of Anabat Data

* Constant noise recorded filling up CF card prematurely ending recording session.

** Species abbreviations – Cp Common Pipistrelle, Sp Soprano Pipistrelle, My *Myotis* Species, BLE Brown Long-eared Species, Nath Nathusius's Pipistrelle, Noc Noctule, Pip (unidentified Pipistrelle), Large (unidentified large bat) & GHS Greater Horseshoe bat.

Anabat Location	Dates	No. Bat Passes	Bat Species
A1	12/06/20 – 16/06/20	364	Cp:261 Sp:91 My:8 Large:3 Noc:1
	31/07/20 – 05/08/20	929	Cp:685 Sp:199 My:40 Large:3 BLE:1 Nath:1
	11/09/20 – 15/09/20	2820	Cp:2699 Sp:82 My:38 Noc:1
A2	12/06/20 – 16/06/20	Anabat malfunction (SD failure)	N/A
	31/07/20 – 05/08/20	1106	Cp:887 Sp:203 My:4 Large:12
	11/09/20 – 15/09/20	3631	Cp:2697 Sp:880 My:46 Large:1

Anabat Location	Dates	No. Bat Passes	Bat Species
			Noc:1 BLE:5 GHS:1
A3	12/06/20 – 16/06/20	463	Cp:380 Sp:67 My:12 Large:3 Nath:1
	31/07/20 – 05/08/20	686	Cp:652 Sp:27 My:5 Large:1 BLE:1
	11/09/20 – 15/09/20	407	Cp:250 Sp:136 My:14 BLE:5 Nath:1 Noc:1

- 1.71 Overall the site was considered to provide foraging and commuting habitat for a limited range of bat species dominated by 'hawking' species, those adapted for more open environments (e.g. Pipistrelle). The distribution of bat species across South Wales varies, with Common and Soprano Pipistrelle & BLE species widespread throughout and Myotis species, Greater Horseshoe bat, Nathusius bat and Noctule more restricted in their distribution.
- 1.72 Noctule, Soprano Pipistrelle, Greater Horseshoe bats and Brown Long eared bats are listed as priority species on the UK Biodiversity Action Plan, and Noctule, Soprano & Common Pipistrelle, Greater Horseshoe bats and Brown Long eared bats are on the Section 7 list of priority species of the Environment (Wales) Act (2016). Greater Horseshoe bat is listed as a European Protected Species under Annex IV of the European Habitats Directive.
- 1.73 Based on the low/moderate levels of activity and limited number of species recorded over the course of the surveys, the majority of the site (improved grassland fields) would be considered to have negligible ecological value for bats. However, the southern, eastern and north eastern extent of site, which possessed the more mature treelines and woodland habitats, had greater bat activity (foraging/commuting) associated with them. Given the increased activity in these areas the overall site was considered to be of local ecological importance to foraging bats.

Tree Surveys

- 1.74 The majority of the trees on or adjacent to site were identified as having negligible bat roosting potential due to their lack of potential bat roosting features. However, a number of trees were identified within the species treelines, hedgerows and woodland margins around site, which exhibited varying degrees of bat roosting features and suitability (e.g. Target Notes 8, 10, 17, 19, 23, 25, 30, 37, 42, 43, 44, 45). A review of the Tree Survey (Appendix 8) identified individual/groups of trees of low/moderate bat roosting potential as being lost during the development construction (Appendix 8, Trees T36 Turkey Oak (Photo 22), T361 Sessile Oak & T370 Silver Birch-371 Sessile Oak) and on a precautionary basis a single targeted bat dusk emergence survey was conducted on the trees on the 20th August 2020, which was considered to be sufficient to establish any roosting activity. Two further Sessile Oak trees (T335 (Photo 23)-T336) were identified (in the former farmyard) as having moderate bat roosting potential and being lost as part of the development, and as such two dusk emergence surveys were conducted on the trees to establish any bat roosting activities (Surveys conducted on the 13th August and 9th September 2020). See Appendix 9 for tree surveyor locations.
- 1.75 No bats were identified roosting within any of the trees surveyed with the majority of the bats being recorded at the tree locations approximately 3-8mins after sunset and from roosting locations within the offsite southern residential housing estate. The majority of foraging bats were identified as *Pipistrellus sp.*, with only individual Brown Long-eared bat identified around the former farmyard location located at the southern extent of site.

Building Inspection

- 1.76 The stone barn located in the southern extent of the site was inspected on the 01st May (externally) & 11th August 2020 (Internally) with particular regard to roosting bats and nesting birds. The building survey comprised an external and internal inspection of the barn. However, the southern extent of the barn could not be accessed at the time of the internal. No evidence of roosting bats was identified externally or internally. The building was considered to be in a poor condition with potential bat roosting features associated with the stone walls, with multiple access points to the interior identified beneath the corrugated metal roof (Appendix 5, Photos 24 & 25), and as such the structure was considered to be of moderate bat roosting potential (as described by BCT 2016 guidelines). To supplement the building inspection survey at the stone barn, two separate dusk emergence surveys were undertaken on 13th August and 09th September 2020 respectively.
- 1.77 An emergence survey was originally conducted by Phlorem Limited at the structure on the 25th September 2018 with no bat identified emerging from the structure.

Dusk Emergence Surveys

- 1.78 During the dusk emergence surveys conducted on the 13th August and 9th September 2020 no bats were identified emerging from the stone barn. In general low/moderate bat activity was recorded around the structure and associated woodland and scrub, with the majority of the calls attributed to Common Pipistrelle, with smaller numbers of Soprano Pipistrelle, all of which were considered to be roosting within the residential housing estate located south of site (direction of flight path just after sunset).
- 1.79 In general the site was considered to be of negligible ecological importance for roosting bats.

Birds

- 1.80 The European Ornithological Atlas Committee (EOAC) criteria for categorising breeding status has been used to attempt to identify species that are probably breeding, possibly breeding or confirmed as breeding within or in close proximity to the site boundary.
- 1.81 Using these criteria, three species were confirmed breeding onsite including Dunnock, Goldfinch, Robin, Song Thrush and Treecreeper (see Appendix 12 for locations). A further 6 species probably bred and 22 species possibly bred within or near to the site boundary. The remaining 3 species (of the 36 recorded) are unlikely to have bred on site due to a lack of suitable nesting habitat or absence of visible nest. However, Buzzard was considered to be nesting in an unknown offsite location within adjacent woodland to the east/north. Appendix 12 uses standard abbreviations to indicate the location of a particular species sighting.
- 1.82 A number of protected or notable bird species were recorded on site during the 2020 survey season. One Wildlife & Countryside Act 1981 (as amended) Schedule 1 species, Peregrine, was observed commuting over site with food in talons to an offsite nest. Eight UK Biodiversity Action Plan (UKBAP) species were also recorded on site, including Bullfinch, Linnet, House Sparrow, Starling, Song Thrush and Dunnock, that were considered either to be confirmed/probably/possibly breeding onsite. Peregrine and Herring Gull are UKBAP species identified over site but were not considered to breed. Eight Section 7 Priority Species Birds of the Environment (Wales) Act were recorded onsite. The bird species were the same as listed above for the UKBAP species. 5 Red List Species of Conservation Concern in the Wales (Johnstone et al. 2010) and 8 Amber list species were recorded on site (See Table 2).

Table 2: List of notable species recorded during the breeding bird surveys. (CO=Breeding Confirmed, PR=Breeding Probable, PO=Breeding Possible, NO= Confirmed absence through dedicated survey, UN= Limited or no suitable habitat on site).

Species	Scientific Name	Schedule 1	UKBAP	Section 7	Red List	Amber	Breeding
Peregrine	PE	☐	☐	☐			UN
Blackcap	BC						PR
Blackbird	B.						PR
Blue Tit	BT						PO
Bullfinch	BF		☐	☐	☐		PO
Buzzard	BZ						NO
Chaffinch	CH						PO
Chiffchaff	CC						PO

Carrion Crow	<i>C.</i>						PO
Coal Tit	<i>CT</i>						PR
Collared Dove	<i>CD</i>						PO
Common Linnet	<i>LI</i>		☐	☐	☐		PO
Common Starling	<i>SG</i>		☐	☐	☐		PO
Dunnock	<i>D.</i>		☐	☐			CO
Great Tit	<i>GT</i>						PO
Goldcrest	<i>GC</i>					☐	PO
Goldfinch	<i>GO</i>						CO
Great Spotted Woodpecker	<i>GS</i>						PO
Green Woodpecker	<i>G.</i>					☐	PO
Herring Gull	<i>HG</i>		☐	☐	☐		UN
House Sparrow	<i>HS</i>		☐	☐		☐	PO
Jackdaw	<i>JD</i>						PO
Jay	<i>J.</i>						PO
Long-tailed Tit	<i>LT</i>					☐	PO
Magpie	<i>MG</i>						PO
Mistle Thrush	<i>M.</i>					☐	PO
Nuthatch	<i>NH</i>						PR
Robin	<i>R.</i>						CO
Siskin	<i>SK</i>						PO
Song Thrush	<i>ST</i>		☐	☐		☐	CO
Swallow	<i>SL</i>					☐	PO
Treecreeper	<i>TC</i>						CO
Whitethroat	<i>WH</i>					☐	PO

Willow Warbler	WW				☐		PR
Wood Pigeon	WP						PO
Wren							PR

- 1.83 A full internal inspection of the Stone Barn located in the southern former farmyard could not be conducted due to access issues. However, no Barn Owls were identified during the two dusk bat emergence surveys conducted at the structure or during the targeted protected species surveys conducted around site throughout the summer months of 2020.
- 1.84 The majority of the bird species identified onsite were scrub and tree habitat nesting birds, with no ground nesting birds identified during the targeted surveys. The assemblage of birds noted on the site were considered to be typical for the habitats present in this area of Wales and was considered to be of ecological importance in a Local context.

Summary of important ecological features

- 1.85 A summary of the ecological features described as part of the baseline and their value at a geographical scale are summarised in Table 3. Only those features identified as of Local importance or above have been included and are considered further in this assessment.

Table 3 Summary of Valued Ecological Features

Resource/Feature	Importance at Geographical Scale
<i>Designated sites</i>	
The Tennant Canal SINC	County
Neath Estuary SINC	County
Catwg Wetland SINC	County
Ancient Semi-natural Woodland	County
<i>Habitats</i>	
Improved Grassland	Negligible
Acid Grassland	County
Poor Semi-improved Grassland	Local.
Bracken	Negligible
Species Poor Hedgerows	Local
Broadleaved Woodland	County
Treeline	Local
Scrub/Tall Ruderal	Local
Running Water	Local/County
Standing Water	Negligible/Local
<i>Species</i>	
Reptiles	Negligible/Local
Badgers	Local.
Bats - Roosting	Negligible
Bats – Foraging/ Commuting	Local
Birds	Local

ASSESSMENT OF POTENTIAL IMPACTS

- 1.86 The following section considers the overall effect of the development on the ecological features, assessing the adverse effects that arise from construction and operation of the scheme and any positive environmental effects of mitigation and habitat creation measures.
- 1.87 When considering a significant ecological impact on each of the identified valued ecological features, consideration has been given to factors such as whether the impact is likely to be positive or adverse, extent, magnitude (size) of the impact, duration, timing and frequency and reversibility.
- 1.88 Only the ecological features that are considered to be of importance at or above 'Local' have been included in the ecological impact assessment. The predicted impact for each ecological feature has been assessed on the basis of the worst-case scenario and without mitigation in the first instance. In the case of any adverse effects, appropriate mitigation measures are considered.
- 1.89 The effects are considered based on the CIEEM Guidelines (2018) and for the purposes of this assessment, will be separated into short-term activities such as site clearance and construction and long term effects associated with an occupied residential development based on the proposed Masterplan (see Appendix 2). The assessment of impacts presented in these sections is in the absence of any mitigation measures, which are summarised in the Mitigation Measures section which follows thereafter. The residual impacts, following mitigation are also presented.

Predicted Impacts

Construction Stage

- 1.90 The following measures are considered as integral to this stage of the scheme and the assessment of impacts is based on the assumption that they would be implemented.
- Vegetation clearance;
 - Set up of contractors compounds and site security fencing;
 - Change in disturbance levels from increased presence of people and vehicles;
 - Changes in artificial lighting; and,
 - Excavation of ground for building foundations and laying of infrastructure

Designated Sites

Ancient Semi-natural Woodland& SINC

- 1.91 The south eastern broadleaf woodland corridor which bordered the site was designated as part of an Ancient Semi-natural Woodland, which extended offsite to the north and south of the eastern boundary. However, the woodland edge which bordered site wasn't designated. The woodland is to be retained and left undisturbed by the proposed development scheme. Due to the physical separation between the site and designation a significant adverse impact on this ecological feature is extremely unlikely and as such this feature will not be considered further during the operational stages.

- 1.92 The Tennant Canal, Neath Estuary and Catwg Wetland SINCs will not be directly affected by the construction phase of the development due to the physical separation. Two boundary running ditches were identified onsite (southern and eastern boundaries). However, it was unclear whether there was any hydrological connectivity with the offsite SINCs. In the absence of appropriate management, mitigation or control measures to limit discharge of pollutants/silt it could not be precluded if an adverse impact in the short term was considered likely.

Habitats

Acid Grassland

- 1.93 This grassland habitat was considered to be of County ecological value. The construction of the development will not affect the acid grassland. As such a negligible impact is considered unlikely in the absence of mitigation and appropriate management.

Poor Semi-improved Grassland

- 1.94 The majority of the poor semi-improved will be lost as part of the development construction, which was considered to be of Local importance. The loss of habitat as part of the development construction will result in a significant adverse impact Locally.

Species Poor Hedgerow

- 1.95 The species poor hedgerows were considered to be of Local ecological value. The proposed development site clearance and construction will result in the breaching of these hedgerows in at least three places to accommodate residential units and infrastructure (Appendix 2 & 8) with a loss of at least 60m of hedgerow. The absence of root protection zones and appropriate buffering could also potentially further degrade the retained hedgerows. It is unclear whether a significant impact in the absence of mitigation is likely. However, an adverse impact on the species poor hedgerow resource is certain.

Treeline

- 1.96 The treelines were considered to be of Local ecological value. The proposed development site clearance and construction will result in the breaching of these treelines in at least four places to accommodate residential infrastructure (Appendix 2 & 8) with a loss of at least 30m of treeline. The absence of root protection zones and appropriate buffering could also potentially further degrade the retained treelines. A significant impact in the absence of mitigation is unlikely. However, an adverse impact on the treeline resource is certain.

Broadleaf Woodland

- 1.97 The broadleaf woodland was considered to be of County ecological value. The Masterplan and Tree Survey (Appendix 2 & 8) identify that the boundary woodland to the east will remain undisturbed by the development with only individual marginal trees lost. However, a small area of woodland (approximately 0.15ha) that has established in the former farmyard located at the south of site will be lost as part of the development.

- 1.98 There is considered to be no significant impact upon this ecological feature from the site clearance and construction. However, in the absence of root protection zones and appropriate buffering there is potential for marginal trees to be damaged reducing the overall resource area and causing an adverse impact.

Scrub/Tall Ruderal Habitat

- 1.99 A small area of scrub and tall ruderal habitat (approximately 0.17Ha) located at the south eastern extent of site will be lost as part of the development construction (Residential Units 1-3)(Appendix 2 & 8); whilst it is unclear how much scrub will be retained as part of the former farmyard, which is designated as a public open space. The loss of habitat as part of the development construction is likely to result in a significant adverse impact Locally.

Running Water

- 1.100 The running water ditch was considered to be of Local/County ecological importance. The eastern boundary running ditch will be retained as part of the development, as well as the majority of the southern boundary ditch that flows along the broadleaf woodland treeline. However, the culverting of the ditch to accommodate infrastructure is likely in places (Appendix 2). The running water will not be significantly impacted by the site clearance and construction. However, in the absence of mitigation or control measures to limit discharge of silt or other substances into these ditches during construction, as well as the potential culverting of short sections is likely to have an adverse impact on the feature.

Standing Water

- 1.101 The standing water ditch was considered to be of Negligible/Local ecological importance. The development will result in the loss of this small feature (Appendix 2). The loss of habitat as part of the development construction will result in a significant adverse impact on a feature of Negligible/Local ecological importance, and as such the feature will not be discussed further in the report.

Fauna

Bats- Roosting

- 1.102 The surveys of trees identified as having bat roosting potential to be lost as part of the development identified no bat roosts, and as such roosting bats will not be affected by the construction phase. In the absence of mitigation a negligible impact on bat roosting, and as such roosting bats will not be considered further.

Bats – Foraging

- 1.103 The bat resource was considered of local ecological importance. A total of six accurately confirmed bat species (Soprano Pipistrelle, Common Pipistrelle, Brown Long-eared, Greater Horseshoe bat, Nathusius' Pipistrelle and Noctule) were recorded foraging and commuting on and over site. *Myotis* and unidentified large bat species were identified on site but the actual species could not be categorically identified to species level. However, the calls were considered to be made by Serotine, Noctule, Natterer's bat and Daubenton's bats. The activity surveys established that in general the bat activity was low/moderate across site, with relatively small

numbers of bat passes recorded during the transect activity surveys along, with the recorded calls considered to be produced by a small number of bat species dominated by Common Pipistrelle. The low/moderate activity was considered to be consistent with the agricultural nature of the majority of site, which was mainly composed of pastoral and arable fields. The activity surveys identified that the majority of the bat activity was associated with the treelines and woodland that border site, with lesser bat activity associated with the northern extent of site and the internal hedgerows and treeline that separate the improved grassland fields. The Masterplan (Appendix 2) retains the offsite woodland corridors with only small breaches of treelines and species poor hedgerows occurring to accommodate the infrastructure for the residential development, maintaining linear foraging and commuting features around and through site. In the absence of mitigation a significant impact on bat foraging is considered unlikely. However, a small adverse impact was considered likely given the limited loss and breaching of foraging and commuting routes associated with site clearance and construction.

- 1.104 In the absence of mitigation and/or control measures there is potential for an adverse impact in the short term through increased lighting and noise within the development site boundary. Species such as *Myotis sp.* are relatively intolerant of artificial lighting and, if parts of the site were to be lit at night (e.g. construction compound), this could result in local avoidance/ habitat fragmentation for these species. In the absence of mitigation and/or control measures, a significant impact in the short term is considered unlikely for the light intolerant species, although an adverse impact was considered to be certain.

Birds

- 1.105 During site clearance areas of nesting and foraging habitat would be lost as a result of removal of hedgerow and scrub removal. The habitat loss and increased disturbance (lighting and noise) associated the site clearance and construction of the first phase of development and overall scheme is considered likely to result in a significant adverse impact on the nesting species present Locally in the absence of mitigation.

Badger

- 1.106 The site is considered to be of Local importance to Badgers due to the habitats onsite providing a foraging resource for this species. The site clearance and construction associated with the development will not impact any Badger setts but will result in the loss of foraging habitats. Construction activities also carry a high risk of Badgers accessing the site and a risk of injury and mortality due to excavations, machinery, sharp materials or ingestion of chemicals.
- 1.107 In consideration of the loss of foraging resource within the site boundary and the availability of similar resources both within the surrounding area, a significant impact on Badgers is considered unlikely. However, the loss of foraging habitat, disturbance during construction works and the injury risk arising from construction activities is likely to result in an adverse impact within the application boundary in the short-medium term in the absence of mitigation measures.

Reptiles

- 1.108 A reptile survey conducted by Hawkeswood Ecology in 2016⁵ within the former farmyard site identified no presence of Common Reptile specie. However, the small area of scrub/tall ruderal habitat (Target Note 6) and field margins containing Bracken and bramble around site were

⁵ Hawkeswood Ecology (2016). Reptile Presence Absence Survey, Land at Leiros Park, Neath. November 2016.
Ref: HE/88/2015

considered potentially suitable habitat capable of supporting small numbers of isolated common reptile species. The construction of the residential units (1, 2, 3, 178, 179 & 180)(Appendix 2) and infrastructure will result in the loss of scrub, tall ruderal habitat and bracken that could be utilised by small isolated populations of common reptile species and the loss of potential reptile habitat and will pose a risk of injury or mortality to reptile species in that location in the absence of mitigation.

- 1.109 Reptiles are considered likely to be absent from the majority of site. However, the presence of individual common reptile species could not be precluded. As such clearance and construction works across much of the site is unlikely to have a significant adverse impact on this species. However, clearance of areas considered potentially suitable to support small populations of common reptiles could result in injury or mortality of individuals present which is likely to constitute an adverse impact within the development site boundary in the absence of mitigation.

Operational Impacts

- 1.110 The operational stage assumes that all buildings and infrastructure are constructed and functional. As with the consideration of construction impacts, the assessment in this section does not include for mitigation measures – these are described in the Mitigation Measures sub-section which follows. The operational stage will take into consideration the following likely impacts:-

- Increased disturbance from people and traffic; and
- Increased disturbance from artificial lighting.
- Effect of long term drainage strategy.

Designated Sites

Ancient Semi-natural Woodland& SINCs

- 1.111 No direct loss of these features would be associated with the operation of the scheme. As such a significant adverse impact on the SINCs and Ancient Semi-natural Woodland features during operation of the scheme is considered unlikely. However, in the absence of appropriate management, mitigation or control measures to limit discharge of pollutants into the retained features and due to additional pressures associated with increased public access an adverse impact is considered likely in the long-term.

Habitats

Acid Grassland

- 1.112 No direct loss of the acid grassland would occur as a result of the development construction, and on this basis, significant adverse impacts would not be associated with the operational stage. However, inappropriate management of this grassland located in the public open space (Appendix 2) (e.g. regular cutting, inappropriate timing of cutting) could result in a decrease in botanical diversity, which when combined with additional pressures associated with increased public access, is considered to represent an adverse impact in the long-term.

Poor Semi-improved Grassland

- 1.113 No further direct loss of poor semi-improved grassland would occur as a result of the development operation, although it is unclear what area of poor semi-improved grassland will be

retained post development. A significant adverse impact was considered unlikely. However, inappropriate management of any retained grassland (e.g. regular cutting, inappropriate timing of cutting) could result in a decrease in botanical diversity, which when combined with additional pressures associated with increased public access, would represent an adverse impact in the long-term.

Species Poor Hedgerows

- 1.114 The potential impacts on retained species-poor hedgerows as a consequence of the development include further direct impacts (i.e. hedgerow removal), particularly for any hedgerows bordering domestic gardens, and indirect impacts associated with inappropriate or lack of management for retained hedgerows. However, the potential for further direct habitat loss has been minimised as part of the site layout, (e.g. as far as practicable existing hedgerows will not be used to define garden curtilage) and on this basis, significant adverse impacts during operation of the development are considered unlikely. In the absence of appropriate management of the retained species poor hedgerows an adverse impact is considered likely in the long term.

Treelines

- 1.115 The potential impacts on retained treelines as a consequence of the development include further direct impacts (i.e. tree removal), particularly for any treelines bordering domestic gardens, and indirect impacts associated with inappropriate or lack of management for retained treelines. However, the potential for further direct habitat loss has been minimised as part of the site layout, (e.g. as far as practicable existing treelines will not be used to define garden curtilage) and on this basis, significant adverse impacts during operation of the development are considered unlikely. In the absence of appropriate management of the retained treelines an adverse impact is considered likely in the long term.

Woodland

- 1.116 No further direct loss of woodland would occur as a result of the operation of the first phase of development or the overall scheme. The majority of woodland edge is to be buffered from the development and does not form the boundary of domestic gardens etc. As such further direct loss of woodland (due to removal of trees by residents) is considered unlikely to occur and a significant adverse impact is considered unlikely. However, in the absence of appropriate management and due to additional pressures associated with increased public access, an adverse impact is considered likely in the long-term.

Scrub/Tall Ruderal Habitat

- 1.117 No further direct loss of scrub/tall ruderal habitat would occur as a result of the development operation, although it is unclear how much scrub/tall ruderal habitat will be retained post development as part of public open space within the former farmyard located at the southern extent of site. A significant adverse impact was considered unlikely. However, inappropriate management of retained scrub/tall ruderal habitat (e.g. regular cutting, inappropriate timing of cutting) could result in a decrease in range of the habitat as well as botanical diversity, which when combined with additional pressures associated with increased public access, would represent an adverse impact in the long-term.

Running Water

- 1.118 Small breaches of the southern running ditch will occur during the site clearance and construction of infrastructure, although these features are to be retained and buffered throughout the operation of the scheme. As such a significant adverse impact is considered unlikely. However, in the absence of mitigation or control measures to limit discharge of pollutants into the running water ditches an adverse impact on these features would be likely to arise in the long term.

Fauna

Bats- Foraging

- 1.119 The site clearance and construction phase of the development would result in the small loss of woodland and fragmentation of species poor hedgerow and treeline habitat onsite. No additional losses would be associated with the operation stage. The availability of foraging resource is likely to be reduced in the long term with the net loss of woodland, treeline and hedgerow habitat.
- 1.120 In the absence of mitigation measures, particularly in relation to reducing fragmentation caused by site lighting, the potential for a significant adverse impact could not be precluded. The majority of bat activity associated with the site was from Pipistrelle species, which are known to be relatively tolerant of artificial lights. However, Myotis sp., GHS and BLE were also recorded foraging across the site, all of which are notably light intolerant species. Any inappropriate site lighting of the currently unlit hedgerows, treelines and woodland is likely to have an adverse impact on the use of the site by these species, although a significant impact is unlikely.

Birds

- 1.121 The operational stage of the development will result in increased levels of disturbance (human activity, pets, traffic and lighting) and increased predation (e.g. from cats). The retention of the majority of hedgerows, treelines and woodland, would maintain resources for scrub nesting birds as part of the development. On this basis, a significant adverse impact on the breeding bird assemblage is considered unlikely although the operational phase of the scheme is considered likely to result in an adverse impact on scrub nesting species within the site boundary in the absence of mitigation measures.

Badger

- 1.122 No Badger setts were identified on or adjacent to site. However, the site was considered suitable for foraging Badgers and in the absence of mitigation increases in lighting and human disturbance could indirectly impact on Badger activity, with the potential for increased mortality as a result of increased vehicle traffic. Although a significant adverse impact is considered unlikely, it is likely that an adverse impact would occur on any Badgers using the site, at least in the short-medium term.

Reptiles

- 1.123 No further direct loss of habitat of potential value to reptiles would occur during operation of the scheme and as such a significant adverse impact is considered unlikely. However, an adverse impact could occur due to inappropriate management of any retained habitat, which are potentially suitable to support reptiles (e.g. frequent/ short cutting of grassland) and due to increased disturbance from humans and pets.

MITIGATION

Mitigation Measures

- 1.124 In identifying the type and extent of mitigation through the site clearance, construction and operation stages, consideration has been given to the scale of the works within the application boundary in line with the proposed site layout.
- 1.125 6.5.1 The mitigation strategy that would be adopted and the measures incorporated into the scheme include the following key features:-
- Retention and protection of existing boundary woodland located on the south eastern and north eastern boundaries of site;
 - Retention of north western acid grassland field;
 - Use of buffer strips to protect retained habitats (woodland, hedgerows and treeline) from development as far as practicable;
 - Infill planting of defunct hedgerows using native species known to be present locally such as Hazel, Hawthorn, Blackthorn, Dogwood, Honeysuckle, etc. ;
 - Any woodland planting to use native species such as Hazel, Ash, Holly, Field Maple, Oak, Cherry and Willow;
 - Public open spaces to including wildflower grassland, herbaceous, tree and shrub species selected to be beneficial to biodiversity;
 - Management of retained hedgerows and treelines as appropriate through trimming, hedge laying, coppicing and supplementary planting to improve structural integrity and species diversity. This management would be delivered by an appropriate landscape contractor;
 - Management of retained acid grassland through seasonal cutting to increase botanical diversity;
 - Access to the retained boundary woodland & grassland habitats to be limited through the provision of dedicated pathways, signage etc.;
 - Clearance of vegetation within the application boundary (trees, hedgerows, scrub and grassland) to be undertaken outside the bird breeding season (i.e. clearance possible between September and February inclusive). Prior to earthworks or topsoil stripping vegetation on site will be cut short immediately before and throughout the breeding bird season to deter scrub nesting species. If any vegetation is to be cleared in the breeding bird season a prior visual check by an experienced ecologist is required to identify any nesting sites. The identification of any active nest sites would require the location to be left undisturbed with an appropriate buffer zone demarcated (specified by the ecologist) until any chicks have fledged from the nest before the vegetation clearance can continue;
 - Adoption of an appropriate site clearance methodology (involving sequential strimming of grassland/ scrub) within areas of habitat suitable to support common reptiles. Works undertaken during active window (between April and September). Any vegetation clearance conducted outside the reptile activity period, within suitable reptile habitat, will need to be conducted using hand tools (trimmers etc.), without reducing the vegetation height to ground level thus protecting any hibernating reptiles. No large machinery can be tracked across suitable reptile habitat outside the reptile activity period;
 - Provision of bird boxes along woodland edge and retained treelines and hedgerow habitat to provide replacement for loss of nesting resource on site;

- Provision of Barn Owl boxes in suitable woodland edge tree offsite if landownership allows arranged;
- Provision of bat boxes within proposed residential properties and along woodland edge and retained treelines and hedgerow habitat;
- Treatment/ eradication of invasive species (Japanese Knotweed & Himalayan Balsam);
- Design of site lighting to limit light spill onto retained treelines, hedgerow and woodland habitats;
- To ensure the delivery of appropriate mitigation measures during the construction phase it is proposed that a Construction Environmental Management Plan (CEMP) be prepared by the appointed contractor. The CEMP would be agreed with the Local Planning Authority prior to the commencement of construction works on the site.

1.126 The impact assessment presented earlier assumed that no mitigation would be applied. The following sections address each of the valued ecological receptors and describe the measures to be adopted through site clearance, construction and operation to minimise as far as practicable the effects of the scheme.

1.127 For ease of reference, a table is presented at the end of this section (Table 4) that summarises the impacts of the scheme on each of the valued ecological features in the absence of and following mitigation (i.e. the residual impact).

1.128 The mitigation measures described within this section have been devised to retain elements of the important ecological features identified at the site and to contribute to the maintenance of biodiversity locally. Delivery of the mitigation measures described in subsequent sections would be incorporated into an Environmental Management Plan (EMP) for the site to cover both the construction and operational phases, the detail of which could be controlled via suitably worded planning conditions.

Designated Sites

Ancient Semi-natural Woodland& SINC

1.129 The south eastern broadleaf woodland corridor which bordered the site was designated as part of an Ancient Semi-natural Woodland, which extended offsite to the north and south of the eastern boundary. However, the woodland edge which bordered site wasn't designated. The woodland is to be retained and left undisturbed by the proposed development scheme. The woodland lies outside the current land ownership so no direct control of access would be possible although interpretation boards and signage would be adopted to advise residents of the value of the habitats and the species they could support; as well as the adoption of appropriate management measures within a Construction Environmental Management Plan (CEMP).

1.130 The Tennant Canal, Neath Estuary and Catwg Wetland SINC will not be directly affected by the construction phase of the development due to the physical separation. Two boundary running ditches were identified onsite (southern and eastern boundaries). However, it was unclear whether there was any hydrological connectivity with the offsite SINC. The CEMP will include measures to protect the retained running water habitat during the construction phase such as avoiding surface water run-off, pollution incidents etc. A Sustainable Drainage System (SuDS) will be implemented to maintain the existing quantity and quality of water entering the ditches, and as such the SINC should be unaffected by the proposed development.

- 1.131 With the adoption and implementation of these measures, a Neutral impact on the SINC's and Ancient Semi-natural woodland is likely in the long-term.

Habitats

Acid Grassland

- 1.132 The acid grassland will be retained as part of the development as public open space. To promote botanical diversity, cutting (within the grassland resource) would be undertaken twice a year, once in early spring and once in late summer/ autumn (with all arisings removed). Cutting in late summer/ autumn would allow the majority of grass and herb species to flower and set seed and would provide a foraging resource for invertebrates and birds. Access to the grassland resources will be limited through the provision of dedicated pathways and signage/interpretation boards etc.
- 1.133 The halting of grazing within the retained field combined with the tailored management strategy and control of public access is likely to have a positive effect on botanical diversity. In the long term a significant beneficial impact is considered likely with appropriate management.

Poor Semi-improved Grassland

- 1.134 A small area of Poor Semi-improved Grassland will be lost as a result of the site clearance and construction, and it is unclear whether any of the feature will be retained during the operation phase. Any retained grassland will be retained and managed as part of the development as public open space. To promote botanical diversity, cutting (within the grassland) would be undertaken twice a year, once in early spring and once in late summer/ autumn (with all arisings removed). Cutting in late summer/ autumn would allow the majority of grass and herb species to flower and set seed and would provide a foraging resource for invertebrates and birds. Access to this grassland resource will be limited through the provision of dedicated pathways, interpretation boards/signage etc. There is also potential to offset any losses with the seeding of any public open space areas with botanically diverse seed mixes. A significant adverse impact on poor semi-improved grassland is considered likely in the short term. However, the significant impact is unlikely to persist in the long term if any retained grassland is managed effectively, and as new public open space planting establishes.

Species Poor Hedgerows

- 1.135 Activities associated with site clearance and construction associated with the development are likely to result in an adverse but not significant impact on the species poor hedgerow resource. Any retained hedgerows would be protected during site clearance and construction works. In addition an appropriate management regime to improve their structural integrity and ecological value will be implemented, including the infilling of the defunct areas of hedgerow with species of local provenance and of benefit to wildlife.
- 1.136 On this basis an adverse impact on the species poor hedgerows across the site is likely to occur in the short – medium term (1 – 5 years) with the impact reducing in the long term through effective hedgerow management and infilling.

Treelines

- 1.137 Activities associated with site clearance and construction associated with the development are likely to result in an adverse but not significant impact on the treeline resource. Any retained treelines would be protected during site clearance and construction works. In addition an appropriate management regime to improve their structural integrity and ecological value will be implemented, including the infilling of the defunct areas of treeline with species of local provenance and of benefit to wildlife.
- 1.138 On this basis an adverse impact on the treelines across the site is likely to occur in the short – medium term (1 – 5 years) with the impact reducing in the long term through effective treeline management and infilling.

Broadleaf Woodland

- 1.139 The majority of the broadleaf woodland will be retained throughout the construction and operational phases of the development with minimal losses associated with the southern farmyard development. Under the CEMP, measures would be implemented to prevent impacts from the construction phase such as root damage, soil compaction and spread of dust and other pollutants.
- 1.140 The completed development would enhance the ecological value of retained woodland habitats on site through regular management including thinning, coppicing and supplementary planting. The creation of formal pathways into the boundary woodland will limit the creation of informal pathways by local occupants and maintain natural areas for woodland species such as birds, mammals and invertebrates.
- 1.141 On this basis a small adverse impact on the woodland across the site is likely to occur in the short – medium term (1 – 5 years) with the impact reducing in the long term through effective woodland management & enhancement and new buffer woodland planting.

Scrub/Tall Ruderal Habitat

- 1.142 A small area of scrub/tall ruderal habitat will be lost as a result of the site clearance and construction, and it is unclear whether any of the feature will be retained during the operation phase in the former farmyard location, which will be utilised as public open space. Any retained scrub/tall ruderal will be retained and managed as part of the development as public open space. To maintain the range of the resource and its species diversity appropriate management will be employed. Any required cutting of the resources will be conducted outside the nesting period for birds maintain a nesting and foraging resource onsite. Access to this resource within the public open space will be limited through the provision of dedicated pathways, interpretation boards/signage etc. A significant adverse impact on the scrub/tall ruderal habitat is considered likely in the short term. However, the significant impact is unlikely to persist in the long term if any retained habitat is managed effectively, and as new public open space planting establishes.

Running Water

- 1.143 The majority of the running water habitat is to be retained throughout construction and operation of the development, although small sections of running water habitat located on the southern boundary will requiring culverting to accommodate infrastructure etc..

- 1.144 The CEMP will include measures to protect the retained running water habitat during the construction phase such as avoiding surface water run-off, pollution incidents etc. A Sustainable Drainage System (SuDS) will be implemented to maintain the existing quantity and quality of water entering the ditches. As a result the risk of a significant adverse impact is considered unlikely, with a Neutral impact likely based on the drainage strategy to be adopted.

Fauna

Bats – Roosting

- 1.145 No roosting bats were identified utilising the trees or stone barn that are to be lost as part of the proposed development.
- 1.146 The proposed scheme will erect bat boxes on boundary trees and will incorporate bat boxes within the newly built houses, potentially increasing the potential bat roosting sites for certain bat species around the scheme i.e. *Pipistrelle sp.* in the long term, potentially having a small beneficial affect for those species.

Bats- Foraging

- 1.147 The boundary woodland and treelines, which are the preferred foraging/commuting habitats for the local bat populations, will be retained with only small losses with the southern boundary woodland (former farmyard) and treeline to accommodate some residential units and infrastructure. However, the defunct hedgerows and treeline, which separate the improved grassland fields will be breached as part of the development. The seasonal timing of any works to remove hedgerows would be adopted. Removal of these sections of hedgerow outside the bird nesting season – i.e. between October and February – would also coincide with the period of winter hibernation for bats.
- 1.148 The availability of foraging resource is likely to be reduced in the short-medium term with the small net loss of woodland, scrub, treeline and hedgerow habitat. However, this will be offset in the long term by enhancement planting within the defunct hedgerows and treelines as well as enhancement planting within public open spaces.
- 1.149 One of the main issues potentially affecting bats is fixed site lighting, which can have disruptive implications on the foraging and commuting behaviour on bat species sensitive to artificial light. This issue can be mitigated by maintaining 'dark corridors' and restricting lighting along woodland edge, treelines, hedgerows and scrub communities. Where standard height street lighting is required adjacent to the retained habitats, directional or cowled lanterns would be adopted that limit light spill. Where possible, options for low-level lighting would also be explored. On this basis, the impact of operational site lighting is unlikely to have a significant adverse impact on bats, especially due to the majority of bat activity being identified as *Pipistrelle* species, which are more tolerant to artificial light. Lighting can be attractive to night-flying insects and could offer a useful additional foraging resource to the more common bat species known in the area (*Pipistrelle*). However, this would not be considered an ecologically significantly positive impact.
- 1.150 The loss of forging habitat, fragmentation of linear features and increase in light pollution associated with the development is likely to result in a small adverse effect on foraging bats in localised parts of the site in the short term, with the impact unlikely to persist in the medium-long term as new enhancement planting and foraging habitats establish.

Birds

- 1.151 The site and surrounding area supports a range of scrub nesting bird species, which are considered vulnerable to disturbance during the construction and operational stages of the development. In order to minimise impacts as far as practicable and comply with relevant legislation, clearance of vegetation within the application boundary would be undertaken outside the bird breeding season which typically runs from March to August inclusive. This clearance will include a cut on all vegetation – including grassland - within the development boundary to render them unsuitable for ground (even though they were not recorded onsite) and scrub bird species.
- 1.152 Retention of the majority of boundary woodland, treelines and hedgerows habitats as described for bats would retain nesting/ foraging habitat within the site boundary. To mitigate for the loss of nesting opportunities as a result of vegetation clearance, bird boxes would be provided along retained woodland edge habitat, and retrofitted to the proposed boundary residential houses.
- 1.153 The hedgerow enhancement planting and infilling will include native fruiting species such as Hawthorn, Blackthorn, Holly and Cherry that will provide an additional food resource for birds.
- 1.154 With the inclusion of the above mitigation measures, the development is considered unlikely to result in a significant impact on scrub nesting species due to the sensitive timings of clearance and retention of habitat. An adverse impact in short term Locally is likely, due to disturbance by increased traffic and human presence, reducing towards Neutral in long term as new planting matures.

Badger

- 1.155 The site is considered to be of Local importance to Badgers due to the habitats onsite providing potential foraging resources. The completed development will result in the loss of all the improved grassland, and areas of scrub and tall ruderal habitat. However, the development would retain boundary woodland and treelines of value to foraging Badgers. The site lighting strategy would also be devised to prevent unnecessary light spill on to boundary habitats of value to Badgers. Appropriate construction site practices would be adopted to minimise risks to Badgers and other wildlife such as covering trenches or foundation excavations at night (or providing means of escape) and the appropriate storage of all chemicals and materials.
- 1.156 With adoption of protective measures during construction and retention of key offsite habitats is considered unlikely to result in a significant adverse impact, although there would be a net loss of available foraging habitat post development. On this basis an adverse impact is considered likely in the short – long-term.

Reptiles

- 1.157 No reptiles were identified onsite during a reptile survey conducted by Hawkeswood Ecology in 2016⁶ within the former farmyard site. However, small areas of scrub/tall ruderal habitat and field margins containing Bracken and bramble around site, considered to be potentially suitable habitat capable of supporting small numbers of isolated common reptile species, will be lost as part of the proposed development.
- 1.158 The presence of individual reptile species could not be precluded and as such loss of suitable reptile habitat is likely to have an adverse impact on any potential isolated reptile populations.

⁶ Hawkeswood Ecology (2016). Reptile Presence Absence Survey, Land at Leiros Park, Neath. November 2016.
Ref: HE/88/2015

All common reptiles are protected against killing and injury under the Wildlife and Countryside Act 1981 (as amended) and typically this translates to excluding them from areas of development where they could be at risk.

- 1.159 Prior to construction, a directional phased clearance would be undertaken of any suitable reptile habitats towards retained margins. This would render the areas unsuitable for reptiles and allow any reptiles present sufficient time to move out of the area prior to the commencement of ground works and full site clearance. All clearance works in areas suitable to support reptiles would be undertaken during the active period for reptiles (April-September inclusive). Retained margins and the managed acid grassland will provide a potential reptile habitat resource within the site.
- 1.160 Overall, it is considered that the development will unlikely result in a significant adverse impact, although there would be a small net loss of available foraging habitat post development. On this basis an adverse impact is considered likely in the short – long-term.

RESIDUAL IMPACTS

Residual Effects

- 6.7.1 Following consideration of the potential impacts of the development on valued ecological features during construction and operation, and the implementation of mitigation measures described in the previous section, the residual impact of the scheme is summarised in Table 4.
- 6.7.2 The table indicates that short-medium term significant adverse impacts upon poor semi improved grassland and scrub/tall ruderal habitat, associated with the proposed development construction, will occur until it is potentially offset by public open space planting. Adverse impacts upon species poor hedgerows, treelines, woodland and running water is expected in the short term but not persisting long term as enhancement planting establishes and through effective management of the features. An adverse impact is expected on foraging bat and the scrub nesting bird resources in the short term, with the impact unlikely to persist in the long term as enhancement planting establishes and matures. The adverse impact on foraging Badgers and isolated reptile species is likely to persist into the long term due to the loss of resources. However, the boundary woodland will maintain a foraging resource for Badgers.
- 6.7.3 The highest valuation of 'County' was assigned to the acid grassland field and woodland resource. Other features were considered of importance at a 'Local' scale, with the exception of the running water that was considered to be of Local/County value due to SINC criteria in NPT.

Table 4: Residual Impact Summary

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Construction				
Acid Grassland. Horses removed from fields removing grazing regime.	Negligible effect on feature of County importance.	N/A	Retention with appropriate demarcation.	Beneficial/neutral impact likely in short term due to absence of sustained grazing.
Poor Semi-improved Grassland. Majority of resource as part of development.	Permanent effect on feature of Local importance.	Significant adverse impact in short term. It is unclear how much of the resource will be left as part of public open space post construction.	Management of any retained poor semi-improved grassland within public open space to promote botanical diversity. Native wildflower planting within soft landscaping areas.	Significant adverse impact in short term due to net loss of feature. A significant impact unlikely to persist in the long term if any of resource is retained & managed effectively.
Species Poor Hedgerows resource Small net loss of habitat as part of development.	Permanent effect on feature of Local importance.	Adverse impact in short term. However, significant impact unlikely.	Management of retained species poor hedgerow. Infill and enhancement planting. Construction Environmental Management Plan (CEMP) to be produced and agreed prior to any site clearance/ construction works to detail appropriate root protection and buffer zone.	Significant adverse impact in short-medium term due to net loss of feature. A significant impact unlikely to persist in the long term as new hedgerow planting establishes and matures.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Treeline resource Small net loss of habitat as part of development.	Permanent effect on feature of Local importance.	Adverse impact in short term. However, significant impact unlikely.	Management of retained treelines. Infill and enhancement planting. Construction Environmental Management Plan (CEMP) to be produced and agreed prior to any site clearance/ construction works to detail appropriate root protection and buffer zone.	Significant adverse impact in short-medium term due to net loss of feature. A significant impact unlikely to persist in the long term as new hedgerow planting establishes and matures.
Woodland resource Small net loss of habitat as part of development.	Permanent effect on feature of County importance.	Adverse impact in short term. However, significant impact unlikely.	Management of retained woodland and potential buffer planting. Construction Environmental Management Plan (CEMP) to be produced and agreed prior to any site clearance/ construction works to detail appropriate root protection and buffer zone.	Significant adverse impact in short-medium term due to net loss of feature. A significant impact unlikely to persist in the long term as new hedgerow planting establishes and matures.
Scrub/Tall Ruderal Habitat resource Small net loss of habitat as part of development	Permanent effect on feature of Local importance.	Significant adverse impact in short term. It is unclear how much of the resource will be left as part of public open space post construction.	Management of any retained scrub/tall ruderal habitat within public open space to promote species diversity.	Significant adverse impact in short-medium term due to net loss of feature. A significant impact unlikely to persist in the long term as new hedgerow planting establishes and matures.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Running Water resource. Disturbance/ destruction at culvert as part of development. Potential for run-off of material from site into streams.	Permanent effect on feature of Local/County importance.	Short-term adverse impact could not be precluded. Significant impact unlikely.	Construction Environmental Management Plan (CEMP) to be produced and agreed prior to any site clearance/ construction works to detail appropriate measures to minimise run-off.	Adverse impact in short term. Significant impact unlikely. Neutral impact in long term likely.
Bats – foraging/ commuting: Net loss of foraging habitat, fragmentation of habitat and disturbance by increased human presence; traffic and artificial light caused by development.	Permanent effect on feature of Local importance.	Adverse impact in localised areas of site due to loss of foraging habitat, fragmentation, increased lighting and noise in short term. Significant impact considered unlikely.	Retention of woodland hedgerow and treelines as green corridors. Maintenance of dark corridors along retained hedgerows/ woodland/ treelines.	Adverse impact in short-term due to net loss of foraging resource, fragmentation and disturbance with impact unlikely to persist in the medium-long term as new planting establishes and matures and retention of green/dark corridors.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Birds: Net loss of breeding, shelter and foraging habitat. Disturbance by machinery and increased traffic/ human presence.	Permanent effect on feature of Local importance.	Significant impact unlikely due to retention of habitat and alternative habitat. Adverse impact within the application site boundary in the short term due to net loss of breeding habitat and increased disturbance.	Vegetation clearance outside the breeding season. Retention of majority of woodland, treelines and hedgerows. Management of retained grassland to provide alternative foraging and (potential) nesting habitat for birds. Provision of bird boxes in retained habitat and retrofitted to proposed houses.	Adverse impact on scrub nesting species in short term reducing to neutral in the long term as planting matures and management of hedgerows, treelines, woodland and grassland habitats commences. Within the application boundary. Significant impact unlikely.
Badger Disturbance by machinery and increased traffic/ human presence. Loss of foraging habitat.	Permanent effect on feature of Local importance.	Adverse effect likely from loss of foraging habitat and disturbance. A significant adverse impact would be unlikely.	Appropriate working practises. Sympathetic site lighting. Retention and management of key habitats.	Adverse impact likely in short-long term onsite, although alternative habitats present in adjacent woodland and fields. A significant adverse impact would be unlikely.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Reptile Loss of potentially suitable habitat. Disturbance by machinery and increased traffic/ human presence.	Permanent effect on feature of Local importance.	Adverse impact likely from loss of habitat and disturbance (without sensitive clearance).	Phased directional clearance of suitable reptile habitat. Favourable management of retained reptile habitat. Creation of new habitat in public open space.	Adverse impact likely in short-medium term onsite, although reducing by retained habitats being managed appropriately as well as new habitat within public open spaces. A significant adverse impact would be unlikely.
Operation				
Acid Grassland. Inappropriate or lack of management. Increased human access.	Permanent effect on feature of County importance.	Adverse impact in long term. A significant adverse impact is unlikely.	Management of retained grassland within public open space to promote botanical diversity.. Public access limited.	Neutral/ potentially positive impact in long term, as management practices promote increased botanical diversity and as public open space planting matures.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Poor Semi-improved Grassland. Inappropriate or lack of management. Increased human access.	Permanent effect on resource of Local importance.	Adverse impact in long term. A significant adverse impact is unlikely.	Management of retained poor semi-improved grassland within public open space to promote botanical diversity. Native wildflower planting within soft landscaping areas. Public access limited.	Short-medium adverse impact from initial net loss of habitat, potentially not persisting in the long term due to retention & management of grassland areas, and as new wildflower planting establishes.
Species Poor Hedgerows Inappropriate management or lack of hedgerow management.	Permanent effect on feature of Local importance.	Adverse impact likely in long term. Significant impact unlikely.	Management and enhancement works to improve retained hedgerows.	Adverse impact in the short-medium term reducing through the long term as new planting establishes.
Treelines Inappropriate management or lack of treeline management.	Permanent effect on feature of Local importance.	Adverse impact likely in long term. Significant impact unlikely.	Management and enhancement works to improve retained treelines.	Adverse impact in the short-medium term reducing through the long term as new planting establishes.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Broadleaf Woodland. Inappropriate or lack of management. Increased human access.	Permanent effect on feature of County importance.	Adverse impact likely in long term. A significant adverse impact is unlikely.	Management of retained woodland. Public access managed. Creation of buffer woodland planting.	Initial adverse impact reducing in long term due to retention & management of woodland areas, along with establishment of buffer woodland planting and restricted public access.
Scrub/Tall Ruderal Habitat Inappropriate or lack of management. Increased human access.	Permanent effect on resource of Local importance.	Adverse impact in long term. A significant adverse impact is unlikely.	Management of retained scrub/tall ruderal habitat within public open space to promote species diversity. Public access limited.	Short-medium adverse impact from initial net loss of habitat, potentially not persisting in the long term due to retention & management of retained resource.
Running Water: Potential impacts from inappropriate surface water run-off.	Permanent effect on feature of Local/County importance.	Adverse impact likely in long term. Significant impact unlikely.	SuDS drainage system will maintain existing quantity and quality of water entering running water ditches.	Neutral impact likely in long term.

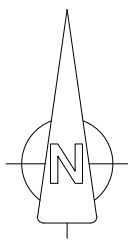
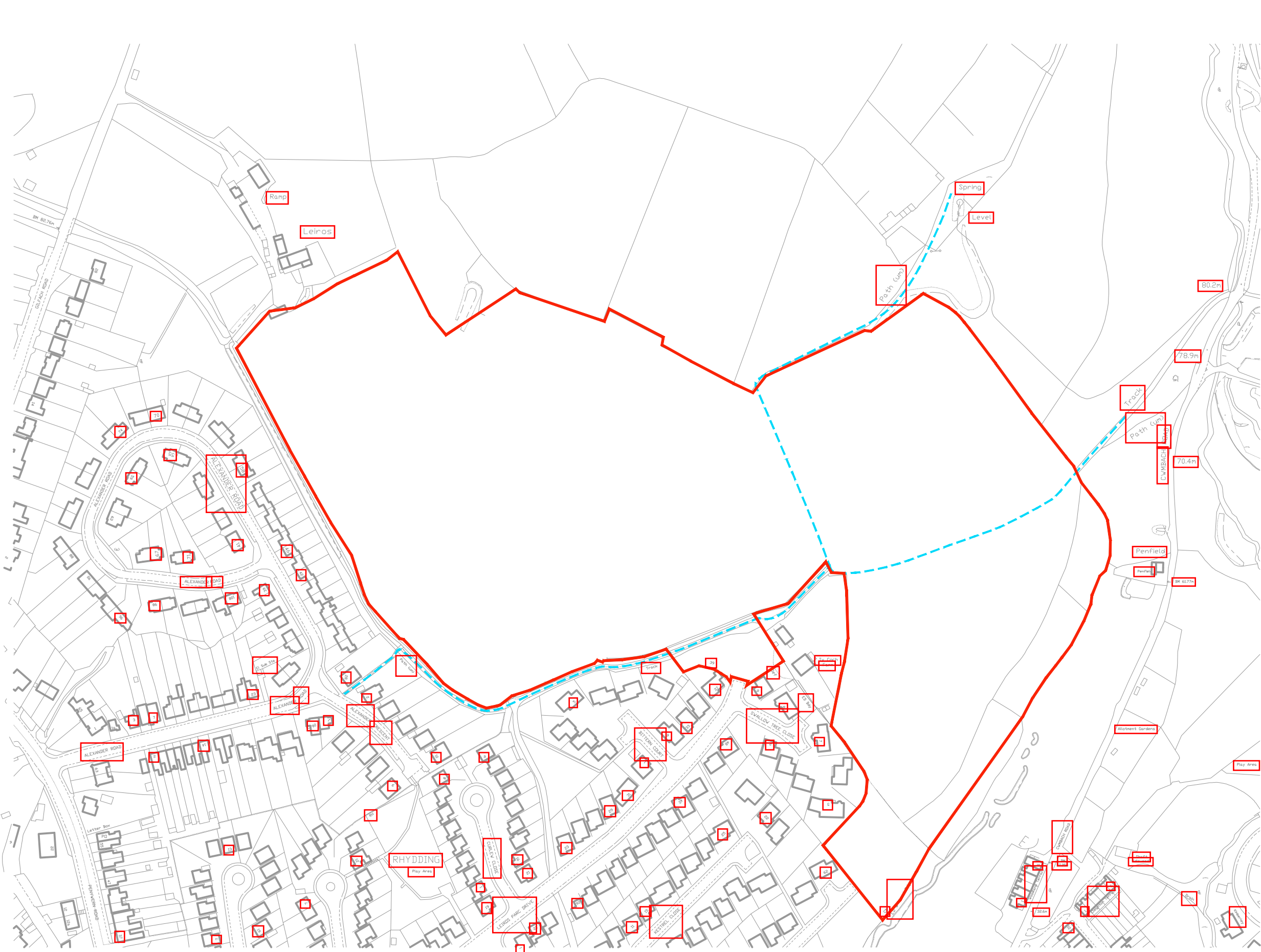
Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Bats - Foraging: Disturbance by increased human presence; traffic and artificial light. Loss of habitat in short-term until landscape planting establishes.	Permanent effect on feature of Local importance.	Significant impact unlikely. Adverse impact in localised areas due to increased lighting and noise likely for light intolerant species.	Maintenance of dark corridors along existing hedgerows, treelines and woodland by appropriate lighting design. Native hedgerow and tree planting across the site. Management works to improve retained hedgerows.	Adverse impact in the short term within the immediate zone of influence is likely, reducing in the medium-long term as new planting matures.
Birds: Disturbance by increased traffic and human presence. Predation by domestic cats.	Permanent effect on feature of Local importance.	Significant impact unlikely. Adverse impact on scrub nesting species likely due to increased disturbance/ predation.	Creation of foraging and nesting habitat through scheme planting to enhance retained hedgerows, treelines and woodland. Creation of foraging and nesting habitat from retained grassland field and public open space. Installation of bird boxes including Barn Owl (if practicable) on woodland/treelines and retrofitted to boundary houses.	Disturbance by increased traffic and human presence. Adverse impact on bird assemblage likely in short – term, reducing towards Neutral as new planting matures.
Badger: Disturbance by increased traffic and human presence. Risk of increased mortality on roads.	Permanent effect on feature of Local importance.	Adverse impact likely. Significant impact unlikely.	Maintenance of dark corridors by appropriate lighting design. Provision of new habitat through landscape planting.	Adverse impact likely within site boundary in short-long term. However, significant impact considered unlikely.

Description of Impact	Nature of Effect on Ecological Feature	Effect without Mitigation	Mitigation Measures	Residual effects (after mitigation)
Reptiles: Inappropriate management of reptile habitats. Increased disturbance.	Permanent effect on feature of Local importance.	Significant impact unlikely. Adverse impact could not be precluded.	Retained habitat and new planting managed to provide potential habitat for reptiles.	Adverse impact likely within site boundary in short-long term. However, significant impact considered unlikely.

CONCLUSION

- 6.8.1 The combination of desk and field surveys undertaken have identified that valued ecological features exist within and adjacent to the proposed development.
- 6.8.2 The proposed development site comprises of a limited number of habitat types – predominantly associated with its agricultural use, including improved grassland bordered by a combination of broadleaf woodland, treelines and unmanaged hedgerows and bracken/scrub banks. Smaller areas of scrub and woodland were also located in the southern extent of site as well as allotments and a stone barn. The site is bordered by an area of Ancient Semi-natural Woodland along the eastern boundary but is separated from the designation by some marginal broadleaf woodland; whilst agricultural land is located to the north and west with residential properties located to the south. These habitats in turn support several notable species of fauna including bats (foraging), birds, and potentially reptile and foraging badger.
- 6.8.3 The highest valuation of 'County' was assigned to the Acid Grassland and broadleaf woodland. Whilst all the other features were considered of value at a 'Local' (poor semi improved grassland, treeline, species poor hedgerow, scrub/tall ruderal habitat, foraging bats & badgers, birds and potentially common reptile species) or lower, with the exception of running water that was considered to be of Local/County value due to the SINC selection criteria in Neath Port Talbot. The potential impact of the scheme on these features has been assessed using best practice guidelines.
- 6.8.4 As part of the site preparation works in advance of construction, a number of habitats including Improved Grassland, Poor Semi-improved Grassland, Scrub, Bracken, Species Poor Hedgerows, Treelines and Woodland will need to be cleared to allow the commencement of ground works. These works will be certain to result in a significant adverse impact on the poor semi improved grassland and scrub/tall ruderal habitat. A significant impact on other ecologically valuable features (remaining grassland, hedgerows, woodland, treelines and running water) was considered unlikely with the adoption of appropriate mitigation measures.
- 6.8.5 A significant adverse impact was considered unlikely, on foraging bats, breeding birds, foraging badgers and reptiles, due to the retained and newly created habitats offsetting any initial habitat loss.
- 6.8.6 A range of mitigation measures to avoid or minimise the impacts of the development during construction and operation have been incorporated into the scheme. Mitigation measures incorporated into the construction phase include the retention/ protection of as much woodland, treeline, grassland, scrub, ditches, running water and hedgerow habitat as practicable, avoidance of key periods (e.g. bird nesting season) during clearance works and production of a Construction Environmental Management Plan detailing measures to minimise the risk of run-off to existing watercourses. As part of the development new habitat features would be created as part of a public open space and would include new wildflower grassland and tree planting, along with the management and enhancement of retained habitats onsite.
- 6.8.7 The mitigation measures proposed would allow for retention of habitats similar to some of the ecological valuable habitats to be lost (i.e. hedgerow, treeline, scrub, woodland and grassland habitats) and this, combined with appropriate management, would potentially provide resource for continued use of the site by reptiles, bats, birds and Badger.

Appendix 1 Site Location Plan



Site Key

- Site Boundary
- Existing Public Right of Way

REV.	DESCRIPTION	DATE
CLIENT		
HALE Construction		
JOB TITLE		
Leiros Park, Neath.		
DRAWING TITLE		
Site Location Plan.		
SCALE @ A3		
1:2500	August '20	KE
JOB NO.		
1602	LP-01	



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LOCATION PLAN

Appendix 2 Site Layout



HOUSE SCHEDULE : Sales.			
1	=	6 BED/12 PERSON	3636sqft
2	=	5 BED/9 PERSON	2368sqft
3	=	4 BED/7 PERSON	2034sqft
4	=	4 BED/7 PERSON	2057sqft
5	=	4 BED/7 PERSON	1798sqft
A	=	5 BED/9 PERSON	2040sqft
B	=	4 BED/8 PERSON	1648sqft
C	=	4 BED/8 PERSON	1612sqft
D	=	3 BED/6 PERSON	1264sqft
E	=	3 BED/5 PERSON	1224sqft
F	=	3 BED/6 PERSON	1171sqft
G	=	3 BED/6 PERSON	970sqft
H	=	2 BED/4 PERSON	860sqft
TOTAL NO OF UNITS.		301	717sqft
HOUSE SCHEDULE : Affordable.			
1BF	=	1 BED/2 PERSON	540sqft
2BF	=	2 BED/3 PERSON	676sqft
2Bu	=	2 BED/4 PERSON	658sqft
2B	=	2 BED/4 PERSON	912sqft
3B	=	3 BED/5 PERSON	1041sqft
TOTAL NO OF UNITS.		15	887sqft
TOTAL ON SCHEME.		317	604sqft

Site Key	
	1.8m High Close Board Fence
	1.8m High Brick Screen Wall
	450mm High Timber Knee Rail
	1.8m Timber Gate
	Retaining Wall Position
	1.8x1.8m Patio
	Bin collection Point
	Private parking space
	Visitor parking space
	Proposed Trees & Planting (refer to landscape architects information)
	Existing Hedgerow/Trees to be retained
	Existing Hedgerow/Trees to be removed
	Existing route of Public Right of Way
	Sub Station Kiosk
	Block Paving
	Affordable Units (20 units)

REV

DESCRIPTION

DATE

D.	Housetype 3B (3 Bed House Affordable unit) footprint updated.	18/09/20.
C.	Plot 139 HT change following latest engineering comments. Retaining wall locations added to layout. Refer to Engineering layout for further details.	07/09/20.
B.	Highway and block paved road surface amendments updated following latest Road Engineering layout.	06/08/20.
A.	Plots 6-8 repositioned and plots 87-93 re-claimed following comments from the LA on the pre-app submission.	29/06/20.

CLIENT

HALE Construction

JOB TITLE

Leiros Park, Neath.

DRAWING TITLE

Planning Application Layout.

SCALE @ A0

DATE

DRAWN BY

1:500

August '20

KE

JOB NO.

DRAWING NO.

REVISION

1602

PL-01

D.

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Figured dimensions must be taken in preference to scaled dimensions and any discrepancies are to be referred to Hammond Architectural Ltd. Contractors, subcontractors and suppliers must verify all dimensions on site before commencing any work or making any workshop drawings.

Appendix 3 Historic Ecology Reports

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NEATH
WALES****BAT SURVEY REPORT****OCTOBER 2016**

	Name	Date
Written By	Tilly Fitzwebster	10/10/2016
Checked By	Jack Kellett	12/10/2016
Authorised By	Richard Schofield	12/10/2016

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PAGE NO

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3.	Results	4
4.	Conclusions and Recommendations	6
5.	References	10

Appendix A: Bat Survey Map

Appendix B: Legislation

Appendix C: Full survey data



1. INTRODUCTION

Background

- 1.1 Phlorum Limited was commissioned by Asbri Planing Ltd to carry out a series of bat surveys across land at Leiros Park, Neath, Wales (hereafter referred to as "the site") prior to development.
- 1.2 The bat survey follows on from a Preliminary Ecological Appraisal (Hawkeswood Ecology, 2016) which identified potentially suitable habitat for this species group within the site.
- 1.3 This report provides an assessment of the status of bats within the site, providing information on their presence/absence and distribution. Potential impacts of the proposed development are identified and measures to mitigate the effects of the proposed development on bats are discussed in outline.
- 1.4 Current proposals are for a residential development of 200 units.

Site Description

- 1.5 The survey site is situated in a predominantly rural and residential location within the north east extents of the town of Rhyddings. The site is accessed via Gylfach Road to the north-west.
- 1.6 The site comprised a former farmyard now partially used as allotments, agricultural fields, hedgerow and areas of semi-improved grassland, scrub and woodland an old stone barn. The old Rhyddings Canal runs along the south west and south east edge of the site boundary. The town of Rhyddings extends to the south and west of the site, while agricultural fields extend to the north and east. Within the immediate surrounds of the site, there are a series of arable and grassland fields together with pockets of woodland.
- 1.7 The National Grid Reference for the centre of the site is SS753 990. The survey area extended over approximately 9.7 hectares (ha).

2. METHODOLOGY

Data Search

- 2.1 Records for bats from within a 1km radius of the site were requested from the South East Wales Biodiversity Records Centre (SEWBRc) as part of the initial habitat survey (Hawkeswood Ecology, 2016).

Personnel

- 2.2 The emergence and activity surveys were led by Jack Kellett, an Environmental Consultant with over six years survey experience. Jack has led on numerous bat surveys including building inspections and emergence/activity surveys and currently holds a bat survey class licence.

Dusk Emergence/Pre-Dawn Re-Entry Surveys

- 2.3 A series of two dusk emergence/activity surveys were carried out on 22nd August 2016 and 20th September 2016. Two surveyors were used to assess the site for roosting, foraging and commuting activity.
- 2.4 The surveyors were equipped with Bat Box Duet frequency division detectors and recordings were made using Roland R-05 digital recorders. Two Anabat SD2 Detectors were also used. The recordings were analysed post survey to confirm species identification using proprietary software i.e. BatSound and AnaLookW.
- 2.5 The first surveyor was stationed to the south west of the survey building, able to view the southern and western aspects of the building and the second surveyor was situated to the north east of the same building, with clear views along the northern and eastern aspects of the structure. At approximately 1 hour after sunset the two surveyors walked a transect route around the agricultural fields of the site for the remainder of the survey.
- 2.6 The evening survey commenced 15 minutes before sunset and lasted for at least one and a half hours after sunset. Prior to sunset, bat detectors were tuned to below 30 kHz to listen for any pre-emergence social calls in proximity to the building and at sunset they were tuned to 45 kHz. The time of any bat pass, the species, and information regarding behaviour and flight direction, were recorded.



- 2.7 All surveys followed standard protocols and accepted standards (Mitchell-Jones and McLeish, 2004; Collins, 2016).

Constraints

Data Search

- 2.8 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

Bat Surveys

- 2.9 Bats are highly mobile animals and can move roost sites both within and between years. It is possible that surveys carried out in August and September may miss roosts occupied earlier in the season. However, where left undisturbed secondary signs of bats can be found throughout the year indicating signs of use.

3. RESULTS

Data Search

- 3.1 The data search returned records for ten species of bats within 2km of the site. This included unidentified bat (Chiroptera), common pipistrelle (*Pipistrellus pipistrellus*), noctule bat (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*) and *Myotis* bat (*Myotis* sp.).
- 3.2 The closest record was of an unidentified bat approximately 250m south of the site.
- 3.3 Common and soprano pipistrelles, noctule bats and a myotis bat were recorded between 820m and 1.1km from the site in 2010.

Survey Overview

- 3.4 The survey area comprised a stone barn located within the southern site extent in addition to a series of grassland fields.
- 3.5 No bat roosts were identified anywhere within the building during the initial habitat survey (Hawkeswood Ecology, 2016). No secondary evidence of use by bats such as droppings or feeding remains were found associated with the surveyed building.
- 3.6 The surveyed building and transect route is illustrated in the Map in Appendix A.
- 3.7 The surveys recorded a moderate number of common and soprano pipistrelle bats using the site for foraging and commuting. No bats were observed to be using the building for roosting during the emergence surveys.

Dusk Emergence Surveys

- 3.8 For both surveys Surveyor 1 was positioned to the north east of the survey building and Surveyor 2 was positioned to the south west for the first hour after sunset. Both surveyors then walked around the site for the remainder of the survey in order to record general activity along set transect routes.

Survey 1: 22nd August 2016

- 3.9 Sunset was at 20:23hrs and the temperature at the start of the survey was 19°C, falling to 18°C at the end of the survey. The sky was overcast with a light breeze and there had been recent drizzle.
- 3.10 In total two bat species were recorded during the survey which included common pipistrelle and soprano pipistrelle. The first bat pass was by a common pipistrelle recorded at 20.35hrs commuting across the building from east to west. Common and soprano pipistrelles were recorded foraging around trees and vegetation to the north, west and east of the building between 20:37hrs and 21:03hrs.
- 3.11 No bats were seen to emerge from any features for the duration of the survey.
- 3.12 During the transect route two recordings of common and soprano pipistrelles were recorded. The first bat pass was at 21:25hrs along the eastern edge of the third field, adjacent to the woodland. The final recording was of a common and a soprano pipistrelle at 21:33hrs in the north eastern corner of the second field.

Survey 2: 20th September 2016

- 3.13 Sunset was at 19:17hrs and the temperature at the start of the survey was 18°C, falling to 16.5°C at the end of the survey. It was overcast but dry with no rain for the duration of the survey.
- 3.14 In total two bat species were recorded during the survey which included common pipistrelle and soprano pipistrelle. The first bat pass was by a common pipistrelle at 19:14hrs which was seen circling above the northern section of the building. Common and soprano pipistrelles were then recorded intermittently between 19:15hrs and 19:49hrs foraging around the southern, eastern and western treelines and areas of vegetation surrounding the building.
- 3.15 No bats were seen to emerge from any features for the duration of the survey.
- 3.16 During the transect route common and soprano pipistrelle were recorded. The first bat recorded was at 19:55hrs travelling from the north of the first field surveyed towards to the south, along the field boundary. Common pipistrelles were heard intermittently between 19:56hrs and 20:10hrs. The majority of activity was recorded along the field boundaries.

4. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 4.1 The survey site is situated in a predominantly rural and residential location within the north eastern extents of the town of Rhyddings.
- 4.2 The grassland, network of hedgerows, scrub and lines of trees provide suitable foraging and commuting habitat for bats and provide connectivity to off-site habitat.
- 4.3 Current proposals are for the construction of 200 residential units.
- 4.4 The building was considered to provide moderate potential for roosting bats, but thought to be suitable for use by a small numbers of bats during the active period, providing temporary overnight roosts for individual crevice dwelling bats such as pipistrelle (*Pipistrellus* spp.) species. No bats were considered to be using the building for roosting.
- 4.5 The emergence / activity surveys recorded a moderate level of bat activity at the site. In total, two bat species were recorded foraging during the surveys and this was spread across the survey area with concentrations along the field boundaries. The habitats across the site were considered to be of value to roosting or foraging bats due to connectivity to surrounding habitats such as woodlands and a network of hedgerows.
- 4.6 Based on the findings of the activity surveys a precautionary approach to demolition works are recommended in order to minimise disturbance to bats.
- 4.7 This should include a pre-works check by an ecologist of any features considered suitable for sheltering bats and, following the precautionary principal, work to remove potentially suitable features should take place outside of the hibernation period when bats are considered least vulnerable. The hibernation period is taken to run between mid to late November and mid-March, weather dependant.

- 4.8 If a bat roost is discovered then a European Protected Species Mitigation Licence (EPSM) Licence in respect to bats will need to be obtained from Natural England in order to facilitate the works. It must be noted that Natural England require three activity and emergence surveys to be undertaken as part of any licence application and they require 30 days to respond to a license once it has been submitted. The application can only be made once full planning permission is in place.
- 4.9 Any mature trees scheduled to be removed should be further assessed for the potential to support roosting bats.
- 4.10 Details regarding the recommended mitigation measures in respect to bats are provided in the recommendations section.

Recommendations

- 4.11 Based on the findings of the activity surveys, it is recommended that initial works to demolish the building commence outside of the hibernation period; when bats are considered least vulnerable. The hibernation period is taken to run between mid to late November and mid-March, weather dependant.
- 4.12 In the week leading up to demolition any lights inside the buildings should be left on overnight to reduce the potential for bats to enter the building to forage and/or roost.
- 4.13 Immediately prior to demolition works commencing, an inspection of the buildings must be undertaken by a suitably licenced ecologist who will inspect all suitable features for evidence of roosting bats. This should be discussed and arranged with the ecologist in advance of scheduling commencement of the works.
- 4.14 If considered necessary, suitable features will then be removed by hand under guidance from the ecologist to ensure bats are not present. If any bats are found they will be removed by the ecologist, by hand, and placed in a suitable container for release at the site the same day, after dusk. If any bats are found it is important that any suitable roosting features have been removed from the building during that day to ensure that bats cannot re-enter the feature upon release. This will be discussed at the time between the on-site contractors and the ecologist, if necessary.

- 4.15 Any mature trees on site that are scheduled to be removed should be further assessed for the potential to support roosting bats, further recommendations following this can then be made.
- 4.16 The remainder of the works can then continue unconstrained by this species.
- 4.17 If bats are subsequently found to be present during the remainder of the work, activities should cease immediately and advice sought from a suitably qualified ecologist.

Bats and Lighting

- 4.18 Due to the location of the site within a rural area, external lighting as part of any future development at the site should be carefully devised to take account of this species in the wider surrounds and the paragraphs below provide advice regarding external lighting provision, should this be required as part of any future development.
- 4.19 Different species of bat have been found to react differently to night-time lighting; however, research has found that generally, all species of bats are sensitive to artificial lighting and that excessive lighting can delay bats from emerging, thus shortening the time available for foraging, as well as causing individuals to move away from suitable foraging grounds or roost sites, to alternative dark areas (Jones, 2000).
- 4.20 Currently the majority of the site is not lit at night. New development provides the opportunity to enhance the site's value for foraging bats and to minimise indirect impacts from lighting associated with the new development. This can be achieved by following accepted best practice (Institute of Ecology and Environmental Management 2006, Institute of Lighting Engineers 2009):
- The level of artificial lighting including flood lighting should be kept to a minimum, with light spill directed into the centre of the site, if required;
 - Recent LED technology should be utilised where possible. LED lights do not emit UV radiation, towards which insects are attracted, drawing them away from bat foraging areas in the surrounding landscape. Alternatively, low pressure sodium lights could be used. These can be a more cost effective option compared to LED lights and are the preferred option to high pressure sodium or mercury lamps. All lights should be directed at a low angle with minimal light spillage wherever possible;

- Ideally boundary habitats, particularly to the north and west of the proposed development site should be kept dark, preferably at bat emergence (0-1 hour after sunset) and during peak bat activity periods (e.g. 1.5 hours after sunset and 1.5 hours before sunrise). Therefore, where possible, if lighting is required this should be installed with the light directed into the development area wherever possible; and
- Artificial lighting should not directly illuminate any potential bat commuting areas such as vegetation along the western and northern boundary, or the adjacent woodland. Similarly, any newly planted linear features or buffer areas around the site boundary should not be directly lit.

Site Enhancement

- 4.21 Outline recommendations for site enhancement in relation to bats are included below.
- 4.22 Additional bat roosting provision could be incorporated into new design proposals. Some recommendations are made below as a guide.
- 4.23 Bat roosting opportunities could be provided through the provision of integral bat boxes. An integral bat box or 'bat brick' could be installed into the facade of the building. For example this could include a Schwegler 2FR tube although there are a number of options on the market. These will provide warm and favourable conditions for crevice roosting species such as pipistrelles. Alternatively external bat boxes could be installed external to the walls or on suitable trees at the site.
- 4.24 The exact location of the bat features should be discussed with an ecologist prior to installation.
- 4.25 Bat boxes should be installed at appropriate locations ideally with a south-east or south-west facing aspect at least 3m from ground level, ideally directly below the eaves if located on a building and a suitable distance away from windows to avoid disturbance.

5. REFERENCES

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Appendix A
Bat Survey Map



Figure 1: Bat Survey Map

Drawn by: TF
On the: 10/12/2016
Not to Scale
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Appendix B

Legislation

LEGISLATIVE FRAMEWORK

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland the Isle of Man or the Channel Islands. Information contained in the following appendix is provided for guidance only.

Species

The objective of the EC Habitats Directive¹ is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (as amended) (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include

- Countryside and Rights of Way (CRoW) Act 2000
- Deer Act 1991
- Natural Environment & Rural Communities (NERC) Act 2006
- Protection of Badgers Act 1992
- Wild Mammals (Protection) Act 1996

¹ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

Bats

Bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This act protects individuals from:

- intentional or reckless disturbance (at any level);
- intentional or reckless obstruction of access to any place of shelter or protection; and
- selling, offering or exposing for sale, possession or transporting for purpose of sale

In addition, all species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- deliberate killing, injuring or capturing of Schedule 2 species (all bats);
- deliberate disturbance of bat species as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
- deliberate disturbance of bat species as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake activities listed above. A licence is required to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

Appendix C

Full Survey Data

Date	Surveyor	Site and Job no:	Sunset	Temperature at start	Temperature at end	Sky	Wind	Rain
22/08/2016	JK	Leiros Park/6765	20:23	19	18	8/8	1	Recent drizzle

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
	Commuting across building from east to west	20:37	Commuting	?						
Heard not seen		20:39	Foraging	✓						
2 bats	Commuting along trees to east of building	20:40	Foraging	✓						
	Foraging to north of building	20:47	Foraging	✓						
	Circling around north west corner of building	20:48	Foraging		✓					
	Travelling from east to west, to north of building	20:52	Foraging	✓						
Heard not seen		21:03			✓					

Date	Surveyor	Site and Job no:	Sunset	Temperature at start	Temperature at end	Sky	Wind	Rain
22/08/2016	LM	Leiros Park/6765	20:23	19	18	8/8	1	Recent drizzle

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
	Commuting over building from east to west	20:35	Commuting	?						
Heard not seen		20:36		✓						
2 bats	Commuting to south of building	20:40	Commuting	✓						
Heard not seen		20:45		✓						
Heard not seen		20:47		✓						
	Foraging to east of building and then flew over the building to the south	20:47	Foraging/ Commuting	✓						
Heard not seen		20:50	Commuting	✓						
Heard not seen		20:51	Foraging	?						

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
Heard not seen		20:52-20:53		?						
Heard not seen		21:00		?						
Heard not seen		21:03	Foraging	?						

Date	Surveyor	Site and Job no:	Sunset	Temperature at start	Temperature at end	Sky	Wind	Rain
22/08/2016	JK/LM	Leiros Park/6765	20:23	19	18	8/8	1	Recent drizzle

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
	Along eastern edge of third field adjacent to woodland	21:25		?						
	In north east corner of second field	21:33		✓	✓					

Date	Surveyor	Site and Job no:	Sunset	Temperature at start	Temperature at end	Sky	Wind	Rain
20/09/2016	TF	Leiros Park/6765	19:17	18	16.5	8/8	0	None

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
Heard not seen		19:15		?						
	Flew across building from trees to the east	19:17	Commuting	✓						
	Foraging in trees to east of building	19:19	Foraging	✓						
Heard not seen		19:25-19:26	Foraging	✓						
	Flew from south of building towards eastern trees	19:28	Commuting	✓						
2 bats	Foraging around trees to south east of building	19:30-19:31	Foraging	✓	✓					
	Flew over building from west to east	19:32	C		✓					
	Foraging to east of	19:33-19:35	Foraging	✓						

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
	building									
	Foraging to east of building	19:38-19:49	Foraging	✓						

Date	Surveyor	Site and Job no:	Sunset	Temperature at start	Temperature at end	Sky	Wind	Rain
20/09/2016	LM	Leiros Park/6765	19:17	18	16.5	8/8	0	None

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
2 bats	Circling above north section of building	19:14	Commuting	?						
	Flew east to west over building	19:17		✓						
Heard not seen		19:18-19:19		✓						
Heard not seen		19:27-19:28		✓						
	Flew west to east across building	19:30-19:31		✓						
	Foraging along west of building	19:32	Foraging	✓						
	Foraging around south and west of building	19:33-19:38	Foraging	✓						
Heard not seen		19:43-19:45		✓						

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
	Foraging along west of building	19:46	Foraging	✓						
	Foraging along south of building	19:47-19:48	Foraging	✓						

Date	Surveyor	Site and Job no:	Sunset	Temperature at start	Temperature at end	Sky	Wind	Rain
20/09/2016	LM/TF	Leiros Park/6765	19:17	18	16.5	8/8	0	None

Comments	Location	Time of Pass	Activity	Species						
				Common pip	Soprano pip	Myotis sp	Long eared sp	Noctule	Serotine	Unidentified
	Commuting from North to South along boundary between first and second field	19:55	Commuting	✓						
Heard not seen	First field	19:56		✓						
Heard not seen	Second field	20:01-20:02		✓						
	Foraging around trees along eastern boundary of third field	20:04		✓						
Heard not seen	Along northern boundary of second field	20:10		✓						

HAWKESWOOD ECOLOGY

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PRELIMINARY ECOLOGICAL ASSESSMENT, LAND AT LEIROS PARK, NEATH, NEATH PORT TALBOT.

ON BEHALF OF

HALE HOMES

July 2016

Ref: HE/88/2015

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We confirm that in preparing this Report we have exercised reasonable skill and care, taking into account the project objectives, the agreed scope of the work, prevailing site conditions and the degree of manpower and resources allocated to the project.

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SUMMARY

Hawkeswood Ecology was instructed by Hale Homes to undertake a Preliminary Ecological Assessment (PEA) of land at Leiros Park, Neath. A hosing development is proposed for the Site.

The survey area consisted of a former farmyard which is now partially used as allotments and part abandoned, large fields of agriculturally improved grassland separated by old unmanaged hedgerows, a small area of poor semi-improved grassland and areas of scrub and woodland. There remains a stone barn in the farmyard area which is in poor condition. The remnants of the Rhyddings canal could be found along the southern boundary of the Site.

The Site was considered to be of limited biodiversity value, supporting a small variety of flowering plants. With regard to protected species it was considered the Site held potential for bats, reptiles and breeding birds. Further survey for bats and reptiles are required before a proper assessment of the impacts of the proposed redevelopment on protected species can be made.

There is insufficient information currently available to make informed impact assessments on protected species of any proposed redevelopment of the Site.

1 INTRODUCTION

- 1.1 Hawkeswood Ecology was instructed by Hale Homes to carry out a Preliminary Ecological Assessment (PEA) of land at Leiros Park, Neath, approximate central Grid reference SS 7529 9906. The site is dominated by farmed land of which agriculturally improved grassland is the major constituent. The former farmyard is being used as 'allotments' with a mosaic of habitats including hedgerows, stone walls and cultivated. There is an old stone barn remaining, no other permanent structures remain on Site.
- 1.2 The Site is on the northern fringes of Neath immediately adjacent to Rhyddings. To the south and west it is bounded by established developments. To the west by a steep wooded slope which continues south to Cadoxton. To the north lies open countryside. Gilfach quarry is approximately 500 metres north of the Site.
- 1.3 The aims of the study are:
- To ascertain the habitats and species present within the Site;
 - To assess the ecological and nature conservation value of the Site;
 - To make an assessment of potential impacts on habitats and species of any proposed development;
 - To provide recommendations where possible for mitigating against the potential impacts of any proposed development.
- 1.4 The Assessment was undertaken on 24th May 2016.

2 SURVEYOR EXPERIENCE

- 2.1 The surveyor carrying out the Extended Phase 1 Habitat survey is Eric Hawkeswood. Eric has many years experience of broad habitat and detailed botanical and species surveying. He has been a professional in the nature conservation field for twenty seven years formerly working as Reserves Manager and Conservation Officer at Gwent Wildlife Trust and Woodland Manager for the Ruperra Conservation Trust. He is currently joint proprietor of Hawkeswood Ecology.

3 METHODOLOGY AND CONSTRAINTS

Desktop Study

- 3.1 The South East Wales Biodiversity Records Centre (SEWBReC) was contacted to provide data on protected species, species of conservation concern and protected habitats from the Site and in the surrounding area. Records for bats and internationally protected sites were requested from a radius of 1 kilometre of the Site.
- 3.2 A search for records of other protected and priority Species, Species of Conservation Concern and Local Species of Concern and habitats was requested from a 500 metre radius of the Site.

Field Survey

- 3.3 The Preliminary Ecological Assessment consisted of a walk-over survey of the proposed Site taking into account features within and adjacent to it. Habitats were categorised according to the Phase 1 Habitat Survey guidelines (JNCC, 2010) and annotated onto a map (Figure 1). Plant assemblages were described using the DAFOR scale of cover abundance (Appendix 1) and each habitat was recorded using Target Notes (Appendix 2). A full list of species recorded is provided in Appendix 3. Photographs are given in Appendix 4.

Constraints

- 3.4 No particular constraints were noted although some parts of the Site were difficult to access. It is considered enough information was gathered during the survey to properly assess the nature and value of the Site.

4 DESKTOP STUDY FINDINGS

- 4.1 The South East Wales Biodiversity Records Centre (SEWBReC) report no records from the Site itself. There are a large number of bat records, the nearest of which is an anecdotal record of an unidentified bat species in Cadoxton, approximately 250 metres south of the Site. To a distance of approximately 800 metres from the Site only pipistrelle species are recorded, including common and soprano plus a small number of unspecified animals. Approximately 820 to 1150 metres from the Site are a large number of records of bats recorded during an urban bat survey undertaken in 2010. Species recorded are mainly unspecified pipistrelle species bats but there are a small number of noctule recorded and a single *Myotis* species of bat. The only other species recorded is a Daubenton's bat noted over 1500 metres to the south in the Gnoll Country Park.
- 4.2 Other Protected and Priority Species noted include water vole from the Tennants canal, historic records of wood white and small blue in the vicinity of Cadoxton and Rhyddings (dating from 1863). A number of moths are identified from Neath Golf Club, including small phoenix, dusky brocade and buff ermine, which could occur across the Site. Badger has been reported approximately 500 metres to the south in the woodland strip that borders the Site. Other species noted are mainly birds and many of these could be associated with the trees and woodlands on the Site or the adjacent housing. These include bullfinch, house sparrow, starling, dunnock, song thrush and red kite.
- 4.3 Other species of Conservation Concern noted relate mainly to birds. Many of these could occur on or over the Site. These include willow warbler, goldcrest, coal tit, swift and lesser black backed gull. Devon carpet, a moth, is also noted from Neath Golf Club approximately 500 metres east of the Site. This species could occur on Site.
- 4.4 Species of local concern are restricted to a number of flowering plants unlikely to occur on Site.

- 4.5 The Natural Resources Wales phase 1 Habitat Map shows the Site to support grassland with scrub on the field boundaries. The yard is shown as secondary woodland and there are small areas of woodland on the other boundaries. The south eastern boundary is within semi-natural ancient woodland. Two fields to the north west are shown as semi-improved neutral grassland but the bulk of the grassland is identified as improved (see Appendix 5). Adjacent habitats were identified as agriculturally improved grassland, broad-leaved woodland, semi-improved neutral grassland and housing.
- 4.6 SEWBReC records are confidential and cannot be released into the public domain. The biological data search findings will be held by Hawkeswood Ecology in accordance with the SEWBReC terms and conditions in case of need for further investigation. The SEWBReC unique reference number for this data search is 0167-107.

5 FIELD SURVEY FINDINGS

Introduction

- 5.1 The survey area consists of a former farmyard Site which now supports a small number of 'allotments' plus a variety of habitats and Japanese knotweed, and fields supporting agriculturally improved grassland, short term grassland leys and a small area of poor semi-improved grassland. The former field boundaries are not managed and are largely rows of trees and over-mature shrubs. There is an area of semi-natural ancient woodland and woody scrub on the south eastern boundary. There is a small pond near the farmyard which may represent a part of the old Rhyddings Canal.
- 5.2 There is a stone barn remaining on Site plus a number of open shelters used by the allotment holders, There are no other structures on Site. The habitats are shown in Figure 1, the Phase 1 Habitat Map; photographs of the Site are given in Appendix 4.

Grassland

- 5.3 Poor semi-improved neutral grassland is at Target Note 3. Part of the field is fenced and horse grazed, below this to the canal it is ungrazed and largely dominated by bracken. Species present included common bent, common cat's-ear, common sorrel, field wood rush and pignut. The field has a south westerly aspect and towards the top becomes more acid with common gorse and sheep's sorrel appearing in the sward.
- 5.4 The remainder of the grassland is agriculturally improved with the exception of a field in the south east that is a short term ley and has recently been re-sown. Broad leaved herbs are largely absent from the fields and where they do occur, they tend to be at the field boundaries. Perennial rye-grass is dormant along with agricultural meadow grasses, fescues, Yorkshire fog and cock's-foot.

Hedgerows

- 5.5 The fields are separated by hedgerows which can be found at Target Notes (TN) 6, 9, 12, 13 and 17. The hedgerows are unmanaged and gappy and lines of trees and over-mature shrubs rather than a formal hedge. The exception is that at TN 17 which is regularly cut

as a power line wayleave passes along its length overhead so the standards have been reduced and the shrubs cut.

- 5.6 The hedgerbanks are all similar, both in construction and species. They are based on stone walls, or faces with an earth core. The trees and shrubs are growing in the core. They have not been maintained and are broken down in places. Canopy species occurring include common oak, ash and sycamore with hawthorn, hazel, rowan and blackthorn in the shrub layer. The ground floras are generally shaded or grazed out and not particularly species rich. They have been modified by the agricultural intensification of the adjacent fields with grasses and probably wind-blown agricultural sprays.

Woodland and Scrub

- 5.7 The most significant area of woodland lies to the east of the Site. It borders semi-natural ancient woodland at TN 18 and there is off-Site woodland on the eastern boundary at TN 14. There are areas of mature woodland strips alongside the former Rhyddings Canal which runs along the southern boundary of the Site. The woodland at TN 18 is mature woodland with a dense canopy of common oak, silver birch, sycamore and beech. The area within the identified Site boundary is not included in the ancient woodland inventory (See Bibliography) but is difficult to distinguish on the ground from the adjacent semi-natural woodland with which it is contiguous. The presence of horse chestnut, beech and some open areas dominated with bramble suggest it is certainly more modified. The shrub layer is poorly developed with a mix of rowan, goat willow, common oak and hawthorn. The ground flora is heavily dominated by bracken and bramble and Himalayan balsam is present alongside the field boundary. Other species present include bluebell, wood sage, foxglove and honeysuckle.
- 5.8 The woodland at TN 14 is just outside the Site boundary. It is recent woodland developing on spoil. The canopy is dominated by silver birch and ash with a sparse shrub layer of alder, common oak and sycamore. The ground flora is dominated by bramble.
- 5.9 The woodland alongside the canal is linear and dominated by common oak, sycamore and silver birch. The understory is largely bracken and species related to the adjacent canal channel. A small young woodland has developed at TN 7 on an old barrow. It has a common oak canopy with a varied shrub layer of rowan, blackthorn, gorse, holly and hawthorn. The ground flora is poorly developed and dominated by bracken and bramble. Pignut and red campion occur with occasional male fern.
- 5.10 Woody scrub occurs in the farmyard area. It consists of large areas of bramble and blackthorn amidst the more open tracks and worked areas (TN2). An area of semi-mature woody scrub and abundant bramble is developing on an abandoned field at TN 20.

Other Habitats

- 5.11 Other habitats on Site include a small pond (TN1) which may be a small length of the original canal. It is largely shaded out and a large goat willow has partially collapsed across it. Floating sweet-grass and common water-starwort dominate. The old canal channel bounds the south of the Site (TN5) and is very difficult to distinguish in places. It

is dry for much of its length but a stream is running in it to the west of the farmyard entrance. At the western end of the Site, Japanese knotweed is encroaching from the allotments area and skunk cabbage is also present. There are amenity or formally managed areas in the gardens at TN21 and the mown fire strip at TN 19

- 5.12 The allotments area (TN 2) contains a mosaic of habitats including scrub, hedgerows, stone walls, bare ground, cultivated ground and scrub. There is also an old stone built barn (TN 23) in this area. Japanese knotweed is dominant near to the old canal channel. There is a drystone wall at the northern boundary (TN8).

Fauna

- 5.13 A number of bird species were noted during the survey. The scrub and boundary vegetation on Site offers both potentially good foraging and breeding habitat for many species of birds; those recorded during the survey are listed below:

Species
Siskin
Blackcap
Chiff-chaff
Robin
Blue tit
Great tit
Wren
Song thrush
Willow warbler
Chaffinch
Jackdaw
Blackbird
Swallow
Goldfinch
Dunnock
Treecreeper

- 5.14 The only other species noted on Site during the surveys were butterflies. Speckled wood, small blue and small white were noted in flight. Generally, the Site exhibited a low intensity of invertebrate life, no doubt in response to the intense agricultural system employed on the fields. The mature trees and former farmyard area may support a greater diversity of species but it is considered unlikely to be of importance due to the Sites isolation caused by the adjacent built environment and agriculturally improved nature of the adjacent fields.
- 5.15 Badgers enter the Site to the north east and there are clear pathways and an active latrine pit on the Site boundary. A search of the immediately surrounding area found no evidence of setts on or near the Site boundary or within the Site. Hedgehog may forage on or across the Site.

6. HABITATS AND SPECIES – EVALUATION AND IMPACT CHARACTERISATION AND ASSESSMENT

Habitats - Evaluation

- 6.1 The Site is dominated by agriculturally improved grassland and a newly sown grassland ley. Neither of these grassland types is considered to be of biological importance in a local or wider context as they are intensively managed for agriculture and by their nature species poor.
- 6.2 The area of semi-improved neutral grassland is species poor with grassland of a more acidic nature to the higher parts of the slope. Typical species present include common sorrel, ribwort plantain, common cat's ear and a number of grasses including sweet vernal-grass, red fescue and common bent. A change to possibly more acidic conditions at the high point of the field is indicated by the presence of sheep's sorrel, gorse and pignut. The lower ungrazed area is becoming completely encroached by bracken and as a result is significantly species poor.
- 6.3 Whilst the field can be best described as a specimen of the habitat type 'Lowland Hay Meadows' which is a UK BAP Priority Habitat it is a species poor example and presently poorly managed by horse grazing. It is considered the habitat here is of minor significance in a Local (Neath) context only.
- 6.4 The hedgerows on Site are all in very poor and unmanaged condition with few species remaining in the ground flora and few shrubs typical of hedgerows left. All sit on a bank, or remnants of a bank. The banks are constructed around stone walls with soil infill. Whilst all hedgerows are considered to be Priority Habitats in the UK BAP, their importance here is more for their value for fauna such as birds and bats rather than in their own right. They are also likely to retain some value for invertebrates in an essentially hostile environment for them.
- 6.5 Whilst the hedgerows can form a wildlife corridor and form connectivity across the wider landscape, the hedgerows on Site are particularly gappy and in places no longer can be said to be extant. It is considered their loss would be of minor significance in a local context. However, this evaluation does not take into account the potential of the hedgerow to support protected species which is discussed below. It was considered unlikely that the hedgerows would form important hedgerows under the Hedgerows Regulations 1997 as the gaps are generally so large the test criteria would not be met.
- 6.6 The small area of open water and the stream running in what appears to be the old canal channel are also considered as Priority Habitats in the UKBAP. Both have limited associated flora and no obvious fauna associations. The wider farmyard mosaic contains mature trees, hedgerows, scrub and cultivated land. It thought to be of value for breeding birds and potentially roosting bats and reptiles however the presence of widespread Japanese knotweed is considered a negative feature here. These habitats are considered to be of no significance in a local or wider context.

- 6.7 The area of woodland at TN 18 is directly linked to a known area of semi-natural ancient woodland. Whilst the woodland has not been managed it is of importance as a wildlife corridor and likely to support breeding birds and roosting bats. Badgers have been reported from within the woodland. In its own right the woodland is considered to be of medium value in a local context and of minor value in a regional (County) context. A large area of continuous scrub at TN20 would be lost to the scheme. The scrub is likely to support breeding birds but is a habitat widely represented in the area and is not considered to be of significance.

Habitats - Impact Characterisation and Assessment

- 6.8 From the master plan supplied, the majority of the hedgebanks, the woodland and the majority of the semi-improved grassland are to be retained in the proposed development. The loss of these would be potentially of significance. Thus in relation to the habitats on Site themselves, the major loss is related to the farmyard, mosaic habitat area and the agriculturally improved grassland. The loss of the latter, the agriculturally improved grassland, is considered to be of **no significant impact** in a local or wider context.
- 6.9 Currently there is insufficient information to assess the impacts of the loss of the farmyard mosaic area in relation to protected species potentially associated within it. Further survey is necessary as commented upon below.

Protected Species - Evaluation

Bats

- 6.10 The Site has potential to support bats, reptiles and breeding birds. Bats could roost in the stone barn and it is possible that some of the trees support features suitable for roosting bats. Whilst the Site itself does not support a great diversity of habitats likely to support a diverse range of invertebrates, the hedgebanks are likely to serve as both a source of commuting routes for bats and for foraging. They link both to the woodland and more open pasture to the north. Bats are likely to forage over the farmyard area which is likely to contain a better invertebrate fauna due to the mosaic of habitats present. Further survey is considered necessary to properly understand how bats use the Site and if they use the stone barn for roosting purposes.

Reptiles

- 6.11 Potential for the presence of reptiles was noted particularly in the area of the farmyard where the mosaic of cultivated and scrub habitats present a variety of habitats suitable for species such as common lizard and slow-worm offering basking sites, foraging habitats and connectivity to surrounding habitats. Further survey will be necessary to properly evaluate this part of the Site (TN2) for its value to reptiles.

Breeding birds

- 6.12 A good range of habitats suitable for breeding birds were noted across the Site and a number of species noted during the survey. The woodland, hedgebanks and scrub are all likely to support breeding birds, the grassland is too intensively managed or grazed to support typical species such as skylark or meadow pipit and neither were recorded during the survey. The retention of the majority of suitable nesting bird habitats on Site, i.e. the

hedgerows and woodland, is likely to mitigate against any loss of significance for birds. However the loss of the barn and mosaic of habitats in the farmyard and scrub will most probably reduce the value of these parts of the Site for nesting birds.

Badger

- 6.13 Badgers are shown to use the north eastern corner of the site and have been recorded from the adjacent woodland. No obvious paths were noted at any other part of the site and it is suspected the intensely agriculturally improved nature of the grassland has resulted in it being of low value for foraging badgers.

Dormice

- 6.14 Dormice are not known historically from the area and the predictive map of dormouse distribution shown by the Vincent Wildlife Trust (2001) does not predict their presence in this location. Whilst the Site does contain suitable plant species for dormice, the lack of connectivity in the hedgerow network would be likely to limit their presence in this area in any event.

Other protected species

- 6.15 The Site does not support suitable habitat for otter, water vole or marsh fritillary. The presence of common frog or common toad is possible in the damper areas particularly around the pond and potentially in stone walls. In addition the presence of a wide range of invertebrates suggests the Site may be an important resource for this group also. The Site was considered unlikely to support great crested newts which are not known historically from this area. The Site is unlikely to support a wide variety of invertebrates because of the generally intensive management it has suffered.

Protected Species - Impact Characterisation and Assessment

- 6.16 Currently there is insufficient information to properly assess the impact upon all protected species on Site. Further survey for bats and reptiles is recommended. With proper timing and mitigation, the impact upon other protected species is considered to be **not significant**.

Invasive Species

- 6.17 Japanese knotweed and Himalayan balsam are present on the Site. Any works that causes the spread of these species would be considered to result in a **significant negative impact** in a local and possibly regional context.

Summary

- 6.18 The Site supports UK BAP type habitats, Lowland Hay Meadows, Open Water and Hedgerows. None of the habitats represent particularly good examples but the hedgerows banks in particular may be of value to protected species.
- 6.19 The farmyard mosaic of habitats may also be of value to protected species. The woodland and scrub also are likely to support protected species, whilst the woodland is to be retained; the scrub is to be lost to the development.

- 6.20 The majority of the Site is agriculturally improved grassland which is of low biodiversity value and widespread through the region.
- 6.21 The presence of invasive prescribed plant species must be considered in the construction phase of the development.
- 6.22 When assessed against the Guidelines for the Selection of Wildlife Sites in South Wales (Gwent Wildlife Trust, 2004), the habitats on Site do not support the required number of species to be selected as a Site of Importance for Nature Conservation.

7 RELEVANT LEGISLATION AND POLICIES

Bats

- 7.1 British bats are protected under the Wildlife and Countryside Act 1981. Schedule 5 of this act made it illegal to intentionally kill, injure or take any British bat. It is also an offence to intentionally damage or destroy their place of rest (the roost).
- 7.2 Further all bat species are protected under Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (The Habitats Directive) as amended which requires the United Kingdom government to provide bats with strict protection.
- 7.3 The Habitats Directive is transcribed into England and Wales Law by The Conservation of Habitats and Species Regulations 2010 (as amended). This legislation states in Part 3, Protection of Species, paragraph 41(1) that a person who:
 - (a) deliberately captures, injures or kills any wild animal of a European protected species,
 - (b) deliberately disturbs wild animals of any such species,
 - (c) deliberately takes or destroys the eggs of such an animal, or
 - (d) damages or destroys a breeding site or resting place of such an animal,is committing an offence.
- 7.4 Further, with regard to disturbance of EPS, Paragraph 41(2) that disturbance is an act which is likely to:
 - (a) to impair their ability—
 - (i) to survive, to breed or reproduce, or to rear or nurture their young, or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate;or
 - (b) to affect significantly the local distribution or abundance of the species to which they belong.
- 7.5 In the case of a development involving the loss or modification of a building which may affect bats the above legislation must be considered and it may be necessary to apply to Natural Resources Wales for a European Protected Species Licence (EPSL).
- 7.6 The introduction of The Conservation of Habitats and Species Regulations 2010 (as amended), has removed the defence of killing or injuring a protected species during a lawful operation, thus even in an instance where planning permission is granted, the

presence of bats must be considered and mitigated for prior to commencement of works. Under the above regulations, a WAG licence can only be given if three tests are satisfied:

- The action proposed is in the interest of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance to the environment;
- That there is not a satisfactory alternative;
- That the action proposed will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

- 7.7 Failure to satisfy the regulations and obtain an EPSL where required is likely to result in prosecution and can lead to severe fines of up to £5000 per bat and possible imprisonment.
- 7.8 Eight species of bat are Listed under section 42 of the Natural Environment and Rural Communities Act (2006) (NERC) as Species of Principal Importance for Biological Conservation in Wales. This is a list of species considered at threat within Wales and in need of conservation management to maintain and enhance population numbers.
- 7.9 A duty is placed on the Local Authority by the Welsh Assembly Government to maintain and enhance populations of species listed in Section 42.

Birds

- 7.10 Part I of the Wildlife and Countryside Act 1981 (as amended) makes it an offence (with certain limited exceptions and in the absence of a licence) intentionally to kill, injure or take any wild bird, or intentionally to damage, take or destroy its nest whilst being built or in use, or to take or destroy its eggs. Consequently, even common birds such as blackbirds or robins, and their nests and eggs are protected in this way. Any works involving removal or other management of trees or shrubs must be undertaken outside the breeding bird season (March- August).
- 7.11 Further, section 1(5) of Part 1 of the W&C Act states any person intentionally disturbing any wild bird included in Schedule 1 whilst it is building a nest or is in or near a nest containing eggs or young or disturbs the young of such a bird is committing an offence and liable to a special penalty.
- 7.12 Amendments to The Conservation of Habitats and Species Regulations 2010 made in 2012 have effectively strengthened the protection of wild birds and their habitats. The amendment is “To help preserve, maintain and re-establish habitats for wild birds.”
- 7.13 Under the amended Regulations, Local Planning Authorities (as well as national statutory conservation bodies such as Natural Resources Wales) are required to protect and create bird habitat.

Reptiles

- 7.14 All common reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) schedule 5, from deliberate injury or killing (Section 9(1)) and sale (Section 9(5)).
- 7.15 A Welsh Government licence is not required to handle or disturb slow worms or common lizards but there must be proper consideration of the presence of these animals on site and mitigating measures implemented to minimise any impacts on them.
- Japanese knotweed and Himalayan balsam*
- 7.16 It is an offence under Section 14 (2) of the Wildlife and Countryside Act 1981 to ‘plant or otherwise cause to grow in the wild’ any plant which is listed in Schedule 9 Part II of the Act. Japanese knotweed and Himalayan balsam are listed in Schedule 9 Part II.
- 7.17 Proper precautions must be taken to prevent the spread of this plant, failure to do so may result in prosecution. Japanese knotweed is also classed as controlled waste under the Environmental Protection Act 1990 and must be disposed of at an appropriately licensed landfill site if not treated on Site. Soil containing rhizomes is considered to be contaminated and is also treated as controlled waste.

8 RECOMMENDATIONS

- 8.1 Further survey is necessary to properly assess the site for;
- Bats, use of the stone barn for roosting purposes;
 - Bats, use of the Site for foraging and commuting purposes;
 - Bats, use of trees for roosting purposes where to be removed;
 - Reptiles, a presence/absence refugia survey is recommended for reptiles in the former farmyard area (TN 4) which offers suitable habitat for them;
 - A badger survey to be undertaken immediately prior to commencement of any works.
- 8.2 Surveys must be undertaken at an appropriate time of year. For bats, an ideal survey parameter is three visits across the activity season of May to September. Reptile surveys are best undertaken in April to May or August to September but can be undertaken at any time through the activity season of April to end September.
- 8.3 Scrub and tree removal, or other works affecting them, should be carried out outside the accepted bird breeding season of March to August. If this cannot be the case, a search for active nests by a suitably experienced ecologist will be required prior to any works being carried out. It should be noted that the destruction of active nests cannot be licensed. Further advice on tree removal may be necessary following the outcomes of further survey.
- 8.4 Advice on ground vegetation clearance with regard to reptiles will be provided following the outcome of the recommended surveys.

- 8.5 If artificial lighting is proposed it should be carefully controlled so as not to impact on the retained hedgerows and woodland habitats. It should also be controlled to avoid light spill onto other adjacent habitats.
- 8.6 Artificial light can have a seriously detrimental impact upon nocturnal species, particularly some species of bat. It can result in a loss of foraging time by causing a delay on leaving the roost or by a reluctance to cross a lit area on a commuting route. Mitigation for this impact can be further addressed following the recommended surveys for bats which will provide baseline data of how bats use the Site.
- 8.7 If any landscape scheme is proposed as part of scheme it should allow for the planting of species of local provenance. The existing hedgerows to be retained should be gapped up and managed.
- 8.8 Any works to mature trees should be minimal. Prior to works, trees should be assessed for the potential to support roosting bats. The hedgerows should be retained where possible.
- 8.9 The woodland and hedgerows should be protected during the construction phase with an appropriate buffer zone.
- 8.10 The provision of bat and bird boxes in the new build should be considered as compensation for the potential loss of roosting and breeding habitat for these species.
- 8.11 Strict controls and safe working practices should be employed to ensure that local drains and surrounding areas are not subject to pollution from surface water run-off from any proposed development. Dust contamination of surrounding habitats should be minimised through sensitive working practices.
- 8.12 All materials will be stored carefully and sensitive working practices will be implemented to minimise the risks of contamination of surrounding habitats.
- 8.13 Further recommendations for mitigation may be identified following further survey.

9 CONCLUSIONS

- 9.1 The Site supports a number of habitats but principally is dominated by agriculturally improved grassland. No habitats or plant species on Site are considered to be of significant biological importance.
- 9.2 The main interest of the Site is likely to be its value to bats, reptiles and breeding birds. Further survey is necessary for bats and reptiles before a full impact assessment on those species can be made.

- 9.3 The proposed development works will be timed to have the minimum impact on fauna species present by avoiding as far as possible sensitive times of year such as breeding or hibernation periods.

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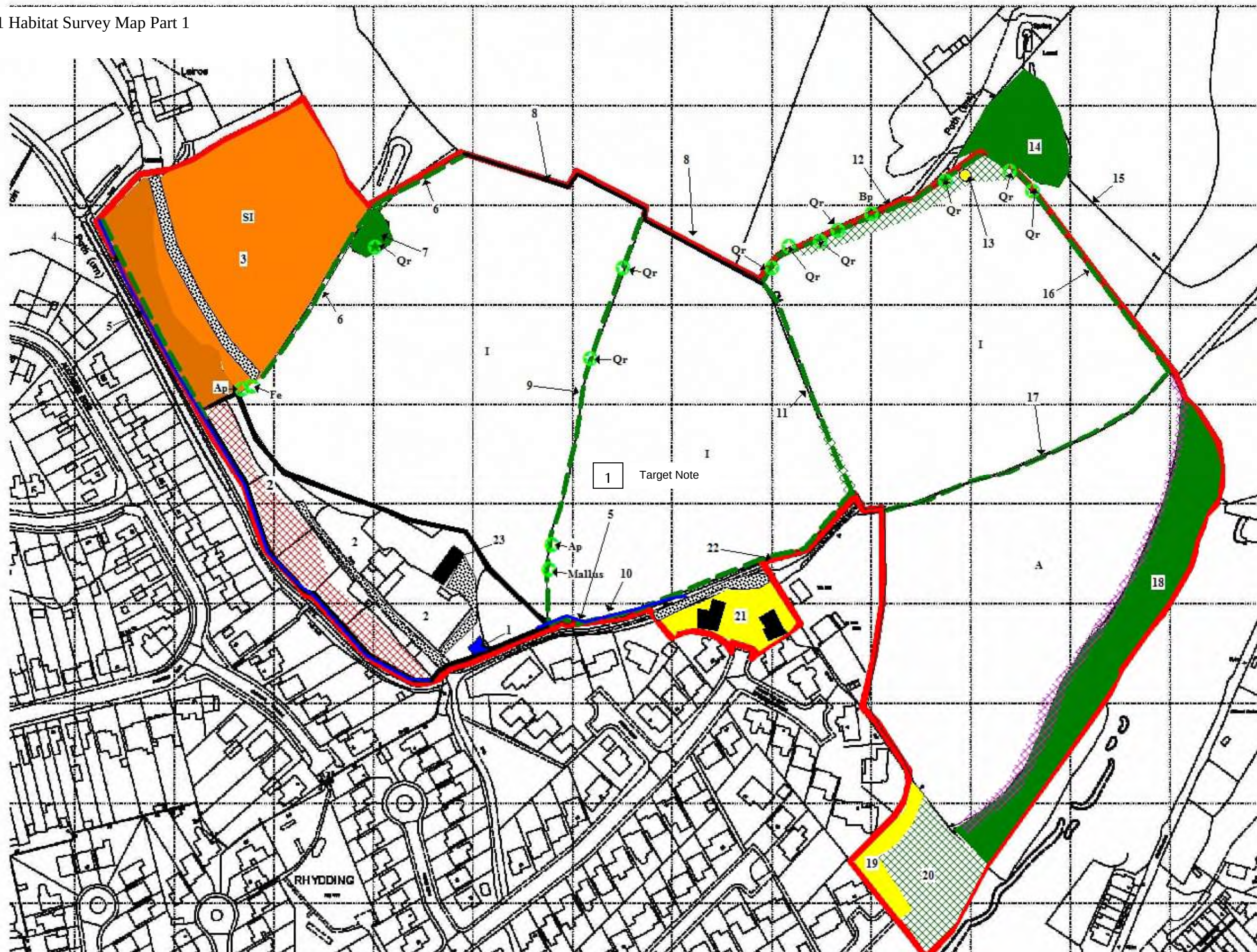
**FIGURE 1:
PHASE 1 HABITAT SURVEY MAP**

Preliminary Ecological Assessment, Land at Leiros Park, Neath.
Hawkeswood Ecology – July 2016

Key to Phase 1 Map:

	Site Boundary
	Mature Trees Qr - Common oak Fe - Ash Malus - Apple Bp - Silver birch Ap - Sycamore
	Broad-leaved woodland
	Semi-improved neutral grassland
	Hedgerow
	Farmyard mosaic
	Agriculturally improved grassland
	Continuous scrub
	Pond
	Drystone walls
	Buildings
	Badger latrine
	Japanese knotweed
	Himalayan balsam
	Grass ley
	Rhyddings canal
	Tracks/disturbed
	Bracken
	Amenity
	Target Note

Phase 1 Habitat Survey Map Part 1



APPENDICES

APPENDIX 1
DAFOR SCALE OF COVER ABUNDANCE

The DAFOR scale is used as a simple measure of cover abundance for individual plant species within a habitat. The scale is as follows:

- D Dominant
- A Abundant
- F Frequent
- O Occasional
- R Rare
- (L Locally – sometimes used as a prefix to the above)

APPENDIX 2

PHASE 1 HABITAT SURVEY TARGET NOTES

1. Pond in former farmyard area of Site. Shallow (a few centimetres at the time of survey) with large wet area adjacent suggesting gradual encroachment by vegetation. Possibly part of the former Rhyddings Canal. Overshadowed by surrounding trees and a goat willow has fallen across it. Floating sweet-grass was abundant, common water starwort locally abundant. Hairy bittercress, soft rush and broad buckler fern were occasional.
2. Former farmyard area with a mosaic of habitats including active allotments with a number of containers and open shelters. Large areas of bramble, occasionally grassy areas and blackthorn scrub. A number of mature trees throughout this area mainly associated with hedgebanks; most are sycamore. There are also stone walls and a stone barn. Japanese knotweed is frequent in this area and dominant particularly towards the former Rhyddings Canal. Species recorded were:

Species	Frequency
Annual meadow-grass	O
Ash	O
Blackthorn	LA
Bluebell	O
Bramble	LA
Broad-leaved willowherb	O
Burdock	O
Cock's-foot	F
Common cleavers	A
Common nettle	LA
Creeping buttercup	F/LA
Daisy	LA
Dandelion	O
Elder	O
Enchanter's nightshade	F/LA
Field horsetail	O
Foxglove	F
Giant fescue	F
Great willowherb	O
Hazel	O
Hedge bindweed	LF
Hedge woundwort	LF
Hedged garlic	O
Herb robert	O
Ivy	LA
Japanese knotweed	LA
Male fern	F
Meadow buttercup	O

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Red clover	LF
Remote sedge	R
Rough meadow-grass	A
Silver birch	O
Sweet vernal-grass	A
Sycamore	F
Wood avens	LF
Yorkshire fog	A

3. Very poor semi-improved neutral grassland, partially horse grazed. Bisected by a trackway below which it is not grazed. Common gorse and common oak scrub occur at the top of the field along with sheep's sorrel where the sward takes on the appearance of being on more acidic ground. Where the field is ungrazed bracken is dominant. Species recorded were:

Species	Frequency
Common bent	A
Common cat's-ear	F/LA
Common chickweed	F
Common sorrel	O/LF
Creeping buttercup	O/LF
Daisy	LF
Field mouse-ear	O
Field wood rush	O
Pignut	O
Red fescue	A
Ribwort plantain	O/LF
Sheep sorrel	LF
Sweet vernal-grass	A
Yarrow	F
Yorkshire fog	F

4. Boundary of Site to old canal in south west, row of trees on bank, formerly a hedgerow. Common oak is frequent, sycamore occasional and silver birch rarely occurring. Shrub species include occasional rowan and holly.
5. Former canal channel, out of water in places but channelling a stream for part of its length. The channel disappears in places and to the east is covered by a later road and bank; in places it is hard to distinguish any channel apart from the cut of the former bank on the Site side of the canal. Species recorded were:

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Species	Frequency
Bluebell	O
Bramble	LF
Broad buckler fern	F
Broad-leaved willowherb	LF
Common dock	O
Common sedge	O
Great willowherb	O
Ivy	LA
Japanese knotweed	O
Laurel	O
Male fern	O
Remote sedge	O
Skunk cabbage	R
Sycamore	R
Wild garlic	O/LA
Yellow poppy	O
Columbine	O
Common nettle	A
Herb robert	O
Pendulous sedge	O
Floating sweet grass	F/LA
Soft rush	O
Creeping buttercup	LA
Common cleavers	A
Common water starwort	LA
Hemlock water dropwort	LF
Flag	O
Lady fern	O

6. Former hedgerow on bank, long distances now just bramble, not stockproof, no ditch. The bank is stone faced. Unmanaged; no shrub layer remaining standards are semi-mature sycamore with scrubby common oak and silver birch to 5 metres. Species recorded were:

Species	Frequency
Bluebell	F
Bracken	F
Bramble	LA
Common oak	O
Creeping soft-grass	LF
Sheep sorrel	LF
Silver birch	O
Sycamore	O

7. Mound, colonised by common oak standards with woody scrub understorey of blackthorn, gorse, rowan, holly and hawthorn. Ground flora poor, largely shaded out, large amounts of bare ground. Species recorded were:

Species	Frequency
Blackthorn	R
Bracken	F
Bramble	F
Broad buckler fern	O
Common bent	F
Common gorse	O
Common oak	F
Foxglove	O
Hawthorn	r
Holly	R
Ivy	F/LA
Male fern	O
Perennial rye-grass	LF
Pignut	O
Red campion	F
Rough meadow-grass	F
Rowan	R
Yorkshire fog	F

8. Drystone wall, species against base included abundant bramble, frequent bracken, foxglove and bluebell and locally frequent common dock.
9. Hedgebank, as TN 8 but fenced against grazing. Very gappy and unmanaged. Standards are occasional common oak and holly; shrubs are occasional holly, hazel and hawthorn. The ground flora is dominated by bramble with abundant ivy. Bracken and common cleavers are locally abundant with frequent bluebell and occasional red campion.
10. Mature trees and scrub bordering former canal and bank. Species recorded were:

Species	Frequency
Ash	LF
Bluebell	O
Bramble	A
Common cleavers	A
Common nettle	A
Common oak	F
Creeping buttercup	F

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Goat willow	LF
Grey willow	R
Hazel	O
Ivy	A
's smock	O
Meadow foxtail	LF
Silver birch	O
Sweet vernal-grass	LF
Sycamore	O

11. Hedgebank; much eroded, now a line of trees, very few shrubs, undergrazed. Mature common oak showed potential roost features for bats. Species recorded were:

Species	Frequency
Bluebell	LF
Bramble	LF
Broad buckler fern	O
Cock's-foot	F/LA
Common cleavers	LA
Common oak	F
Creeping buttercup	F
Foxglove	O/LF
Hawthorn	O
Hazel	O
Holly	O
Male fern	O
Red campion	O
Silver birch	O
Yorkshire fog	O

12. Fenceline with mature trees, former hedgebank, very few shrubs. Species recorded were:

Species	Frequency
Bluebell	O
Bracken	LA
Bramble	LA
Common cleavers	LA
Common hemp nettle	O
Common oak	F
Foxglove	O
Giant fescue	O
Hawthorn	O
Hazel	O
Holly	O

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Ivy	F/LA
Male fern	O
Rosebay willowherb	LA
Rough meadow-grass	O
Rowan	O
Sheep sorrel	O
Silver birch	O
Sweet vernal-grass	LA
Wood sage	O

13. Badger path entering the Site under the fence then following the fence to the east. Latrine with fresh dung at SS 75471 99156.
14. Off-Site woodland regenerating on spoil, badger foraging evident. Abundant silver birch forms the canopy along with frequent ash. The shrub layer is occasional alder, common oak and sycamore. The ground flora is dominated by abundant bramble and ivy with locally abundant Yorkshire fog and rough meadow grass and rarely occurring bluebell.
15. Badger crossing on stream (off-Site to east; SS 75560 99162).
16. Hedgebank, similar to others on Site, unmanaged and consisting mainly of canopy trees with few remaining shrubs. Canopy species are occasional common oak, silver birch and holly; shrubs are occasional hawthorn and rarely occurring flowering cherry. The ground flora is poorly developed and grazed with frequent to locally abundant bramble and ivy, frequent common cleavers and occasionally occurring bluebell, foxglove.
17. Hedgebank under a power line wayleave. The standards have been reduced and the hedgerow frequently cut as part of the wayleave management. This has retained a better number of shrub species. Species recorded were:

Species	Frequency
Bluebell	O
Bracken	LA
Bramble	A
Common cleavers	A
Common oak	F
Creeping buttercup	LF
Foxglove	O
Goat willow	O
Hawthorn	O
Honeysuckle	R
Ivy	A
Male fern	O

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Rosebay willowherb	LF
Rowan	O
Wood sage	O

18. Secondary and semi-natural ancient woodland along south eastern boundary of Site. The boundary runs at the border of the two habitat types but is not clearly distinguishable on the ground. Dense mature canopy, unmanaged on a steep SE facing aspect. Shrub and ground layers shaded and poorly developed, some glades dominated by dense bramble. The wood is separated from the field by a woodbank. Species recorded were:

Species	Frequency
Beech	O
Bluebell	F/LA
Bramble	A
Broad buckler fern	O
Cherry	O
Common oak	F
Creeping soft-grass	O/LF
Enchanter's nightshade	LA
Hart's-tongue fern	R
Hawthorn	O
Hazel	O
Himalayan balsam	LF
Holly	O
Honeysuckle	LF
Horse chestnut	R
Ivy	A
Laurel	LF
Leaf litter	A
Male fern	O
Red fescue	O
Rowan	O
Silver birch	LF
Sycamore	O

19. Mown fire strip adjacent to housing in scrubbed over field. Yorkshire fog and common bent are abundant; creeping buttercup is locally abundant; daisy is frequent; red clover and bird's-foot trefoil are locally frequent; cock's-foot and rough meadow-grass and occasional.
20. Remainder of field, unmanaged and succeeding to woody scrub with semi-mature sycamore, ash and aspen. Species recorded were:

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Species	Frequency
Sycamore	O
Ash	O
Aspen	R
Broad-leaved willowherb	O
Bramble	A
Common nettle	A
Cock's-foot	LF
Hedge bindweed	LA
Common cleavers	A
Bracken	A
Rosebay willowherb	LA

21. Domestic gardens on proposed entrance route.
22. Bank along drive, shrubs faced, supports mature trees. Species recorded were:

Species	Frequency
Ash	F
Common oak	F
Hazel	F
Holly	O/LF
Honeysuckle	LF
Sycamore	O
Laurel	O
Pyracantha	O
Greater stitchwort	O
Creeping soft-grass	LF
Bluebell	LF
Ivy	A
Male fern	O
Red fescue	O
Sweet vernal-grass	LA
Meadow foxtail	LF
Montbretia	O
Bracken	LF
Great willowherb	O

23. Stone barn in former farmyard area, solid stone walls, zinc sheet roof, part pitched, part flat. In poor condition, many potential access points for bats.

Agriculturally Improved Grassland:

Species poor AIG on all fields except the most south west where a ley has recently been seeded and is growing (Himalayan balsam is present here). Broad-leaved herbs restricted largely to the field boundaries. Typical species recorded were:

Species	Frequency
Cock's-foot	F
Common dock	LF
Common sorrel	LF
Creeping buttercup	LF
Fescue sp	A
Himalayan balsam	LA
Meadow foxtail	LF
Perennial rye-grass	A
Poa sp	A
Procumbent pearlwort	O
Sweet vernal-grass	LF
Yarrow	O
Yorkshire fog	A

APPENDIX 3
LIST OF SPECIES RECORDED IN THE SURVEY

<i>Common Name</i>	<i>Scientific Name</i>
Alder	<i>Alnus glutinosa</i>
Annual meadow-grass	<i>Poa annua</i>
Ash	<i>Fraxinus excelsior</i>
Aspen	<i>Populus tremula</i>
Beech	<i>Fagus sylvatica</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Blackthorn	<i>Prunus spinosa</i>
Bluebell	<i>Hyacinthoides non-scripta</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus</i> agg
Broad buckler fern	<i>Dryopteris dilatata</i>
Broad-leaved willowherb	<i>Epilobium monatnum</i>
Burdock	<i>Arctium minus</i>
Cherry	<i>Prunus avium</i>
Cock's-foot	<i>Dactylis glomerata</i>
Columbine	<i>Aquilegia</i> sp
Common bent	<i>Agrostis capillaris</i>
Common cat's-ear	<i>Hypochaeris radicata</i>
Common chickweed	<i>Stellaria media</i>
Common cleavers	<i>Galium aparine</i>
Common dock	<i>Rumex obtusifolius</i>
Common gorse	<i>Ulex europaea</i>
Common hemp nettle	<i>Galeopsis tetrahit</i>
Common nettle	<i>Urtica dioica</i>
Common oak	<i>Quercus robur</i>
Common sedge	<i>Carex nigra</i>
Common sorrel	<i>Rumex acetosa</i>
Common water starwort	<i>Callitriche stagnalis</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping soft-grass	<i>Holcus mollis</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Elder	<i>Sambucus nigra</i>
Enchanter's nightshade	<i>Circaea lutetiana</i>
Field horsetail	<i>Equisetum vulgare</i>
Field mouse-ear	<i>Ceratium fontanum</i>
Field wood rush	<i>Luzula campestris</i>
Flag	<i>Iris pseudacorus</i>
Floating sweet-grass	<i>Glyceria fluitans</i>
Foxglove	<i>Digitalis purpurea</i>
Giant fescue	<i>Festuca gigantea</i>

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Goat willow	<i>Salix caprea</i>
Great willowherb	<i>Epilobium hirsutum</i>
Greater stitchwort	<i>Stellaria holostea</i>
Grey willow	<i>Salix cinerea</i>
Hairy bittercress	<i>Cardamine hirsuta</i>
Hart's-tongue fern	<i>Asplenium scolopendrium</i>
Hawthorn	<i>Crateagus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge bindweed	<i>Calystegia sepium</i>
Hedge garlic	<i>Alliaria petiolata</i>
Hedge woundwort	<i>Stachys sylvatica</i>
Hemlock water dropwort	<i>Oenanthe crocata</i>
Herb robert	<i>Geranium robertianum</i>
Himalayan balsam	<i>Impatiens glandulifera</i>
Holly	<i>Ilex aquifolium</i>
Honeysuckle	<i>Lonicera periclymenum</i>
Horse chestnut	<i>Aesculus hippocastanum</i>
Ivy	<i>Hedera helix</i>
Japanese knotweed	<i>Fallopia japonica</i>
Lady fern	<i>Athyrium filix-femina</i>
Lady's smock	<i>Cardamine pratensis</i>
Laurel	<i>Prunus laurocerasus</i>
Male fern	<i>Dryopteris filix-mas</i>
Meadow buttercup	<i>Ranunculus acris</i>
Meadow foxtail	<i>Alopecurus pratensis</i>
Montbretia	<i>Montbretia</i> sp
Pendulous sedge	<i>Carex pendula</i>
Perennial rye-grass	<i>Lolium perenne</i>
Pignut	<i>Conopodium majus</i>
Procumbent pearlwort	<i>Sagina procumbens</i>
Pyracantha	<i>Pyracantha</i> sp
Red campion	<i>Silene dioica</i>
Red fescue	<i>Festuca rubra</i>
Remote sedge	<i>Carex remota</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rosebay willowherb	<i>Chamerion angustifolium</i>
Rough meadow-grass	<i>Poa trivialis</i>
Rowan	<i>Sorbus torminalis</i>
Sheep's sorrel	<i>Rumex acetosella</i>
Silver birch	<i>Betula pendula</i>
Skunk cabbage	<i>Symplocarpus foetidus</i>
Soft rush	<i>Juncus effusus</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Acer pseudoplatanus</i>

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Wall pennywort	<i>Umbilicus rupestris</i>
Wild garlic	<i>Allium ursinum</i>
Wood avens	<i>Geum urbanum</i>
Wood sage	<i>Teucreum scorodonia</i>
Yarrow	<i>Achillea millefolium</i>
Yellow poppy	<i>Meconopsis cambrica</i>
Yorkshire fog	<i>Holcus lanatus</i>

APPENDIX 4
PHOTOGRAPHS

Preliminary Ecological Assessment, Land at Leiros Park, Neath.
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The farmyard area, scrub above, allotments below

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Poor semi-improved grassland



Typical agriculturally improved grassland field

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Typical views of the hedgerows

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The grassland ley



The woodland at TN 18.



The pond at TN1



The Stone Barn



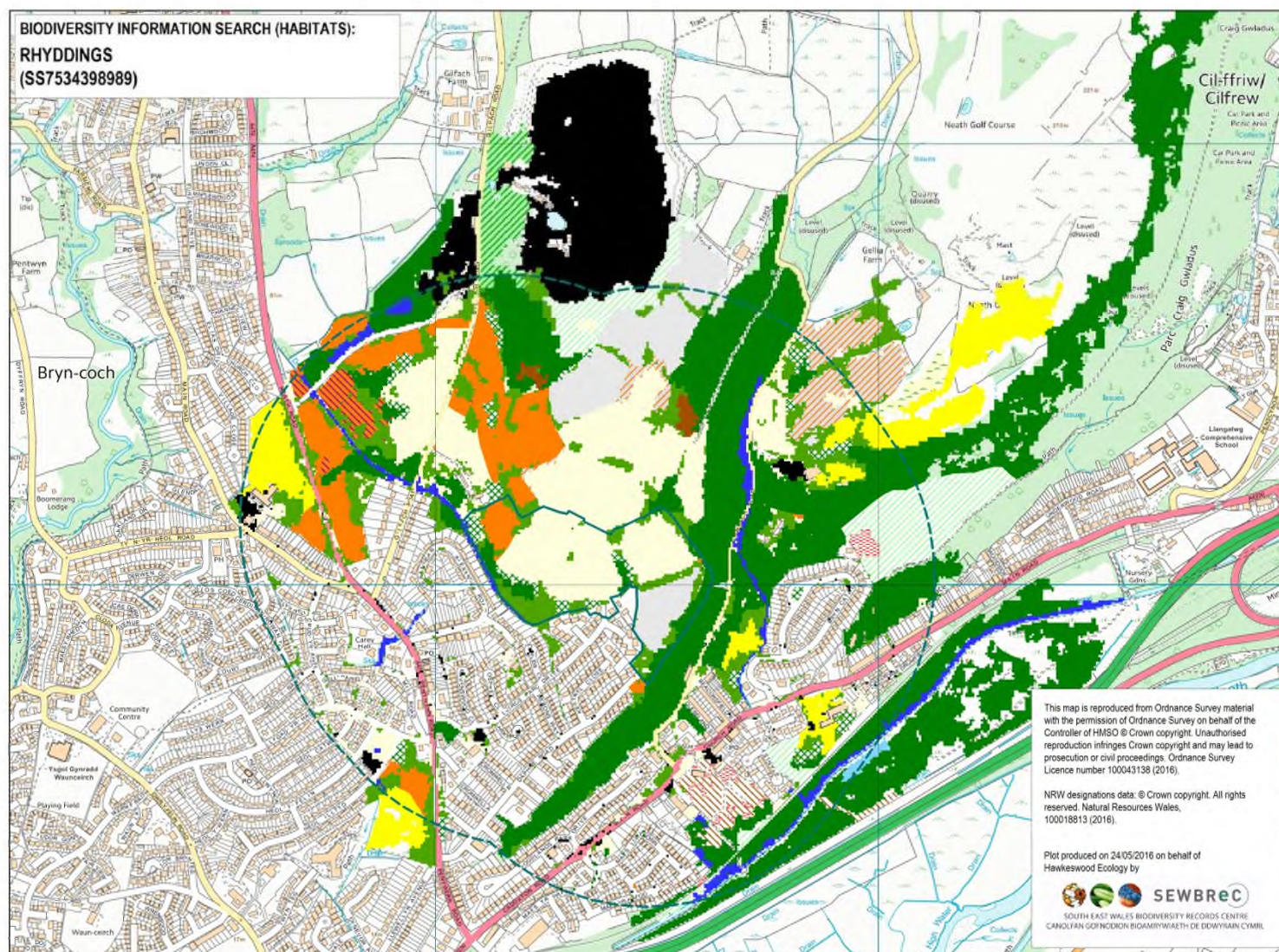
Vegetation in open area of former canal bed



Former canal bed with stream

APPENDIX 5
NATURAL RESOURCES WALES PHASE 1 HABITAT SURVEY MAP

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REPTILE PRESENCE ABSENCE SURVEY, LAND AT LEIROS PARK, NEATH

On behalf of

HALE HOMES.

November 2016

Ref: HE/88/2015

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We confirm that in preparing this Report we have exercised reasonable skill and care, taking into account the project objectives, the agreed scope of the work and prevailing site conditions.

Report Life

The shelf life of Protected Species surveys is accepted as two years. It is probable that survey work presented older than this will be required to be updated by the planning authorities and statutory bodies.

CONTENTS

Summary

1. Introduction
2. Methodology
3. Surveyor Experience
4. Desk Top Study Findings
5. Field Survey
6. Discussion and Impact Assessment
7. Relevant Legislation
8. Recommendations
9. Bibliography

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Figure 1: Approximate Placement of Reptile Refugia on Site

Appendices:

Appendix 1: Suitable Reptile Survey Conditions (After Chris Gleed-Owen)

Appendix 2: Photographs

SUMMARY

Hawkeswood Ecology was instructed to carry out a reptile presence/absence survey on land at Leiros Park, Neath. An earlier Preliminary Ecological Assessment carried out by Hawkeswood Ecology had identified part of the Site as supporting suitable habitat for reptiles. It is intended to develop the Site for residential purposes.

The presence/absence refugia survey was carried out during September and early October in suitable weather conditions; seven visits were made to the Site. No evidence of reptiles using the refugia or observed basking was made.

It is concluded that the Site does not support significant reptile populations although absence as indicated by survey cannot be proven. The presence of reptiles is not considered to be an obstacle to the proposed development but operators should be made aware of their possible presence and works should cease for advice to be taken should reptiles be found during ground clearance operations.

The conclusions of this report are considered valid for two years from the survey dates noted in Section 1 of the report.

1 INTRODUCTION

- 1.1 Hawkeswood Ecology was instructed by Hale Homes to undertake a reptile presence/absence survey on land at Leiros Park, Neath. It is proposed to develop the Site with residential housing. The approximate central Grid reference of the area in question is SS 75214 98964.
- 1.2 A Preliminary Ecological Assessment (PEA) carried out in July 2016 considered part of the Site to be suitable for supporting reptiles. That report, '*Preliminary Ecological Assessment, Land at Leiros Park, Neath. Hawkeswood Ecology – July 2016*' should be read in conjunction with this report.
- 1.3 The wider proposed development Site consists of two distinct areas; a large area of heavily agriculturally improved grassland with a smaller area of poor semi improved neutral grassland and a former farmyard which is now partially used as allotments and part abandoned. The area considered to have reptile interest is the latter farmyard/allotments Site.
- 1.4 The former farmyard/allotment area consists of a mosaic of habitats including active allotments with a number of containers and open shelters, large areas of bramble, grassy areas and blackthorn scrub. There are a number of mature trees throughout this area mainly associated with hedgebanks, most of which are sycamore. There are also stone walls and a stone barn; Japanese knotweed is locally abundant in parts of the area surveyed.
- 1.5 The objectives of the reptile survey were:
 - To assess the Site for reptiles by presence/absence refugia survey;
 - To assess the potential impacts on reptiles of the proposed works;
 - To inform mitigation and compensation proposals in the case of reptiles being found.
- 1.6 The refugia layout was carried out on 5th September 2016. Survey visits were carried out over the period of 13th September to 3rd October 2016.

2. METHODOLOGY

Desk Top Study

- 2.1 A detailed desk top study was undertaken during the initial survey reported on in July 2016.

Field Survey

- 2.2 The survey was carried out in accordance with guidelines given in The Herpetofauna Worker's Manual (JNCC, 2003) and Froglife Advice Sheet no. 10, '*Reptile Survey, an introduction to planning, conducting and interpreting surveys for snake and lizard conservation.*' (1999).
- 2.3 The field survey consisted of a refugia presence/absence survey. Felt mats approximately 0.5 square metres in size were used as refugia and placed into position on 5th September 2016.

- 2.4 A total of 25 felt mat refugia were used across the Site. The survey area was approximately 1.2 hectares. Refugia were placed across the whole of this Site concentrated in likely favourable areas for reptiles, i.e. next to scrub, in areas suitable for basking etc. (refer to Figure 1 and Appendix 2 Photographs).
- 2.5 The Froglife guidelines suggest placing 5-10 refugia per hectare for adequate survey. The density of 26 refugia used over an area of approximately 1.2 hectares at this Site gives a density substantially greater than recommended in the guidelines, equating to approximately 22 refugia per hectare. At this density some basic predictions of population size can be drawn with care if animals are found to be present.
- 2.6 The refugia were visited and inspected on seven occasions in suitable weather conditions, with air temperatures between 9 and 20°C generally as described in the referenced published guidance. Appendix 1, courtesy of Chris Gleed-Owen, demonstrates typical suitable weather conditions and survey timing throughout the reptilian activity period of March to October.
- 2.7 At each visit, the Site was also walked over to look for reptiles using potential basking spots where areas of less densely vegetated ground or exposed ground offered suitable conditions.

Constraints

- 2.8 No constraints to the survey were noted.

3. SURVEYOR EXPERIENCE

- 3.1 The surveyor and report author is Eric Hawkeswood. Eric has undertaken a large number of reptile surveys and supervised and carried out reptile translocations. He has been a professional in the nature conservation field for twenty seven years formerly working as Reserves Manager and Conservation Officer at Gwent Wildlife Trust and Woodland Manager for the Ruperra Conservation Trust. Eric has worked as an Ecological Consultant as joint proprietor of Hawkeswood Ecology since 2001.

4 DESK TOP STUDY FINDINGS

- 4.1 The South East Wales Biodiversity Records Centre (SEWBReC) hold no reptile records within a search buffer of 500 metres from the Site.

5 FIELD SURVEY

- 5.1 Table 1 below gives a brief description of the habitat in which the refugia were placed (also see Figure 1 and Appendix 2):

Table 1: Details of refugia locations.

No	Brief habitat description
1	Field on east of area, rank grassland with hazel scrub present. Flat ground
2	As above.
3	In rank grassland on eastern side of existing barn, slight southerly aspect.
4	To the south of the barn on a grassed path, flat ground.
5	Field to south of barn enclosed by stone walls and tracks, rank grass near wall, flat ground.
6	As above but adjacent to scrub, flat ground.
7	On the track running along the allotments, adjacent to stone walls or scrub; flat ground to slight south easterly aspect.
8	As 7
9	As 7
10	As 7
11	As 7.
12	As 7.
13	Off track against former farm building walls, shaded, flat ground.
14	As 7.
15	As 7.
16	As 7.
17	In rank grassland towards northern border of area adjacent to hedge of mature sycamore, flat ground.
18	On edge of mature holly shade and dense bramble off track towards Rhyddings canal. Flat ground.
19	As 18.
20	On border of worked allotment, flat ground.
21	As 20
22	In abandoned field near Site entrance, adjacent to scrub and bramble; flat ground.
23	As 22.
24	As 22.
25	On track by wall and allotment shed, flat ground.

- 5.2 These were considered the best areas to offer habitats suitable for reptiles and to cover the Site for completeness of survey. Areas selected for the placement of refugia were chosen to allow the refugia to warm up in the sun and provide a favourable place for reptiles to warm up under or bask upon.
- 5.3 The survey failed to record any reptiles. In discussion with an allotment holder it was mentioned that he had never seen any 'lizards' on Site whilst he had been working there which was for a period of many years. Table 2 below gives the weather conditions for each survey event:

Table 2: Dates and Conditions at time of Refugia Surveys

Visit number	Date	Temp	Time	Weather
1	13/09/2016	18°C	08.35	Broken cloud, light S breeze.
2	20/09/2016	16°C	10.00	Sunny after early cloud, still.
3	23/09/2016	14°C	09.30	Sunny spells, dry after earlier showers, F2/3 W breeze
4	26/09/2016	14°C	09.00	100% cloud, occasional light drizzle.
5	28/09/2016	17°C	11.30	Broken cloud, light drizzle after dry start, F1/2 SW breeze.
6	29/09/2016	16°C	10.00	Sunny, F2/3 SW breeze.
7	03/10/2016	18°C	09.00	Sunny, F1/2 SW breeze

6 DISCUSSION AND IMPACT ASSESSMENT

- 6.1 The Site is in two parts, the majority of which is intensively farmed and down to agriculturally improved grassland and grass leys. There is very little suitable habitat in this part of the Site although the presence of small numbers of reptiles, particularly common lizard, cannot be ruled out as with almost any area of land. The Site of the former farm buildings and allotments has potential to support reptiles however, and the further survey was justified by the habitat mosaics in this part of the Site.
- 6.2 The Site is bounded by development to the South but by open countryside and woodland to the north east and west. The surveyed area is somewhat isolated from suitable habitat however, as the intensive nature of the farmed land is difficult for reptiles to cross.

Reptiles - Impact Characterisation and Assessment

- 6.3 The proposal for development will result in the majority of habitats on Site being lost including those in the area surveyed for reptiles. Some of this area is to be landscaped and there is still likely to be potential post construction for reptiles to colonise these areas, although the isolation of the Site will continue to be a limiting factor.
- 6.4 It is considered that the Site as a whole is of **no significance** for reptiles in a local (Neath) and regional (South Wales) context.

7 RELEVANT LEGISLATION

- 7.1 All common and widespread reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) schedule 5, from intentional killing or injuring (Section 9(1)) and sale (Section 9(5)).

- 7.2 A Welsh Assembly Government licence is not required to handle or disturb slow worms but there must be proper consideration of the presence of these animals on Site and mitigating measures implemented to minimise any impacts on them.

8 RECOMMENDATIONS

- 8.1 There are no restrictions with regard to reptiles in the proposed development of the Site. However, consideration to the possible colonisation of the Site at some future point should be given in the landscape design.
- 8.2 Landscaping should provide a mosaic of habitats including open areas suitable for basking animals and densely vegetated areas for security and hibernation. Such consideration given to landscaping is also likely to have benefits for other species and improve the Site, certainly in terms of its value for invertebrates.
- 8.3 The vegetation will be cleared from the centre of the working area to the outer boundaries. This allows any animals that may be present, including reptiles, to leave under cover of the remaining vegetation.
- 8.4 There is no need for ecological supervision of Site clearance. However, should significant numbers of reptiles be found on Site at any time during the development, the works must cease immediately and a suitably experienced ecologist contacted for advice on how best to proceed.

9 BIBLIOGRAPHY

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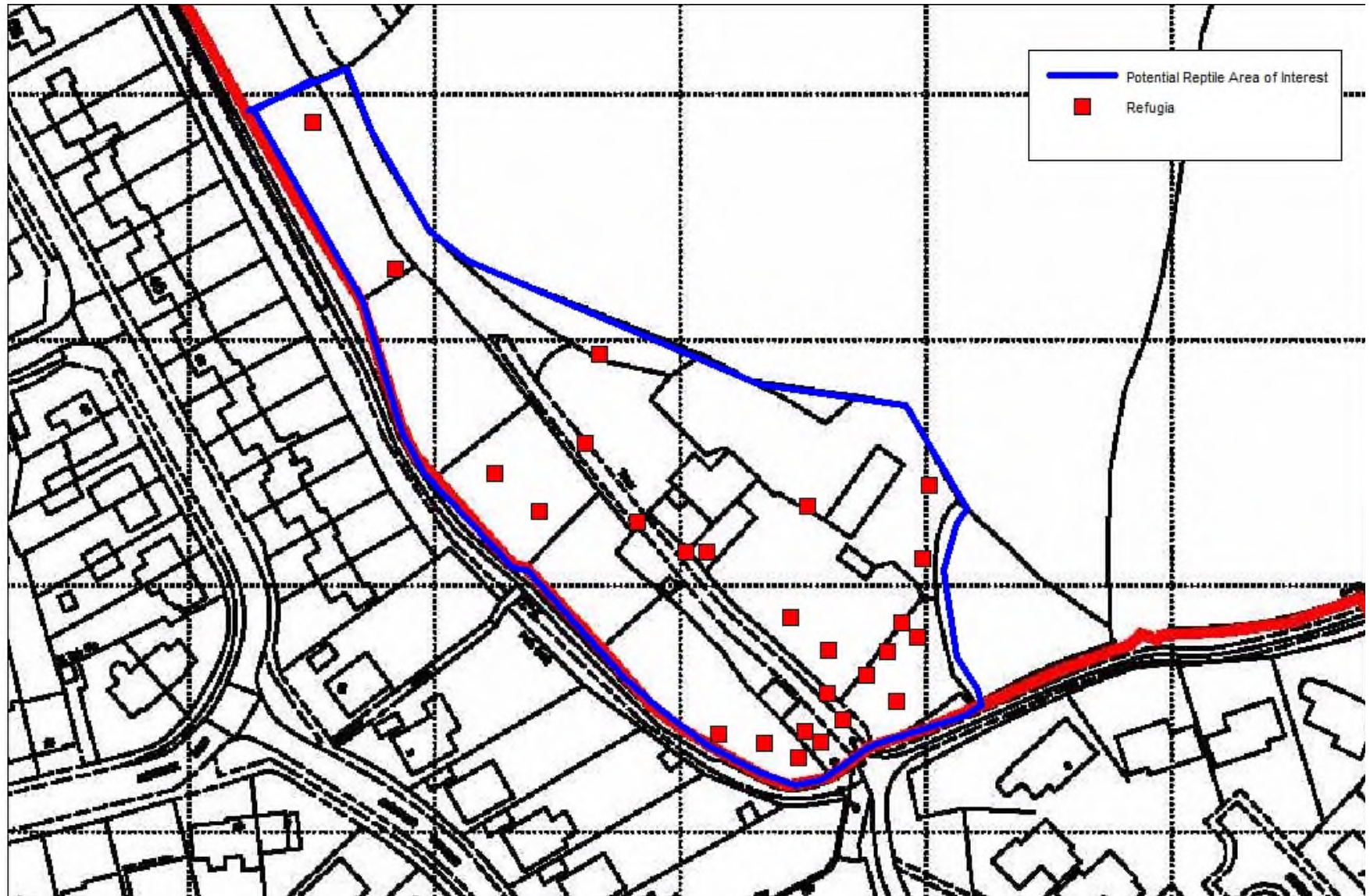
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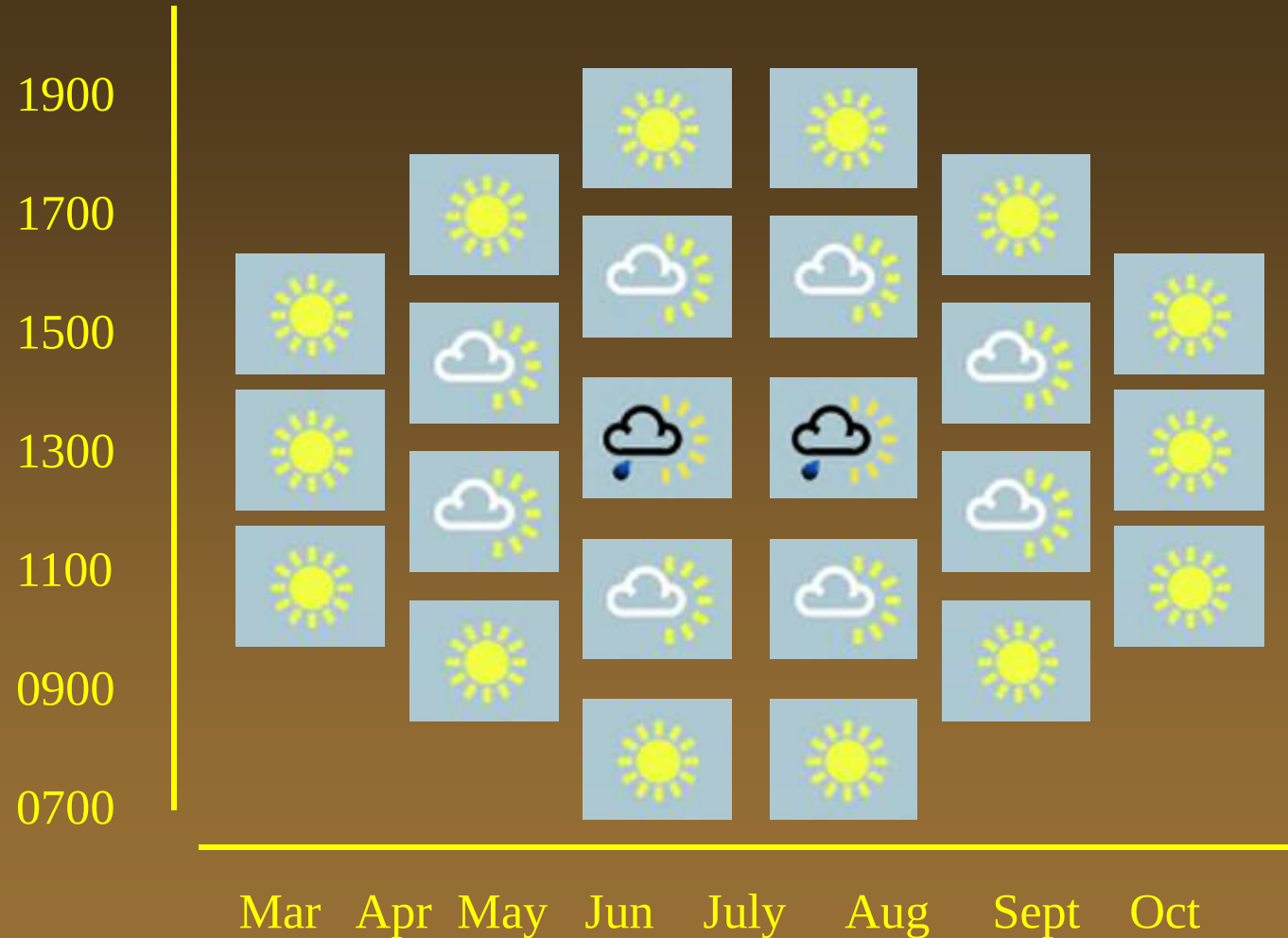
**FIGURE 1:
APPROXIMATE PLACEMENT OF REFUGIA ON SITE**

Figure 1: Approximate Location of Refugia



APPENDIX 1:
SUITABLE REPTILE SURVEY CONDITIONS
(After Chris Gleed-Owen)

Best survey weather depends on timing...



Courtesy and Copyright Chris Gleed-Owen

**APPENDIX 2:
PHOTOGRAPHS**

Reptile Presence Absence Survey, Land at Leiros Park, Neath;
Hawkeswood Ecology – November 2016



The Field with Refugia 1 and 2



The Barn and surrounds.

Reptile Presence Absence Survey, Land at Leiros Park, Neath;
Hawkeswood Ecology – November 2016



The main allotment track at the southern part of the Site



Looking to the Site of refugia no. 19 at the northern part of the Site

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Appendix 4 Phase 1 Map and Target Notes



Key

- Running Water
- Target Notes
- Standard Trees
- Boundary
- Acid Grassland
- Building
- Treeline
- Scrub
- I Improved Grassland
- Bracken
- Tall Ruderal
- Species Poor Hedgerow
- Broadleaf Woodland Corridor
- SI Poor Semi-improved Grassland

APPENDIX 4 PHASE 1 MAP & TARGET NOTES

Target Note	Description/Comment
1	Residential hedgerow. Hawthorn, Ash, Field Maple, Sycamore, Hazel, Cherry, Oak. Nettle and Bramble margin.
2	Goldfinch nest.
3	Improved Grassland field.
4	Mature Oak offsite in residential garden.
5	Bluebell, Creeping Buttercup, Nettle and Ivy.
6	Tall Ruderal/scrub area dominated by bramble, nettle. Silver birch and Mountain Ash trees with honeysuckle. Bracken areas.
7	Worn path into woodland.
8	Broadleaf woodland on steep slope. Sycamore, Turkey Oak, Ash, Silver Birch, Holly, Bramble and nettle edge. Mature trees with bat potential.
9	Willowherb and bracken verge to woodland.
10	Mature Oaks with bat potential dead wood.
11	Woodland edge with Hazel, Oak, Silver Birch & Bluebells.
12	Bracken and Bramble hedge.
13	Defunct hedge with Willow, Bramble gaps and Oak.
14	Mammal push through.
15	Overgrown Hedgerow with Oak, Holly, Bramble margin and Bluebell. Silver Birch.
16	Bracken and Bramble corner.
17	Broadleaf woodland with Mature Oak and Silver Birch and dead wood.
18	Small running ditch culverted at field entrance.
19	Mature Oaks and Silver Birch. Rot holes. Bramble and Bracken margin.
20	Some Broom and Holly understorey.
21	Small stone wall.
22	Bramble and Bracken bank and stone wall.
23	Standard Oak (Bat potential)

24	Defunct hedge with bramble and bracken between trees at upper extent.
25	Holly, Hazel, Oak, Hawthorn middle section.
26	Bracken centre to hedge (no trees).
27	Treeline lower section. Oak, Rowan, Sycamore, Holly, Willow.
28	Stone wall with bramble verge with bracken and bluebell.
29	Offsite Oak woodland and bluebells.
30	Standard Oak amongst immature Holly, Rowan on earth bank (bat potential).
31	Himalayan Balsam corner.
32	Bracken margin.
33	Stone wall.
34	Heavily grazed acid grassland with anthills. Sphagnum, Sedge and Hawkbits.
35	Stonewall with gorse and bracken.
36	Woodland corner with Sycamore, Silver Birch, Fox Glove, Rowan.
37	Mature Sycamore treeline with Oak and Hawthorn present. Hazel and Elder understorey. Bramble Verge.
38	Road leading to stone barn with mature Sycamore (bat potential).
39	Japanese knotweed near allotments.
40	Bramble corner with hazel trees.
41	Oak, Silver Birch, Ash, Willow, Hazel understorey with bramble margin.
42	4 standard Oak (low potential split limb). Silver Birch, Holly, Sycamore and Hawthorn.
43	4 Mature Oak (low/medium potential broken limbs) Holly and Hawthorn.
44	3 Mature Oak and holly (low potential bats).
45	Standard large mature Oak with ivy and dead limbs.(low/medium).
46	Stone shed with corrugated roof (pitched). Mono pitch stone shed. Mature Oak with medium potential on lane to barn.
47	Metal containers. Beehives. Stone wall ruins. Allotments and Japanese Knotweed.

Appendix 5 Photos

Appendix 5: Photos

Photo 1: South Eastern Improved Grassland field.



Photo 2: Eastern Improved Grassland field.



Photo 3: Central Improved Grassland field.



Photo 4: Western Improved Grassland field.



Photo 5: Acid Grassland field.



Photo 6: Acid Grassland field with Anthills.



Photo 7: Poor Semi Improved Grassland.



Photo 8: Bracken margin.



Photo 9: Species Poor Hedge (eastern).



Photo 10: Species Poor Hedge (western).



Photo 11: Broadleaf woodland (south eastern boundary).



Photo 12: Broadleaf woodland (north eastern boundary).



Photo 13: Central treeline between improved grassland fields.



Photo 14: North eastern treeline on boundary.



Photo 15: Western treeline between acid grassland and improved grassland field.



Photo 16: South treeline along western improved grassland field..



Photo 17: South eastern scrub area.



Photo 18: Southern running ditch.



Photo 19: North eastern running ditch.



Photo 20: Overgrown small standing water pool.



Photo 21: Japanese Knotweed near allotment.



Photo 22: Turkey Oak on south eastern woodland boundary.



Photo 23: Sessile Oaks in former farmyard.



Photo 24: Southern stone barn with corrugated pitched roof.



Photo 25: Northern stone barn with a mono pitched roof.



Appendix 6 Bat Activity Transect



Key

Bat Activity Transect

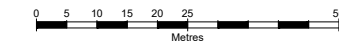
Appendix 7 Anabat Express Location



Key

● Anabat Express Location

Appendix 8 Tree Survey Report Plan



KEY
BS 5837:2012 Tree Quality
(Individual Tree)

- Category A (High)
- Category B (Moderate)
- Category C (Low)
- Category U (Poor) (*Unsuitable for retention*)

Tree Key
Branch Spread (Measured on all trees)
Tree Species (Common Tree Name)
Tree ID# (T - Individual Tree, G - Tree Group, A - Tree Area, W - Woodland, H - Hedgerow)

Root Protection Area (RPA) (A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.)

Shade Pattern - shade pattern not shown on plan (*Varies depending on height and crown spread of tree*)

Definitions of BS5837:2012 Categories for Trees, Woodlands and Hedgerows (Colour Coded):

- A** - Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Suitable for retention*)
- B** - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Suitable for retention*)
- C** - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Suitable for retention*)
- U** - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention*)

Please Note:
Barriers and Ground Protection must be designed by an arboriculturist, installed before materials or machinery is brought onto site and before any demolition, development or stripping of soil commences. Once erected, barriers and ground protection should be regarded as sacrosanct, and should not be removed or altered without prior recommendation by an Arboriculturist and approval of the Local Planning Authority (LPA).

1.) High Adverse Arboricultural Concern - Proximity of dwelling to large northern boundary trees and rear gardens located under the canopy of large trees. Recommendation to move row of dwellings South by +5 metres - plots 84 -89 and 91

2.) High Adverse Arboricultural Concern - Proximity of dwelling (plot 93) to the large High value tree. Recommendation to increase separation distance between side of dwelling by +3 metres. Consider removing one plot to free up space as similar issue will occur if whole row is moved to the east.



Appendix 9 Tree Surveyor Location



Key

- Surveyor Location 20 08 20
- Surveyor Location 13 08 20 & 09 09 20

Appendix 10 Ancient Semi-Natural Woodland



Key



Ancient_Woodland_Inventory

Appendix 11 Bat Activity Survey Results



Key:

- Myotis sp.
- Noctule
- Soprano Pipistrelle
- Common Pipistrelle



Key:

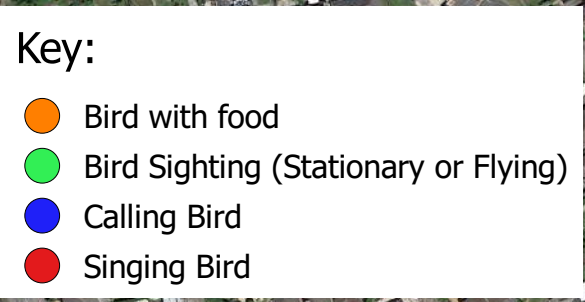
- Noctule
- Soprano Pipistrelle
- Common Pipistrelle



Key:

- Myotis sp.
- Noctule
- Common Pipistrelle

Appendix 12 Bird Survey Map



- Bird with food
- Bird Sighting (Stationary or Flying)
- Calling Bird
- Singing Bird

- Bird with food
- Bird Sighting (Stationary or Flying)
- Calling Bird
- Singing Bird



Key:

- Bird Sighting (Stationary or Flying)
- Calling Bird
- Singing Bird
- Bird with food

