Technical Note

Our Ref: 16210A

12 August 2025

Arise Renewable Energy UK Ltd

SUBJECT: BEDWEN ARIAN SOLAR FARM – SCOPE OF ECOLOGICAL SURVEY AND ASSESSMENT

Dear Case Officer,

Arise Renewable Energy UK Ltd is investigating the possibility of progressing a ground mounted solar development on land at Caegarw Farm in Neath Port Talbot, South Wales. The Site location is presented on Figure 1 and consists of a series of grazed pasture fields bordered by hedgerows and trees.

At this stage, the purpose of this correspondence is to confirm or otherwise agree:

Sufficiency of Survey Scope

that our suggested the scope of the baseline ecological and ornithological surveys is adequate to inform the design, assessment, and decision-making processes for the project.

Ecological Constraints and Opportunities

Views on the likely ecological constraints associated with the Site, and suggestions for potential opportunities relating to mitigation, compensation, or biodiversity enhancement measures.

We would therefore be grateful if you could respond to confirm agreement or otherwise comment on the proposed approach. This will ensure baseline surveys to inform any subsequent planning application are progressed in accordance with the most up to date advice and appropriate for this project.

The Site

The Site is approximately 36.25 hectares, predominantly comprised of other neutral grassland used for horse grazing. Other notable habitats onsite include purple moor and rush pasture (Rhôs pasture), streams, deciduous woodland and ancient woodland, mixed scrub, line of trees and native hedgerows, these are shown below in Figure 2.

These habitats are characteristic of the wider agricultural landscape, which includes purple moor and rush pasture, ancient woodland and scattered farms whilst the settlement of Coed Hirwaun is located 320m south of the Site.

The design of the proposed development continues to be refined and survey results will inform the design process. At this point the proposed development will comprise the installation of PV panel arrays with a capacity of 9.9MW and associated infrastructure within the site. The development will also comprise a cable route to the substation.

Summary of Collated Baseline

Ecology by Design undertook and prepared a Preliminary Ecological Appraisal (November 2023) which included breeding bird surveys, bat survey, reptile survey and an extended habitat survey.

The breeding bird surveys were undertaken between May-July 2024 and led by experienced ornithologists Nick Boyd or Oli Bulpitt ACIEEM.

Presence/ likely absence surveys for reptiles were undertaken between May to October 2024 by deploying approximately 200 artificial reptile refugia in areas supporting suitable habitat.

The bat surveys consisted of activity (static) surveys, walked transects and ground level roost assessments of buildings and trees, in accordance with BCT guidance (Collins. J ,2023[1]). Surveys were conducted under the supervision of level 2 class licence holder Jo Sykes (2024-12536-CL18-BAT).

The extended habitat survey consisted of the Site (and a buffer) and was undertaken in November 2024 by Jo Sykes. All habitats were categorised and mapped in accordance with UK Habitat Classification v2.0 methodology[2] and the survey was extended to search for signs of presence or suitable habitats and opportunities for protected and notable species.

Full methods and results of the surveys undertaken by Ecology by Design are presented within the PEA, included as appendix 1.

In addition to the PEA, four wintering bird surveys were carried out by Craig Brookes, a suitably experienced ecologist from November 2024-February 2025 and n extended habitat survey was undertaken on between 10 and 11th June 2025 by Crystal Rimmer BSc, an experienced and qualified ecologist with a FISC 3 (botanical competency). The previous survey was undertaken outside the season for habitat surveys therefore an updated walkover was undertaken in June, carefully timed to allow for the maximum identification of botanical species potentially present. Weather conditions were warm and clear; the results of the survey are detailed below. The survey was undertaken using the UK Habitat Classification v2.0 methodology[3] with all habitats identified to Level 4 where practicable. Habitat condition assessments were completed using the Statutory Metric condition assessment methodology. All habitats within the Site were identified, described, and mapped during the survey, and an indicative botanical species list compiled.

The results of the wintering bird surveys and updated habitat survey are not yet reported but will be included within the planning application to inform the ecological assessment. Results are summarised in the following section.

A data search was conducted in order to inform the desk study; data was retrieved from South-East Wales Biodiversity Records Centre (SEWBReC).

- The nearest statutory designated site is Eglwys Nunydd Reservoir, located 1.7km west,
- The watercourse system that runs throughout the Site is designated as a Site of Importance for Nature Conservation alongside ancient semi-natural woodland at the south of the Site,
- Another non-statutory designated site is Margam Country Park, a SINC located directly adjacent to the Site's northern boundaries.

[1] https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-4th-edition-AMENDED-27.03.24.pdf?v=1711530492
[2] DEFRA (2024) *The Statutory Biodiversity Metric -Technical Annex 1: Condition Assessment Sheets and Methodology.* July 2024 (v1.0.2)
[3] UKHab Ltd (2020) Available at https://ukhab.org/about-ukhab/ (Accessed: 30 June 2025)

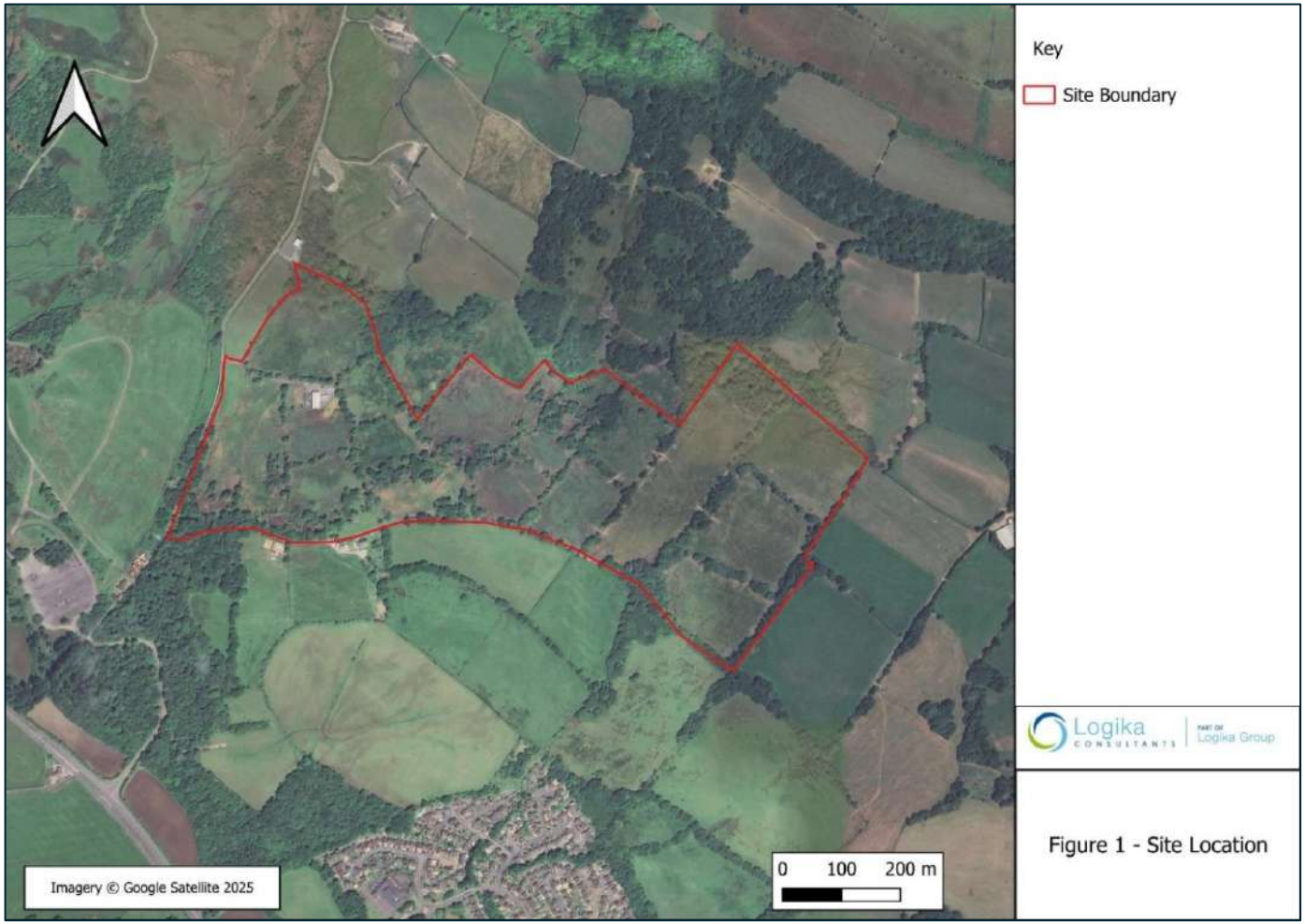

Figure 1 – Site Location

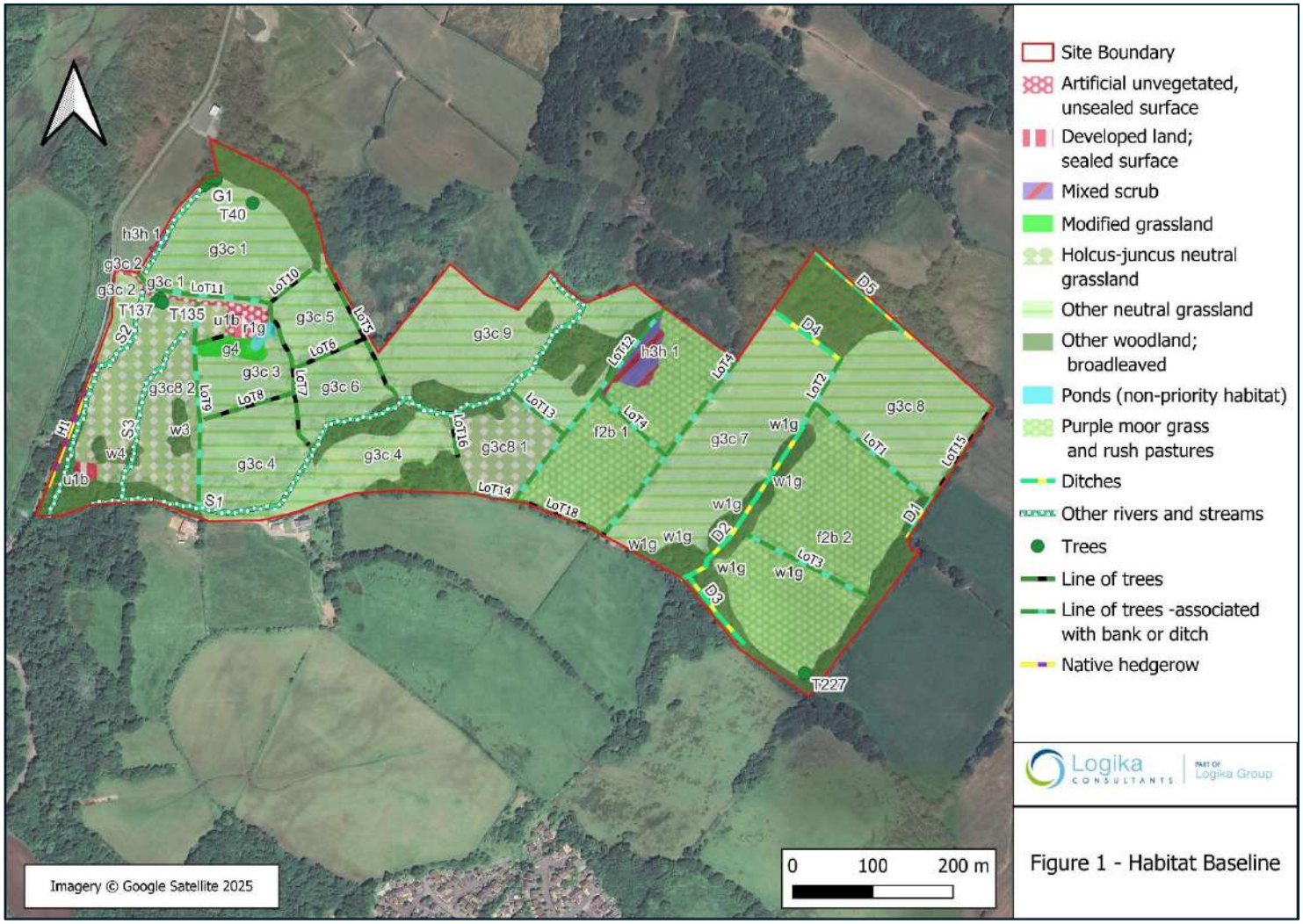

Figure 2 – Habitat Baseline

Preliminary Constraints and Potential Impacts

Species

In 2024, the breeding bird surveys undertaken by Ecology by Design recorded an assemblage of breeding birds. Species recorded include barn swallow *Hirundo rustica*, grey wagtail *Motacilla cinerea*, nuthatch *Sitta europaea*, tree pipit *Anthus trivialis*, and wren *Troglodytes troglodytes*.

However, due to the retention of boundary features such as hedgerows, tree lines and woodland, the species most likely impacted by the proposed development are ground nesting species such as tree pipit which are protected under the Birds of Conservation Concern 5[4], Planning Policy Wales (PPW) + TAN 5, Environment (Wales) Act 2016 – Section 7[5], Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, and Wildlife and Countryside Act 1981. During the breeding bird survey, one confirmed tree pipit nest alongside an estimated eleven species territories were observed on Site, as part of this report, Ecology by Design deemed the Site to be of district value for the wider species population.

During the 2024-2025 wintering birds surveys undertaken by Logika, a number of notable species were recorded in low, irregular numbers including spotted crake *Porzana porzana*, bearded tit *Panurus biarmicus*, house sparrow *Passer domesticus*, Linnet *Linaria cannabina*, lesser redpoll *Acanthis cabaret*, starling *Sturnus vulgaris*, song thrush *Turdus philomelos*, and canada goose *Branta canadensis*. However, due to the retention of features such as the pond, streams hedgerows, woodland and tree lines, these species are not expected to be significantly impacted by the proposed development. During the wintering bird surveys, no waterfowl species were recorded. Additionally, no bird species associated with designated sites were observed. There were low numbers of wintering birds recorded with no evidence of use by protected or sensitive species utilising the fields for grazing.

During 2024, Ecology by Design undertook presence/absence reptile surveys, it was subsequently determined that a 'good' population of common lizard *Zootoca vivipara* are present on site. These are protected by Under Section 9(1) and 9(5) of the Wildlife and Countryside Act 1981 and Species of Principal Importance under Section 7 of the Environment (Wales) Act 2016.

During the bat surveys undertaken by Ecology by Design, moderate activity was recorded, the most common species were common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and *Myotis* species whilst low numbers of barbastelle *Barbastella barbastellus*, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe lesser horseshoe *Rhinolophus hipposideros* were also recorded. A single noctule tree roost was determined to be present within a treeline to the east of the Site. The species group are protected by Section 7 of the Environment (Wales) Act 2016, The Conservation of Habitats and Species Regulations 2017[6] and The Wildlife and Countryside Act 1981[7].

Habitats

During the habitat survey, purple moor and rush pasture[8] was recorded in four fields to the east of the Site. This habitat is protected under UK Biodiversity Action Plan (UK BAP) Priority Habitat[9] and is included in the Section 7 list of the Environment (Wales) Act 2016[10] and is protected through planning policy, including TAN 5 (Nature Conservation and Planning) in Wales[11]. However, no devil's bit scabious *Succisa pratensis* was recorded across the Site, this plant typically grows in purple moor and rush pastures and is the food plant of the marsh fritillary *Euphydryas aurinia,* consequently, the protected butterfly is deemed unlikely to be present.

Ancient woodland was identified to the south of the Site adjacent to the farm access track, however, this is not to be directly impacted by the development. This habitat is protected under Planning Policy Wales, TAN 5 guidance and the Environment (Wales) Act 2016. Additionally, two veteran trees were identified by the arboriculturist to the east of the Site.

[4] https://www.bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf
[5] https://www.biodiversitywales.org.uk/en/legislation-guidance/
[6] https://www.legislation.gov.uk/ukpga/2006/16/section/41
[7] https://www.legislation.gov.uk/ukpga/1981/69/contents
[8] https://webarchive.nationalarchives.gov.uk/ukgwa/20110303145931/http:/www.ukbap.org.uk/UKPlans.aspx?ID=17
[9] https://data.jncc.gov.uk/data/6fe22f18-fff7-4974-b333-03b0ad819b88/UKBAP-BAPHabitats-43-PurpleMoorGrass.pdf
[10] https://www.gov.wales/sites/default/files/publications/2023-01/list-living-organisms-principal-importance-purpose-maintaining-enhancing-biodiversity-wales.pdf
[11] https://www.gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning

All the watercourses that run through the Site are designated as a Neath Port Talbot SINC, for works near the streams, an Ordinary Watercourse Consent (OWC) is to be sought, which is in compliance with section 23 of the Land Drainage Act 1991 to ensure the work does not cause flooding, pollution, or harm to wildlife.[12]

Other neutral grassland is the predominant habitat onsite, other deciduous woodland, mixed scrub, a pond, streams, line of trees, native hedgerow, *holcus-juncus* neutral grassland and ditches are also present, see Figure 2 for a visualisation. During the habitat survey in addition to use of historical imagery, it became evident that many trees had recently been felled. These were predominantly Category U alongside some Category C trees which were previously recommended for removal by the arboriculturist due to the condition of the soil. However, the treelines and woodland blocks are to be retained where possible, these are primarily comprised of category A and B trees.

Potential Impacts

From the established baseline the following potential impacts to protected species have been identified:

- Disturbance to species during breeding season,
- Changes in vegetation structure or shading may alter invert and small mammal abundance - However, this can be neutral or positive in some areas of the Site,
- Inaccessibility of habitats due to fragmentation by solar panels and associated infrastructure,
- Without mitigation, reptiles may be killed or injured during construction,
- Panels reduce sunlight reaching the ground, potentially limiting basking areas and reducing the thermal quality of habitats,
- Disturbance from increased activity, noise, and lighting may affect wildlife,
- Disturbance to log piles, dead wood, or undisturbed ground may impact overwintering reptiles.

Potential impacts of the development to the protected and notable habitats include:

- Degradation from habitat change,
- Hydrological changes to the land i.e drainage,
- Nutrient enrichment or pollution from runoff or construction activity.

Potential secondary ecological impacts may include:

- Root zone damage from construction or trenching within 15–30 metres can impact tree health,
- Shading and changes in light levels from solar panels can affect the woodland edge microclimate,
- Change in drainage and hydrology,
- Pollution or chemical run-off during construction could enter the woodland.

The habitats and conditions within the Site and surrounding area are unlikely to change or offer opportunities for other target species and further surveys are unlikely to establish any additional sensitive receptors or identify additional potential effects.

Mitigation, Compensation and Enhancement Opportunities

It is our professional opinion that the baseline collated to date is sufficient to inform a planning application of a solar development in this location. In review of the identified potential constraints, a series of avoidance measures will be embedded into the projects design and where potentially significant effect are identified, mitigation and/or compensation measure will be included.

In order to minimise impacts on breeding birds:

- A Construction Environmental Management Plan (CEMP) which will include mitigation to aid the prevention of injury or death during construction,
- Scheduled construction outside of the breeding season,

[12] https://www.npt.gov.uk/parking-roads-and-travel/sab-and-highway-development-control/ordinary-watercourse-consenting/

- Mitigation measures for tree pipits will include retaining boundary features, with a focus on enhancing habitat for this species to deliver a Net Benefit for Biodiversity.
- Sufficient panel row spacing,
- Ensure varied sward structure by only mowing certain sections of grassland at a time aiding continuous foraging opportunities.

In order to minimise the impacts on common lizard:

- Phased vegetation clearance and directional habitat displacement to avoid death and injury in areas where the reptiles are known to be,
- Retention of suitable habitat for the development permits and mitigation to offset habitat which includes foraging, basking and hibernacula for the species for the duration of the project.

In order to minimise the impacts on bats:

- The retention and protection of the noctule roost tree,
- The incorporation of a CEMP which will include mitigation measures to prevent the disturbance of the bats on Site e.g. lighting, timings,
- Retention of boundary habitat where possible to protect commuting routes and foraging habitat inclusive of the existing standing deadwood.

In order to minimise impacts of the development on the purple moor and rush pasture habitats:

- Avoid mowing during spring and early summer to allow flowering,
- Use of wider row spacing or increased elevation of panels to reduce persistent shade,
- Maintain current hydrological qualities; Avoid artificial drainage in these areas is the development permits,
- Use permeable surfacing on tracks whilst avoiding compaction in wetter areas,

Prevention of nutrient build-up:

- Cutting and removal of the grass cuttings to prevent nutrient build-up,
- Adherence to designated access routes.

Lastly, with regards to veteran trees and ancient woodland habitats, appropriate buffers and pollution controls will be included within the design and CEMP. Retained trees and hedgerows within site will be protected during the construction phase in line with standard arboriculturist best practice (BS5837:2012).

The site supports four fields of purple moor grass and rush pasture, a recognised BAP priority habitat. As part of the development, the enhancement strategy will prioritise the retention, protection, and appropriate management of this habitat. No net loss of BAP habitat is anticipated, as the purple moor grass and rush pasture will be retained beneath and around the solar arrays wherever possible, with management adapted to maintain its ecological function. In addition, opportunities will be explored to enhance and expand the purple moor grass and rush pasture into adjacent areas of the site which are not to have solar panels on them, contributing to habitat connectivity.

Additional areas of the Site and within the locality were mapped by DataMapWales as purple moor grass and rush pasture which dates back to the 1990s however due to numerous years of horse grazing, the current condition of the grassland does not meet the required criteria of the BAP habitat. The fields will not be subject to horse grazing for the 40-year lifespan of the development, which is predicted to be beneficial for grassland diversity and increase suitability for ground nesting birds and invertebrate assemblages. However, key species were observed such as low amounts of purple moor grass, rushes, sedges, heath spotted orchid *Dactylorhiza maculata* and meadow thistle *Cirsium dissectum*, ragged robin *Silene flos-cuculi* water mint *Mentha aquatica Tormentil Potentilla erecta,* this suggests that the adjacent land holds the correct properties to host this habitat and can be returned to such a favourable condition.

Should any unavoidable habitat loss occur, this will be fully mitigated through habitat creation or restoration elsewhere within the site boundary. These measures will ensure that the favourable conservation status of the purple moor grass and rush pasture habitat is maintained and that the development aligns with local and national biodiversity objectives.

Request for Feedback and Collaboration

We welcome any comments and feedback on the baseline data, survey approach, and emerging ecological considerations. Additionally. we would also be grateful to be informed if any relevant existing ecological records or site-specific information is held. We are committed to working collaboratively to ensure that the EcIA is robust, proportionate, and well-informed.

Issued by:	Crystal Rimmer (Ecologist) 23 Coldharbour Road, Bristol BS6 7JT T +44(0)117 974 1086 E crystalrimmer@logikagroup.com
Approved by:	Stacey Whiteley (Associate Director)
Date:	12 August 2025

Preliminary Ecological Appraisal

Caergawr Farm

On behalf of Arise Renewable Energy UK Ltd

April 2025

This document is for use by the project team only and should not be issued to the LPA or uploaded to the planning portal. If issued or received in error, please contact Ecology by Design.

Ecology by Design Ltd,

Hampden House, Monument Park, Chalgrove, Oxon OX44 7RW.

Tel 01865 893346 www.ecologybydesign.co.uk

Registered in England and Wales No. 9318075.

Project Code	Title	Date of Issue
EBD03347	Caergawr Farm	11 April 2025

	Name	Date
Prepared by	Jess Botha BSc (Hons), Kat Hale BSc (Hons), Jo Sykes BSc (Hons) MCIEEM	09 April 2025
Checked by	Jessica Stuart-Smith BSc (Hons) MCIEEM	10 April 2025

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Contents

1 Executive Summary

Report purpose	This report identifies the potential ecological impacts, mitigation, compensation and enhancement measures for re-development of land at Caergawr Farm, Port Talbot, SA13 2TL (approximate central grid reference SS82015 85334).
Date and methods of survey	A baseline ecological survey of the site was conducted in November 2023 which included an extended UKHab habitat survey, habitat suitability index assessment for great crested newts, daytime bat walkover, building and tree assessments for roosting bats. Following the initial survey, night time bat walkover surveys, breeding bird surveys, eDNA surveys and reptile surveys are ongoing.
Key findings and potential impacts	The site, situated near Port Talbot, in Wales is approximately 35ha in extent and includes a variety of habitats such as mixed scrub, semi-natural woodland, other neutral grassland, streams, scattered trees, line of trees, hedgerow, and ditches. There is one pond on site and five within 500m. In the absence of mitigation, the proposals are likely to result in net loss of biodiversity within the site. The site is of confirmed or potential value to protected and priority species including: • Bats - Trees on site with features for roosting bats and commuting and foraging opportunities. Site is of County level importance for foraging and commuting bats. • Breeding birds – 22 probable breeding species identified to date with survey effort ongoing. • Reptiles – A 'good' population of common lizard found on site; no other reptile species recorded. Refugia and hibernacula are present on site. Site is of Local level importance for common lizard. • Opportunities for badger, otter and hedgehog to make use of the site, with the proposals potentially impacting their use of the landscape; • Negligible opportunities for other protected or priority species and invasive species.
Further survey	An update habitat survey is required to accurately assess the habitats present. This should be undertaken during the optimal growing season (May – August). Breeding bird survey effort to be completed within the 2025 season.
Measures to avoid and/or reduce impacts and deliver biodiversity enhancements	Without mitigation, proposals within the site have the potential for the killing and injury of the above-mentioned species, habitat loss and habitat fragmentation. In line with the mitigation hierarchy, impacts to the boundary features, woodland parcels and streams should be avoided where possible, with no introduction of artificial light. Where avoidance is not possible, mitigation measures should include: • Implementation of a sensitive lighting and acoustic scheme and/or screening; • A 20m buffer around watercourses, where feasible; and • Directional clearance of vegetation and removal of any hibernacula outside of hibernation season to protect reptiles present. Further recommendations will be made following completion of the breeding bird surveys.

2 Introduction

2.1 Background

2.1.1 Ecology by Design was commissioned by Arise Renewable Energy UK Ltd to undertake a Preliminary Ecological Appraisal (PEA) of land at Caergawr Farm, Port Talbot, SA13 2TL. (central grid reference: SS82015 85334). This included a Preliminary Ecological Appraisal (PEA), Daytime Bat Walkover (DBW) and Habitat Suitability Index Assessment (HSI) of on-site pond. Following this, eDNA surveys, reptile surveys and night-time bat walkover surveys were carried out in 2024, with breeding bird surveys still ongoing (2025).

2.2 Site Description

2.2.1 The *c*. 35ha site is active horse grazing land, with some fields used for silage. The site comprises mixed scrub, semi-natural woodland, other neutral grassland, a stream, scattered trees, line of trees, hedgerow, and ditches. The site is located southeast of Port Talbot and northwest of Bridgend in southern Wales. The wider landscape is predominantly rural, with farms and outdoor activity centres nearby. The village of Coed Hirwaun is approximately 0.5km south of the site.

2.3 Proposed Works

2.3.1 The proposals include the construction of a solar scheme, alongside associated access and infrastructure.

2.4 Aims of Report

2.4.1 This report presents a preliminary appraisal of the potential ecological impacts of the proposed development works. The report outlines recommendations for avoidance, mitigation, compensation and enhancement measures. This report is not suitable for submission to inform a planning application at the site until further surveys are completed to inform the assessment of potential impacts and refine the recommendations.

2.5 Personnel

2.5.1 This project is led by Ecology by Design Senior Ecologist Jo Sykes BSc (Hons), MCIEEM who has eight years' experience in ecological consultancy, and is experienced in conducting habitat and protected species assessments. The PEA survey was completed by Jo Sykes who holds a Natural England Level 2 class licence for surveying bats (2024-12536-CL18-BAT), and Sofia Sanchez Piccone BA, MSc, ACIEEM. The report was written by Jo Sykes with support from Jess Botha BSc (Hons), MSc.

2.5.2 Project supervision and review of the report was provided by Principal Ecologist Jessica Stuart-Smith, BSc (Hons), MCIEEM, who has been an ecological consultant for over 10 years.

3 Methods

3.1 Desk Study

3.1.1 A desk study was carried out to identify:

- Internationally protected sites within the potential zone of influence of the site (minimum of 7km);
- Nationally protected sites within 5km of the site; and
- Non-statutory designated sites and records of protected or priority species within 2km of the site (central OS national grid reference SS82015 85334).

3.1.2 A 2km search radius for species and non-statutory designated sites is justified due to the small size of the site and small-scale development works being undertaken. It is thought highly unlikely that species or non-statutory sites outside this search zone would be affected by the project. A larger search radius is applied for internationally and nationally designated sites as these sites are protected to a higher level and can often be more sensitive to disturbance. These search distances are also based on industry standard guidance.

3.1.3 Sources consulted include:

- Aderyn: LERC Wales' Biodiversity Information and Reporting Database (returned 6th March 2025);
- MAGIC (magic.defra.gov.uk) (accessed 6th March 2025); and
- Local Planning Policy documents and the local planning portal.

3.2 Preliminary Ecological Appraisal

3.2.1 A Preliminary Ecological Appraisal (PEA) was conducted on 21st and 22nd November 2023 by Jo Sykes and Sofia Sanchez Piccone, using standard techniques and methodologies (CIEEM, 2017) and the nomenclature of Stace (2019).

3.2.2 The PEA includes a survey of the habitats utilising the standard UK Habitat Classification system (UKHab Ltd, 2023). Weather conditions during the survey were mild (9°C), calm (wind 0 on Beaufort scale[1]) and overcast (cloud 7/8[2]).

3.2.3 Opportunities for or evidence of protected and priority species were also identified. Where potential impacts on features of ecological interest are identified, the PEA is extended to

[1] The Beaufort scale is an empirical measure from 0-12 which relates wind speed to observed conditions. 0- Calm, 1- Light air, 2- Light breeze, 3- Gentle breeze, 4- Moderate breeze, 5- Fresh breeze etc.
[2] Cloud cover is measured using the system called oktas. The visible sky is divided into eight and cloud presence is determined within each section. A value of one to eight is then assigned (1 okta being cloudless to 8 oktas being total cloud cover).

include an assessment of impact. Any further surveys required are outlined and recommendations are made for appropriate avoidance, mitigation, compensation and enhancement measures.

3.3 Bats

Daytime Bat Walkover (DBW) Survey

3.3.1 A daytime bat walkover (DBW) survey was conducted during the PEA survey.

3.3.2 During the DBW the surveyors noted any habitats suitable for roosting, foraging or commuting bats within or adjacent to the site. This includes recording structures, habitat features and trees which could be suitable for bats.

Table 3.1: *Categorisation of Potential Suitability of Sites for Bats (Collins, 2023)*

Suitability	Description of Potential Flightpaths and Foraging Habitats
None	No suitable features for flightpaths and foraging.
Negligible	No obvious flightpath or foraging features but cannot be discounted.
Low	Habitats with limited connectivity suitable for use by low numbers of bats.
Moderate	High habitat connectivity including flightpath or foraging habitats features.
High	Well-connected habitats high quality habitats for foraging which is likely to be in regular use.

Static Detector Surveys

3.3.3 Automated detectors were used to record bat activity remotely. Given the habitats within the site are of high suitability for bats, an AnaBat Swift bat detector was deployed at two locations, collecting five consecutive nights of data per month (April to October) in appropriate weather for bats during the following periods:

- 10th – 14th May 2024
- 10th – 14th June 2024
- 16th – 20th July 2024
- 1st – 5th August 2024
- 11th – 15th September 2024
- 10th – 14th October 2024

3.3.4 The detectors were set to record from 30 minutes before sunset until 30 minutes after sunrise. The data were automatically identified using Anabat Insight and each sound file is manually checked and corrected to assign the correct species/group identification.

3.3.5 The data was exported into a spreadsheet in order to interpret the recordings. The timing of passes after sunset and before sunrise is calculated in order to interpret any patterns in bat activity. For the purpose of this report, a bat pass is the minimum number of bats of a certain species recorded within a single sound file.

Night-Time Bat Walkovers

3.3.6 Night-Time Bat Walkovers (NBW) were required to observe and record bat activity (Table 3.2). One survey visit was conducted per season (spring – April/May, summer – June/July/August, autumn – September/October) in appropriate weather conditions for bats (mild, still and dry). Due to the size of the site, it was separated into 'East' (Transect 1) and 'West' (Transect 2), with each being surveyed by separate surveyors simultaneously.

3.3.7 Surveyors arrived on site before sunset and positioned themselves on potential flight lines, close to potential features of interest for bats. Surveyors remained in position to count bats, observe behaviours and make acoustic recordings (using an Elekon Batlogger M or M2) of commuting and/or foraging bats for up to an hour after sunset. The surveyors then commenced a transect, walking a pre-determined route to observe and record bat activity for at least two hours. Observed flightpaths were mapped, and notes are made on the behaviours observed (e.g., foraging/ commuting/ social interactions).

3.3.8 During the May NBW survey, each of the two transect was undertaken by one surveyor. For all further surveys this was increased to two surveyors per transect for health and safety reasons.

3.3.9 The eastern transect (Transect 1) and western transect (Transect 2) observation locations were at SS 82271 85194 and SS 81973 85347, respectively.

Table 3.2: *Dates, surveyors and weather conditions of each NBW survey*

Date	Transect	Surveyors	Observation times	Walkover times & Weather Conditions
30/05/24	East (transect 1)	Oliver Bulpitt	21:23-21:53 (sunset 21:23)	12-11°C, BF 6, cloud 1/8, dry 21:23-23:23
	West (transect 2)	Steve Allen		
07/08/24	East (transect 1)	Jess Botha Luis Santiago	20:52-21:22 (sunset 20:25)	16°C, BF 6, cloud 6/8, dry 20:52-21:22
	West (transect 2)	Harry Eldon Marie Pugh		

29/10/24	East (transect 1) West (transect 2)	Charlie Hester Jack Bailey Rob Williams Jess Williams	16:52-17:22 (sunset 16:52)	14-13°C, BF 1-0, cloud 8, dry

3.4 Great Crested Newt Scoping

Habitat Suitability Index Assessment of Ponds

3.4.1 A Habitat Suitability Index (HSI) survey was undertaken by Jo Sykes and Sofia Sanchez Piccone during the PEA to assess suitability for great crested newts (*Triturus cristatus*). Natural England recommends calculation of HSI scores for ponds as a tool to assess habitat quality in a repeatable, objective manner (Natural England, 2020). In particular, the HSI allows individual factors that influence newt presence to be easily identified. Natural England suggests that ecological consultants apply the adapted HSI methods used by the National Amphibian and Reptile Recording Scheme (Herpetological Conservation Trust, 2008) in order to determine the HSI value of each waterbody. This adapted method simplifies the way in which terrestrial habitat is evaluated.

3.4.2 The suitability index is calculated by allocating scores to features associated with each waterbody; these include features such as size, quality of surrounding habitat and presence of fish. These scores are then used to calculate the overall HSI for each waterbody as a number between 0 and 1, with 0 being the least suitable and 1 being the most suitable. The HSI score allows each waterbody to be placed in one of five pre-defined categories defining its suitability for great crested newts as follows:

- <0.5 = poor
- 0.5 – 0.59 = below average
- 0.6 – 0.69 = average
- 0.7 – 0.79 = good
- >0.8 = excellent

eDNA Analysis

3.4.3 Water samples of the on-site pond was collected on 30th May 2024 by Oli Bullpitt (Natural England great crested newt class licence number 2019-42924-CLS-CLS) and sent to Applied Genomics for analysis. The survey was based on the guidance for field and laboratory sampling of great crested newt environmental DNA (eDNA) (Biggs *et al*, 2014). The sampling procedure was as follows:

- 20 water samples of 30 ml were collected and mixed from a waterbody;

- Samples were spread out as much as possible and targeted at both open areas and vegetated areas likely to be utilised by great crested newt;
- Prior to collecting the sample, the water column was agitated with care taken to avoid disturbing the sediment layer;
- Six sub-samples of 15 ml each were taken from the large sample above and preserved in 35 ml of ethanol; and
- Samples were stored at 2-4°C until couriered to the laboratory within 48 hours for analysis.

3.4.4 During sampling, DNA contamination was avoided through the use of fresh latex gloves, avoiding entering the sampled water body, and use of sterile equipment.

3.5 Breeding Bird Surveys

Breeding Bird Surveys

3.5.1 Breeding bird surveys were conducted between May - July 2024, led by experienced ornithologists Nick Boyd or Oli Bulpitt ACIEEM, comprising three early morning dawn surveys and one evening dusk survey. Table 3.3 sets out the dates and conditions for each visit.

Table 3.3: *Breeding bird survey dates and survey conditions*

Visit Number (Date)	Surveyors*	Dusk or Dawn (Timings)	Weather Conditions
1 (08/05/24)	OB +NB	Dawn (05:45 – 11:30)	9-12°C, cloud 8/8, wind Bf 0, medium-thick fog at beginning, cleared by 8am
2 (26/06/24)	OB + SP	Dusk (19:30 – 22:30)	20°C, cloud 4/8, wind Bf 1, no rain and good visibility
3 (27/06/24)	OB + SP	Dawn (05:30 – 08:30)	16°C, cloud 8/8, wind Bf 4, occasional light patchy rain
4 (23/07/24)	NB + MP	Dawn (05:40 – 09:30)	15°C, cloud 8/8, wind Bf 4-5, no rain and good visibility

**Where: OB = Oli Bulpitt ACIEEM, NB = Nick Boyd, SP = Steven Pagett, MP = Marie Pugh*

3.5.2 The methodology was based on the Breeding bird survey methodology (Bird Survey Guidelines, 2023).

3.5.3 During each visit the site was walked at a slow pace to enable birds to be detected, identified and located. Frequent stops were made to scan suitable habitats and listen for singing and calling birds. All areas of suitable breeding habitat with and adjacent to the site boundary were approached to within 50m.

3.5.4 Survey 2 comprised a dusk survey to identify the assemblage of nocturnal birds utilising the site. Surveyors used two Guide TrackIR thermal imaging scopes to identify birds within the site post-sunset, alongside listening for vocalisations of nocturnal birds.

3.5.5 The location and activity of each bird detected was recorded and mapped using standard two-letter BTO species codes combined with activity symbols (see Figures 7 - 10 in Appendix 2).

3.5.6 Birds exhibiting breeding behaviour were assigned to one of three categories: confirmed breeding, probably breeding or possible breeding.

3.5.7 The assessment of the importance of the site for breeding birds takes in to account the numbers of potential territories for each species, the abundance of species at county and national level, the quality of habitat present and the geographical range of the bird species based on national and regional accounts.

3.6 Reptiles

Reptile Surveys

3.6.1 A presence/ likely absence survey for reptiles was undertaken by deploying approximately 200 artificial reptile refugia in areas supporting suitable habitat (see locations on Figure 5). Refugia comprised 50cm^2 pieces of roofing felt. The number of refugia deployed exceeded the current industry standard guidance which suggests between 5 and 10 refugia are used per hectare of suitable habitat.

3.6.2 The refugia were checked on seven occasions during suitable weather conditions between the months of May and October. The refugia were initially deployed on 1st May 2024, and again on 9th July 2024 and were left *in situ* for two weeks prior to the first survey visit to allow the refugia to "bed down".

Table 3.4: *Reptile presence / absence survey details*

Date	Surveyor	Survey period	Weather
21/05/24	Ross Hellier	10:10 - 13:15	15°c - 17°c, cloud 2/8, wind Beaufort 2
11/09/24	Ross Hellier	10:35 – 12:57	12°c - 13°c, cloud 5/8, wind Beaufort 6, occasional light drizzle
16/09/24	Harry Eldon	09:25 – 11:45	15°c - 17°c, cloud 2/8, wind Beaufort 1
19/09/24	Jo Sykes	10:30 – 12:00	15°c - 14°c, cloud 4/8, wind Beaufort 1
27/09/24	Jack Bailey	10:20 – 11:34	10°c - 12°c, cloud 5/8, wind Beaufort 3

03/10/24	Charlie Hester	11:20 – 13:30	12°c - 16°c, cloud 1/8, wind Beaufort 4
14/10/2024	Charlie Hester	10:25 – 14:25	13°c - 16°c, cloud 7/8, wind Beaufort 3

3.6.3 The population size class for reptiles was estimated based on Froglife guidelines (Froglife, 1999) as follows in Table 3.5 below.

Table 3.5: *Criteria for assigning reptile population size (Froglife 1999)*

Species	Low population (Score 1)	Good population (Score 2)	Exceptional population (Score 3)
Adder	<5	5-10	<10
Grass snake	<5	5-10	>10
Common lizard	<5	5-20	>20
Slow-worm	<5	5-20	>20

*Figures in the table refer to the maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare) by one person in one day.

3.7 Limitations/Constraints

3.7.1 The wildlife and wider ecological interest of a site can change. The report presented here is a statement of the findings of surveys carried out in November 2023. For the purpose of this report the results of site visits are discussed in the present tense. Any appreciable delay in making reference to this report or changes to the proposed development boundary may necessitate a re-survey.

3.7.2 The species information gained from local record centres is largely derived from data submitted from members of the public and volunteers. For this reason, it should be understood that the desk study may not provide an exhaustive list of all protected species that could occur in the local area.

3.7.3 MAGIC was used for this site during the desk study, however as a significant amount of information on habitats, class licences and species on MAGIC is only for England, the data gathered from this resource was limited.

3.7.4 Refugia for the reptile surveys were initially deployed on 1st May 2024. Following the first survey on 21st May, the reptile mats were impacted by mowing. As such, the refugia were redeployed on 9th July.

3.7.5 Access was constrained during the August Nightime Bat Walkover Survey due to the presence of horses in northern fields on the eastern transect. As these parts of the transect were not surveyed, there is no data from these areas.

3.7.6 Weather conditions as detailed in section 3.2.2 were suitable to conduct the surveys.

4 Results and Interpretation

4.1 Designated Sites

4.1.1 The desk study identified two internationally designated sites for nature conservation within 7km of the site, two nationally designated sites for nature conservation within 5km and two non-statutory sites within 2km of the site.

Table 4.1: *Internationally classified / designated sites within 7km of the site*

Name & international reference	Distance & direction from site	Size and interest
Kenfig / Cynffig (SAC)	2.82 km SW	1190.89ha; Annex I habitats that are a primary reason for selection of this site: • 2130 "Fixed coastal dunes with herbaceous vegetation (""grey dunes"")" • 2170 Dunes with Salix repens ssp. argentea (Salicion arenariae) • 2190 Humid dune slacks • 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. Annex II species that are a primary reason for selection of this site • 1395 Petalwort (Petalophyllum ralfsii) • 1903 Fen orchid (Liparis loeselii)
Glaswelltiroedd Cefn Cribwr / Cefn Cribwr Grasslands (SAC)	3.38km SE	58.19ha; Annex I habitats that are a primary reason for selection of this site: • 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

Table 4.2: *Nationally designated sites and non-statutory sites of potential relevance within 2km of the site*

Name & reference	Distance & direction	Size and interest
Margam County Park (SINC)	Adjacent W	326.05ha; designated for H1:2 wood pasture and parkland, H13:2 Ponds, H16 mosaic habitats (Marshy grassland, Woodland, Scrub, Neutral grassland), mosaic of habitats and buildings. S1 mammals - Bat roosts 14 species. Important species include lesser horseshoe (*Rhinolophus hipposideros*), greater horseshoe (*Rhinolophus ferrumequinum*), barbastelle (*Barbastella barbastellus*), brown hare (*Lepus europaeus*) and adder (*Vipera berus*).

**Where;*
SAC= Special Area of Conservation
SINC= Site of Importance for Nature Conservation

4.1.2 Only those sites of potential relevance are detailed in Table 4.2, with the remainder scoped out of further assessment due to their size, location, habitat types, lack of connectivity and/or absence of shared features of interest, therefore no potential impacts as a result of the proposals are anticipated. The LPA and Local Records Centre has access to the full list of sites. A full list can be provided upon request.

4.2 Habitats

4.2.1 At the time of the survey (November 2023), the following habitats were recorded on site. They are described in Table 4.3 below. Photographs are included in Appendix 1 and a habitat map is included in Figure 1, Appendix 2.

Table 4.3: *Habitat types identified during the UKHab survey*

Habitat type & UKHab code	Parcel or Feature Reference and Description
Holcus-Juncus neutral grassland (code g3c8)	Four parcels of this habitat type are present on site (Photograph 1), which supported varied sward heights. The parcels in the eastern portion of the site are heavily poaching by deer, with rotational horse grazing, and were wet at the time of the survey. The parcel of this habitat in the west of the site supported a more uniform sward and was not subject to grazing pressure. The grasslands were dominated by soft rush (*Juncus effusus*) and Yorkshire fog (*Holcus lanatus*), with occasional instances of other grass species including common bent (*Agrostis capillaris*), annual meadow-grass (*Poa annua*), fescue (*Festuca* sp.), crested dog's-tail (*Cynosurus cristatus*) and creeping bent (*Agrostis stolonifera*). Forb species present include hairy bittercress (*Cardamine hirsuta*), *Carex* sp., creeping thistle (*Cirsium arvense*), creeping buttercup (*Ranunculus repens*), willowherb (*Epilobium* sp.), bramble (*Rubus fruticosus*), dock (*Rumex* sp.), common nettle (*Urtica dioica*), common ragwort (*Jacobaea vulgaris*), creeping Jenny (*Lysimachia nummularia*), bird's-foot trefoil (*Lotus corniculatus*), meadow buttercup (*Ranunculus acris*), compact rush (*Juncus conglomeratus*), common mouse-ear (*Cerastium fontanum*), and marsh thistle (*Cirsium palustre*).
Other neutral grassland (code g3c)	Other neutral grassland is present across the site, predominately on the western side (Photograph 2). These parcels are dominated by grass species, including crested dog's-tail, annual meadow grass, creeping bent and false oat-grass (*Arrhenatherum elatius*). Rushes are also present in abundance, including soft rush and sharp flowered rush (*Juncus acutiflorus*). Forb species present includes creeping buttercup, creeping Jenny (*Lysimachia nummularia*), red deadnettle (*Lamium purpureum*), horehound (*Marrubium* sp.), dandelion (*Taraxacum officinale* agg.) and white clover (*Trifolium repens*).
Arrhenatherum neutral grassland (code g3c5)	Two central fields are dominated by false oat-grass (Photograph 3). Instances of Yorkshire fog, creeping bent and *Poa* sp. were recorded along with frequent instances of soft rush. There is scattered dense scrub, with pockets of gorse (*Ulex* sp.) and bramble.

Ditch (code 50)	There are a series of ditches across the site, which supported small levels of water at the time of the survey, between 5 and 10cm. None of the ditches supported emergent or submerged vegetation but all supported vegetated banks.
Other rivers and streams (code r2b)	**S1** is a flowing stream, with fast and slow flowing sections and still pools. This stream showed evidence of having been recently dredged. The banks are gently sloping and vegetated, with species including duckweed (*Lemna sp*.), iris (*Iris sp*.), compact rush (*Juncus conglomeratus*), soft rush (*Juncus effusus*), and bracken (*Pteridium aquilinum*). **S2** is generally fast flowing with steep banks. It has some low levels of submerged vegetation, and lots of bank vegetation, predominantly terrestrial grass species. **S3** is a flowing stream with approximately 40cm water depth. No emergent or aquatic vegetation was present. The banks of this stream are steep with bracken, ferns, moss and bramble present.
Scattered trees (code 32)	Scattered semi-mature and mature trees are present throughout the site (Photograph 4). These include silver birch (*Betula pendula*), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), oak (*Quercus* sp.), and willow (*Salix* sp.).
Native hedgerow (code h2a)	An unmanaged hazel hedgerow, approximately 2m high and 1-1.5m wide, is present along the boundary to the road on the western side of the site (Photograph 5).
Mixed scrub (code h3h)	There is an area of mixed scrub in the north of the site, consisting of bramble, gorse, bracken (*Pteridium* sp.), willow, and birch.
Other woodland, qbroadleaved (code w1g)	Several woodland parcels are present within the site (Photograph 6). These are all semi-natural, comprising predominantly semi-mature trees, with some mature specimens. Tree species present include oak (*Quercus* sp.), willow, and silver birch. Self-seeding was evident during the site visit, with seedlings and saplings present. Understorey is present in places, with species including holly and hazel. Bramble scrub is present sporadically. The ground is predominately bare, with a covering of leaf litter. Where ground flora is present it comprises bramble, bracken and rushes. This woodland area contains a significant amount of deadwood and fallen trees.
Line of trees (code 33)	Lines of mature trees are present across the site, which are dominated by mature oak trees, with instances of ash, silver birch and hazel. Within the tree lines there are also instances of holly and gorse. There is deadwood present, both as standing stumps and on the ground.
Line of trees (code w33) (with bank or ditch)	Many of the tree lines present on site, predominately on the eastern side of the site, are associated with ditches, which supported water at the time of the survey. The ditches support no emergent or submergent vegetation but do have vegetated banks.
Other standing water (code r1g)	One waterbody is present on site. This waterbody is turbid, with no emergent or submergent vegetation present. The banks are vegetated

	with reeds, gorse and bracken. Waterfowl were noted as present during the site visit.
Artificial unvegetated, unsealed surface (code u1c)	A gravelled access track on the western side of the site. Some ephemeral vegetation is present along the edges of the track.
Buildings (code u1b5)	Two buildings are present on site, a newly constructed, wooden cladded, single storey stable block and a two-storey metal agricultural barn.

Adjacent habitats

4.2.2 The site is surrounded on all boundaries by extensive areas of open habitat, including woodland, grassland, scrub and hedgerows. The site is directly connected to the wider landscape.

Conclusion

4.2.3 All habitats within the site contribute to the baseline biodiversity value of the site. However, of the habitats present on site, those identified as likely to qualify as priority habitats include:

- Native hedgerow

4.2.4 As such, and in line with Appendix 3, their level of geographic importance is considered to be local. This is due to the presence of comparable habitats within the wider landscape.

4.2.5 Although the watercourses present on site are not assessed as likely to qualify as priority habitat, they have good connectivity to the wider landscape and, given the presence of similar watercourses within the local area, are considered to be of local level importance.

4.2.6 The other habitats on site, particularly the grassland habitats and pond P1, offer opportunities for a range of species such that they are of elevated ecological value, albeit do not qualify as priority habitats. As such, and due to the context of these habitats within the wider landscape, the remaining habitats are assessed to be of negligible geographic importance in line with Appendix 3.

4.3 Species

Bats

Desk Study

4.3.1 310 records of at least fourteen bat species have been recorded within 2km of the site including barbastelle, Brandt's bat (*Myotis brandti*), brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), greater horseshoe, Leisler's bat (*Nyctalus leisleri*), lesser horseshoe, Nathusius's pipistrelle (*Pipistrellus nathusii*),

Natterer's bat (*Myotis nattereri*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), soprano pipistrelle (*Pipistrellus pygmaeus*), and whiskered bat (*Myotis mystacinus*).

Daytime Bat Walkover

4.3.2 Habitats with suitability for foraging or commuting bats within or adjacent to the site include:

- Woodland edges;
- Lines of trees;
- Grasslands;
- Streams; and
- Ditches

4.3.3 Habitats with suitability for roosting bats are discussed within the Preliminary Roost Assessment and Ground Level Tree Assessment sections below. Overall, the site is identified as being of moderate suitability for bats.

Nighttime Bat Walkover surveys

4.3.4 The night-time bat walkover results are included in Table 4.4 below, detailing behaviour observed during the observation section of the survey, and that observed during the walkover section of the survey. The results of these surveys are shown in Figure 2 – 4 in Appendix 2.

4.3.5 At least five species of bat were encountered during the night-time walkovers, comprising:

- Common pipistrelle
- Soprano pipistrelle
- Brown long-eared bat
- Lesser horseshoe
- *Nyctalus* species/ serotine
- *Myotis* species

Table 4.4: *Summary of findings from observation and walkover components of the night-time bat walkover survey*

Date	Summary of Findings from Observation Survey	Summary of Findings from Walkover Survey
30/05/2024	One silent bat species and common pipistrelle bats were recorded at point 1 and a soprano pipistrelle was recorded at point 1 or 2.	Common and soprano pipistrelles commuting and foraging continuously along natural field boundaries. Activity was notably absent from the southern boundary of the site. Myotis and noctule were also noted in the northern half of Transect 1.

07/08/2024	Common and soprano pipistrelle bats at point 1 and Noctule and common pipistrelle bats recorded at point 2.	Common and soprano pipistrelles commuting and foraging continuously along natural field margins in the east of the site, and within the centre of the site. These species were notably absent from the southern boundary of the site. A noctule was noted commuting in the centre of the site.
29/10/2024	Common and soprano pipistrelle bats recorded at points 1 and 2.	Common and soprano pipistrelles commuting and foraging in the north-east, north-west, and centre of the site. These species were notably absent from the southern boundary of the site. A myotis was recorded within the north-eastern corner of the site.

30th May 2024

East Transect Activity:

4.3.6 There was moderate-level activity in this area of the site with passes comprising predominantly of common pipistrelle and soprano pipistrelle heard throughout the survey, with twelve passes of myotis species and three of Noctule towards the end of the survey. Once unknown silent species was also noted. The first bat heard was a common pipistrelle at 21:56 (34 minutes after sunset).

West Transect Activity:

4.3.7 There was low-level activity in this area of the site with passes comprising predominantly of common pipistrelle and soprano pipistrelle heard throughout the survey, with three passes of myotis species towards the end of the survey. The first bat heard was a soprano pipistrelle at 21:30 (8 minutes after sunset).

Overall Commuting Patterns:

4.3.8 During this survey, common pipistrelles were noted to be commuting along all natural boundaries (including treelines, hedgerows and woodland edges), excluding the entire southern boundary of the site, the south-easternmost corner of the site, the south-westernmost area of the western transect and the line of trees running northeast to southwest in the eastern half of the site. Soprano pipistrelles were noted to be in similar areas to the common pipistrelle, as well as being excluded from the same areas, with the additional exclusion from the centre-north of the site. The noctule that was heard was noted in the north of the line of trees running northeast to southwest in the eastern half of the site, and the unknown silent bat species was seen on the southern end of this treeline.

7th August 2024

East Transect Activity:

4.3.9 There was moderate-level activity within this area of the site, with common pipistrelle and soprano pipistrelle activity being the highest and constant throughout the survey, some low myotis activity for an hour (from 21:34 to 22:29) and five passes of noctules spread within the first half of the survey. The first bat, heard at 21:09 (17 minutes after sunset), was a soprano pipistrelle.

West Transect Activity:

4.3.10 There was moderate-level activity within this area of the site, though less calls, specifically less common pipistrelle calls, overall than in the eastern side of the site. Common pipistrelle and soprano pipistrelle comprise the majority of the calls and called consistently throughout the survey, with ten passes from myotis (middle of the survey) and five from noctule passes (spread towards the start of the survey). The first bat heard was a soprano pipistrelle at 21:02 (10 minutes after sunset).

Overall Commuting Patterns:

4.3.11 Due to the constraints on the eastern side of the side, no data was collected from the noted areas.

4.3.12 Common pipistrelle were noted to use the linear features predominantly around the central-eastern field of the site, as well as around the woodland in the southeast of the site and the linear features present in the centre of the site. They were notably absent from the northwest and southeastern corner of the site. Soprano pipistrelle were noted in the same locations as the common pipistrelle, however, were absent from the more western areas of the site. Noctule passes were recorded within the centre of the site.

29th October 2024

East Transect Activity:

4.3.13 There was moderate-level activity within this area of the site, with passes comprising predominantly of common pipistrelle and soprano pipistrelle calls noted throughout the survey, with five calls from myotis species towards the end of the survey and one pass from a lesser horseshoe (*Rhinolophus hipposideros*) at 17:42. The first bat, heard at 17:05 (13 minutes after sunset), was a common pipistrelle.

4.3.14 West Transect Activity:

4.3.15 There was low-level activity within this area of the site, with passes comprising predominantly of common pipistrelle and some soprano pipistrelle noted throughout the survey, with eight myotis passes and two noctule passes towards the latter half of the survey. The first bat, heard at 17:10 (18 minutes after sunset), was a soprano pipistrelle.

4.3.16 Overall Community Patterns:

4.3.17 Common pipistrelle was noted to use features around the central/start point of the western transect, as well as in the north, centre and north-east of the site. Soprano pipistrelle were largely in the same locations as the common pipistrelle, with additional recordings of them in the north-west (commuting over grassland), and south-east (using linear boundary features) of the site. The myotis was see in the north-east of the site, close to a line of trees.

Static bat detector surveys

4.3.18 The automated bat detectors recorded at least nine species of bat between May and October.

4.3.19 The species most frequently recorded were:

- Common pipistrelle (n= 34,634; 60.88%);
- Soprano pipistrelle (n= 19,462; 34.21%);
- *Myotis* species (n= 19,18; 3.37%);

4.3.20 The remainder of species accounted for a total of less than 2% of total bat activity. Low numbers of barbastelle, greater horseshoe (*Rhinolophus ferrumequinum*) and lesser horseshoe passes were recorded, with the latter recording passes during almost all recording periods. The number of recordings fluctuated across the year, with significantly higher numbers in May, August and October.

4.3.21 A total of 56,886 bat passes were recorded by the detectors across the recording periods. Table 4.5 summarises the number of species recorded each month.

Table 4.5: *Summary of bat passes for each month of recording*

Species	May	June	July	August	September	October	Total
Common pipistrelle	10,838	1,528	2,096	9,621	1,410	9,141	**34,634**
Soprano pipistrelle	3,217	1,136	2,078	5,214	1,660	6,157	**19,462**
Myotis sp.	506	52	377	380	275	328	**1,918**

Noctule / Serotine / Leisler's bat	136	106	161	148	90	14	**655**
Brown long-eared bats	32	4	25	41	40	6	**149**
Nathusius' pipistrelle	34	0	0	1	0	0	**35**
Lesser Horseshoe	5	0	2	1	3	15	**26**
Barbastelle	2	0	4	0	0	0	**6**
Greater Horseshoe	0	0	1	0	0	0	**1**
Total	**14,770**	**2,826**	**4,745**	**15,406**	**3,478**	**15,661**	**56,886**

Pipistrelle species

4.3.22 In all months, common pipistrelle and soprano pipistrelle returned the greatest number of passes, collectively accounting for 94% of recorded activity. Notably common pipistrelle activity was much higher than soprano pipistrelle activity in all months, with September being the only exception. Common pipistrelle activity peaked in May, compared to lower activity months in June, July and September. For common and soprano pipistrelle, activity was present throughout the night, with numbers increasing towards dawn, with significantly higher at sunrise. This pattern of behaviour is indicative of roosting bats in close proximity to the site.

Myotis species

4.3.23 Following pipistrelle activity *Myotis* species were the second most active group, accounting for 3.37% of total bat activity, with activity peaking in May. Lowest levels of activity were recorded in June, with activity regular across the remaining months. Activity was highest between the middle of the number and sunrise, peaking after sunrise. This pattern of behaviour is indicative of roosting bats in close proximity to the site.

Noctule/Serotine/Leisler's (NSL)

4.3.24 Noctule is a fast flying species which emerges from its (primarily tree) roosts before sunset and returns after sunrise. Activity for this group was at its highest towards dawn, indicating nearby roosting locations for this group. A noctule tree roost was identified in a tree feature present within a boundary tree line the centre of the site. As such, this confirms the regular use of this roosting location.

Brown long-eared bats

4.3.25 A total of 149 brown long-eared passes were recorded on site, with lowest activity recorded in June and October. Activity peaked in August, however numbers remained relatively low. The

majority of the recorded activity was at the darkest point of the night, therefore indicating that this species primarily use the site for foraging bats with low levels of commuting.

Lesser horseshoe

4.3.26 Lesser horseshoe activity was recorded rarely across the surveyed months, with the highest levels of activity recorded in October. Where there were multiple recordings between May and September, these were all within a few minutes of each other, therefore likely attributed to a single individual foraging within the site whilst on a commuting route. Whilst recordings were higher for this species in October, these are still low in comparison, with no more than seven recordings on any given night. This indicates that a small number of bats using the site, primarily for commuting.

Barbastelle

4.3.27 Small numbers of barbastelle were recorded in May and July, with no activity recorded in any other months. These are, therefore, indicative of a single individual using the site for commuting sporadically.

Summary

4.3.28 There is no published guidance on what rates of bat activity are considered to be high / moderate / low. However, based on thousands of hours of bat data analysed across a wide range of sites by Ecology by Design personnel, high rates are considered to be where tens of thousands of bat passes are recorded per detector per recording period, and low where low hundreds are recorded per detector. Therefore, the number of passes recorded at the site are assessed to be high.

Table 4.6: Timing of passes recorded on automated detectors (bats per hour; whole site)

Species	30-0 mins before sunset	Sunset until two hours after sunset						Middle of night	Two hours before sunrise until sunrise						0-30 mins after sunrise
		1-20	21-40	41-60	61-80	81-100	101-120		120-101	100-81	80-61	60-41	40-21	20-1	
Common pipistrelle		0.1	59.5	84.1	69.6	64.1	52.85	80.87	106.91	102	133	208	154	28.42	722.6
Soprano pipistrelle	0.2	5.31	40.2	59.6	46.7	33.5	35.33	52.90	60.46	71.6	100	147	132	30.03	214.7
Myotis sp.	0.06		0.6	4.1	7.21	7.81	3.90	4.55	8.90	8.11	9.71	13.3	3.2		33.73
Noctule / serotine / Leisler's bat		3.4	2.1	1.2	1.2	0.4	0.30	0.56	1.40	1.2	4.7	4.6	8.51	9.0	12.2
Brown long-eared bat				0.2	0.2	0.3	1.30	0.39	0.60	0.4	0.8	1	0.5		2.13
Lesser horseshoe					0.1			0.08		0.2	0.3	0	0.2		0.33
Barbastelle								0.01				0.1	0.1		0.13
Greater Horseshoe							0.10								
Total B/h	0.266667	8.81	102	149	125	106	93.794	139.393	178.38	184	249	374	298	67.467	988.1

Great Crested Newt

Desk study

4.3.29 Five records for great crested newt were returned within 2km of the site.

HSI survey

4.3.30 The component scores and HSI scores resulting from this assessment are shown in Table 4.7. The results indicate that the pond on the site has poor suitability for great crested newts.

Table 4.7: *Habitat Suitability Index scores and suitability class*

Pond ID	P1 (SS 81820 85413)
1. Location	1.0
2. Pond area	1.0
3. Pond drying	0.5
4. Water quality	0.33
5. Shade	1.0
6. Fowl	0.01
7. Fish	0.67
8. Ponds	0.55
9. Terrestrial habitat	0.33
10. Macrophytes	0.3
HSI Score	**0.38**
Suitability Class	**Poor**

eDNA survey

4.3.31 Pond P1 was subject to eDNA survey to ascertain great crested newt presence. The results of this survey returned an absent result, confirming that great crested newt are not present within the pond on site.

Reptiles

Desk study

4.3.32 Twenty-two reptile records comprising of adder (*Vipera berus*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica*) and slow-worm (*Anguis fragilis*) were returned by the desk study. The closest of these was of grass snake, 0.8km east of the site in 2020.

4.3.33 The results of the reptile surveys are detailed in Table 4.8 below, with refugia locations shown in Figure 5. Only common lizard were encountered during the surveys. As such, all other species are considered absent.

Table 4.8: *Results of reptile surveys*

Survey number	Date	Common lizard			
		Adult female	Adult male	Juvenile	Unknown life stage
1	21/05/2024	0	0	0	0
2	11/09/2024	4	2	7	0
3	16/09/2024	1	0	0	0
4	19/09/2024	0	0	0	0
5	27/09/2024	1	0	1	1
6	03/10/2024	1	1	2	2
7	14/10/2024	1	0	1	0

There was a peak count of 13 common lizard. Individuals were in close locality across surveys and therefore the same individuals may have been encountered on subsequent surveys. In line with the Froglife guidelines, the site supports a common lizard population size class of 'good'.

Birds

Desk study

4.3.34 A total of 905 records of 85 protected and notable bird species were returned by the desk study, comprising a mix of species typical of urban, arable, wetland and woodland habitats.

Breeding Bird Survey

4.3.35 Figures 7 - 10 in Appendix 2 summarise the breeding bird survey results. A total of 57 species of bird were recorded on or adjacent to site during the breeding bird surveys, of which, 27 are notable[3] species.

4.3.36 Of the 57 species encountered on site, seven species were 'confirmed' breeders on site (of which, three are notable species) and 23 species were assessed as 'probable' breeders within

[3] Listed as at least one of the following: Section 41 Species in NERC Act 2006, red- or amber-listed in BOCC5 and/or listed as locally scarce on the East Glamorgan Bird Report No.61 (2022).

the site (of which, 15 are notable species). The assemblage of notable species' breeding at the site is summarised in table 4.9, below.

4.3.37 Confirmed active nests identified on site included:

- Barn swallow (*Hirundo rustica*) – one active nest within the agricultural building on site;
- Blue tit (*Cyanistes caeruleus*) – one active nest within a mature tree in the west of site;
- Great tit (*Parus major*) – two active nests within mature tree lines on site;
- Grey wagtail (*Motacilla cinerea*) – one active nest within the ground-level vegetation in the centre of the site;
- Nuthatch (*Sitta europaea*) – one active nest within a mature tree line in the centre of site;
- Tree pipit (*Anthus trivialis*) – one active nest within dense rush tussocks in the centre of the site; and
- Wren (*Troglodytes troglodytes*) – one active nest within gorse to the north of the site.

4.3.38 The 23 'probable' breeding species at the site were not viewed visiting an active nest, however, exhibited breeding behaviours such as; territorial singing/calling, carrying food/nesting materials, feeding fledged juveniles, regular occurrence of a male and female (likely breeding pair) within the same area of site across multiple visits, therefore these species are highly likely to be holding territory and breeding at the site.

4.3.39 For the remaining 27 species of bird recorded within the site, not exhibiting breeding behaviour (for example, recorded foraging, passing or perching) the site offers a resource for foraging and shelter, which will indirectly impact the breeding success of bird populations in the wider area, for example, through provision of food for young.

Table 4.9: *Summary of notable bird activity on/adjacent to site*

Species	Latin	Breeding Evidence	Estimated No. of Pairs / Territories	Protection/ Priority Status	County Status	Value of Site for Local Population
Bullfinch	*Pyrrhula pyrrhula*	Breeding pair recorded on the northern boundary of the site in survey 4.	1	Sch41, BOCC Amber	Common resident breeder	Local
Dunnock	*Prunella modularis*	Multiple singing males territory marking within mature tree lines/woodland throughout the site during all survey visits.	6	Sch41[4], BOCC[5] Amber	Common resident breeder.	Local
Greenfinch	*Chloris chloris*	Singing male along the western boundary of the site in surveys 1 and 3.	1	BOCC Red	Common resident breeder, passage migrant and winter visitor.	Local
Grey wagtail	*Motacilla cinerea*	Confirmed nest within ground-level tussocks in the centre of the site.	1	BOCC Amber	Common resident breeder and passage migrant.	Local
House Sparrow	*Passer domesticus*	Regular activity on the southern boundary of the site adjacent to off-site buildings, likely nesting colony present there.	1	Sch41, BOCC Red	Common resident breeder.	Local
Meadow pipit	*Anthus pratensis*	Regular territorial activity of likely breeding pair on the eastern edge of parcel W2, including calling and singing. Individuals regularly returned to the same spot within the rush tussocks adjacent in PR2, which is a likely nest location.	1	BOCC Amber	Common resident breeder.	Local

[4] S41 = Species of Principal Importance on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006
[5] BOCC = Birds of Conservation Concern 5

Species	Latin	Breeding Evidence	Estimated No. of Pairs / Territories	Protection/ Priority Status	County Status	Value of Site for Local Population
Mistle thrush	*Turdus viscivorus*	Singing male within eastern tree line during survey 1, likely marking territory.	1	BOCC Red	Common resident breeder.	Local
Song thrush	*Turdus philomelos*	Singing males within the on-site woodland to the south of the site and within boundary mature tree lines/woodland.	4	Sch41, BOCC Red	Common resident breeder.	Local
Stock dove	*Columba oenas*	Singing males territory marking within boundary woodland/mature tree lines and/or display flights during survey 1.	4	BOCC Amber	Locally common resident breeder.	Local
Tawny Owl	*Strix aluco*	Hooting male likely marking territory within the southern block of woodland within the site during survey 2.	1	BOCC Amber	Common resident breeder.	Local
Tree Pipit	*Anthus trivialis*	High levels of activity throughout the site during all surveys; one confirmed nest within rush tussocks in the centre of site during survey 1; display singing males and territorial behaviour suggests a minimum of 10 additional territories across the site, with mature tree lines providing suitable display/singing locations for males adjacent to rushes/tussocky fields that provide suitable nesting opportunities.	11	Sch41, BOCC Red	Common breeding summer visitor and passage migrant.	District
Whitethroat	*Curruca communis*	Singing males within the scrub/gorse to the north of the site.	3	BOCC Amber	Common breeding summer visitor and passage migrant.	Local
Willow Warbler	*Phylloscopus trochilus*	Singing males territory marking within woodland areas on the site.	6	BOCC Amber	Common breeding summer visitor and passage migrant.	Local

Species	Latin	Breeding Evidence	Estimated No. of Pairs / Territories	Protection/ Priority Status	County Status	Value of Site for Local Population
Woodpigeon	*Columba palumbus*	Singing males throughout the woodlands and tree lines on site.	5	BOCC Amber	Common resident breeder.	Local
Wren	*Troglodytes troglodytes*	Singing males throughout the boundary woodlands and tree lines during all four surveys.	17	BOCC Amber	Common resident breeder.	Local

Other Protected, Priority or Invasive Species

4.3.40 The results of the preliminary ecological appraisal and desk study are presented together in Table 4.10 below. The species / species groups present or potentially present are presented in order of relevance to this development. Relevant legislation and policy are referred to as appropriate and further details are provided in Section 6.

Table 4.10: *Presence of or potential for protected/notable/invasive species within the site and local area*

Species	Protection or Status *	Presence/ potential at the site
Dormouse *(Muscardinus avellanarius)*	EPS. SPI. W&CA 1981 Sch5	Four records of the species were returned by the desk study. Small patches of woodland are present within the site boundary. However, these do not support the dense structure required to support dormouse. There is one hedgerow present on site which is connected to the wider landscape. There are several woodland blocks in the nearby landscape which may be suitable to support dormouse.
Water vole (*Arvicola amphibius)*	W&CA 1981 Sch5	One record of the species was returned by the desk study. The steep banks of the watercourses provide opportunities for burrow creation for this species. However, no signs were identified in the field. The lack vegetation in the stretches of watercourse within the site boundary reduce the likelihood of this species using the site for feeding. However, this species may use the site for commuting.
Otter *(Lutra lutra)*	EPS. SPI. W&CA 1981 Sch5	Six records of the species were returned by the desk study. The steep banks of the watercourses provide opportunities for holt creation for this species. However, no signs were identified in the field. The water levels in the watercourses on site were low at the time of the survey and are unlikely to provide the necessary food sources for otter. However, otter may use the site for commuting, with resting opportunities present.
Hedgehog (*Erinaceous europaeus*)	SPI	The desk study returned 35 records of hedgehog within 2km of the site. Suitable habitats for hedgehog are present across the site including grassland, hedgerows, woodland, scrub and brash piles. These habitats are likely to support invertebrates such as earthworms and slugs in addition to refuge opportunities. As such, hedgehog is likely to be present, albeit in the context of the wider landscape, the site is not considered likely to be of elevated importance to this species.

Badger (*Meles meles*)	Protection of Badgers Act 1992.	The desk study returned 30 records of badger within 2km of the site. No direct evidence of badger was identified during the site visit. The habitats on site do not offer any elevated opportunities for sett creation. However, the site does offer opportunities for foraging and commuting and is directly connected to the wider landscape where further opportunities for this species are likely to exist. As such, badger may use the site for foraging and commuting.
Brown hare	SPI	Fifteen records of the species were returned by the desk study. No brown hare were observed during the site visit. The site contains several large, open fields, along with a large area of open greenspace and arable land in the immediate landscape. As such, brown hare may make use of the site.
Invertebrates	SPIs.	370 records of 71 protected invertebrate species were returned by the desk study. There are opportunities for common invertebrates on the site, largely associated with the grassland habitats, in addition to the hedgerows, scrub and woodland. However, as there are no nearby ecological sites designated on the basis of invertebrates and as the habitats present on site are contiguous with those present in the local landscape, the site is not considered likely to be of elevated importance to this species group and rare / protected populations of invertebrates are considered unlikely to be present.
Protected plants	W&CA 1981 Sch8	91 records of 36 protected plant species were returned by the desk study. The common and widespread habitats present within the site are largely unsuitable for protected plant species and therefore it is unlikely that they will be present. Further surveys are not considered necessary to have confidence in this assessment.
Invasive species	W&CA 1981 Sch9; IAS Sch4	The desk study returned 160 records of 24 invasive plant species and 275 records of 11 invasive faunal species within 2km of the site. No invasive species were incidentally recorded during the survey work undertaken albeit absence should not be assumed.

** Where:*

EPS = European Protected Species under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended)

SPI = Species of Principal Importance under Section 41 of the NERC Act 2006

W&CA 1981 = Wildlife and Countryside Act 1981 (as amended)

IAS = The Invasive Alien Species Regulation (Regulation (EU) 1143/2014)

Sch1 = Schedule 1 Birds which are Protected by Special Penalties (W&CA 1981)

Sch4 = Schedule 4 of the Invasive Alien Species (Enforcement and Permitting) Order 2019

Sch5 = Schedule 5 Animals which are Protected (W&CA 1981)

Sch8 = Schedule 8 Plants which are Protected (W&CA 1981)
Sch9 = Schedule 9 Animals and Plants to which Section 14 Applies (W&CA 1981)

Conclusion

Bats

4.3.41 The timing of passes from the automated bat detector surveys indicate activity within the typical emergence and re-entry periods for common and soprano pipistrelle which are considered likely to roost in close proximity to the site. A noctule tree roost was identified on site during one of the nocturnal surveys. Bat activity is highest on the eastern side of the site and was typically associated with boundary features, such as lines of trees, indicating the proposals will not sever any flight paths of significant value.

4.3.42 In line with the Bat Mitigation Guidelines (Reason and Wray, 2023), the importance of a bat assemblage is determined through assigning the assemblage an overall score (see Table 3.3 in Appendix 5). As the site is located in south Wales, the scoring system for South-west England and South Wales is applicable. A number of assumptions are required in order to accurately determine the score for the site: the myotis bats could not be determined to species level, neither could Leisler's bat be discounted due to the known distribution.

4.3.43 A conservative estimate of the site score, which assumes that only one myotis species was recorded, and that Leisler's bat was absent, gives a score of 21, which denotes the site as being of County value to bats.

4.3.44 Assuming that more than one myotis species was recorded, and that Leisler's bat was present, this gives a potential score of 29, which is of National value. Considering the extensive areas of suitable habitat surrounding the site, which includes large waterbodies, ancient woodlands, and scrub, the wider landscape has the potential to support a diverse assemblage of bats, and therefore the site itself is not notable within the wider landscape. It is considered that the valuation as being of County importance is more appropriate for the site.

Reptiles

4.3.45 A good population of common lizard was identified on site; no other reptile species were found and are, therefore, considered absent. The site is valued as having Local importance for common lizard.

Breeding birds

4.3.46 The assemblage of breeding birds at the site is assessed to be of District importance, mainly due to the high density of tree pipits, which are a nationally declining species of bird listed as a species of 'red' conservation concern, alongside smaller numbers of other species' of conservation concern breeding at the site (such as those listed in table 4.9 above). The relatively high number of bird species utilising the site is likely due to the diverse mix of habitats at the site offers, such as mature tree lines, woodland, scrub and low-intensively grazed tussocky grassland/rushes provides habitat.

Other protected and priority species

4.3.47 The site holds opportunities to support foraging and commuting badger, hedgehog, otter and other wild mammals such as hedgehogs may make use the site. Establishing the precise value of the site for these species (if present) would require further survey work that is not proportionate or necessary for designing an effective avoidance and mitigation strategy (see Section 5 below). Given the extent, context and quality of the site to the above species, the site is considered likely to be of no more than limited local ecological importance for any of the above in accordance with the categories outlined in Appendix 4.

4.3.48 The site is of Local importance in a geographic context for species, as defined in Appendix 4. Regardless, some species potentially present may have implications to development on the site as a result of legislative protection or planning policy, as detailed in Section 6.

5 Potential Impacts and Recommendations

5.1 Introduction

5.1.1 This section presents the potential impacts and subsequent recommendations for the proposed development at the site. Further detailed mitigation strategies or method statements, as required, can be secured through suitably worded planning conditions, Section 106 agreements or similar frameworks in accordance with best practice guidelines (BSI Standards Limited, 2013).

Adoption of the Mitigation Hierarchy

5.1.2 In accordance with the National Planning Policy Framework (NPPF) (see Section 6) and British Standard 42020:2013 'Code of Practice for Planning and Development' (BSI Standards Limited, 2013), the 'Mitigation Hierarchy' has been adopted at the site with regards to the potential ecological impacts of the proposals. The mitigation hierarchy outlines a stepwise process as follows:

- **Avoidance** – as a first option, adverse impacts should be avoided through good design, such as retaining and safeguarding important ecological features wherever practicable;
- **Mitigation** – where unavoidable, adverse impacts should be reduced as much as possible, such as reducing land-take of important habitats;
- **Compensation** – where residual effects remain, compensation should be secured to offset adverse impacts, such as through compensatory habitats creation; and
- **Enhancement** – opportunities for net gains in biodiversity should be explored and included wherever appropriate

5.2 Designated Sites

5.2.1 Margam County Park SINC lies adjacent to the western boundary of the site. As such, construction works could impact on the designated site. Should clearance and construction activities be designed to minimise impacts from pollutants (such as surface run-off, dust, wind-blown litter), the integrity of the SINC is unlikely to be affected by the proposals and the aims of the Local Plan would be addressed.

Recommendation R1: Construction Ecological Management Plan (CEMP)

- Mitigation measures should be adopted throughout the construction phase of the development and should be documented within a Construction and Environmental Management Plan (CEMP). The CEMP should include measures to protect the offsite designation and the protected fauna which may make use of the site, including:

- Measures to minimise dust arising, when necessary, including the use of dust control machinery and wet machinery
- Measures to prevent pollution / contamination events through surface run-off;
- Measures to minimise other pollution events such as noise, vibration and wind-blown litter;
- Measures to prevent accidental damage to the adjacent watercourses and nearby designated sites; and
- Measures to safeguard protected faunal species (detailed further below).

5.3 Habitats

5.3.1 The proposed PV panels will be located within the grassland, with the onsite woodlands, hedgerows, lines of trees and watercourses all retained.

Recommendation R2: Update Habitat Survey

5.3.2 As the initial survey was undertaken in November 2023, which is considered to be outside of the optimal growing season, an update habitat survey should be undertaken between May and September to appropriately assess the grassland habitats.

Recommendation R3: Safeguarding Trees, Hedgerows and Watercourses

5.3.3 Retained trees and hedgerows within site will be protected during the construction phase in line with standard arboriculturist best practice (BS5837:2012), or as otherwise directed by a suitably qualified arboriculturist to safeguard the root protection areas. These root projection areas must be strictly enforced to prevent further damage to the trees on site.

5.3.4 It is recommended that the watercourses on site are buffered from any works by a minimum of 10m from the banks, to avoid impacts to the Riparian Zone. This buffer should be enhanced with native planting such as wildflower meadow grassland within 10m from the top of the banks and aquatic/semi-aquatic vegetation upon/within the banks. If impacts within this zone are unavoidable (such as movement of vehicles, excavations for underground utilities, installation of PV panels etc) enhancements will be required to the watercourse elsewhere within the site to offset the impacts, for example, the native planting.

5.4 Bats

5.4.1 The night time bat walkover and automated detector surveys have identified that the site is utilised by common pipistrelle, soprano pipistrelle, noctule, brown long-eared bat, barbastelle, *Myotis* sp., greater horseshoe and lesser horseshoe bats for foraging and/or commuting. Individuals of common and soprano pipistrelle, noctule and brown long-eared bats have also been recorded during their typical emergence and re-entry periods, indicating presence of

roosts in close proximity to the site, with one noctule tree roost identified on site. In the absence of mitigation, the proposed development could result in the disturbance of displacement of foraging and commuting bats.

Recommendation R4: Retention of Bat Roost in Tree.

5.4.2 The survey work undertaken at the site to date has identified a noctule tree roost (see Figure 11). As such, it is recommended that this tree is retained and fully safeguarded under the proposals. In addition to this, the natural linear boundary features within proximity of this tree should be fully retained and not subject to increased levels of artificial lighting.

Artificial Lighting

5.4.3 Increased levels of artificial light can cause disturbance to bats. Though several bat species can take advantage of artificial lighting systems for foraging, feeding off the insects they attract, other species avoid them as foraging within an illuminated area increases the risk of predation by nocturnal birds of prey or even domestic cats. If lighting is intensive and widespread, particularly lighting from lamps, which emit UV light (such as mercury vapour); it can deter some bats from utilising the site and in some instances can act as a barrier across commuting lines. Research has also shown that certain types of artificial lighting have been proven to disturb the emergence patterns of bats when they are placed within the vicinity of entrances to a bat roost.

Recommendation R5: Artificial lighting

5.4.4 Any additional artificial lighting for the solar farm (if required) will need to be designed sensitively in accordance with industry standard guidance (BCT & ILP, 2023) and the following principles will need to be adopted:

- Maintaining dark corridors along bat commuting/foraging features, namely boundary features, woodland edges and watercourses.
- Where lighting is required, ensuring:
  - Light levels are less than 3 Lux;
  - LED luminaires with a warm white spectrum ideally <2700 Kelvin (to avoid blue / UV
  - elements);
  - Bollard or low-level downward directional luminaires are used and mounted on the
  - horizontal (with no upward tilt); and
  - Security lighting, if required, is motion-activated with short (<1 minute) timers.

5.5 Reptiles

5.5.1 A good population of common lizard have been identified on site. Therefore, clearance of suitable habitats (such as rough grassland and hibernacula), has the potential for reptiles to be injured or killed. All reptiles in the UK are protected from killing or injuring under the Wildlife and Countryside Act 1981.

Recommendation R6: Directional vegetation clearance

5.5.2 Areas of suitable reptile habitat will be cleared in a directional manner towards adjacent habitats to allow any reptiles present to move away from the area. Should any brash or log piles require removal to facilitate the development, these will be removed by hand under supervision of a suitably qualified ecologist outside of hibernation season to ensure that any reptiles are present are able to escape.

5.6 Breeding birds

5.6.1 Breeding bird surveys are still in progress. Once the final survey has been completed and a full data set has been gathered, recommendations will be updated accordingly.

5.7 Other Protected, Priority or Invasive Species

5.7.1 Site clearance and construction works could result in the killing / injury of wide-ranging wild mammals which make use of the site. This would be considered an offence as all wild mammals are protected from unnecessary harm (see Section 6).

Recommendation R7: Safeguarding Wildlife

5.7.2 The following measures should be adopted to safeguard wild animals should they enter the site during construction works, and to discourage wild animals from entering the site. This can be achieved by implementing the following standard mitigation measures:

- the creation of temporary brash or log piles within the site should be avoided as these may be adopted by wildlife for shelter;
- any newly discovered mammal entrances within the site should be safeguarded and left *in-situ* until reported to a suitably qualified ecologist, who will advise on appropriate steps if needed for works to resume;
- pipes should be capped off overnight to prevent animals entering and becoming trapped;
- trenches or pits left overnight will be provided with a means of escape for wildlife should any enter such as a collapsed edge or a flat roughened stable plank (no steeper than 45°) acting as a ramp to the surface;

- all trenches and pits will be inspected each morning to ensure no wildlife has become trapped overnight. Should a badger become trapped in a trench it will likely dig itself into the side of the trench. Should a trapped badger be encountered, a suitably qualified ecologist will be contacted immediately for further advice;
- the prolonged storage of uncontained and uncovered topsoil in piles on site will be carefully considered and possibly fenced-off if needed as these are readily adopted by burrowing animals such as foxes (*Vulpes vulpes*) for dens;
- chemicals will be contained in such a way that wild animals cannot access or knock them over;
- fires should be avoided altogether within the site; and
- loose litter and food will not be left in accessible areas of the site overnight.

5.8 Opportunities for Ecological Enhancement

5.8.1 In line with planning policy, which requires developments to enhance the site for wildlife, a number of enhancements will be included within the design plans (example specifications are included in Appendix 6).

Recommendation R8: Ecological Enhancements

5.8.2 In order to enhance the local area for wildlife ecological features and contribute towards biodiversity net gain, it is recommended that proposals include the following:

- Creation of a 10m wide corridor of naturalise vegetation either side of the watercourses.
- Inclusion of specific enhancement features for birds which should seek to target local notable species identified as present within the site and wider landscape'
- Woodcrete / woodstone bat boxes to be included within the proposals, affixed to mature trees.
- Hibernacula within the retained woodlands to provide additional opportunities for a variety of species, including reptiles, invertebrates and amphibians.

6 Relevant Legislation and Policy

6.1 Local Planning Policy

6.1.1 The site falls within the jurisdiction of Neath Port Talbot County Borough Council. Neath Port Talbot County Borough Council have an adopted Local Plan (2016 – 2026) which sets out the following policies relating to ecology:

Policy SP 15: Biodiversity and Geodiversity

6.1.2 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 Scientifc 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 7 Important Natural Features

6.1.3 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.

6.2 Exit from European Union

6.2.1 The Conservation of Habitats and Species Regulations 2017 (as amended), referred to as the '2017 Regulations,' are one of the pieces of domestic law that transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known as the Nature Directives). Changes to the 2017 Regulations have been made by the Conservation of Habitats and Species (Amendment)

(EU Exit) Regulations 2019 (referred to as the '2019 Regulations') to transfer functions from the European Commission to the appropriate authorities in England and Wales.

6.2.2 The amendments prescribed by the 2019 Regulations allow existing protections afforded by current wildlife legislation and transposed EC Council Directives to be operable from 01 January 2021.

6.2.3 The 2019 Regulations protect rare and vulnerable birds and the habitats that they depend upon. This is achieved in part through the classification of Special Protection Areas (SPAs). The Habitats Directive aims to protect plants, habitats and animals other than birds. This is achieved in part through the creation of Special Areas of Conservation (SACs). SPAs and SACs are collectively referred to as the 'National Site Network'.

6.2.4 Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the National Site Network, however, all Ramsar sites remain protected in the same was as SACs and SPAs.

6.3 National Planning Policy Framework

6.3.1 Planning Policy Wales (Edition 12 – February 2024) sets out in section 6.4 that to protect and enhance biodiversity and ecological networks, it states:

- Biodiversity underpins the structure and functioning of ecosystems. It is the diversity of living organisms whether at the genetic, species or ecosystem level. An ecosystem is made up of living organisms, plants, animals and micro-organisms, in conjunction with their non-living environment, air, water, minerals and soil, and all the diverse and complex interactions that take place between them.
- The Environment (Wales) Act 2016 introduced an enhanced biodiversity and resilience of ecosystems duty (Section 6 Duty). This duty applies to public authorities in the exercise of their functions in relation to Wales and will help maximise contributions to achieving the well-being goals. Section 7 of the Act requires Welsh Ministers to publish and maintain lists of species and types of habitats that are regarded as of 'principal importance' for the purpose of maintaining and enhancing that biodiversity. The Nature Recovery Action Plan supports this legislative requirement to reverse the decline in biodiversity, address the underlying causes of biodiversity loss by putting nature at the heart of decision-making and increasing the resilience of ecosystems by taking specific action focused around the 6 objectives for habitats and species.
- The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate

mechanisms are in place to both protect against loss and to secure enhancement. Recognising that development needs to take place and some biodiversity may be impacted, the planning system should ensure that overall there is a net benefit for biodiversity and ecosystem resilience, resulting in enhanced well-being. Addressing the consequences of climate change should be a central part of any measures to conserve biodiversity and the resilience of ecosystems. Information contained in SoNaRR, Area Statements, Local Nature Plans, Local Nature Recovery Action Plans, Local Biodiversity Action Plans and held by Local Environmental Record Centres should be taken into account. Development plan strategies, policies and development proposals must consider the need to:

  - support the maintenance and enhancement of biodiversity and the resilience of ecosystems;
  - ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats, including the most recent targets set out in the 2022 UN Global Biodiversity Framework;
  - ensure statutorily and non-statutorily designated sites and habitats are properly protected and managed, and their role at the heart of resilient ecological networks is safeguarded;
  - safeguard protected species and species of principal importance and existing biodiversity assets from direct, indirect or cumulative adverse impacts that affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water, air and soil, including peat; and
  - secure the maintenance and enhancement of ecosystem resilience and resilient ecological networks by improving diversity, condition, extent and connectivity.

- It is important that biodiversity and ecosystem resilience considerations are taken into account at an early stage in both development plan preparation and when proposing or considering development proposals. Since these considerations are not confined by administrative boundaries, nor by sectoral activity or regulatory regimes, they must be addressed strategically through consultation and collaboration with adjoining planning authorities and other bodies such as NRW and the third sector. All reasonable steps must be taken to maintain and enhance biodiversity and promote the resilience of ecosystems and these should be balanced with the wider economic and social needs of business and local communities. Where adverse effects on biodiversity and ecosystem resillience cannot

be avoided, minimised or mitigated/restored, it will be necessary to refuse planning permission.

Biodiversity and Resilience of Ecosystems Duty (Section 6 Duty)

- Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species (not including non native invasive species), locally or nationally and must work alongside nature and it must provide a net benefit for biodiversity and improve, or enable the improvement, of the resilience of ecosystems. A net benefit for biodiversity is the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before, through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site. The step-wise approach outlined below is the means of demonstrating the steps which have been taken towards securing a net benefit for biodiversity. In doing so, planning authorities must also take account of and promote the resilience of ecosystems, in particular the following attributes, known as the DECCA Framework:
    - diversity between and within ecosystems;
    - the extent or scale of ecosystems;
    - the condition of ecosystems including their structure and functioning;
    - the connections between and within ecosystems; and
    - adaptability of ecosystems including their ability to adapt to, resist and recover from a range of pressures likely to be placed on them through climate change for example.
- In fulfilling this duty, planning authorities must have regard to:
    - the list of habitats and species of principal importance for Wales, published under Section 7 of the Environment (Wales) Act 2016;
    - the SoNaRR, published by NRW;
    - any Area Statement, published by NRW, that covers all or part of the area in which the authority exercises its functions and NRW's Nature Network Maps; and
    - guidance given to public authorities by Welsh Ministers under Section 6 of the Environment (Wales) Act.
- Planning Authorities should also refer to up to date ecological survey information (where appropriate), and consider local ecological information submitted by recognised environmental organisations.
- A proactive and creative approach towards facilitating the delivery of biodiversity and ecosystem resilience outcomes must be taken by all those participating in the planning

process (including the third sector and communities) as small scale interventions contribute to a national scale resilience. In particular, planning authorities must demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment (Wales) Act by taking all reasonable steps to maintain and enhance biodiversity in the exercise of their functions. This will require action to be taken at the plan level, and ideally through co-ordinated action across regions and sub-regions. Such action should facilitate the implementation of the Section 6 duty at the level of individual development proposals by setting a broad framework of opportunities for achieving a net benefit for biodiversity. The step-wise approach will help guide decision makers in securing a net benefit for biodiversity and the onus is on developers to bring forward proposals in a way which will achieve a net benefit for biodiversity, demonstrating how they have used the step wise approach.

6.4 European Protected Species

6.4.1 The Conservation of Habitats and Species Regulations 2017 (as amended) transpose the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

6.4.2 "European protected species" (EPS) of animal are those which are shown on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

a) intentionally or deliberately capture, injure or kill any wild animal included amongst these species;
b) possess or control any live or dead specimens or any part of, or anything derived from these species;
c) deliberately disturb wild animals of any such species;
d) deliberately take or destroy the eggs of such an animal; or
e) intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place.

6.4.3 For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

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.

6.4.4 Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works. In accordance with the requirements of The Conservation of Habitats and Species Regulations 2017 (as amended), a licence can only be issued where the following requirements, known as the "Three Tests", are satisfied:

1. The proposal is necessary 'to preserve 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 for the environment'
2. 'There is no satisfactory alternative'

6.4.5 The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

6.5 Bats

6.5.1 Bats and their roost sites are protected by UK legislation.

6.5.2 The Wildlife and Countryside Act (1981) (as amended) makes it an offence to:

- Intentionally kill, injure or take a bat;
- Possess or control any live or dead specimen or anything derived from a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a bat; and
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for that purpose.

6.5.3 Additionally, The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat;
- Damage or destroy a breeding site or a resting place of a bat; and
- Keep, transport, sell or exchange or offer for sale or exchange a live or dead bat or any part of a bat.

6.6 Birds

6.6.1 All nesting wild birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

6.6.2 The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, 'Birds Directive') (Regulation 10 (3)) requires that the objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive…' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

6.6.3 In relation to the duties placed on competent authorities under the 2017 Regulations (as amended), Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).'

6.7 Badgers

6.7.1 Badger is protected under the Protection of Badgers Act 1992. It is not permitted to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as "a structure or place, which displays signs indicating current use by a badger".

6.7.2 ODPM Circular 06/2005 (ODPM, 2005) provides further guidance on statutory obligations towards badger within the planning system. Of particular note is paragraph 124, which states

that "The likelihood of disturbing a badger sett, or adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions."

6.7.3 Natural England provides Standing Advice (Gov.uk, 2015), which is capable of being a material consideration in planning decisions. Natural England recommends mitigation to avoid impacts on badger setts, which includes maintaining or creating new foraging areas and maintaining or creating access (commuting routes) between setts and foraging/watering areas.

6.8 Wild Mammals

6.8.1 The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows.

6.9 Hedgerows

6.9.1 Article 10 of the Habitats Directive requires that 'Member States shall endeavour…to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure…or their function as steppingstones…are essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).

6.9.2 The aim of the Hedgerow Regulations 1997, according to guidance produced by the Department of the Environment, is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.

6.9.3 The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

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Appendix 1 - Photographs

Photograph 1: Example of Holcus-Juncus neutral grassland

Photograph 2: Example of other neutral grassland

Photograph 3: Example of Arrhenatherum neutral grassland

Photograph 4: Example of scattered trees

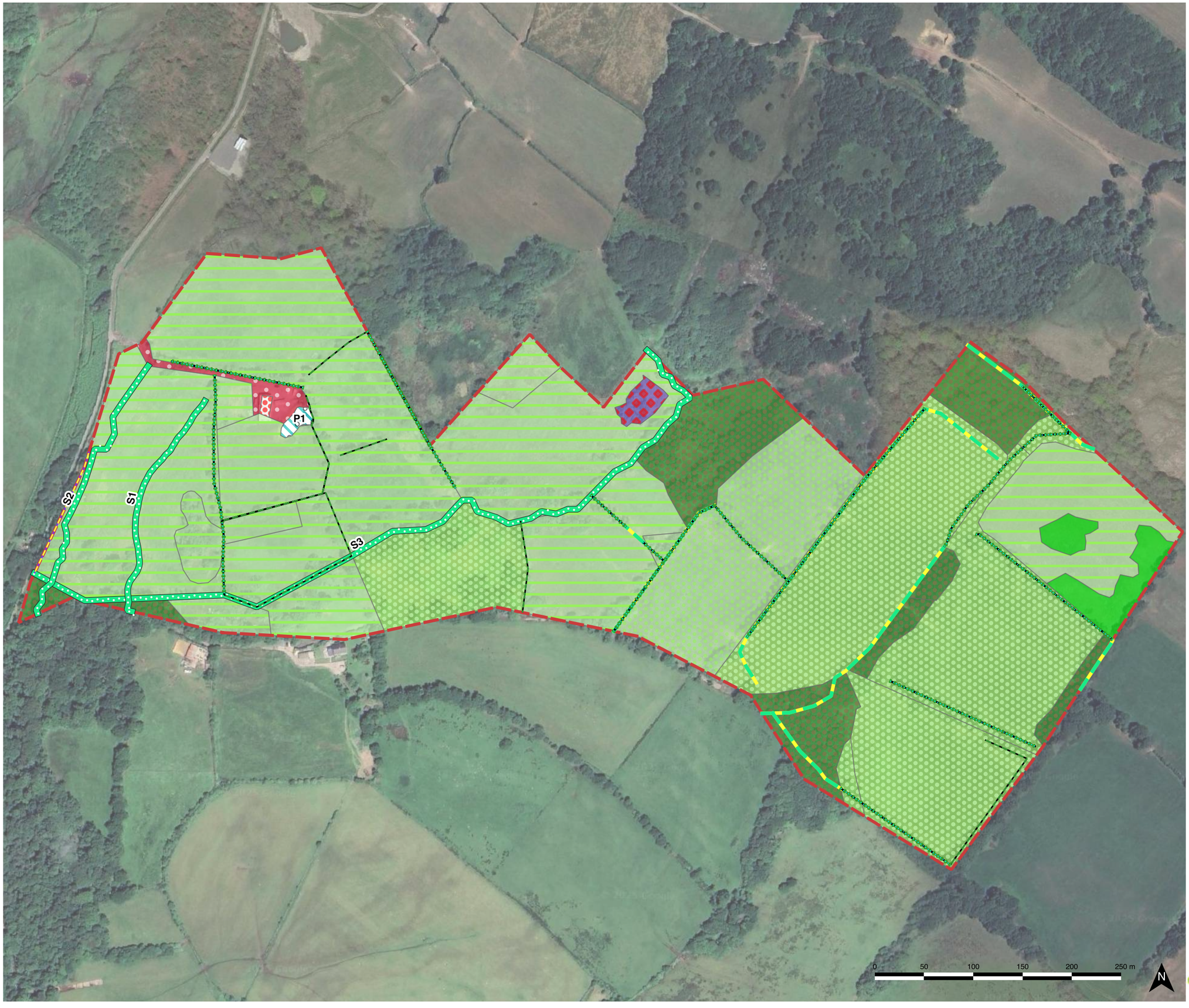
Photograph 5: Native hedgerow

Photograph 6: Example of other woodland; broadleaved

Appendix 2 - Figures

Next page:

- Figure 1: Habitats map
- Figure 2: Bat Activity Survey Map – May
- Figure 3: Bat Activity Survey Map – August
- Figure 4: Bat Activity Survey Map – October
- Figure 5: Reptile Mat Locations
- Figure 7: Breeding Birds – May
- Figure 8 – Breeding Birds – June (Dusk)
- Figure 9 – Breeding Birds – June (Dawn)
- Figure 10 – Breeding Birds – July
- Figure 11 – Noctule tree Roost Location



LEGEND

Site boundary (34.55 ha)

Habitats

- g3c - other neutral grassland (16.7372 ha)
- g3c5 - Arrhenatherum neutral grassland (2.8604 ha)
- g3c8 - Holcus-Juncus neutral grassland (10.4726 ha)
- g4 - modified grassland (0.6147 ha)
- h3h - mixed scrub (0.1442 ha)
- r1a6 - other eutrophic standing waters (0.0566 ha)
- u1b5 - buildings (0.0201 ha)
- u1c - artificial unvegetated unsealed surface (0.2448 ha)
- w1g - other woodland -broadleaved (3.4004 ha)

Hedgerows

- h2a6 - Other native hedgerow (0.14 km)
- w(33) - Line of trees (1.25 km)
- w(33) - Line of trees (with bank or ditch) (2.01 km)

Rivers

- Other rivers and streams (1.22 km)
- Ditch (1.38 km)

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise Renewable Energy UK

Drawing Title:

Habitats map

Drawing No.: EBD_3347_DR001

Scale (@A3): 1:3,650

Central Eastings, Northings: 282129, 185335

Date Drawn: 11/04/2025

Drawn by: JS

Approved by: BG

ecologybydesign

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

LEGEND

- Common pipistrelle
- Myotis species
- Noctule
- Silent
- Soprano pipistrelle
- Start point
- Transect 1
- Transect 2

0 50 100 150 200 250 m

N

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise Renewable Energy UK

Drawing Title:

Bat Activity Survey Map - May

Drawing No.: EBD_3347_DR002

Scale (@A3): 1:3,610

Central Eastings, Northings: 282137, 185289

Date Drawn: 11/04/2025

Drawn by: JS

Approved by: BG

ecologybydesign

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

LEGEND

- Common pipistrelle
- Noctule
- Soprano pipistrelle
- Start point
- Transect 1
- Transect 2
- Excluded sections

0 50 100 150 200 250 m

N

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise Renewable Energy UK

Drawing Title:

Bat Activity Survey Map - August

Drawing No.: EBD_3347_DR003

Scale (@A3): 1:3,610

Central Eastings, Northings: 282137, 185289

Date Drawn: 11/04/2025

Drawn by: JS

Approved by: BG

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Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

LEGEND

- Common pipistrelle
- Myotis species
- Soprano pipistrelle
- Start point
- Transect 1
- Transect 2

0 50 100 150 200 250 m

N

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise Renewable Energy UK

Drawing Title:

Bat Activity Survey Map - October

Drawing No.:
EBD_3347_DR004

Scale (@A3):
1:3,610

Central Eastings, Northings:
282137, 185289

Date Drawn:
11/04/2025

Drawn by:
JS

Approved by:
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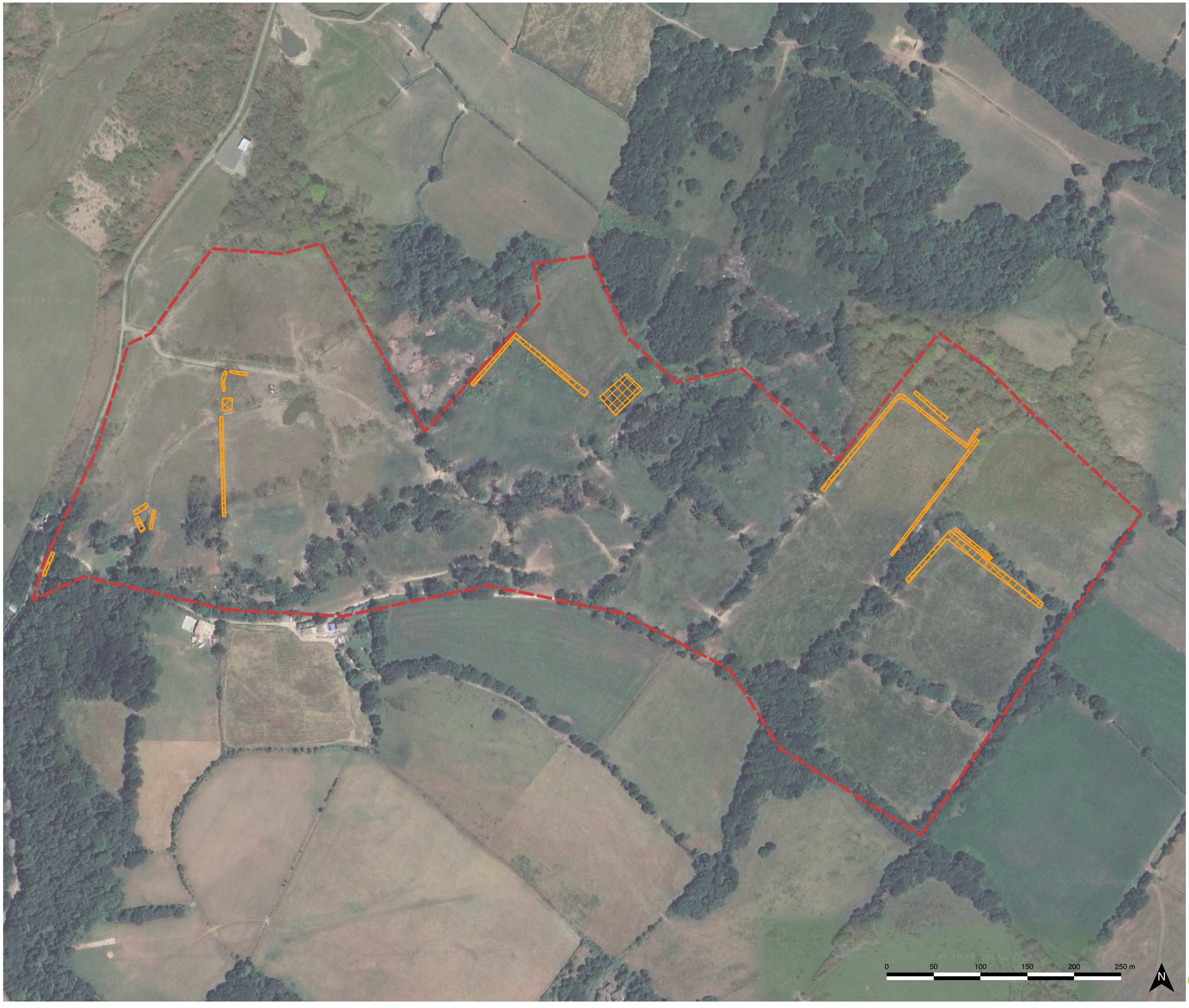
t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk



LEGEND

Site Boundary

Updated Reptile Mats

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise

Drawing Title:

Updated Reptile Mat Locations

Drawing No.:
EBD_3347_DR006

Scale (@A3):
1:3,835.634397

Central Eastings, Northings:
282143, 185317

Date Drawn:
31/07/2024

Drawn by:
RH

Approved by:
BG

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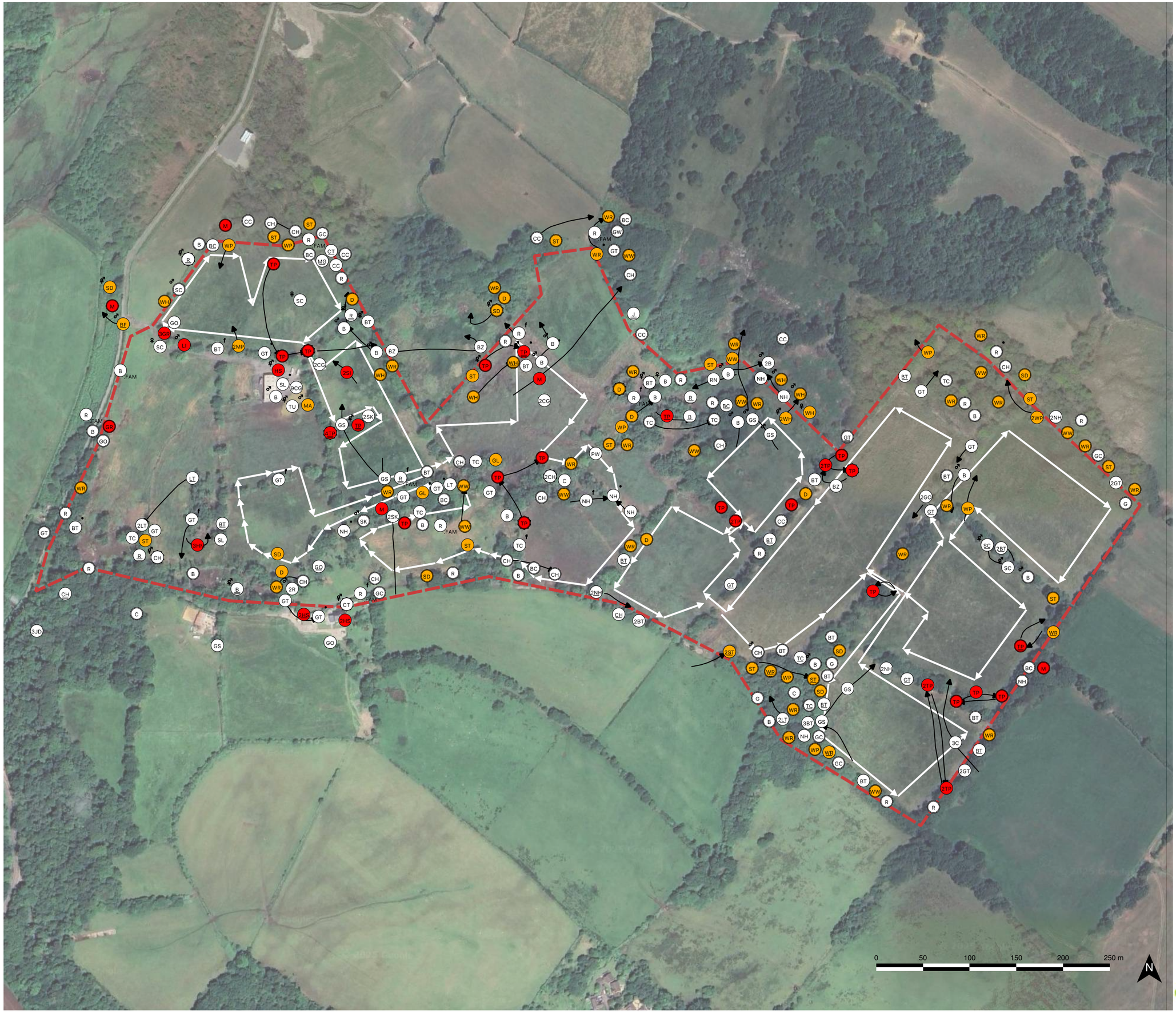
w: www.ecologybydesign.co.uk



LEGEND

Sighting details	
Male	♂
Female	♀
Pair	♂♀
Family group	FAM
Singing	
Contact call	
Territorial call	
Territorial behaviour	
Carrying food	f
Active nest	•

BTO conservation status
Green
Amber
Red

Species codes

B - Blackbird	J - Jay
BC - Blackcap	JD - Jackdaw
BF - Bullfinch	LI - Linnet
BT - Blue Tit	LT - Long-tailed Tit
BZ - Buzzard	M - Mistle Thrush
C - Carrion Crow	MA - Mallard
CC - Chiffchaff	MG - Magpie
CG - Canada Goose	MP - Meadow Pipit
	NH - Nuthatch
CH - Chaffinch	PW - Pied Wagtail
CT - Coal Tit	R - Robin
D - Dunnock	RN - Raven
G - Green Woodpecker	SC - Stonechat
	SD - Stock Dove
GC - Goldcrest	SI - Swift
GL - Grey Wagtail	SK - Siskin
GO - Goldfinch	SL - Swallow
GR - Greenfinch	ST - Song Thrush
GS - Great Spotted Woodpecker	TC - Treecreeper
	TP - Tree Pipit
	TU - Tufted Duck
GT - Great Tit	WH - Whitethroat
GW - Garden Warbler	WP - Woodpigeon
	WR - Wren
HM - House Martin	WW - Willow Warbler
HS - House Sparrow	

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise

Drawing Title:

Breeding Birds - May

Drawing No.: EBD_3347_DR007

Scale (@A3): 1:3,750

Central Eastings, Northings: 282135, 185304

Date Drawn: 10/02/2025

Drawn by: JE

Approved by: BG

ecologybydesign

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

LEGEND

Sighting details	BTO conservation status
Male	Green
Female	Amber
Pair	Red
Juvenile	
Singing	
Contact call	
Territorial call	
Active nest	

Species codes

B - Blackbird	GT - Great Tit
BC - Blackcap	HG - Herring Gull
BT - Blue Tit	M - Mistle Thrush
BZ - Buzzard	MA - Mallard
C - Carrion Crow	MG - Magpie
CC - Chiffchaff	MP - Meadow Pipit
CG - Canada Goose	NH - Nuthatch
	PW - Pied Wagtail
CH - Chaffinch	R - Robin
D - Dunnock	SK - Siskin
G - Green Woodpecker	SL - Swallow
	ST - Song Thrush
GC - Goldcrest	TC - Treecreeper
GO - Goldfinch	TO - Tawny Owl
GR - Greenfinch	TP - Tree Pipit
GS - Great Spotted Woodpecker	WP - Woodpigeon
	WR - Wren

0 50 100 150 200 250 m

N

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise

Drawing Title:

Breeding Birds - June (Dusk)

Drawing No.: EBD_3347_DR008

Scale (@A3): 1:3,750

Central Eastings, Northings: 282139, 185372

Date Drawn: 10/02/2025

Drawn by: JE

Approved by: BG

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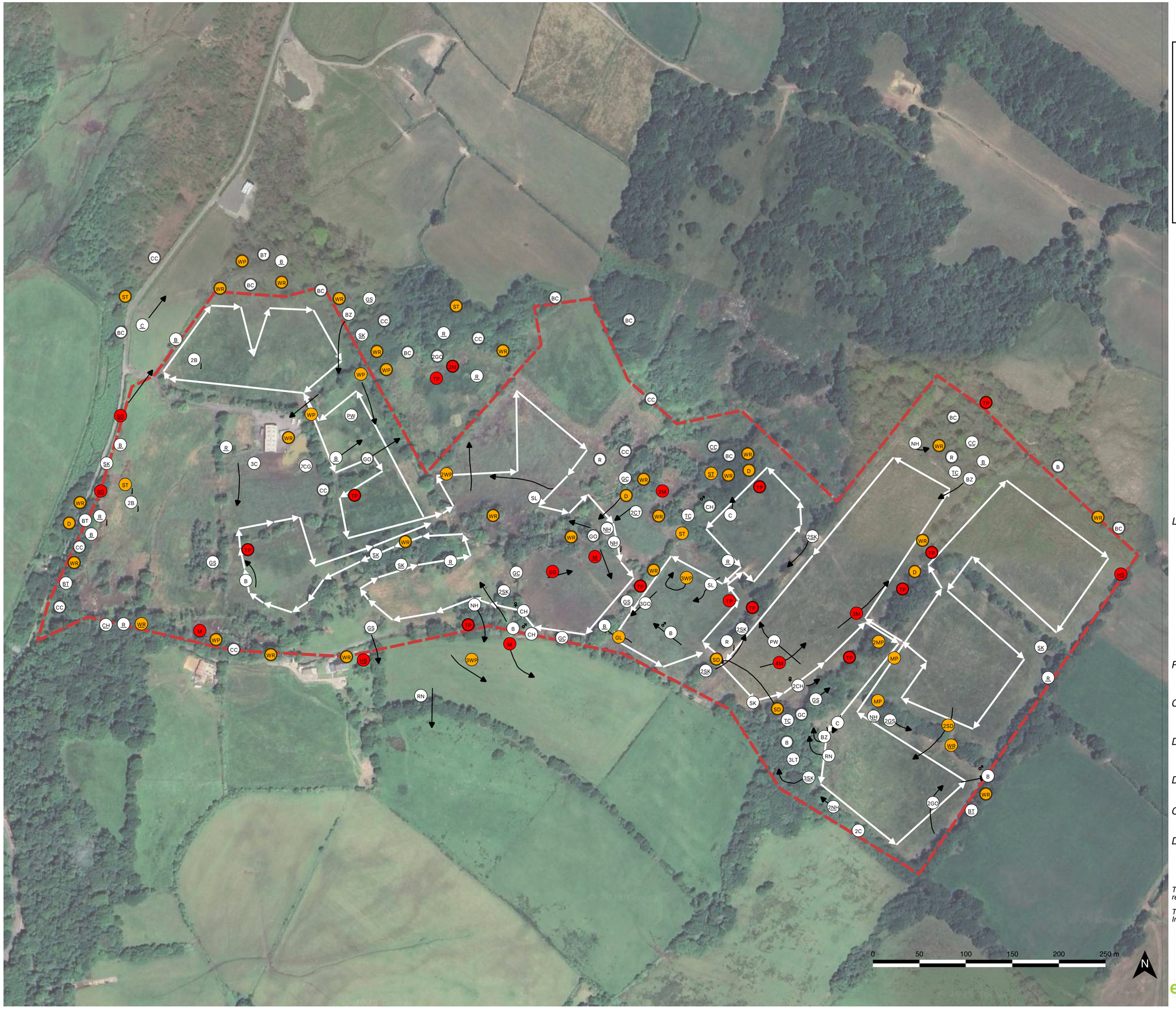
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk



LEGEND

Sighting details	
Male	♂
Female	♀
Juvenile	j
Singing	
Contact call	
Territorial call	

BTO conservation status
Green
Amber
Red

Species codes

B - Blackbird	HG - Herring Gull
BC - Blackcap	HS - House Sparrow
BH - Black-headed Gull	LT - Long-tailed Tit
BT - Blue Tit	M - Mistle Thrush
BZ - Buzzard	MP - Meadow Pipit
C - Carrion Crow	NH - Nuthatch
CC - Chiffchaff	PW - Pied Wagtail
CG - Canada Goose	R - Robin
	RN - Raven
CH - Chaffinch	SD - Stock Dove
CT - Coal Tit	SG - Starling
D - Dunnock	SK - Siskin
GC - Goldcrest	SL - Swallow
GL - Grey Wagtail	ST - Song Thrush
GO - Goldfinch	TC - Treecreeper
GS - Great Spotted Woodpecker	TP - Tree Pipit
	WP - Woodpigeon
	WR - Wren

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise

Drawing Title:

Breeding Birds - June (Dawn)

Drawing No.: EBD_3347_DR009

Scale (@A3): 1:3,750

Central Eastings, Northings: 282133, 185359

Date Drawn: 06/02/2025

Drawn by: JE

Approved by: BG

ecologybydesign

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

LEGEND

Sighting details	
Male	♂
Female	♀
Pair	♂♀
Family group	FAM
Juvenile	J
Singing	
Contact call	
Territorial call	
Territorial behaviour	
Carrying food	f

BTO conservation status
Green
Amber
Red

Species codes

B - Blackbird
BC - Blackcap
BF - Bullfinch
BT - Blue Tit
BZ - Buzzard
C - Carrion Crow
CC - Chiffchaff
CG - Canada Goose
CH - Chaffinch
CR - Crossbill (Common)
CT - Coal Tit
CW - Cetti's Warbler
D - Dunnock
G - Green Woodpecker
GC - Goldcrest
GL - Grey Wagtail
GO - Goldfinch
GR - Greenfinch
GS - Great Spotted Woodpecker
GT - Great Tit
H - Grey Heron
HG - Herring Gull
HM - House Martin
HS - House Sparrow
J - Jay
K - Kestrel
LB - Lesser Black-backed Gull
LT - Long-tailed Tit
M - Mistle Thrush
MG - Magpie
MP - Meadow Pipit
NH - Nuthatch
PW - Pied Wagtail
R - Robin
SC - Stonechat
SD - Stock Dove
SF - Spotted Flycatcher
SG - Starling
SK - Siskin
SL - Swallow
ST - Song Thrush
TC - Treecreeper
TP - Tree Pipit
WP - Woodpigeon
WR - Wren
WW - Willow Warbler

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise

Drawing Title:

Breeding Birds - July

Drawing No.: EBD_3347_DR010

Scale (@A3): 1:3,750

Central Eastings, Northings: 282127, 185348

Date Drawn: 06/02/2025

Drawn by: JE

Approved by: BG

ecologybydesign

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

LEGEND

Noctule tree roost (27/06/2024)

Location (1:75,000):

Project:

Caergawr Farm

Client:

Arise Renewable Energy UK

Drawing Title:

Noctule Tree Roost Location

Drawing No.: EBD_3347_DR005

Scale (@A3): 1:3,610

Central Eastings, Northings: 282137, 185289

Date Drawn: 11/04/2025

Drawn by: JE

Approved by: BG

ecologybydesign

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

t: 01865 893346
e: hello@ecologybydesign.co.uk
w: www.ecologybydesign.co.uk

Appendix 3 - Definitions of the Geographic Context of Habitat Importance

Geographic Context of Importance	Examples
International value	Ramsar Sites, Special Protection Areas, Biosphere Reserves, Special Areas of Conservation. Sites supporting populations of internationally important species.
National value	SSSIs or non-designated Sites meeting SSSI selection criteria, NNRs, Marine Nature Reserves, NCR Grade 1 Sites. Sites containing viable areas of key habitats identified in the UK Biodiversity Action Plan.
Regional value	Sites containing viable areas of threatened habitats listed in a Regional BAP (or some Natural Areas), comfortably exceeding SINC criteria, but not exceeding SSSI criteria.
County / Metropolitan	Sites meeting the criteria for county or metropolitan designation (SINC, CWS, etc.). Ancient semi-natural woodland, LNRs or viable areas of key habitat types listed in county BAPs/Natural Areas.
District / Borough	Undesignated Sites or features considered to appreciably enrich the habitat resource in the District or Borough.
Local i.e., Parish / Neighbourhood	Undesignated Sites or features which appreciably enrich the habitat resource within the Parish or Neighbourhood.
Negligible value	Low grade and widespread habitats.

Appendix 4 - Definitions of the Geographic Context of Species Importance

Geographic Context of Importance	Examples
International	Any regularly occurring population of an internationally important species, which is threatened or rare in the UK. i.e. it is a UK Red Data Book species or listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 in the UK BAP) or of uncertain conservation status or of global conservation concern in the UK BAP. A regularly occurring, nationally significant population/number of any internationally important species.
National	Any regularly occurring population of a nationally important species which is threatened or rare in the region or county (see local BAP). A regularly occurring, regionally or county significant population/number of any nationally important species.
Regional	Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; A regularly occurring, locally significant number of a regionally important species.
County/ Metropolitan	Any regularly occurring, locally significant population of a species which is listed in a County/Metropolitan "red data book" or BAP on account of its regional rarity or localisation; A regularly occurring, locally significant number of a County/Metropolitan important species.
District / Borough	A population of a species that is listed in a District/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation; A regularly occurring, locally significant number of a District / Borough important species during a critical phase of its life cycle.
Local i.e., Parish / Neighbourhood	Species that are not threatened but are valued at a local level on intrinsic appeal.
Negligible	Common or widespread species.

Appendix 5 - Valuing Bat Assemblages

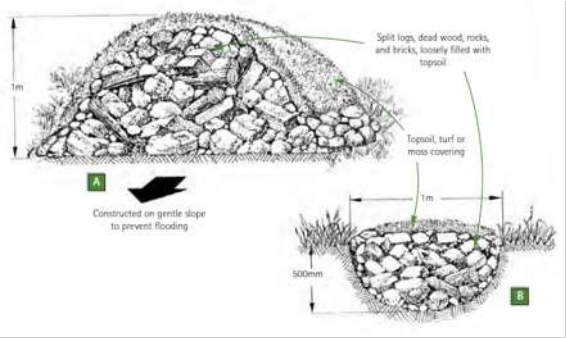
Table 3.3: Assessing the importance of a bat assemblage
[refer to 3.4.26 to 3.4.33 for method and to APPENDIX 2 for worked examples]

Malc (included in **Table 3.1**) is not included here because its distribution is poorly understood.

Rarity category [points/species]	South-west England & South Wales		Southern England		South-eastern/East Anglia to The Wash		North/mid-Wales		Central England/Mid-lands	
Widespread all geographies [score 1]	*Ppip* *Ppyg* *Paur*	Score 3	*Ppip* *Ppyg* *Paur*	Score 3	*Ppip* *Ppyg* *Paur*	Score 3	*Ppip* *Ppyg* *Paur*	Score 3	*Ppip* *Ppyg* *Paur*	Score 3
Widespread in many geographies, but not as abundant in all [score 2]	*Mmys* *Mbra* *Mdau* *Mnat* *Nnyc*	Score 10	*Mmys* *Mbra* *Mdau* *Mnat* *Nnyc*	Score 10	*Mdau* *Mnat* *Nnyc*	Score 10	*Mmys* *Mbra* *Mdau* *Mnat* *Nnyc*	Score 10	*Mmys* *Mbra* *Mdau* *Mnat* *Nnyc*	Score 10
Rarer or restricted distribution [score 3]	*Rhip* *Eser* *Nlei* *Pnat*	Score 12	*Malc* *Eser* *Nlei* *Pnat*	Score 12	*Mmys* *Mbra* *Eser* *Nlei* *Pnat*	Score 15	*Rhip*	Score 3	*Eser* *Nlei* *Pnat*	Score 9
Rarest Annex II species and very rare [score 4]	*Rfer* *Mbec* *Bbar* *Paus*	Score 16	*Rfer* *Rhip* *Mbec* *Bbar* *Paus*	Score 20	*Bbar*	Score 4		Score 20		Score 4
Thresholds	Maximum possible	41	Maximum possible	45	Maximum possible	28	Maximum possible	36	Maximum possible	26
County importance threshold: 45%	County	18	County	20	County	13	County	16	County	12
Regional importance threshold: 55%	Regional	23	Regional	25	Regional	15	Regional	20	Regional	14
National importance threshold: 70%	National	29	National	32	National	20	National	25	National	18

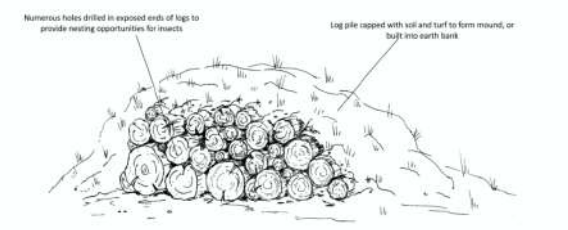
Appendix 6 - Proposed Enhancements

Products	Description
	**Tawny owl nest box** A box suitable for tawny owl, which should be placed on a horizontal branch at a height of 4mm, on a woodland tree facing north or east (away from the prevailing south-westerly wind). https://www.nhbs.com/tawny-owl-nest-box
	**2F Schwegler Bat Box (or similar)** A standard bat box for smaller bats to be placed on a mature tree. http://www.nhbs.com/2f-schwegler-bat-box-general-purpose
	**Miramare Woodstone Bat Box** The Miramare is designed to mimic a hollow tree. It is a large bat box with four internal cavities and an external construction of woodcrete to be long-lasting and provide opportunities to large numbers of bats. The box is open to the bottom meaning that it is effectively self-cleaning. https://www.wildcare.co.uk/miramare-woodstone-bat-box-11268.html



Hibernacula

A place of refuge for herpetofauna includes newts and reptiles. Constructed by digging a hole and backfilling with logs/ rubble before covering with soil turf.



Buried Log Piles

Partially buried log piles provide valuable shelter and foraging resources to a range of invertebrates and other wildlife, particularly saproxylic species (associated with dead wood). Buried log piles are particularly beneficial when constructed from pre-existing dead wood taken from the site.

Wood from any broadleaved tree can be used but oak, beech and fruit trees support the richest invertebrate assemblages.

Vivara Pro Woodstone Starling Nest Box

This Vivara Pro WoodStone® Starling Nest Box is manufactured from WoodStone®, a mixture of concrete and FSC Certified wood fibres. This durable material is very resistant to rot and also provides increased thermal insulation and protection from predators. WoodStone® is also breathable, ensuring that the nesting chamber maintains the optimum temperature and humidity levels. The WoodStone® Starling Box is covered by a 10 year guarantee.

https://www.nhbs.com/vivara-pro-woodstone-starling-nest-box