# Fferm Solar Larnog

## Environmental Statement

## Volume IV, Appendix 7D: Bat Roost Survey Report

November 2026

**Document Title**

Volume IV, Appendix 7D: Bat Roost Survey Report

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# Executive Summary

1.1.1. WSP UK Ltd was commissioned by Trydan Gwyrdd Cymru (the 'Applicant') to undertake a programme of ecological surveys to support the development of the proposed Larnog Solar Farm ('the Proposed Development'). The Proposed Development is located in south Wales, south of Cosmeston ('the Site').

1.1.2. A Preliminary Ecological Appraisal (PEA) was carried out in 2025 by WSP, incorporating a desk study, a Daytime Bat Walkover (DBW), and a Ground Level Tree Assessment (GLTA)[1]. This is detailed in **Appendix 7A: Preliminary Ecological Appraisal 2026.**

1.1.3. The desk study identified records of at least three species of bats within 2 km of the Site: Nathusius' pipistrelle *Pipistrellus nathusii*; soprano pipistrelle *Pipistrellus pygmaeus*; common pipistrelle *Pipistrellus pipistrellus*; and an unknown pipistrelle species.

1.1.4. The DBW identified habitats considered suitable to support roosting, foraging and commuting bats within the Site and the surrounding area. The GLTA identified trees within the Site and the surrounding area that have the potential to support roosting bats. One structure within the Site, a stone arch bridge with a brick arch, was identified as having low suitability to support roosting bats.

1.1.5. Following the PEA, WSP recommended that close inspection surveys were to be undertaken for the 21 trees identified as having suitability to support roosting bats within the refined Site boundary.

1.1.6. Whilst no bats were identified during the close inspection tree surveys, 14 trees were assessed as having Potential Roost Features (PRFs) and therefore considered suitable to support roosting bats. In accordance with best practice guidelines[2]; these were classified as follows:

- PRF-M (suitable to support multiple bats) – five trees (BT3, BT4, BT23, BT24 and BT32); and
- PRF-I (suitable to support individual bat or very small numbers of bats) – nine trees (BT2, BT7, BT8, BT12, BT25, BT26, BT28, BT29, and BT30).

1.1.7. Recommendations are outlined within this report to ensure the Proposed Development demonstrates a net-benefit for biodiversity (NBB) by following a step-wise approach of

[1] At the time of the PEA, the Site encompassed a larger area, hereafter referred to as the 'PEA Site Boundary'. Following subsequent refinement of the Site, the area subject to close inspection surveys is referred to as the 'Survey Area'. The Site has since been refined and reduced further, with some of the trees included in the close inspection surveys now located outside the current Site boundary.
[2] Collins J. (ed.) (2023) Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

firstly avoiding habitats and features sensitive to bats. Under the current design, the Proposed Development will not require the removal/lopping of trees with PRFs. Additional measures include, but are not limited to:

- Provision of alternate roosting features where trees/PRFs with suitability for roosting bats are to be lost, should the design of the Proposed Development change;
- Inspection of PRFs to confirm the continued absence of bats prior to the removal of trees with bat suitability, should the design of the Proposed Development change;
- Sensitive lighting measures to be outlined in a Construction Environmental Management Plan (CEMP); and
- Ecological enhancements to ensure compliance with policy.

# 2. Introduction

## 2.1. Project Background

2.1.1. WSP has been commissioned by Trydan Gwyrdd Cymru (hereafter 'the Applicant') to undertake bat roost surveys in relation to the proposed Larnog Solar Farm, hereafter known as the 'Proposed Development'. The Proposed Development would be located on land approximately 500 m south-west of Penarth and 550 m east of Sully (central National Grid Reference: ST 17739 68268) (hereafter the 'Site'). The Site Boundary is shown on **Figure 1.1: Site Location Plan**.

2.1.2. The Site is predominantly fields comprising arable land separated by hedgerows and lines of trees, with parcels of woodland throughout. The Site is located directly north of the Severn Estuary and is bound to the north by Lavernock Road (B4267). A disused railway track runs from east to west within the northern extent of the Site. Cosmeston Lakes, freshwater lakes which are flooded limestone quarries, are located to the north of the Site.

2.1.3. WSP is supporting the planning application for the Proposed Development at the Site. The purpose of this report is to provide sufficient information to assess the presence or likely absence of roosting bats within trees within the Site, and to inform any further considerations for roosting bats impacted by the Proposed Development.

## 2.2. Ecological Background

2.2.1. A Preliminary Ecological Appraisal (PEA) for the Proposed Development was undertaken by WSP in 2025 and updated in 2026 (see **Appendix 7A: Preliminary Ecological Appraisal 2026** of the ES). This PEA included a desk study and a Phase 1 habitat survey, as well as a Daytime Bat Walkover (DBW), undertaken in accordance with best practice guidance[2].

2.2.2. At the time of the PEA, the Site encompassed a larger area, hereafter referred to as the 'PEA Site Boundary'. Following subsequent refinement of the Site, the area subject to close inspection surveys as detailed in this report is referred to as the 'Survey Area'. The Site has since been refined and reduced further, with some of the trees included in the close inspection surveys now located outside the current Site Boundary.

2.2.3. As a part of the desk study, records of protected and/or notable species within the PEA Site Boundary and adjacent land within 2 km of the Site were requested from the South East Wales Biodiversity Records Centre (SEWBReC).

2.2.4. A total of 15 records of at least three species of bats were identified during the desk study. Bat species returned from the desk study comprised:

- Nathusius' pipistrelle *Pipistrellus nathusii*;

- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Common pipistrelle *Pipistrellus pipistrellus*; and
- An unknown pipistrelle species.

2.2.5. The closest record to the PEA Site Boundary was a field record for soprano pipistrelle and common pipistrelle, with both records located 789 m from the PEA Site Boundary.

2.2.6. The DBW assessed trees as either having 'none' (no Potential Roost Features (PRFs) in the tree), 'FAR' (further assessment required to establish the presence of PRFs in the tree) or 'PRF' (at least one PRF present within the tree). The DBW identified a total of 32 trees within the PEA Site Boundary that contained at least one PRF and would require further assessment (in accordance with best practice guidelines[2]). These were spread throughout the PEA Site Boundary, and comprised the following species: ash *Fraxinus excelsior*, oak *Quercus spp.*, blackthorn *Prunus spinosa*, and elder *Sambucus nigra*.

2.2.7. Of the 32 trees assessed as PRF, 21 were within the Survey Area: BT1, BT2, BT3, BT4/BT5, BT6, BT7, BT8, BT9, BT10, BT12, BT23, BT24, BT25, BT26, BT27, BT28, BT29, BT30, BT31, and BT32 (shown on **Figure 7** of **Appendix 7A: Preliminary Ecological Appraisal 2026** of the ES). Without further survey, the presence of bat roosts within these features could not be determined. As such, should any of these trees be affected by the Proposed Development, there could be a risk of direct killing or injury to bats. Therefore, further surveys were recommended. These comprised close inspection surveys, to allow for a more detailed assessment of the likely suitability of the trees for bats, look for more conclusive evidence of bats, and to confirm the status of any roosts identified during the further surveys.

## 2.3. Brief and Objectives

2.3.1. Based on the recommendations of the PEA, the Applicant commissioned WSP to complete further bat surveys of the Survey Area (where safe and accessible). The brief was to:

- Complete close inspection surveys for trees identified with roosting suitability within the Survey Area; and
- Evaluate the value of the Survey Area for roosting bats and make recommendations as to how proposals should account for bats with respect to legislation, planning and biodiversity policy.

2.3.2. The results of these surveys, and subsequent recommendations, are included within this report.

# 3. Methods

## 3.1. Bat Roost Surveys

### Close Inspection Survey

3.1.1. Close inspection surveys were carried out on all 21 trees identified during the DBW as containing at least one PRF within the Survey Area (shown on **Figure 2: Close Inspection Survey Results**).

3.1.2. The close inspection survey comprised an endoscope inspection of all PRFs within each tree by an appropriately qualified and licensed ecologist (NPTC CS38[3] tree climbing and aerial rescue, Natural Resources Wales (NRW) Bat Survey Licence). Surveyors are full members of the Chartered Institute of Ecological and Environmental Management (CIEEM).

3.1.3. Inspections were undertaken using a small torch and endoscope (e.g. to search for bats, if any bats were present, and if not, to search for any evidence of bats having previously been present). Inspections were carried out under safe working protocols[4],[5] and in accordance with best practice guidelines[2].

3.1.4. The following information was recorded during the close inspection survey for each PRF:

- Approximate internal dimensions;
- Whether dry or wet;
- Evidence of use by birds, squirrels, or other non-bat species;
- Evidence of bat activity (smoothing of internal surfaces, droppings, bat fly (*Nycteribiid*) pupae, feeding remains, staining); and/or
- The presence, number and species of bats observed.

3.1.5. Each tree was subsequently categorised as either being a confirmed roost or as having PRF-M (suitable to support multiple bats) or PRF-I (suitable to support individual bat or very small numbers of bats ) suitability, based on the PRF or PRFs present (see Table 3.1, and best practice guidelines[2]). Where a single tree exhibited multiple PRFs of varying degrees of suitability for roosting bats, the tree was categorised according to the PRF with the highest suitability. If a tree was found to have no suitability for roosting bats, it was described as negligible.

[3] City & Guilds/NPTC Level 2 Award in Tree Climbing and Rescue – units 206 and 306 and refresher training (where relevant)
[4] Arboricultural Association (2020) Industry Code of Practice for Arboriculture: Tree Work at Height' (2nd edition 2020).
[5] Arboricultural Association (2020) Technical Guide 1, Tree climbing and Aerial Rescue.

3.1.6. Trees identified as having at least one PRF with a confirmed roost or PRF-M suitability to support bat roosts were subject to further surveys. The level of survey effort employed was proportional to the level of potential for roosts to be present[2]; as per **Table 3.1**Table 3.1.

3.1.7. Following all surveys an indication was also given to the potential roost types that could be supported:

- Maternity (occupation by a maternity colony during pregnancy and nursery periods);
- Transitory/summer day roost (occupation by 1-3 bats during this period);
- Mating (occupation by any number of bats during the mating period); and
- Winter (occupation by any number of bats during the winter period).

*Table 3.1 - PRF suitability categorisation[2]*

| Category | Description | Minimum number of survey visits |
|---|---|---|
| PRF-M | PRF is suitable for multiple bats and may therefore be used by a maternity colony. | At least three visits between May – September, with at least two in the period May – August. A further survey between November – February. |
| PRF-I | PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitat. | At least one visit between May – August. |

## 3.2. Dates of Survey

3.2.1. The first close inspection survey of the trees within the Survey Area identified with suitability to support roosting bats was completed on 17 and 18 June 2025. Trees with at least one PRF assessed as having a confirmed roost, or PRF-M suitability to support bat roosts were subject to repeat inspections on 29 July, 10 August and 11 December 2025 to assess the presence/likely absence of bats during both the active season and the hibernation season. Therefore, all trees had the correct number of surveys as required under best practice guidelines[2].

## 3.3. Notes and Limitations

3.3.1. The ecological survey data collected as part of this report is considered valid for 18 months[6] unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management.

[6] CIEEM. (2019). Advice Note: On The Lifespan of Ecological Reports and Surveys.

3.3.2. Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.

3.3.3. The level of survey effort for the trees present within the Survey Area were in line with good practice survey guidelines[2] and is therefore considered sufficient to establish the likely absence of bat maternity roosts. Bats typically demonstrate seasonal use of different roosts, and being highly mobile species, may be roosting elsewhere during the period a tree was surveyed. For this reason, bats may use the trees within the Survey Area but remain undetected.

# 4. Results

## 4.1. Close Inspection Survey

4.1.1. Following the PEA, 21 trees were subject to close inspection surveys on 17 and 18 June 2025. Five trees assessed as being suitable to support multiple roosting bats (PRF-M) were subject to additional surveys on 29 July, 10 August and 11 December 2025. No bats, or evidence of use by bats, were identified during the close inspection surveys.

4.1.2. The close inspection surveys identified the following:

- Six trees previously assessed as PRF (BT1, BT6, BT10, BT31, BT27, and BT9) were downgraded to negligible;
- BT4 was found to be a replica of BT5 (as such BT5 has been removed from the results); and
- The remaining trees were considered to offer either PRF-M or PRF-I suitability to support roosting bats (as per good practice survey guidance[2]). These were classified as follows:
    - PRF-M – five trees (BT3, BT4, BT23, BT24, and BT32); and
    - PRF-I – nine trees (BT2, BT7, BT8, BT12, BT25, BT26, BT28, BT29 and BT30).

4.1.3. The locations and results of the trees surveyed are shown on **Figure 2: Close Inspection Survey Results**. Descriptions of the PRF type identified on each tree, along with the bat species considered likely to use each PRF (based on the type and species of bats within the county), are provided in **Annex A** of this report. Photographs of the trees subject to close inspection are provided in **Annex B** of this report.

# 5. Implications for Development

## 5.1. Trees

5.1.1. The current design of the Proposed Development does not require the removal of trees identified as being suitable to support roosting bats. As such, direct impacts to bats through the loss of roosting habitat, or the removal of trees supporting PRFs, are not anticipated. The principal potential effects on roosting bats therefore relate to disturbance during construction activities and the introduction of artificial lighting during both the construction and operational phases of the Proposed Development. Artificial lighting can deter bats from accessing highly illuminated habitat, including roosting features. There is a risk that high levels of artificial light-spill onto retained trees and linear vegetation could deter bats from accessing suitable roost features. Further, the removal or commuting and foraging habitats (such as hedgerows) associated with a roost may reduce the suitability of the surrounding landscape to support bats, and therefore adversely affect bats using the roost during both the construction and operational phases of the Proposed Development.

5.1.2. The results of the close inspection surveys completed within the Survey Area have concluded that bat roosts were likely absent from the trees surveyed within the Survey Area at the time of survey. The definitive absence of roosting bats is very difficult to prove; however, comprehensive close inspection surveys were completed for trees identified as having suitability to support roosting bats in accordance with best practice guidelines[2]. On this basis, it is considered unlikely that maternity roosts or other roosts of high conservation status were present at the time of survey.

## 5.2. Legal Compliance

5.2.1. The legislation and planning policy relevant to bats and their roosts is set out below. Recommendations as to how the legislation and planning policy may be satisfied are set out in **Section 6**.

5.2.2. Bats and their roosts are afforded a high level of protection under The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations)[7], the legislation means that it is an offence to:

- Deliberately capture, injure or kill a wild bat;
- Deliberately disturb wild bats; *'disturbance of animals includes in particular any disturbance which is likely:*
    - *(a) to impair their ability; —*

[7] His Majesty's Stationary Office (HMSO) (2019). The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations).

- *(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.'; and*

- Damage or destroy a breeding site or resting place used by this species.

5.2.3. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) (WCA)[8] with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.

5.2.4. Due to the high level of protection afforded to bats and their habitat, mitigation for this species is governed by a strict licensing procedure administered by NRW (normally, planning permission must be obtained before a licence can be sought). Licencing is subject to three tests, as defined under the Habitats Regulations. These must also be applied by the planning authority before granting permission for activities affecting bats. For permission to be granted the following criteria must be satisfied:

- The proposal is necessary for '*preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment*';
- '*there is no satisfactory alternative*'; and
- 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*'.

5.2.5. Certain species of bats including the barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule bat, brown long-eared bat, common pipistrelle, soprano pipistrelle bat, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros* are also listed as Priority Species under Section 7 of the Environment (Wales) Act 2016[9]. Under Section 7 of the Environment (Wales) Act 2016, Welsh Ministers must take all reasonable steps to maintain and enhance the living organisms and types of habitats included on any list published under this section and encourage others to take such steps.

[8] His Majesty's Stationary Office (HMSO) (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000).
[9] Welsh Government. (2016). Environment (Wales) Act 2016.

## 5.3. Planning Policy Compliance

5.3.1. At the national level the Planning Policy Wales (PPW)[10] forms the basis for planning system decisions with respect to conserving and enhancing the natural environment, including protected species such as bats.

5.3.2. PPW (Edition 12, 2024) states:

'*A Resilient Wales can be supported by protecting and providing sufficient scale, extent, diversity and connectivity within, and between, landscapes and habitats to maintain and enhance biodiversity and the resilience of ecosystems. This support will enable them to withstand the pressures of change, to tackle pollution, to protect and enhance water resources, to protect soils and to enable flood mitigation, the creation of carbon sinks (especially in urban areas), and to promote opportunities for social and economic activity based on valuing and enabling access to the natural, historic and built environment*.'

*5.3.3.* PPW sets out, amongst other points, how at an overview level the '*planning system should contribute to and enhance the national and local environment by:*

*…recognising… the wider benefits of ecosystem services; and*

*minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures…*'.

5.3.4. A list of principles which local planning authorities should follow when determining planning applications is included in the PPW, and includes the following:

'*if significant harm resulting from a development cannot be avoided…adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

*…opportunities to incorporate biodiversity in and around developments should be encouraged; and*

*planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland…unless the need for, and benefits of, the development in that location clearly outweigh the loss…*'.

5.3.5. Under Section 6 of the Environment (Wales) Act 2016 public authorities that exercise their functions in relation to Wales have a duty to maintain and enhance biodiversity and promote the resilience of ecosystems.

[10] Welsh Government. (2024). Planning Policy Wales (PPW). (Edition 12) 2024.

5.3.6. One of the seven goals of the Well-being of Future Generations (Wales) Act (2015) is to create a resilient Wales. This comprises maintaining and enhancing '*a biodiverse natural environment with healthy functioning ecosystems that support…ecological resilience'*.

# 6. Recommendations

## 6.1. Avoidance and Mitigation Measures

6.1.1. The current design of the Proposed Development does not require the removal of trees identified as having PRFs, and therefore direct impacts to potential bat roosting habitat are not anticipated. All trees with bat roosting suitability should be retained and protected throughout the construction of the Proposed Development.

6.1.2. Should the final design require any tree removal or pruning that could affect trees with PRFs, the recommendations set out in **Section 6** would apply. If habitat loss is required, habitat replacement and enhancement recommendations are presented in **Section 6.4**.

6.1.3. Bats roosting in trees exhibit an increased frequency of roost switching behaviours[11], it should therefore be considered that all trees with roosting suitability be considered an important part of the wider roosting resource available to bats within the Site[2]. Should trees with PRFs require removal or pruning under the final design, compensation measures for the loss of trees with PRFs are presented in **Table 6.1**. Furthermore, where impacts on trees with bat roosting potential cannot be avoided, additional measures are outlined within **Section 6.4**.

*Table 6.1 - Proposed mitigation*

| Tree | Overall Suitability | Recommended Mitigation |
|---|---|---|
| **Trees likely to be at risk– mitigation only implemented if trees/PRF are to be removed and/or impacted** | | |
| BT3, BT4, BT23, BT24, and BT32 | PRF-M | Installation of two bat boxes in a location adjacent to the tree to be lost as specified by an ecologist. |
| BT2, BT7, BT8, BT12, BT25, BT26, BT28, BT29 and BT30 | PRF-I | Installation of one bat box in a location adjacent to the tree to be lost as specified by an ecologist. |

## 6.2. Precautionary Methods

6.2.1. Although no evidence of use by bats was identified at the time of close inspection surveys, a number of trees have been assessed as having PRFs. Should these trees be affected by the Proposed Development, appropriate precautionary measures would be required.

6.2.2. No further surveys are required to be carried out on these trees. However, bats are highly mobile and switch between roost sites. Therefore, bats may start using a roosting site after it has been surveyed or may have been roosting somewhere else during the

[11] Bat Tree Habitat Key (2018). Bat Tree Habitat Key – Bat Roosts in Trees: A guide to identification and assessment for tree-care and ecology professionals. Pelagic Publishing. Exeter.

period it was surveyed. As such, it is recommended that all trees with bat roosting suitability which are anticipated to be affected by the Proposed Development (although no direct effects are anticipated) should be fully inspected by a licenced bat ecologist immediately prior to works to ensure no bats are present at the time of impact.

6.2.3. In the event that bats are found to be present during the pre-works inspection, works would be postponed, and advice sought from NRW. It may be necessary to apply for a licence from NRW to allow the lawful removal of the trees.

## 6.3. Lighting

6.3.1. Whilst works are anticipated to centre around day-light hours, it is possible that during the winter months some impromptu lighting may be required at the start or end of the work shift due to shorter day length.

6.3.2. To minimise impact of lighting on bat activity, the following measures are recommended to be outlined within a Construction Environmental Management Plan (CEMP):

- There will be no night-time working with works taking place between 07:00 and 19:00 hours; and
- During the winter months when day length is shorter some site lighting may be required. Site lighting will be controlled to prevent incidental spillage on to features that may be used by nocturnal species.

6.3.3. Such control measures may include:

- Use of directional lighting to ensure only task areas are lit, avoiding direct illumination of retained trees, hedgerows, and boundary vegetation features;
- Use the minimum light levels necessary for the relevant task/function, this may equate to reducing light intensity, and/or using the minimum number or light sources or minimum column height;
- Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wavelength blue light, using instead warm/neutral colour temperature <3000 kelvin lighting[12]; and
- Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light.

## 6.4. Ecological Enhancement Measures

6.4.1. Net Benefit for Biodiversity (NBB) in association with development is encouraged by PPW (Edition 12, 2024) and is required under Section 6 of Part 1 of the Environment (Wales) Act 2016. The below recommendations aim to comply with a NBB approach, in

[12] Bat Conservation Trust (BCT) (2023). Guidance Note 08/23 Bats and artificial lighting in the UK.

the way of delivering an overall improvement in biodiversity with the absence of a metric. By engaging with these recommendations in the early stages of the Proposed Development, it is hoped that ecosystem resilience and wider ecosystem benefits can be achieved. This approach will support local authorities in achieving their Section 6 duty to '*promote the resilience of ecosystems*' when determining planning applications.

6.4.2. It is recommended that permanently removed trees which are proposed to be removed within an at risk area are replaced at a 3:1 ratio. This will be achieved by planting additional tree lines throughout the Site.

**6.4.3.** Planting of additional tree lines and also hedgerows is recommended to support in bolstering existing commuting and foraging routes for bats and also will create new routes, improving the connectivity within the Site and surroundings for bats. The proposed locations of these tree line and hedgerows is provided on the outline Landscape Ecological Management Plan (oLEMP) (see **Appendix 6G: Outline LEMP** of the ES).

6.4.4. Existing habitats in poor condition for biodiversity are recommended to be enhanced through incorporation of species-rich grassland seed mixes or plugged with suitable species recorded in adjacent species-rich habitats. Enhancing the floral diversity within the Site will improve the suitability for a greater variety of invertebrates, which provide more diverse foraging opportunities for bats. The locations where this is recommended are shown on the oLEMP (see **Appendix 6G: Outline LEMP** of the ES).

6.4.5. Installing of bat boxes on trees within the Site is recommended to provide additional roosting opportunities. The proposed locations of bat box installation are shown on the oLEMP (see **Appendix 6G: Outline LEMP** of the ES).

# 7. Conclusions

7.1.1. Of the 21 trees surveyed, 14 trees were assessed to have suitability to support roosting bats within the Survey Area:

- PRF-M – BT3, BT4, BT23, BT24, and BT32; and
- PRF-I – BT2, BT7, BT8, BT12, BT25, BT26, BT28, BT29 and BT30.

7.1.2. No bats, or evidence of use by bats, were identified during the close inspection surveys. However, due to the suitability of the identified trees within the Survey Area to support roosting bats, and the regular roost switching nature of bats particularly of tree roosting bats, the following mitigation and working methods have been recommended:

- All trees on Site should be protected and incorporated into the final design where possible. Where trees with suitability for roosting bats are to be lost, alternative roosting provision should be provided in the form of bat boxes;
- Prior to the removal of trees with bat suitability, trees will be inspected by a licensed bat ecologist to confirm the continued absence of bats. If roosting bats are found to be present, works will stop and an NRW licence may need to be sought prior to removal works continuing;
- Consideration should be given to lighting through the provision of a CEMP highlighting precautions to be taken during the construction phase in order to reduce the likely disturbance of trees that might support roosting features and bats foraging and commuting behaviours throughout the Site; and
- Ecological enhancements in relation to landscape and provision of future roosting opportunities are provided, in the form of compensatory planting and bat boxes within trees throughout the Site.

# Annex A

## *Close Inspection Survey Results*

| Tree No | Tree species | Tree description | PRF No/and Type | | | | | Evidence of roosting bats recorded | Peak Count | Potential for different roost types* | | | | Overall Tree Bat Roost Potential | Typical bat species using type of roost and periods** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PRF ID | PRF Type | PRF Aspect and Height | PRF Description | PRF Grade | | | B | T | M | H | | (Empty cells indicate a lack of available records to cross reference) |
| BT2 | Ash *Fraxinus excelsior* | 10 m tall | PRF-1 | Knothole | Upward facing, 1.5 m | Excavated knothole, extends upwards 15 cm, diameter 8c m. Great tit *Parus major* nest inside. | PRF-I | None | 0 | N | Y | Y | N | PRF-I | Pregnancy (brown long-eared *Plecotus auritus*, Natterer's *Myotis nattereri*, soprano pipistrelle *Pipistrellus pygmaeus*, and noctule *Nyctalus noctula*) Nursery (Daubenton's *Myotis daubentonii*) |
| | | | PRF-2 | Tear-out | East, 2 m | Extends in 5 cm, diameter 5 cm. | PRF-I | None | 0 | N | Y | Y | N | | Spring-flux (common pipistrelle *Pipistrellus pipistrellus)* Pregnancy (soprano pipistrelle) Nursery (Natterer's, noctule, Daubenton's) Mating (Daubenton's, soprano pipistrelle, common pipistrelle, Natterer's) Autumn flux (Natterer's) |
| BT3 | Poplar *Populus sp.* | 8 m tall | PRF-1 | Butt rot | North, 0 m | Extends up approximately 2.5 m. Smooth inside, open at top, quite wide and open. Entrance 5 cm x 2 m. | PRF-M | None | 0 | Y | Y | Y | Y | PRF-M | |

| Tree No | Tree species | Tree description | PRF No/and Type | | | | | Evidence of roosting bats recorded | Peak Count | Potential for different roost types* | | | | Overall Tree Bat Roost Potential | Typical bat species using type of roost and periods** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PRF ID | PRF Type | PRF Aspect and Height | PRF Description | PRF Grade | | | B | T | M | H | | (Empty cells indicate a lack of available records to cross reference) |
| | | | PRF-2 | Knothole | North-east, 3 m | Excavated knothole. Connects to butt rot downwards. Extends upwards 70 cm. Rough, not clean, chambered. Diameter 15 cm x 15 cm. Disused bird nest at top of butt rot in deadwood. During second check on 29/07/25, a tawny owl *Strix aluco* flew from tear out at top of butt rot, used as a roosting site. | PRF-M | None | 0 | Y | Y | Y | Y | | |
| BT4 | Oak *Quercus sp.* | Mature | PRF-1 | Knothole | North, 4 m | Excavated knothole that extends upwards 10 cm and down 40 cm. Entrance 7 cm, diameter 7 cm. Dry, clean, rough. Some woodlice present. | PRF-M | None | 0 | Y | Y | Y | Y | PRF-M | Hibernation (brown long-eared)<br>Spring-flux (noctule, common pipistrelle, soprano pipistrelle)<br>Pregnancy (Daubenton's, noctule, Natterer's<br>Nursery (Daubenton's, brown long-eared, common pipistrelle, barbastelle *Barbastella barbastellus*)<br>Mating (Natterer's, Daubenton's, noctule, common pipistrelle, soprano pipistrelle)<br>Autumn-flux (common pipistrelle, soprano pipistrelle) |

| Tree No | Tree species | Tree description | PRF No/and Type | | | | | Evidence of roosting bats recorded | Peak Count | Potential for different roost types* | | | | Overall Tree Bat Roost Potential | Typical bat species using type of roost and periods** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PRF ID | PRF Type | PRF Aspect and Height | PRF Description | PRF Grade | | | B | T | M | H | | (Empty cells indicate a lack of available records to cross reference) |
| BT7 | Oak | Mature | PRF-1 | Tear out | North-east, 7 m | Extends up 3-4 cm, smooth, woodlice, peaked top. | PRF-I | None | 0 | N | Y | N | N | PRF-I | Winter (noctule, common pipistrelle)<br>Spring-flux (Natterer's, common pipistrelle, noctule)<br>Pregnancy (Natterer's, Daubenton's, noctule)<br>Nursery (brown long-eared, common pipistrelle, Daubenton's, Natterer's)<br>Mating (Daubenton's, soprano pipistrelle, noctule)<br>Autumn-flux (Natterer's, common pipistrelle, Daubenton's, noctule) |
| BT8 | Oak | Hollow | PRF-1 | Butt rot | South, 1.5 m | Butt rot with some crevices. Mostly open, cluttered with ivy *Hedera helix*, but some opportunities for individual bats. Dry, rough, entrance 5 cm x 4 cm, extends up 10 cm. | PRF-I | None | 0 | N | Y | N | N | PRF-I | |
| BT12 | Blackthorn *Prunus spinosa* | Mature | PRF-1 | Wound | North-west, 1.5 m | Extends up 10 cm, damp, slugs present. Interior dimensions 5 cm x 5 cm. Entrance 35 cm x 5 cm. Entrance slightly cluttered by traveller's joy *Clematis vitalba*. | PRF-I | None | 0 | N | Y | Y | Y | PRF-I | |

| Tree No | Tree species | Tree description | PRF No/and Type | | | | | Evidence of roosting bats recorded | Peak Count | Potential for different roost types* | | | | Overall Tree Bat Roost Potential | Typical bat species using type of roost and periods** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PRF ID | PRF Type | PRF Aspect and Height | PRF Description | PRF Grade | | | B | T | M | H | | (Empty cells indicate a lack of available records to cross reference) |
| BT23 | Holm oak *Quercus ilex* | Mature | PRF-1 | Deadwood | South, 4 m | Hole behind deadwood on tear out on east side of main limb. Entrance 2.5 cm. Forms cavity which extends 40 cm high, 15 cm wide, with depth of 2 cm. Dry, clean, no evidence of bats. | PRF-M | None | 0 | Y | Y | Y | Y | PRF-M | |
| | | | PRF-2 | Elephant ears | South, 2 m | Elephant ears extend to base of the tree. Dry and rough inside. Diameter 8 cm. No evidence of bats. Quite open and vulnerable to predation. | PRF-I | None | 0 | N | Y | Y | N | | |
| BT24 | Holm oak | Mature with dense scrub at base | PRF-1 | Tear out | North, 8 m | Extends horizontally 30 cm, and 50 cm upwards. 1.5 to 2 cm wide. Sheltered, Wren *Troglodytes troglodytes* nest at base. Potential bat dropping at base, but not possible to confirm. On second inspection on 29/05/25, possible wood mouse droppings at base. | PRF-M | None | 0 | Y | Y | Y | Y | PRF-M | |
| BT25 | Ash | Mature, on field and woodland boundary | PRF-1 | Pruning cut | South, 7 m | Some gaps suitable for opportunistic bats. Dry internally. | PRF-I | None | 0 | N | Y | Y | N | PRF-I | Nursery (noctule) |
| BT26 | Oak | Mature, on edge of woodland | PRF-1 | Knothole | South, 7 m | Excavated knothole, extends up approximately 5 cm. Diameter 5 cm. Bird droppings at base. Rounded apex. | PRF-I | None | 0 | | | | | PRF-I | Hibernation (brown long-eared) Spring-flux (noctule, common pipistrelle, soprano pipistrelle) |

| Tree No | Tree species | Tree description | PRF No/and Type | | | | | Evidence of roosting bats recorded | Peak Count | Potential for different roost types* | | | | Overall Tree Bat Roost Potential | Typical bat species using type of roost and periods** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PRF ID | PRF Type | PRF Aspect and Height | PRF Description | PRF Grade | | | B | T | M | H | | (Empty cells indicate a lack of available records to cross reference) |
| | | | | | | | | | | | | | | | Pregnancy (Daubenton's, noctule, Natterer's<br>Nursery (Daubenton's, brown long-eared, common pipistrelle, barbastelle *Barbastella barbastellus*)<br>Mating (Natterer's, Daubenton's, noctule, common pipistrelle, soprano pipistrelle)<br>Autumn-flux (common pipistrelle, soprano pipistrelle) |
| BT28 | Ash | Single-stemmed | PRF-1 | Knothole | East, 5.5 m | Extends in horizontally for 20 cm. | PRF-I | None | 0 | N | Y | Y | N | PRF-I | Pregnancy (brown long-eared *Plecotus auritus*, Natterer's *Myotis nattereri*, soprano pipistrelle *Pipistrellus pygmaeus*, and noctule *Nyctalus noctula*)<br>Nursery (Daubenton's *Myotis daubentonii*) |
| BT29 | Ash | Semi-mature | PRF-1 | Tear out | North, 6 m | Extends 15 cm, quite large and open. Entrance 40 cm x 10 cm. | PRF-I | None | 0 | N | Y | Y | N | PRF-I | Spring-flux (common pipistrelle)<br>Pregnancy (soprano pipistrelle)<br>Nursey (Natterer's, noctule, Daubenton's)<br>Mating (Daubenton's, soprano pipistrelle, |

| Tree No | Tree species | Tree description | PRF No/and Type | | | | | Evidence of roosting bats recorded | Peak Count | Potential for different roost types* | | | | Overall Tree Bat Roost Potential | Typical bat species using type of roost and periods** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PRF ID | PRF Type | PRF Aspect and Height | PRF Description | PRF Grade | | | B | T | M | H | | (Empty cells indicate a lack of available records to cross reference) |
| | | | | | | | | | | | | | | | common pipistrelle, Natterer's)<br>Autumn flux (Natterer's) |
| BT30 | Ash | | PRF-1 | Tear out | North-east, 3.5 m | Extends approximately 10 cm down and ends in a bowl. Quite open, entrance 5 cm x 20 cm. | PRF-I | None | 0 | N | Y | Y | N | PRF-I | Spring-flux (common pipistrelle)<br>Pregnancy (soprano pipistrelle)<br>Nursey (Natterer's, noctule, Daubenton's)<br>Mating (Daubenton's, soprano pipistrelle, common pipistrelle, Natterer's)<br>Autumn flux (Natterer's) |
| BT32 | Field maple *Acer campestre* | Tree on end of line of trees, not within main field boundary | PRF-1 | Tear out | North-east, 1.5 m | Entrance 15 cm x 5 cm. Extends upwards 70 cm, smooth clean and polished, to a tapered apex. Does not extend down. Cluttered entrance. Internal diameter 6 cm. | PRF-M | None | 0 | Y | Y | Y | Y | PRF-M | Spring-flux (Daubenton's)<br>Pregnancy (Daubenton's)<br>Autumn flux (Natterer's) |

*B = Maternity (occupation by a maternity colony during Pregnancy and Nursery periods); T= Transitory/Summer Day roost (occupation by 1-3 bats during the mating period); M = Mating (occupation by any number of bats during the mating period); and H= Hibernation (occupation by any number of bats during the winter period).

** Bat species considered likely to use each feature cross referenced with Bat Tree Habitat Key Database (http://battreehabitatkey.co.uk/?page_id=18 Accessed September 2022) in combination with those bats identified in the desk study (WSP 2021) as surrounding the Site.

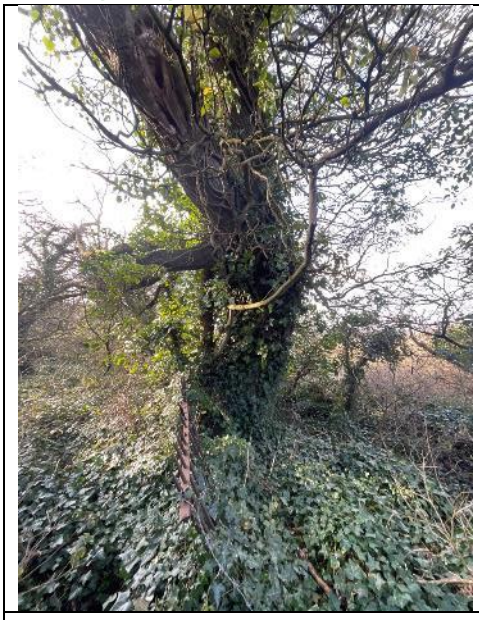
# Annex B

*Photographs of trees subject to close inspection*

| | |
|---|---|
|  |  |
| BT2 | BT2 – PRF -1 |
|  |  |
| BT3 | BT3 – PRF -2 |

| | |
|---|---|
|  |  |
| BT4 | BT7 |
|  |  |
| BT8 – PRF -1 | BT12 – PRF -1 |

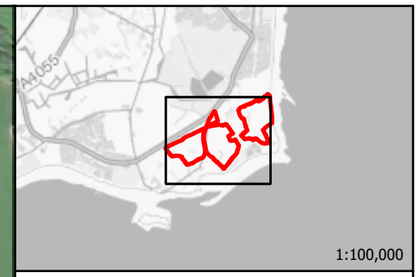
| | |
|---|---|
|  |  |
| BT23 | BT24 – PRF -1 |
|  |  |
| BT25 | BT26 |
|  |  |
| BT29 | BT29 – PRF -1 |

| | |
|---|---|
|  |  |
| BT30 | BT30 – PRF-1 |
|  |  |
| BT32 | BT31 – PRF -1 |

# Figures

N

0 200 m




**LEGEND**

Site Boundary

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**PROJECT TITLE:**

LARNOG SOLAR FARM

**DRAWING TITLE:**

FIGURE 1
SITE LOCATION

**CONFIDENTIALITY**

PUBLIC

| DRAWN: | CHECKED: | APPROVED: | AUTHORISED: |
|---|---|---|---|
| NC | MB | MC | MC |

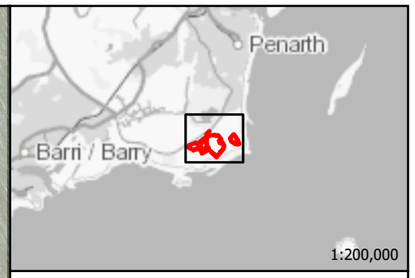
| SCALE @ A3 SIZE: | DATE: | REVISION: |
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| 1:5,000 | 09/10/2026 | P00 |

**DRAWING NO:**

FIGURE 1

\\uk.wspgroup.com\central data\Discipline Management\Environmental\1. Service Lines\GIS\1. Office specific\Noida\Neha\Figures\Larnog Solar Farm\Bat Survey Report\MXD\Figure 1 – Site Location Plan\Figure 1 – Site Location Plan.aprx




**LEGEND**

- Site Boundary
- Survey Area Boundary

Locations of Trees

- PRF-M
- PRF-I

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PROJECT TITLE:

LARNOG SOLAR FARM

DRAWING TITLE:

FIGURE 2
CLOSE INSPECTION SURVEY RESULTS

CONFIDENTIALITY: PUBLIC

| DRAWN: | CHECKED: | APPROVED: | AUTHORISED: |
|---|---|---|---|
| NC | MB | MC | MC |

| SCALE @ A3 SIZE: | DATE: | REVISION: |
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| 1:5,500 | 09/10/2026 | P00 |

DRAWING NO:

FIGURE 2

\\uk.wspgroup.com\central data\Discipline Management\Environmental\1. Service Lines\GIS\1. Office specific\Noida\Neha\Figures\Larnog Solar Farm\Bat Survey Report\MXD\Figure 2 – Close Inspection Survey Results\Figure 2 – Close Inspection Survey Results.aprx