REDROW HOMES LIMITED

ECOLOGYSOLUTIONS

Part of the ES Group

LAND WEST OF WINDMILL LANE (BRYN MELIN), COWBRIDGE, VALE OFGLAMORGAN

Ecological Assessment

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ecology solutions for planners and developers

PROTECTED SPECIES

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1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions Ltd was commissioned by Redrow Homes Limited in October 2019 to undertake an ecological appraisal of Land West of Windmill Hill (Bryn Melin), Cowbridge, Vale of Glamorgan (see Plan ECO1), hereafter referred to as the application site.

1.1.2. The proposals for the application site are for the provision of 105 residential dwellings with associated access, open space and infrastructure. The development proposals are illustrated on the Concept Landscape Proposals plans produced by Pegasus Design, a copy of which is included at Appendix 1 of this document.

1.2. Application Site Characteristics

1.2.1. The application site is located on the southern edge of Cowbridge in the Vale of Glamorgan and is situated to the west of St Athan Road. The application site is bordered by existing residential development to the north and north-west. To the south and further east lie areas of pasture fields.

1.2.2. The application site comprises two cattle grazed fields, with treelines and hedgerows situated along field boundaries. Other habitats present include areas of scrub along parts of the northern and eastern boundary.

1.3. Ecological Assessment

1.3.1. This document assesses the ecological interest of the application site. The importance of the habitats present is evaluated with regard to current guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1].

1.3.2. This report outlines the existing baseline conditions for the application site, setting these in the correct planning policy and legal framework and assessing any potential impacts which may occur from the proposed development. Appropriate mitigation where necessary is identified such that it will offset any negative impacts and where possible provide for the ecological enhancement of the application site, in accordance with relevant planning policy.

[1] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Version 1.2, updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester.

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the application site and its immediate surroundings, Ecology Solutions contacted South East Wales Biodiversity Records Centre (SEWBReC) in March 2021.

2.2.2. Information has been provided by SEWBReC and is referenced within this report where relevant. Information was provided for protected species within a 1.5km search radius of the application site and also for designated sites within a 2.5km search radius of the application site.

2.2.3. Further information on designated sites from a wider search area was also obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)[2] and Natural Resources Wales (NRW)[3] databases. This information is included at Appendix 1 of this report and is reproduced where appropriate on Plan ECO1.

2.3. Habitat Survey

2.3.1. Habitat surveys were carried out in November 2019 and April 2021 to ascertain the general ecological value of the land contained within the boundaries of the application site and to identify the main habitats and associated plant species.

2.3.2. The application site was surveyed based around the extended Phase 1 survey methodology[4] as recommended by Natural Resources Wales, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the application site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All of the species that occur in each habitat would not necessarily be detected during survey work carried out at any given time of the year, since different species are apparent at different seasons. However, given the nature of the habitats present within the

[2] http://magic.defra.gov.uk
[3] https://naturalresources.wales/evidence-and-data/maps/browse-map-of-data-about-the-natural-environment/?lang=en
[4] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

application site, and that the April survey was undertaken at an ideal time of year for such work, it is considered that an accurate and robust assessment has been made.

2.4. Faunal Survey

2.4.1. General faunal activity observed over the course of the survey work was recorded, whether visually or by call. Specific attention was paid to the potential presence of any protected, rare, notable or Priority species, and the extent to which the application site provides any potential opportunities for these species / groups.

2.4.2. In addition, specific surveys and assessments were undertaken in respect of bats, Badgers *Meles meles*, Hazel Dormice *Muscardinus avellanarius*, Great Crested Newts *Triturus cristatus* and breeding birds.

2.4.3. **Bats.** Initial ground-based bat surveys were undertaken in November 2019 and April 2021 to assess the suitability of trees within and immediately adjacent to the application site to support roosting bats. The work was undertaken by an experienced bat worker and aimed to establish the likelihood of presence / absence of roosting bats.

2.4.4. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004[5]), the Joint Nature Conservation Committee (2004[6]) and the Bat Conservation Trust (2016[7]).

2.4.5. For a tree to be classified as having some potential for roosting bats it must usually have one or more of the following characteristics:

- obvious holes, e.g., rot holes and old woodpecker holes;
- dark staining on the tree below the hole;
- tiny scratch marks around a hole from bats' claws;
- cavities, splits and/or loose barn from broken or fallen branches, lightning strikes etc.;
- very dense covering of mature Ivy *Hedera helix* over trunk.

2.4.6. An initial assessment of the suitability of the application site and the immediate vicinity to support commuting and foraging bats in the local area was also undertaken.

2.4.7. Bat activity surveys were also undertaken monthly between April and October 2021 inclusive to ascertain the level of use of the application site by foraging and commuting bats. In line with the guidance, surveys included both walked transects and static detector surveys, with work completed each month.

[5] Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.
[6] Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.
[7] Collins, J. (Eds.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. Bat Conservation Trust, London.

2.4.8. For the walked transect survey work, surveyors utilised Echo Meter 2 (EMT2) bat detectors to aid identification of bats and record data. Surveyors walked transects within the application site which encompassed all features of potential value to foraging and commuting bats, including hedgerows, treelines and scrub. All bat behaviour observed and heard was recorded by the surveyor. Bat data was subsequently analysed using Kaleidoscope bat sound analysis software.

2.4.9. Walked transect surveys were conducted from 15 minutes before sunset until approximately two hours after sunset. A dawn activity bat survey was also conducted in September 2021, which started from two hours prior to sunrise and continued until 15 minutes post sunrise.

2.4.10. Static bat detectors (SM4+) were also deployed on a monthly basis between June and September 2021 to obtain longer term data regarding the use of the application site by bats. Detectors were deployed for a minimum period of five consecutive nights each month at strategic locations within the application site boundary. All data recorded was subsequently analysed using Kaleidoscope bat sound analysis software.

2.4.11. **Badgers.** Specific survey work was undertaken in November 2019 and April 2021 to search for evidence of Badgers within the application site. This survey work entailed two elements, the first of which was a thorough search for evidence of any Badger setts. For any setts encountered, each entrance would be recorded and plotted, even if the entrance appeared disused. The following information was recorded if appropriate:

(i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.

(ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.

(iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.

2.4.12. Secondly, evidence of Badger activity, such as well-worn paths and run-throughs, snagged hair, footprints, latrines and foraging signs, was also searched for in order to build up a picture of the use of the application site by Badgers.

2.4.13. **Hazel Dormice.** To ascertain the presence or absence of Hazel Dormice within the application site, specific survey work was

undertaken between April and September 2021 inclusive in the form of a nest tube survey.

2.4.14. The survey technique involved the erection of nest tubes within suitable habitats within the application site boundary (treelines and hedgerows). The nest tubes utilised were those approved as standard by the Mammal Society and Natural England. A total of 100 nest tubes were put up across the application site in April 2021.

2.4.15. Nest tubes were placed in accordance with the guidance provided by the Mammal Society and Natural England[8], as referenced in the Dormouse Conversation Handbook[9]. Typically, tubes were placed within hedgerows approximately every 10 to 15 metres where suitable locations can be identified. The nest tubes were attached with wire ties underneath suitably sturdy horizontal branches and positioned on average at approximately 1.5 metres above ground level.

2.4.16. The survey has been scored for effort according to the method developed from the Southwest Dormouse Project (Chanin and Woods, 2003). The system used provides an overall score that reflects the chances of Dormice being discovered if present, and thus provides an indicator of 'thoroughness' of a survey. This score is calculated based on the number of tubes used and the number of months the tubes were in place.

2.4.17. The months of the year are weighted according to the likelihood of recording Dormice as set out below.

Month	Weighting
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

Table 1: Monthly Score Weighting (Chanin & Woods 2003)

2.4.18. The index of effort is calculated based on the use of 50 nest tubes as a standard minimum, with less tubes used proportionately reducing the overall score and more tubes increasing the score (i.e., using 25 tubes halves the score and using 100 tubes doubles the score).

2.4.19. A score of 20 (or above) is deemed a thorough survey, and a score of 15 to 19 may be regarded as adequate where circumstances do not permit more time or more tubes, particularly if other survey methods have also proved negative.

[8] Chanin P. & Woods M. (2003). Research Report 524, *'Surveying Dormice Using Nest Tubes – Results & Experiences from the South West Dormouse Project'*. English Nature, Peterborough.
[9] Bright, P., Morris, P. & Mitchell-Jones, T. (2006). *The Dormouse Conservation Handbook*. Second Edition. English Nature, Peterborough.

2.4.20. The number of tubes used was 100 and they were checked on a monthly basis between April and September inclusive, with August and September being the most optimal months for Dormouse surveys. This resulted in a survey effort score of 42, which is significantly higher than the recommended density as set out in the guidelines. As such, the survey effort is considered appropriate to inform a robust assessment of the presence or absence of Dormice from the application site.

2.4.21. **Great Crested Newts.** The application site does not support any waterbodies or other features which offer potential breeding opportunities for amphibians. However, specific survey and assessment work were undertaken of waterbodies within the local area to ascertain the presence or absence of Great Crested Newts.

2.4.22. Initially OS mapping and aerial photography were used to identify waterbodies present within 500 metres of the application site boundary. The relevant landowners associated with each waterbody were identified and access to undertake specific survey and assessment work was sought.

2.4.23. Where access was granted, a Habitat Suitability Index (HSI) assessment[10] of each off-site waterbody was initially undertaken in May 2021. The HSI methodology involves a numerical index which identifies a score between 0 and 1, indicating the suitability of a waterbody for breeding Great Crested Newts. Each waterbody was subject to a visual assessment, with the feature 'scored' in relation to each of the criteria which comprise the HSI methodology. Other information used included consideration of OS mapping and aerial photography.

2.4.24. The HSI scores for each waterbody were considered in light of the categories set out in Table 2 below, to ascertain the likelihood of the feature supporting breeding Great Crested Newts. The findings of the HSI Assessment were subsequently used to inform the scope of further survey work.

HSI Score	Pond Suitability
<0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Table 2: Categorisation of HSI Scores (taken from Oldham *et al*., 2000)

[10] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10 (4), 143-155

2.4.25. Environmental DNA (eDNA) surveys were subsequently undertaken by Ecology Solutions in May 2021 in order to ascertain the presence or absence of Great Crested Newts within identified waterbodies.

2.4.26. The eDNA survey involved collecting twenty 40ml samples of water at equally spaced locations around the perimeter of the waterbody. The 20 samples were then mixed in a plastic sample bag to form a single amalgamated sample of the water from the pond. The amalgamated sample was then mixed thoroughly to ensure that any DNA present is distributed evenly throughout the sample bag.

2.4.27. A total of 15ml of water was then taken from the amalgamated sample and added to 35ml of ethanol within a separate sample tube, to preserve any DNA present. The sample tubes were then shaken vigorously to mix the water sample and ethanol thoroughly and to prevent the degradation of any DNA. This technique was repeated six times, using water from the amalgamated sample, such that a total of six sample tubes were filled for each waterbody.

2.4.28. The six sample tubes were subsequently sent to be analysed by a laboratory using Polymerase Chain Reaction (PCR) amplification techniques. The analysis involves producing DNA sequences that verify the taxonomic assignation of amplified DNA signals.

2.4.29. Each sample is run in 12 replicates. The results are then reported as the proportion of these 12 replicates that have successfully amplified, indicating whether Great Crested Newt DNA is present (e.g., 1/12 up to 12/12). A negative result is given if all of the replicates are negative; a positive result is given if one or more of the replicates are positive.

2.4.30. **Breeding Birds.** Breeding bird surveys were undertaken at the application site monthly between April and June 2021 inclusive to identify the current breeding bird assemblage present at the application site.

2.4.31. The survey methodology utilised comprised walked transects focussed on general breeding bird interest associated within the application site. Transects were selected to incorporate all habitat types present within or adjacent to the application site. Transects were walked by experienced ornithologists, with all bird activity during the course of the survey recorded.

2.4.32. Survey visits were carried out in early morning over three dates between April and June 2021. Surveys were undertaken over a three-to-four-hour period, with continual observations being taken for the duration of the survey.

2.4.33. To ascertain the breeding status of birds using the application site, the following criteria were applied following the methodology used in the ‘Atlas’ surveys of 1988-1991 (Gibbons et al, 1993). This accepts the following activities as denoting breeding (including those probably breeding although definite proof was lacking):

- Bird apparently holding territory;
- Courtship and display;
- Nest-building (including excavating nest-hole);
- Distraction display or feigning injury;
- Adult carrying faecal sac or food;
- Adult entering or leaving apparently occupied nest site;
- Nest with eggs or eggshells found, or bird sitting but not disturbed;
- Nest with young; or downy young of ducks, game-birds, waders and other nidifugous species; and
- Recently fledged young.

3. ECOLOGICAL FEATURES

3.1. The application site was subject to habitat surveys in November 2019 and April 2021. The vegetation present enabled the habitat types to be satisfactorily identified and an accurate assessment of the ecological interest of the habitats to be undertaken.

3.2. The following main habitat / vegetation types were identified:

- Species-poor Semi-improved Grassland;
- Hedgerows;
- Tall Ruderal Vegetation; and
- Japanese Knotweed.

3.3. The location of these habitats is shown on Plan ECO2. Each habitat present is described below with an account of their representative plant species.

3.4. Species-poor Semi-improved Grassland

3.4.1. The application site primarily comprises two large cattle grazed fields (F1 and F2) with the southern field (F1) extending further to the south beyond the application site boundary. Species composition is consistent across both fields and is generally poor, with some areas completely devoid of vegetation due to poaching by cattle.

3.4.2. Species present within the grassland sward include Perennial Rye-grass *Lolium perenne*, Yorkshire Fog *Holcus lanatus*, Cock's Foot *Dactylis glomerata*, Clover *Trifolium* sp., Perennial Sow Thistle *Sonchus arvensis*, Dandelion *Taraxacum officinale* agg., Creeping Buttercup *Ranunculus repens*, Creeping Thistle *Cirsium arvense*, Yarrow *Achillea millefolium*, Creeping Cinquefoil *Potentilla reptans*, Ribwort Plantain *Plantago lanceolata*, Common Nettle *Urtica dioica*, Ground Ivy *Glechoma hederacea*, Common Sorrel *Rumex acetosa* and Common Mouse-ear *Cerastium fontanum*.

3.5. Hedgerows

3.5.1. There are a number of hedgerows present along the boundaries of the application site; these are annotated on Plan ECO2 and described below.

3.5.2. **H1** is a species-poor hedgerow located along the eastern boundary of the application site. This feature is approximately 2 metres wide and 1.5 metres high, regularly managed and supports Ash *Fraxinus excelsior* trees. Other species present within this hedgerow include Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Elder *Sambucus nigra*, Dog Rose *Rosa canina* and Poplar *Populus* sp.

3.5.3. It is noted that the Ash trees associated with hedgerow H1 are in poor condition and exhibit signs of Ash Dieback, with these trees due to be removed under planning permission 2021/00956/FUL.

3.5.4. **H2** is a continuation of H1, approximately 2 metres wide and 1 metre high, which intersects F1 and F2. It is gappy in places and is subject to regular management. Species present are similar to H1, which includes Hawthorn and Blackthorn.

3.5.5. **H3** is approximately 3 metres high, 1 metre wide and is gappy in places. It is located along the north-western boundary of the application site and bounds residential gardens. This feature is regularly managed and comprises only Privet *Ligustrum ovalifolium*, Holly *Ilex* sp. and Ash.

3.5.6. **H4** is as a tall dense hedgerow, extending along the majority of the northern boundary of the application site (bounding residential gardens to the north). It is approximately 3 metres high and 2 metres wide. In comparison to other hedgerows on site, H4 is comparatively more species-rich, with species present including Blackthorn, Hawthorn, Ash, Cypress *Cupressus* sp., Hazel *Corylus avellana*, Dog Rose, Elder and immature Sycamore *Acer pseudoplatanus*.

3.5.7. **H5** is a continuation of H4 in the east of the application and is similar in species composition. It is understood that this hedgerow and area of adjoining vegetation must be removed to facilitate the removal of a large stand of Japanese Knotweed *Fallopia japonica* next to St Athan Road (see below).

3.5.8. Species present in the ground layer of hedgerows include Bramble *Rubus fruticosus* agg., Common Nettle, Hart's-tongue Fern *Asplenium scolopendrium*, Red Dead-nettle *Lamium purpureum*, Lords-and-Ladies *Arum maculatum*, Ivy and Cleavers *Galium aparine*.

3.6. Tall Ruderal Vegetation

3.6.1. Areas of ruderal vegetation are present along field margins. These areas include species such as Bramble, Common Nettle, Hedge Woundwort *Stachys sylvatica*, Bracken *Pteridium aquilinum*, Cow Parsley *Anthriscus sylvestris*, Common Hogweed *Heracleum sphondylium* and Greater Burdock *Arctium lappa*.

3.7. Japanese Knotweed

3.7.1. A large stand of the non-native invasive species Japanese Knotweed was recorded to be present to the east of hedgerow H5 (adjacent to St Athan Lane). In accordance with planning permission 2021/00956/FUL, this stand is to be subject to works to eradicate this invasive species.

3.7.2. **Background records.** The desk study undertaken with SEWBReC did not return any records of notable or protected plant species from within the application site. The closest record returned was for Bluebell *Hyacinthoides non-scripta*, from a location approximately 0.3km to the east of the site from 2018.

3.7.3. Given the habitats present within the application site, the current management regime (intensive cattle grazing) and the findings of

the survey, it is not considered that the application site supports any protected or notable flora.

4. WILDLIFE USE OF THE APPLICATION SITE

4.1. General observations were made during the survey of any faunal use of the application site with specific attention paid to the potential of any protected or notable species. Specific surveys and assessments were also undertaken in respect of bats, Badgers, Great Crested Newts, Hazel Dormice and breeding birds.

4.2. Bats

Preliminary Roost Assessments

4.2.1. There are no buildings or structures present within or immediately adjacent to the application site which could provide potential opportunities for roosting bats.

4.2.2. A number of trees on the eastern border of the application site were initially identified from a ground-level appraisal to have low bat roost potential. due to a number of cracks and holes.

4.2.3. These trees were subsequently subject to more detailed inspection using an endoscope. No evidence to indicate the presence of bats was recorded during the course of the survey. In light of best practice guidance, no further survey work was therefore undertaken of these trees.

Activity Surveys – Walked Transects

4.2.4. The application site provides potential foraging and commuting opportunities for bats in the local area, with the treelines and, hedgerows associated with field boundaries providing suitable linear features which could be utilised by this group.

4.2.5. Specific bat activity survey work was therefore undertaken to ascertain the level of use of the application site by foraging and commuting bats, including walked transect surveys and static detector surveys. As outlined in Section 2 above, surveys were undertaken on a monthly basis between April and October inclusive. To ensure suitable coverage of features both within and adjacent to the application site, a single transect was identified, as illustrated on Plan ECO3.

4.2.6. Table 3 below outlines the dates and weather conditions for the walked transect survey work undertaken in 2021.

Survey Type	Date	Weather Conditions
Dusk	19/04/2021	14°C, 90% loud cover, BF: 1, light rain
Dusk	11/05/2021	10°C, 100% cloud cover, BF: 1, dry
Dusk	11/06/2021	15°C, 90% cloud cover, BF: 1, dry
Dusk	05/07/2021	14°C, 90% cloud cover, BF: 2, light rain
Dusk	02/08/2021	15°C, 30% cloud cover, BF: 1, dry
Dusk	13/09/2021	16°C, 100% cloud cover, BF: 1, light rain
Dawn	14/09/2021	15°C, 100% cloud cover, BF: 1, light rain
Dusk	05/10/2021	12°C, 10% cloud cover, BF: 2, dry

Table 3: Summary of dates and weather conditions of walked transect surveys (2021)

4.2.7. Tables 4 – 11 inclusive below summarise the overall findings of the walked transect surveys undertaken at the application site, with the total number of registrations of each species identified during each survey set out.

April	
Species	**Number of Registrations**
Common Pipistrelle	33
Soprano Pipistrelle	11
Noctule	2
Leisler's bat	1

Table 4: Bat registrations during April 2021 dusk activity survey

May	
Species	**Number of Registrations**
Common Pipistrelle	43
Soprano Pipistrelle	15
Noctule	3
Myotis Sp.	21
Brown Long-Eared Bat	2

Table 5: Bat registrations during May 2021 dusk activity survey

June	
Species	**Number of Registrations**
Common Pipistrelle	27
Soprano Pipistrelle	16
Noctule	2
Leisler's bat	2
Nathusius's pipistrelle	2
Serotine	1

Table 6: Bat registrations during June 2021 dusk activity survey

July	
Species	**Number of Registrations**
Common Pipistrelle	80
Soprano Pipistrelle	39
Noctule	2
Myotis Sp.	26
Brown Long-Eared Bat	1

Table 7: Bat registrations during July 2021 dusk activity survey

August	
Species	**Number of Registrations**
Common Pipistrelle	46
Soprano Pipistrelle	42
Noctule	15
Myotis Sp.	3
Serotine	8

Table 8: Bat registrations during August 2021 dusk activity survey

September (Dusk)	
Species	**Number of Registrations**
Common Pipistrelle	49
Soprano Pipistrelle	43
Noctule	27
Myotis Sp.	1
Serotine	35
Brown Long-Eared Bat	2

Table 9: Bat registrations during September (Dusk) 2021 dawn activity survey

September (Dawn)	
Species	**Number of Registrations**
Common Pipistrelle	33
Soprano Pipistrelle	30
Noctule	14
Myotis Sp.	1
Serotine	1
Brown Long-Eared Bat	2

Table 10: Bat registrations during September (Dawn) 2021 dusk activity survey

October	
Species	**Number of Registrations**
Common Pipistrelle	12
Soprano Pipistrelle	57
Noctule	6
Leisler's bat	2
Brown Long-Eared Bat	7

Table 11: Bat registrations during October 2021 dusk activity survey

4.2.8. The activity surveys completed at the application site in identified that the application site is utilised by a range of bat species for foraging and commuting, although activity levels were recorded to be relatively limited.

4.2.9. The vast majority of activity pertains to Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus* bats, in addition to Noctule *Nyctalus noctula* bats. Occasional registrations of other species, including Nathusius's Pipistrelle *Pipistrellus nathusii*, *Myotis* sp., Leisler's *Nyctalus leisleri*, Serotine *Eptesicus serotinus* and Brown Long-Eared Bat *Plecotus auritus* were also recorded, albeit in smaller numbers.

4.2.10. In general, activity levels were recorded to be distributed fairly evenly across the application site, with slightly higher levels of foraging activity recorded along the northern and southern boundaries.

Activity Surveys – Static Detectors

4.2.11. Static monitoring surveys were also undertaken monthly from April to October 2021 inclusive. Two static bat detectors were deployed at strategic locations within the application site which varied from month to month (labelled A to B on Plan ECO3).

4.2.12. The dates of the static detector surveys undertaken are outlined in Table 12 below.

Survey	Dates	Number of static monitoring nights
April	19.04.21 – 27.04.21	8
May	10.05.21 – 13.05.21	4
June	10.06.21 – 15.06.21	5
July	05.07.21 – 12.07.21	8
August	02.08.21 – 09.08.21	8
September	09.09.21 – 14.09.21	6
October	06.10.21 – 15.10.21	9

Table 12: Dates of 2021 static detector surveys

4.2.13. The findings of the static detector survey are summarised in Tables 13 - 19 below. The figures provided in each table represent the average number of registrations per species per night across each survey period, with this figure derived from the total number of registrations during each period divided by the number of nights that the detectors were deployed (rounded to 1 decimal place).

Species	Static Detector Location	
	A	B
Common Pipistrelle	10	123.4
Soprano pipistrelle	5	67
Nathusius' pipistrelle	0.1	-
Noctule	1.4	26
Leisler's bat	1.4	6.6
Myotis Sp.	0.6	0.5
Serotine	0.4	0.5
Grey Long-eared bat	0.6	0.5

Table 13: Results of April 2021 static detector survey (average number of registrations across the survey period per species)

Species	Static Detector Location	
	A	B
Common Pipistrelle	2.5	-
Soprano pipistrelle	0.3	-
Nathusius' pipistrelle	-	0.3
Myotis Sp.	0.3	-
Lesser Horseshoe Bat	0.8	-

Table 14: Results of May 2021 static detector survey (average number of registrations across the survey period per species)

Species	Static Detector Location	
	A	B
Common Pipistrelle	124.8	149.4
Soprano pipistrelle	31.2	40.2
Nathusius' pipistrelle	1	-
Noctule	7.2	6.6
Leisler's bat	0.6	0.2
Myotis Sp.	4.6	3.6

Serotine	3.2	8
Brown Long-eared bat	4.6	0.8
Lesser Horseshoe Bat	0.4	-

Table 15: Results of June 2021 static detector survey (average number of registrations across the survey period per species)

Species	**Static Detector Location**	
	A	**B**
Common Pipistrelle	134.6	140.8
Soprano pipistrelle	40.8	4.3
Nathusius' pipistrelle	0.1	0.3
Noctule	9.9	9
Leisler's bat	0.1	0.1
Myotis Sp.	4.1	6.3
Serotine	0.8	0.5
Brown Long-eared Bat	-	2.5
Grey Long-eared Bat	2	-
Lesser Horseshoe Bat	0.4	0.4

Table 16: Results of July 2021 static detector survey (average number of registrations across the survey period per species)

Species	**Static Detector Location**	
	A	**B**
Common Pipistrelle	-	71.3
Soprano pipistrelle	-	57.4
Nathusius' pipistrelle	-	0.3
Noctule	-	5.8
Leisler's bat	-	3.3
Myotis Sp.	-	2.9
Serotine	-	18.3
Brown Long-eared bat	-	2.8

Table 17: Results of August 2021 static detector survey (average number of registrations across the survey period per species)

Species	Static Detector Location	
	A	B
Common Pipistrelle	32.5	62.8
Soprano pipistrelle	15.8	42.8
Nathusius' pipistrelle	0.2	5
Noctule	4	14.3
Leisler's bat	0.2	1.2
Myotis Sp.	2.8	4
Serotine	1	12.2
Brown Long-eared bat	2.1	1.3
Grey Long-eared Bat	0.3	-
Lesser Horseshoe Bat	1	-

Table 18: Results of September 2021 static detector survey (average number of registrations across the survey period per species)

Species	Static Detector Location	
	A	B
Common Pipistrelle	126.6	30.9
Soprano pipistrelle	36.8	93.2
Nathusius' pipistrelle	0.2	-
Noctule	14.6	24.7
Leisler's bat	0.6	0.8
Myotis Sp.	1.4	2
Serotine	5.1	3.2
Brown Long-eared bat	1.8	0.8
Grey Long-eared Bat	-	0.3
Lesser Horseshoe Bat	1	0.3

Table 19: Results of September 2021 static detector survey (average number of registrations across the survey period per species)

4.2.14. Bat activity varied considerably each month over the course of the static survey, with some months recording very little activity (e.g. May) and some recording higher numbers of registrations and bat species (e.g. September). The vast majority of activity at the application site (>80%) pertains to Common Pipistrelle and Soprano Pipistrelle bats. As noted in relation to the walked transect surveys, a moderate level of Noctule activity was also recorded at the application site.

4.2.15. A number of other species, including Nathusius's Pipistrelle, Myotis sp., Leisler's, Serotine, Brown Long-eared, Grey Long-eared and Lesser Horseshoe bats were recorded across the site. However, the number of registrations of each species was far more limited, indicating that bats are more likely to be passing through the application site (commuting) rather than foraging.

4.2.16. Whilst some variation was noted when comparing activity at locations A and B, the survey work identified fairly little evidence to indicate that any features within the application site are of comparatively greater significance for bats than others.

4.2.17. **Background Information.** The desk study undertaken with SEWBReC returned no records of any bats from within the application site itself. The closest record returned was for a Common Pipistrelle, located approximately 0.6km north of the application site from 2011.

4.3. Badgers

4.3.1. No evidence to indicate the presence of Badgers, in the form of any setts, latrines, foraging pits, well-worn pathways, tracks or footprints was recorded within the application site or local area during the survey work undertaken in 2019 or 2021.

4.3.2. Whilst in general terms the habitats on site may provide potential opportunities for Badgers, given the lack of any evidence to indicate their presence it is not considered that they utilise the application site at present.

4.3.3. As such, it is not considered that Badgers pose a potential constraint to the development proposals, and no further consideration has been afforded to this species within this Ecological Assessment.

4.3.4. **Background Information.** The desk study undertaken with SEWBReC did not return any records of Badgers from within the application site or immediate vicinity. The closest record returned was located approximately 1.2km to the south of the application site from 2009.

4.4. Hazel Dormice

4.4.1. The application site provides superficially suitable opportunities for Hazel Dormice *Muscardinus avellanarius* in the form of hedgerows present along field boundaries. These features support a variety of

native species and are connected to similar habitats in the local area. However, it is noted that the application site is located some distance from the nearest areas of woodland.

4.4.2. Specific nest tubes surveys were undertaken at the application site between April and September in line with the methodology outlined in Section 2. No evidence of Hazel Dormice was recorded during any of the monthly surveys, with no nests, gnawed nuts or Dormice themselves encountered during the course of the survey work.

4.4.3. On this basis, it is considered that Dormice are not present within the application site and as such, no further consideration has been afforded to this species within this Ecological Assessment.

4.4.4. **Background Information.** The desk study exercise undertaken with SEWBReC did not return any records of Dormice from the application site or immediate vicinity. The closest record of the Hazel Dormouse was returned from a location 1.1km south of the application site from 2001.

4.5. Other Mammals

4.5.1. There are no watercourses or any other suitable habitat on site that provides potential opportunities for Water Vole *Arvicola amphibius* or Otter *Lutra lutra*. As such, it is considered that these species will be absent from the application site and no further consideration has been afforded to these species within this Ecological Assessment.

4.5.2. No evidence to indicate the presence of other mammal species was recorded within the application site during the surveys, although it is considered possible that Hedgehogs *Erinaceus europaeus* could potentially be present.

4.5.3. **Background Information.** The desk study undertaken with SEWBReC did not return any records of protected or notable mammal species within or directly adjacent to the application site. The closest record of Otter from the site was 0.6km to the north from 2007. Other records of mammal species returned from within the wider area includes Polecat *Mustela putorius*, European Hedgehog and Hare *Lepus europaeus*.

4.6. Amphibians

4.6.1. There are no waterbodies situated within the application site boundary which could be utilised by breeding amphibians. The habitats present within the application site provide some superficially suitable opportunities (albeit limited) for amphibians during their terrestrial phase, although these are very limited in extent due to the regularly managed nature of the fields (by grazing).

4.6.2. As outlined above, a number of off-site waterbodies are present in the local area. A review of Ordnance Survey mapping identified a total of six waterbodies located within 500 metres of the application site boundary. The locations of these features relative to the application site boundary is shown at Plan ECO4.

4.6.3. Landowner permission to undertake survey work was confirmed for five waterbodies (P2 to P6 respectively). No response was received from the identified landowner for P1, and as such no specific survey or assessment work could be undertaken.

4.6.4. At the time of survey (May 2021), ponds P2, P3, P4 and P6 were all recorded to be dry. As such, no further assessment in terms of HSI or eDNA survey could be undertaken of these features. It is concluded therefore that these do not provide potential breeding opportunities for Great Crested Newts.

4.6.5. Waterbody P5 was however found to support standing water, and as such was subject to an environmental DNA (eDNA) survey in May 2021, in line with the methodology set out in Section 2. The results of the eDNA survey found that Pond P5 is negative for the presence of Great Crested Newts.

4.6.6. Given the paucity in terms of terrestrial opportunities within the application site, the findings of the off-site waterbody assessment and the absence of records from the local area (see below), it is considered highly unlikely that Great Crested Newts would be present within the application site boundary. As such, no further consideration has been afforded to this species within this Ecological Assessment

4.6.7. **Background Information.** The desk study undertaken with SEWBReC did not return any records of amphibian species from within the application site itself. The closest record returned was for Palmate Newt *Lissotriton helveticus*, located approximately 0.4km southwest of the application site in 2019. No recent records of Great Crested Newts were returned from the search area in the desk study exercise.

4.7. Reptiles

4.7.1. Given the current management regime (intensive grazing by cattle), the vast majority of the application site does not provide any potential opportunities for reptile species. Whilst very small areas of suitable habitat are present in the form of tall ruderal vegetation at field margins, reptiles are considered highly unlikely to be present.

4.7.2. As such no further consideration has been afforded to this group within this Ecological Assessment.

4.7.3. Background Information. The desk study undertaken with SEWBReC did not identify any records of reptiles from the application site. The closest record returned was for Grass Snake *Natrix natrix* from a location approximately 0.4km to the north of the application site from 2019.

4.8. Breeding Birds

4.8.1. The hedgerows and treelines habitats within the application site provide some suitable nesting opportunities for birds. In order to ascertain the assemblage of breeding birds which utilise the application site, specific survey work was undertaken in April, May and June 2021, in accordance with the methodology outlined in Section 2 above.

4.8.2. The results of the survey are outlined in Table 20 below. Information is presented in relation to the species present, number of birds recorded and their status (where relevant) on the Birds of Conservation Concern (BoCC).

Species	BoCC	Survey 1: 12/04/2021	Survey 2: 10/05/2021	Survey 3: 21/06/2021
Blackbird *Turdus merula*	-	6	2	6
Blue Tit *Cyanistes caeruleus*	-	5	1	-
Bullfinch *Pyrrhula*	Amber	1	-	-
Carrion Crow *Corvus corone*	-	1	1	3
Chaffinch *Fringilla coelebs*	-	1	-	-
Dunnock *Prunella modularis*	Amber	7	4	1
Great Tit *Parus major*	-	1	-	1
Herring Gull *Larus argentatus*	Red	1	-	-
House Sparrow *Passer domesticus*	Red	17	12	29
Jackdaw *Coloeus monedula*	-	-	8	-
Red Kite *Milvus*	-	-	-	1
Magpie *Pica*	-	5	1	-

Meadow Pipit *Anthus pratensis*	Amber	1	-	-
Pied Wagtail *Motacilla alba*	-	1	1	-
Robin *Erithacus rubecula*	-	3	2	2
Rook *Corvus frugilegus*	Amber	2	1	-
Song Thrush *Turdus philomelos*	Amber	-	1	-
Starling *Sturnus vulgaris*	Red	17	22	35
Swift *Apus apus*	Red	-	-	4
Wood Pigeon *Columba palumbus*	-	7	3	9
Wren *Troglodytes*	Amber	1	1	3

Table 20: Results of breeding bird surveys (2021)

4.8.3. A total of 21 bird species were recorded utilising the application site during the course of the breeding bird surveys undertaken in 2021. The assemblage recorded comprises a range of common and widespread bird species which are typical of an agricultural landscape, with a number of species associated with residential areas also recorded (House Sparrow).

4.8.4. The majority of bird activity was associated with the hedgerows and treelines associated with field boundaries. Any birds recorded within the fields noted to be flying over as opposed to using the application site.

4.8.5. Bird species which were noted to be exhibiting signs of, or considered likely to be, breeding include Blackbird, Robin, Great Tit and Starling. Other species were typically noted to be flying over the application site, and as such, it is not considered that these species were utilising the application site for breeding purposes.

4.8.6. **Background Information.** The desk study undertaken with SEWBReC did not identify any specific records of protected or notable bird species from within the application site. However, records were returned from a four-figure grid reference overlapping the site boundary. This included species such as Kingfisher *Alcedo atthis* (2014), Black-headed Gull *Chroicocephalus ridibundus*

(2014), Mediterranean Gull *Larus melanocephalus* (2010), Curlew (2010), Dunnock (2014), Green Sandpiper *Tringa ochropus* (2015), Song Thrush (2014) and Lapwing *Vanellus vanellus* (2010).

5. ECOLOGICAL EVALUATION

5.1. The Principles of Site Evaluation

5.1.1. The latest guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.

5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe[11]. These are broadly used across the United Kingdom to rank sites, so priorities for nature conservation can be attained. For example, current Site of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.

5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.

5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.

5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g., a woodland type with comparatively poor species diversity, common in the south of England may be of importance at its northern limits, say in the border country.

5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP).

5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the international level.

5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

[11] Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of sites of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

5.2. **Habitat Evaluation**

Designated sites

Statutory

5.2.1. There are no statutory sites of nature conservation interest located within or immediately adjacent to the application site. The closest statutory designated site is Cors Aberthin Site of Special Scientific Interest (SSSI), which is located approximately 1.4km to the north-east of the application site at its closest point (see Plan ECO1).

5.2.2. Cors Aberthin SSSI is designated on account of the marshy grassland and species-rich neutral grassland that the site supports. A copy of the SSSI Citation is included at Appendix 3.

5.2.3. The application site is separated from Cors Aberthin SSSI by extensive areas of existing development and roads in Cowbridge. As a result, it is considered that emerging development proposals would not be likely to lead to any adverse effects upon this designated site, either during the construction period or during the operational phase of the development.

5.2.4. There are no international or European designated sites located within 10km of the application site boundary.

Non-Statutory

5.2.5. There are no non-statutory designated sites located within or adjacent to the application site. The closest non-statutory designated site is Coed Bach Site of Importance for Nature Conservation (SINC), located approximately 0.2km to the south of the application site at its closest point (see Plan ECO1).

5.2.6. There are a number of other non-statutory designated sites located within 1km of the site, including:

- Coed Y Castell SINC, located approximately 0.4km to the south;
- Long Grove SINC, located approximately 0.4km to the south-east;
- Coed Y Grabla SINC, located approximately 0.5km to the south;
- Coed Y Seler SINC, located approximately 0.5km to the east;
- Coed Lawn SINC, located approximately 0.7km to the north-east;
- Land West of Cowbridge Comprehensive School SINC, located approximately 0.8km to the north; and
- Llanbethian Hill Down SINC, located approximately 0.8km to the west.

5.2.7. The locations of these non-statutory sites relative to the application site are illustrated on Plan ECO1.

5.2.8. All of these non-statutory designated sites are separated from the application site by areas of existing development, including residential dwellings in Cowbridge to the north and west, and a

Sewage Treatment Works to the south, as well as areas of open farmland and existing roads.

5.2.9. During the construction phase, standard engineering protocols and best practice will be employed to mitigate potential for harm to occur to off-site areas. This will include measures such as the use of wheel washing (to mitigfate for dust deposition), where necessary the use of interceptor fencing to negate the potential risk of laden soils and surface run-off from entering off-site habitats, and the use of spill kits on site. The adoption of these measures, as secured within a Construction Environmental Management Plan (CEMP), will further ensuring that there is no potential for adverse effects to arise to non-statutory designated sites in the local area.

5.2.10. The drainage proposals for the new development will ensure that run-off is maintained at current (greenfield) rates. A Sustainable Urban Drainage System is proposed incorporating rain gardens, swales and detention basins, which will ensure that surface run-off is carefully controlled and moreover that new wetland habitats can be provided post-development (see below). As a result, the development proposals are unlikely to lead to harm to any non-statutory designated sites in the local area via hydrological pathways.

5.2.11. Subject to the adoption of these measures it is considered that the emerging proposals for development at this site are unlikely to have any adverse impacts on non-statutory designated sites.

Habitats within the Application Site

5.2.12. As outlined above, the majority of the application site comprises intensively grazed species-poor grassland which is of very low value, supporting a limited diversity of botanical species which are common and widespread in both a national, regional and indeed local context. As a result, losses to this habitat to facilitate the development proposals are not considered to be of any particular ecological significance.

5.2.13. The hedgerows, trees and areas of scrub present along the boundaries of the fields are of comparatively greater ecological value, albeit only within the context of the application site. Most of the hedgerows are relatively species-poor and are therefore of limited biodiversity value in their own right, although they do provide some potential opportunities for faunal species (see below). None of the hedgerows present within the application site are likely to qualify as ‘important’ under the Hedgerow Regulations 1997.

5.2.14. Under the development proposals, hedgerow H3 and the majority of hedgerows H2 and H4 will be retained. Losses will however be required for the eastern part of hedgerow H2 (where this is located within the centre of the application site) in addition to H1 and H5.

5.2.15. It is noted that losses to hedgerow H5 and H1 have already been consented under planning permission 2021/00956/FUL, associated

with the clearance required to fully treat and eradicate an extensive stand of Japanese Knotweed and on the grounds of health and safety respectively (low quality and diseased Ash trees associated with H1).

5.2.16. To offset these losses, new native and species-rich planting is proposed as illustrated on the Concept Landscape Proposals plans produced by Pegasus Design (Appendix 1). New native woodland, scrub and hedgerow planting is proposed along the southern boundary of the application site.

5.2.17. A range of grassland types are also proposed, including flowering lawn (Emorsgate Seeds mixture EL1 or similar) and tussocky grassland (Emorsgate Seeds micture EM10 or similar). These will support a wide range of native grass and herb species, and will be subject to different management regimes, encouraging diversity both within the sward and in turn providing opportunities for invertebrate species.

5.2.18. In addition, bolster planting will be undertaken to retained hedgerows, utilising a range of native species to fill in existing gaps and moreover improve the diversity of these features.

5.2.19. The provision of swales and the attenuation basin in the south-east of the application site will provide seasonally wet habitats, and in turn deliver a habitat not currently present within the application site boundary.

5.2.20. In addition, tree, hedgerow and ornamental planting will be provided throughout the new development, providing additional

5.2.21. It is considered that the provision of an appropriate landscape planting scheme for the application site, based around utilising native species of local provenance wherever possible, any losses to habitats will be more than mitigated. The provision of new ecologically beneficial habitats and improvement of retained habitats will result in biodiversity enhancements and will be of benefit for a range of faunal species.

5.3. **Faunal Evaluation**

Bats

5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”), as amended. These include provisions making it an offence:

- To deliberately to kill, injure or take (capture) bats;
- To deliberately to disturb bats in such a way as to: -
    - be likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate or migrate; or

- affect significantly the local distribution or abundance of the species to which they belong;
- To damage or destroy any breeding or resting place used by bats; or
- To intentionally or recklessly to obstruct access to any place used by bats for shelter or protection.

5.3.2. While the legislation is deemed to apply even when bats are not in residence, guidance suggests that certain activities such as re-roofing can be completed outside sensitive periods when bats are not in residence provided these do not damage or destroy the roost.

5.3.3. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

5.3.4. The offence of damaging or destroying a breeding site or resting place (which can be interpreted as making it worse for the bat) is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

5.3.5. European Protected Species licences are available from Natural Resources Wales in certain circumstances, and permit activities that would otherwise be considered an offence.

5.3.6. Licences can usually only be granted if the development is in receipt of full planning permission, and it is considered that:

(i) The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
(ii) There is no satisfactory alternative; and
(ii) The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

5.3.7. **Application Site Evaluation.** Initial ground-based survey work undertaken at the application site identified a number of trees with low potential to support roosting bats. Further detailed inspections did not identify any evidence to indicate use, such that the likelihood of roosting bats within these features is considered to be negligible.

5.3.8. Bat activity surveys completed in 2021 identified that the application site is used by a range of bat species for foraging and commuting. The vast majority of activity was associated with Common Pipistrelle and Soprano Pipistrelle bats, with fewer registrations of other species. There was little evidence obtained from the surveys to indicate that any features within the application site are of comparatively greater significance for bats than others.

5.3.9. **Avoidance, Mitigation and Enhancements.** In line with best practice guidance, on a precautionary basis trees identified to have low potential to support roosting bats which are to be removed will

be subject to a 'soft felling' methodology, whereby all branches and limbs will be carefully removed in a systematic manner by a suitably qualified tree surgeon. In the highly unlikely event that a bat is encountered during the course of these works, works will cease and a suitably qualified ecologist and/or NRW contacted for advice.

5.3.10. As outlined above, the development proposals will retain and enhance existing linear features, notably along the northern, western and southern boundaries of the application site. The provision of species-rich habitats along the southern boundary, associated with the drainage swale and attenuation basin, are considered in particular to provide new opportunities for foraging and commuting bats. New native woodland and hedgerow planting will maintain a strong vegetated corridor along the south-eastern boundary of the application site.

5.3.11. Whilst the majority of bat activity recorded at the application site pertains to species which are less sensitive to artificial lighting (e.g. Pipistrelle bats), a small number of registrations were noted for more light sensitive species. As such, a sensitive lighting strategy should be adopted to minimise lightspill to retained and newly provided habitats, particularly along the southern boundary of the application site.

5.3.12. The lighting scheme should be designed to ensure that lighting is directed only to where it is required. Measures such as hoods, cowls and louvres will be used to minimise light spillage and direct light to below the horizontal plane. This will minimise light-spill into these areas, thereby ensuring that foraging and commuting bats can utilise these features post-development.

5.3.13. As an enhancement, it is recommended that 20 bat boxes are provided on new buildings or suitable retained mature trees within the application site. It is recommended that Schwegler 1FF (or similar equivalent) boxes are provided, as these are suitable for the species recorded during surveys undertaken at the application site and do not require ongoing maintenance.

5.3.14. Boxes should be installed at a suitable height (at least 4 metres above ground where safe installation is possible) to prevent potential disturbance from cats and vandals. Boxes will be installed in locations which will not be subject to direct lighting, to maximise the likelihood of use by bats.

Birds

5.3.15. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 is concerned with the protection of wild birds, whilst Schedule 1 lists species which are protected by special penalties.

5.3.16. **Application Site Evaluation.** The application site offers limited opportunities for nesting and foraging birds in form of scrub, hedgerows and treelines. Survey work identified that the application

site is utilised by a range of common and widespread bird species which are typical of an agricultural landscape.

5.3.17. **Avoidance, Mitigation and Enhancements**. As all species of birds receive general protection whilst nesting, it is recommended that the clearance of any suitable nesting habitats should be undertaken outside of the main development of the main bird breeding season (typically considered to March to July inclusive).

5.3.18. Should this not be possible, potential nesting habitat should be subject to a nesting bird check by an experienced ecologist, immediately prior to its removal. Should any nesting birds be identified, then the nest should be fully safeguarded in situ and subject to an appropriate disturbance buffer (as advised by the ecologist), and only removed once it has been confirmed all fledglings have left the nest and it is no longer active.

5.3.19. The provision of new species-rich habitat planting within the application site will provide new and improved opportunities for foraging birds, with the planting mix including a range of berry and fruit-bearing species in addition to providing opportunities for prey species (invertebrates).

5.3.20. In order to offset losses to suitable nesting habitat (hedgerows) and provide new nesting opportunities, new bird nesting boxes will be provided within the application site. A total of 20 boxes of various design will be installed either on new buildings or suitable retained trees, including hole-fronted and open-fronted boxes, which will serve to provide opportunities for a range of species. All nest boxes should be situated out of direct sunlight and out of reach of predators, particularly cats.

6. BIODIVERSITY ENHANCEMENT SCHEME

6.1. In light of the Vale of Glamorgan Council's Biodiversity and Development Supplementary Planning Document (SPD) (2018), the following section of this Ecological Assessment outlines a Biodiversity Enhancement Scheme which will be delivered as part of this development

6.2. The paragraphs set out below provide further clarification of the ecological enhancements that will be delivered at this site to promote biodiversity not only within the application site but moreover to contribute towards wider benefits to the local area.

Habitats

6.3. As illustrated on the Concept Landscape Proposals Plans (Appendix 1), a range of habitats will be provided as part of the development proposals. A key management objective for these habitats will be to promote their landscape and biodiversity value through the adoption of a suitable long-term management plan.

6.4. Areas of species-rich wildflower grassland are proposed in the southern part of the application site. A tussocky grassland mixture is proposed for these areas (Emorsgate Seeds Mixture EM10 or similar), to promote a diverse rough grassland sward with a wide variety of native species. This will provide opportunities for invertebrates, small mammals and foraging birds.

6.5. Management of tussocky grassland will be undertaken infrequently, with a single cut to be undertaken during late Summer / early Autumn. All arisings would be removed, with cutting to be undertaken on rotation such that no more than 50% of the grassland would be cut on any one occasion.

6.6. Smaller areas of grassland which are proposed to be subject to regular management within the development will be sown with a flowering lawn mixture (Emorsgate Seeds Mixture EL1 or similar). This mixture contains a range of grass and flowering plants which are tolerant to regular management, such that regular cutting of these areas would not prevent plants from flowering and in turn providing nectar resources for invertebrate species.

6.7. During the establishment phase, grasslands shall be subject to regular cutting, with spot treatment using a selective herbicide and physical intervention measures used to remove undesirable weed species and ensure the successful establishment of a species-rich sward.

6.8. Areas of new native woodland, scrub and hedgerows will also be provided as part of the new development, particularly along the southern boundary of the application site. Ongoing management of these features will be undertaken to maximise their biodiversity value, to ensure variation in physical structure and to promote successful establishment of a wide range of native species.

6.9. To avoid potential harm to nesting birds, woodland, scrub, hedgerows and trees within the site will only be subject to management between September and February inclusive. Should any works be required outside of this period, advice will be sought from a suitably qualified ecologist before proceeding; a nesting bird survey and/or watching brief is likely to be required.

6.10. Hedgerows will be subject to management on rotation, with a single cut undertaken of no more than a third of the hedgerow each year. Management will typically seek to encourage the development of hedgerows that are as wide and as tall as possible, although in specific locations other considerations may result in restrictions (for instance, visibility splays at junctions).

6.11. The provision of swales and an attenuation basin in the southern part of the application site will provide seasonally wet habitats which are not currently present within the application site. Ongoing management of these features will seek to maximise their biodiversity value, subject to ensuring that they function effectively in their primary function of delivering drainage for the site.

6.12. It is anticipated that all areas of the development which do not fall within the curtilage of private properties will be managed by a Management Company, which would be funded by new residents and/or via Local Authority adoption.

Faunal Species

6.13. As outlined above, the management of retained and newly provided habitats within the application site will be undertaken in a manner to avoid potential harm to faunal species.

6.14. All management works affecting suitable bird nesting habitats will be undertaken outside of the main bird nesting season (March to July inclusive). Where specific works are required during this period, advice will be sought from a suitably qualified ecologist, with a suitable approach adopted to ensure that harm does not arise to this group.

6.15. The suitability of existing and newly planted trees to support roosting bats will be considered as part of ongoing management works at the site. In accordance with the precautionary approach set out above, any trees identified to have potential to support roosting bats which are to be subject to works (e.g. for health and safety grounds) will be subject to further assessment by a suitably qualified ecologist. If trees are identified to have ‘low’ bat roosting potential by the ecologist, works would be undertaken in line with a ‘soft felling’ methodology, whereby all branches and limbs would be carefully removed in a systematic manner by a suitably qualified tree surgeon. If trees are identified to have moderate or high bat roosting potential, further survey work is likely to be required (although this is considered unlikely given the findings from previous survey work).

6.16. In the highly unlikely event that a bat is encountered during the course of any surveys or works, works will cease and a suitably qualified ecologist and/or NRW contacted for advice.

6.17. The delivery of a range of species-rich native habitats within the new development, as outlined above, will not only retain existing opportunities for faunal species within the application site but is expected to deliver benefits compared to the existing situation. In particular, the corridor of habitats along the southern boundary of the application site would deliver new and improved opportunities for groups such as commuting and foraging bats, nesting and foraging birds, invertebrates and small mammals.

6.18. In addition to the above, the following additional measures will be delivered under the development proposals.

6.19. As outlined in Section 5 above, a total of 20 new bat boxes will be provided throughout the new development. This will provide new opportunities for roosting bats present in the local area, noting that there are at present no such opportunities present within the application site boundary.

6.20. In addition, a total of 20 bird nesting boxes will be provided. The use of range of box designs would provide opportunities for a variety of bird species.

6.21. To provide additional opportunities for saproxylic invertebrates and small mammals, a total of three new habitat piles will be provided at suitable locations within the new development. These will comprise log piles with brash and smaller branches. It should be noted that these would be in addition to the four habitat piles to provided within this area (as outlined in the Ecological Design Strategy for Condition 3 of planning permission 2021/00956/FUL).

7. PLANNING POLICY CONTEXT

7.1. The planning policy framework that relates to nature conservation in Cowbridge, is issued at two main administrative levels: nationally through Planning Policy Wales and Technical Advice Note 5; and locally through the policies of The Vale of Glamorgan Local Development Plan (LDP) 2011-2026. The proposed development will be judged in relation to the policies contained within these documents.

7.2. National Policy

Planning Policy Wales (Edition 11, February 2021)

7.2.1. Planning Policy Wales (PPW) sets out guidance with regard to nature conservation under Chapter 6 'Distinctive and Natural Places'. It provides guidance to local planning authorities relating to biodiversity and safeguarding statutory designated sites, non-statutory designated sites and protected species and their habitats. It also recognises the importance of trees, woodlands and hedgerows.

7.2.2. PPW requires local authorities to fully consider the effect of planning decisions on natural heritage, inclusive of biodiversity and geological conservation in Wales, ensuring that development '*contributes to meeting international responsibilities and obligations for biodiversity and habitats*' and that appropriate weight is attached to statutory nature conservation designations, protected species and biodiversity within the wider environment.

7.2.3. PPW also considers the potential biodiversity and geological conservation gains which can be secured within developments, including the use of planning obligations.

7.2.4. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

Technical Advice Note (Wales) 5: Nature Conservation and Planning

7.2.5. The purpose of Technical Advice Note (Wales) 5 (TAN5) is to supplement the information provided in PPW, insofar as it relates to nature conservation matters

7.2.6. TAN5 requires local planning authorities to fully consider the effect of planning decisions on biodiversity and ensure that appropriate weight is attached to statutory nature conservation designations, protected species and biodiversity and geological interests within the wider environment. It also considers the potential biodiversity and geological conservation gains which can be secured within developments, including the use of planning obligations.

7.3. **Local Policy**

The Vale of Glamorgan Local Development Plan (LDP) 2011-2026

7.3.1. The Vale of Glamorgan LDP was adopted in June 2017 and provides the planning framework guiding local planning decisions up until 2026. The overall objective of the Vale of Glamorgan LDP is to protect and enhance the Vale of Glamorgan's historic, built, and natural environment. The Plan's core objectives are further informed through a number of specific planning policies.

7.3.2. The following policies within The Vale of Glamorgan LDP relate to ecology and nature conservation.

7.3.3. Policy SP10: Built and Natural Environment states that development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan. Specific reference is made to sites designated for their local, national and European nature conservation value.

7.3.4. Policy MG19: Sites and Species of European Importance states that development proposals likely to have a significant effect on a European site, when considered alone or in combination with other projects or plans will only be permitted if there is no alternative, and/or the project has overriding public interest reasons.

7.3.5. Policy MG20: Nationally Protected Sites and Species states that development likely to have an adverse effect either directly or indirectly on the conservation value of a site of special scientific interest will only be permitted where it is demonstrated that there is no suitable alternative or appropriate compensatory measure or the proposal contributes to the protection, enhancement of the site. The policy states that proposals likely to affect protected species will only be permitted where it is demonstrated that appropriate avoidance, mitigation and compensation measures are provided if there is no suitable alternative.

7.3.6. Policy MG21 is entitled Sites of Importance for Nature Conservation, Regionally Important Geological and Geomorphological Sites and Priority Habitats and Species. The policy states that development proposals likely to have an adverse impact on sites of importance for nature conservation or priority habitats and species will only be permitted where it can be demonstrated that; the need for the development clearly outweighs the nature conservation value of the site; adverse impacts on nature conservation and geological features can be avoided; appropriate and proportionate mitigation and compensation measures can be provided; and the development conserves and where possible enhances biodiversity interests.

7.3.7. Policy MD9 relates to Promoting Biodiversity. The policy states that new development proposals will be required to conserve and where appropriate enhance biodiversity interests unless it can be demonstrated that; the need for the development clearly outweighs the biodiversity value of the site; and the impacts of the development

can be satisfactorily mitigated and acceptably managed through appropriate future management regimes.

Biodiversity and Development SPD (2018)

7.3.8. The Vale of Glamorgan Biodiversity and Development Supplementary Planning Document (SPD) was adopted in April 2018. The document provides guidance relating to the conservation and enhancement of biodiversity and is intended to provide guidance to developers in terms of achieving high quality natural environments and meeting responsibilities.

7.3.9. The SPD outlines legislative and planning policy requirements relevant to biodiversity and provides a steer in relation to the process of ecological surveys and assessment to consider the impact of development. Reference is made to the mitigation hierarchy (avoidance, mitigation, compensation and enhancement) and measures that can be undertaken to protect and enhance ecological receptors.

7.4. Discussion

7.4.1. Recommendations have been put forward in this report that would fully safeguard the existing ecological interest of the application site. Based on the survey and assessment work undertaken, the presence and potential presence of protected and notable species has been given due regard and measures to enhance the application site for such species have been put forward.

7.4.2. In conclusion, implementation of the measures set out in this report enable the proposals to fully accord with planning policy and guidance for ecology and nature conservation at all administrative levels.

8. SUMMARY AND CONCLUSIONS

8.1. Ecology Solutions Ltd was commissioned by Redrow Homes Limited in October 2019 to undertake an Ecological Assessment of Land West of Windmill Hill (Bryn Melin), Cowbridge, Vale of Glamorgan.

8.2. There are no statutory or non-statutory designated sites within or immediately adjacent to the application site boundary. The nearest statutory designated site is Cors Aberthin SSSI, whilst the nearest non-statutory designated site is Coed Bach SINC. Subject to the adoption of standard engineering protocols and best practice, the development proposals are unlikely to lead to any adverse impacts to designated sites.

8.3. The application site supports a range of limited ecological value habitats, primarily in the form of intensively grazed species-poor grassland which is of very low ecological value. Whilst boundary vegetation is comparatively greater value, the development proposals will more than offset losses through the provision of a range of species-rich habitats, including woodland, scrub, hedgerows, wildflower grassland and wetland features. With the adoption of a suitable management plan, it is considered that the proposals will result in biodiversity enhancements compared to the existing situation.

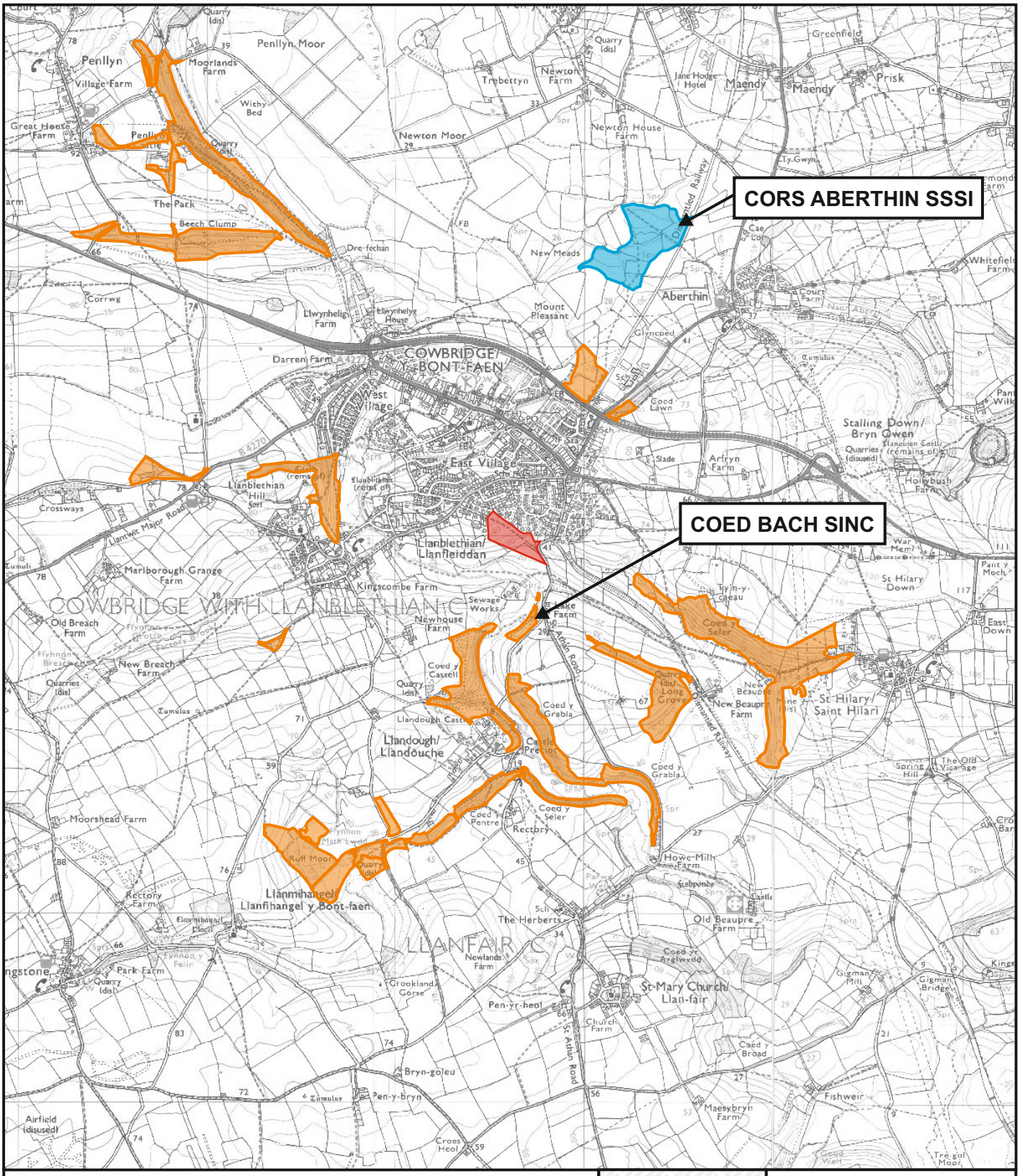
8.4. A number of protected species surveys have been undertaken to inform the development proposals, including work in respect of bats, Badgers, Hazel Dormice, Great Crested Newts and breeding birds. Appropriate mitigation measures have been proposed, including measures to safeguard bats and nesting birds. Subject to the implementation of the avoidance, mitigation and enhancement measures as outlined in this report, adverse effects to protected species will be avoided and opportunities for key faunal groups will be retained and moreover enhanced post-development.

8.5. In conclusion, on the evidence of the ecological surveys undertaken previously and updated surveys taken, it is considered that the application site is not of particularly high intrinsic value from a nature and conservation perspective. The nature and design of the proposed development and the incorporation of the recommendations put forward in this report will ensure that there will be no adverse effects to designated sites, habitats of ecological significance or protected species.

PLANS

PLAN ECO1

Application Site Location and Ecological Designations



KEY:

- APPLICATION LOCATION
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- SITE OF IMPORTANCE FOR NATURE CONSERVATION (SINC)

N

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PLAN ECO1: APPLICATION LOCATION AND ECOLOGICAL DESIGNATIONS

Rev: A

June 2022

PLAN ECO2

Ecological Features