GROUND LEVEL TREE ASSESSMENT REPORT

Client: Cygnature Homes

Site: South Hill, Pulborough

12.03.2024

Version 001

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001	12.03.2024	N/A	Issued to client.

Life Span of Survey Data and Report	
Report	This report remains valid for 12 to 18 months from date of issue. The report, conclusions and recommendations are valid for current development plans only. Should this change, the report should be reviewed and, if necessary, further survey work and desk study review undertaken.
Survey Data	Survey data are valid for 12 to 18 months from the date the survey was undertaken.

The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.

Contents

List of Tables:

1. Summary

Site Details

- Site Address: South Hill, Storrington Road, Thakeham, Pulborough, RH20 3EN.
- OS grid reference: TQ 1035 1745.
- Area of Site: 6873.2 m² (0.687 ha).

Scope of Works

- aLyne Ecology Ltd. was commissioned by Cygnature Homes to carry out a Ground Level Tree Assessment (GLTA), comprising an inspection of the trees that could potentially be impacted by the development, including on-site and off-site trees (T1 to T59 on Figure 1) to inform an assessment of the suitability for summer roosting and hibernating bats, as recommended in aLyne Ecology Ltd.'s report (aLyne Ecology Ltd., 2023) and requested by Horsham District Council (planning reference: DC/23/1777).

Development Proposals

- The development proposals are for the construction of five detached dwellings with associated access, car ports, and landscaping.
- Landscaping includes the following:
    - Hedgerow planting.
    - Tree planting.
    - Ornamental shrub planting.
    - Herbaceous perennial planting.
    - Specimen grasses.
    - Flowering lawns.
- Habitats recorded during the Preliminary Ecological Appraisal (PEA) to be removed or partially removed include the following:
    - Modified grassland.
    - Horticulture.
    - Developed land, sealed surface.
    - Buildings.
    - Artificial unvegetated, unsealed surface.
    - Other hedgerow.
    - Line of trees – Trees T33 to T54.

Key Ecological Constraints and Opportunities

- Bats, their roosts, and their habitats are strictly protected under the Wildlife and Countryside Act (1981) as amended (HM Government, 1981) and the Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017).
- There are numerous areas of deciduous woodland located within 1 km of the site, including three parcels of ancient woodland. There have been two granted European Protected Species Licences (EPSLs) for roosting bats within 2 km of the site.

- All 59 trees were inspected and assessed for their suitability to support roosting bats, in accordance with best practice guidelines (Collins, 2023) (see Figure 1).
- **Trees T6, T7, and T14 were assessed as possessing at least one Potential Roosting Feature (PRF), namely ivy cladding, pruning cuts, woodpecker hole, and knot holes.**
- **The PRFs on trees T6, T7, and T14 were assessed as PRF-I, meaning they potentially support an individual number of roosting bats (see Figure 2).**

Recommendations for Avoidance, Mitigation, and Enhancement

- Trees T6, T7, and T14 are proposed to be retained and protected as part of the development proposals, meaning there will not be any direct impacts on the trees with PRF features; however, there could be indirect impacts on the trees through construction and operation activities associated with the development.
- Any removal of vegetation should be undertaken outside of the bird breeding season (March to August inclusive) to avoid destruction/disturbance of nesting birds.
- A sensitive lighting plan should be adopted, to ensure that outside lighting does not adversely affect adjacent habitats and wildlife, particularly bats when foraging and commuting.
- A Construction and Environmental Management Plan (CEMP) should be prepared, demonstrating how features of ecological value will be retained and protected during construction, particularly the buildings and trees that have suitability to support roosting/foraging/commuting bats.

2. Introduction

2.1 Site Details

Table 1 provides details on the site, intended as a summary of key features. Table 1 and Table 2 have been derived from Magic (Natural England, 2013).

Table 1. Site Details

Site Name	South Hill, Pulborough
Site Address	South Hill, Storrington Road, Thakeham, Pulborough, RH20 3EN
OS Grid Reference	TQ 1035 1745
Approximate Total Area of Site	6873.2 m² (0.687 ha)
Landowner and Local Authority	Cygnature Homes, Horsham District Council
Geology and Soils	Freely draining, slightly acidic, loamy soils
Hydrology	Freely draining
Nature Conservation Designations	None on site
Other Designations	None on site
The Woodland Trust Ancient and Notable Tree Inventory	None on site
Biodiversity Opportunity Area	None on site
National Habitat Network	None on site
Current Land Use	Horticultural plot and surrounding amenity grassland

An aerial plan showing the location of the site is provided below.

Site Location (© Google Earth Pro, accessed 11th March 2024).

2.2 Site Context

Table 2 provides details on the context of the site in terms of habitats, land use and connectivity to the wider landscape.

Table 2. Site Context

Surrounding Habitats and Land Use	Rural location, comprising a mixture of arable and grazed fields, hedgerows, and woodland. Numerous waterbodies are located within 1 km of the site, the closest being approximately 80 m from the north-east corner of the site. The wider landscape is characterised by scattered residential and light industrial buildings, and further areas of farmland.
Urban Context / Locality	The site is located in Thakeham, off the B2139.
Connectivity to Wider Landscape	The site has reasonable connectivity via existing hedgerows and lines of trees to areas of key foraging habitat for bats and other wildlife in the wider landscape.
Priority Habitats within 1 km	• Hedgerows. • Deciduous woodlands. • Ponds. • Rivers/streams. • Woodpasture & parkland. • Traditional orchards.
Ancient Woodland within 1 km	Three parcels, the nearest being approximately 445 m to the north of the site.
Statutory Designated Sites within 1 km	None.
European Designated Sites within 5 km	• Arun Valley Special Area of Conservation (SAC)/ Special Protection Area (SPA)/Ramsar located approximately 4 km to the west of the site.
EPSLs within 2 km	Two granted EPSLs in total for roosting bats: • Destruction of a resting place and breeding site for common pipistrelles (*Pipistrellus pipistrellus*) and brown long-eared bats (*Plecotus auritus*) located approximately 1.45 km to the east. • Destruction of a resting place for common pipistrelles and brown long-eared bats located approximately 1.95 km to the south-east. One granted EPSL for the damage and destruction of a hazel dormouse (*Muscardinus avellanarius*) resting and breeding site located approximately 1.37 km to the south-west.

2.3 Proposed Development

The development proposals are for the construction of five detached dwellings with associated access, car ports, and landscaping.

Landscaping includes the following (Lizard Landscape Design and Ecology, 2023) (Lizard Landscape Design and Ecology, 2023):

- Hedgerow planting.
- Tree planting.
- Ornamental shrub planting.
- Herbaceous perennial planting.
- Specimen grasses.
- Flowering lawns.

Habitats recorded during the PEA to be removed or partially removed include the following:

- Modified grassland.
- Horticulture.
- Developed land, sealed surface.
- Buildings.
- Artificial unvegetated, unsealed surface.
- Other hedgerow.
- Line of trees – Trees T33 to T54.

2.4 Ecological Background

2.4.1 Preliminary Ecological Appraisal (PEA)

A PEA was carried out by aLyne Ecology Ltd in January 2023 (aLyne Ecology Ltd., 2023). The site was assessed as comprising modified grassland, line of trees, hedgerows (Priority Habitat), other hedgerows, broadleaved trees, horticulture, developed land, sealed surface, buildings and artificial unvegetated, unsealed surface.

A data search was provided by Sussex Biological Records Centre (SxBRC) showing records of designated sites and protected species within 1 km of the site. The data search showed Arun Valley SAC/ SPA/Ramsar, which encompasses Pulborough Brooks Site of Special Scientific Interest (SSSI), is located approximately 4 km to the west of the site. Species recorded in the data search include the following:

- At least six bat species, including rare species such as Alcathoe's bat (*Myotis alcathoe*).
- Bird species of conservation concern, including brambling (*Fringilla montifringilla*), bullfinch (*Pyrrhula pyrrhula*), fieldfare (*Turdus pilaris*), greenfinch (*Chloris chloris*), house sparrow (*Passer domesticus*), redwing (*Turdus iliacus*), song thrush (*Turdus philomelos*), and yellowhammer (*Emberiza citronella)*.
- Hazel dormouse.
- Two invertebrates of conservation concern, namely cinnabar moth (*Tyria jacobaeae*) and grizzled skipper butterfly (*Pyrgus malvae*).

The site was assessed as having suitability for great crested newts (*Triturus cristatus*) during their terrestrial phase, reptiles, nesting birds, foraging and commuting bats, hazel dormice, foraging badgers (*Meles meles*), and hedgehogs (*Erinaceus europaeus*).

Recommendations include the following:

- A Habitat Regulations Assessment (HRA) is carried out in relation to Arun Valley SAC/SPA/Ramsar to determine the need for an Appropriate Assessment.
- Trees, hedgerows, and scrub should be retained and protected.
- A fingertip search of the grassland habitats within the site should be carried out by a great crested newt licenced ecologist prior to works taking place and the removal of scrub or any other vegetation should be carried out carefully by hand with an Ecological Clerk of Works (ECoW) present, to ensure that any amphibians, reptiles, or European hedgehogs, which may be present, can escape unharmed.
- If any great crested newts are found, all works must cease immediately, and a EPSL should be obtained from Natural England.
- Any removal of vegetation should be undertaken outside the bird breeding season (March to August inclusive) to avoid destruction/disturbance of nesting birds.

- Any trenches or ditches created during the construction phase should be covered at night or provide a means of escape for badgers.
- A sensitive lighting plan should be adopted, to ensure that outside lighting does not adversely affect adjacent habitats and wildlife, particularly bats when foraging and commuting.

The following ecological enhancements were recommended:

- Planting of native hedgerows along site boundaries.
- Planting native trees and shrubs.
- The enhancement of retained grassland on site by sowing a wildflower mix suitable for the geology of the site.
- Use of planters, containing wildflower seed mixes, or plants of known benefit to wildlife.
- The installation of appropriate bat and bird boxes.
- The installation of a hibernacula for invertebrates.
- Construction of log piles for invertebrates and reptiles.
- The installation of a Royal Hedgehog House.
- A Biodiversity Net Gain Assessment is carried out on site.

No further ecological surveys were recommended, providing the avoidance and mitigation measures are adhered to.

2.5 Brief and Objectives

2.5.1 GLTA

The objective of the GLTA was to:

- Assess the suitability of all the trees that could be impacted on by the development, including on-site and off-site trees, to support bat roosts, including those used by hibernating bats.
- Record evidence of roosting bats in trees.
- Identify the ecological impacts of the development on roosting bats in trees.
- Provide recommendations for avoidance, mitigation, enhancement, and compensation, where applicable.

3. Relevant Legislation and Planning Policy

3.1 Priority Habitats

Priority Habitats are listed under Section 41 of the NERC Act, 2006 (HM Government, 2006). Under the NERC Act, Local Planning Authorities are required to have due regard for biodiversity.

The NPPF, 2023 (HM Government, 2023) sets out government policy on biodiversity in planning decisions. Under the NPPF, the presence of a Priority Habitat is a material consideration when a planning authority is considering a development proposal.

3.2 Nesting Birds

The Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981) is the principal legislation affording protection to all wild birds in the UK. Additionally, species listed on Schedule 1, Part 1 of the Act are protected by special penalties at all times.

In addition to legal protection, some bird species are classified according to their conservation status. This includes their inclusion on the red and amber lists of Birds of Conservation Concern (BoCC) (Stanbury, et al., 2021), and whether they have been identified as Priority Species listed on Section 41 of the NERC Act, 2006 (HM Government, 2006).

3.3 Bats

All UK bat species and their roosts are fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) (HM Government, 1981). All bats are also included in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) (HM Government, 2017), which defines "European protected species of animals" and are afforded further protection through the Countryside and Rights of Way (CRoW) Act, 2000 (HM Government, 2000).

The combined legislation makes it illegal to:

- Intentionally kill, injure, or capture bats.
- Deliberately disturb bats (whether in a roost or not).
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport a bat or any part of a bat, unless acquired legally.
- Sell, barter or exchange bats, or parts of bats.

As a signatory to the Bonn Convention (Agreement of Bats in Europe), the UK is also required to protect their habitats, requiring the identification and protection from damage or disturbance of important feeding areas.

In this interpretation, a bat roost is "*any structure or place which any bat uses for shelter or protection*". Because bats tend to reuse the same roosts, legal opinion is that the protection of bat roosts are considered to apply regardless of whether bats are present or not. There is currently no guidance on when a roost ceases to be protected if it is not used by bats.

Under S.9(4)(b) of the Wildlife and Countryside Act 1981 (as amended) (HM Government, 1981) it is an offence to intentionally or recklessly disturb a bat '*while it is occupying a structure or place which it uses for shelter or protection*'. However, R.39(1)(b) of the Habitats Regulations states: '*A person commits an offence if they - (b) deliberately disturb animals of any such species* (including bats*) in such a way as to be likely significantly to affect — (i) the ability of any significant group of animals of that*

species to survive, breed, or rear or nurture their young, or (ii) the local distribution or abundance of that species'. The loss or damage of habitats, which are important for foraging and commuting bats, could result in roosts being abandoned and bats not being able to forage. Therefore, it can be concluded that the Habitat Regulations affords protection to bat foraging and commuting habitats.

If planned works would constitute an offence, they may only be carried out under licence from Natural England. Works or mitigation activities involving interference with bats or bat shelters must be carried out by a licensed bat worker (with a Natural England Bat Licence).

Furthermore, the Natural Environment and Rural Communities Act (NERC Act) 2006 (HM Government, 2006), requires due consideration be given to biodiversity and its potential enhancement when considering proposed developments. Several bat species are listed as species of principal importance.

The National Planning Policy Framework, 2023 (NPPF) (HM Government, 2023) sets out government policy on biodiversity in planning decisions. Under the NPPF, the presence of a protected species is a material consideration when a planning authority is considering a development proposal.

4. Methods

4.1 GLTA

The assessment of trees was carried out on 6th March 2024 by Martin Roche BSc (Hons) ACIEEM (Accredited Agent under Bat Class Licence WML-CL18, Class Registration Number: 2017-32546-CLS-CLS) and Lucie Bloomfield BA (Hons).

The assessment was carried out following current best practice guidance, published by the Bat Conservation Trust (Collins, 2023).

The survey comprised a ground level assessment of all trees that could be impacted on by the development, including on-site and off-site trees, for the presence of potential roosting features that could be used by bats. The survey was conducted using binoculars and a high-powered torch during daylight hours and all aspects of the trees were assessed. An endoscope and thermal imaging scope were also used, where necessary. Photos were taken of any potential roosting features observed. The locations of trees are provided in Figure 1 and photos of trees with suitability for roosting bats are provided in Figure 2, which includes trees assessed as either PRF or Further Assessment Required (FAR) only (see Table 3).

The following potential bat roosting features, as noted in the Bat Tree Habitat Key (BTHK, 2018), were sought and details on their number, location and quality noted:

- Woodpecker and squirrel holes.
- Knot-holes.
- Pruning-cuts.
- Tear-outs.
- Wounds, cankers, compression-forks, and butt-rots.
- Lighting-strikes, hazard-beams, subsidence-cracks, shearing-cracks, and frost cracks.
- Transverse-snaps, welds, and desiccation fissures.
- Lifted bark, fluting and ivy.

Where possible, features were inspected for signs of current or historic use by roosting bats, including:

- Bats in situ.
- Bat droppings.
- Staining.
- Scratch marks.

The tree location in terms of surrounding habitat type, quality, and connectivity was also taken into consideration when assessing a potential roosting feature. The type and quality of the roosting feature observed also determines the type of roost (maternity, summer/transitional, hibernation) that it could potentially support.

Following the assessment, the trees were categorised as either NONE, FAR, or PRF (Collins, 2023). The categories were based on the observations and information set out in Table 3.

Table 3. Guidelines for Assessing Suitability of Trees on Proposed Development Sites for Bats

Suitability	Description
NONE	Either no PRF's in tree or highly unlikely to be any
FAR	Further assessment required to establish if PRF's are present in the tree
PRF	A tree with at least one feature that could support roosting bats is present

Following the assessment, each individual PRF identified was also assigned a category based on the observations and information set out in Table 4, where possible from the ground (Collins, 2023).

Table 4. Guidelines for Categorising the Potential Suitability of PRFs for Bats on Trees

Potential Suitability	Rationale
PRF-I	Suitable for individual numbers of bats either due to the size or lack of suitable surrounding habitats/other suitable PRFs.
PRF-M	Suitable for multiple bats and may therefore be used by a maternity colony. Trees or woodland with surrounding suitable habitats for bats or within/near a CSZ for bats.

4.2 Survey Limitations

There were no limitations considered to negatively influence the GLTA in relation to the following:

- Personal competence, i.e., qualifications, training, skills, understanding, experience.
- Resources (equipment and personnel).
- Time spent surveying.
- Data (e.g., arising from incomplete or inappropriate surveys).
- Timing or seasonal constraints and suboptimal survey periods.
- The site could be fully accessed.

Many bat roosts in trees have no external evidence of occupation meaning the absence of the signs of roosting bats is not considered definitive when assessing a tree's bat roosting suitability. A single tree may have multiple potential roosting features, yet the tree has been categorised according to the highest suitability roosting feature present.

5. Results

5.1 Tree Inspections

The locations of trees are provided in Figure 1. The results of the GLTA are provided in Table 5 and Figure 2.

All 59 trees were surveyed for their suitability to support roosting bats. This resulted in three individual trees being assessed as PRF, indicating the presence of at least one potential roosting feature for bats.

Table 5. Results of GLTA

Tree No.	Location (Longitude and Latitude)	Tree Species	Tree Age	PRFs Present (PRF-I/PRF-M)	Location of PRF (Stem or Limb)	PRF Height (m)	PRF Orientation*	Signs of Bats
T1	510306.0, 117402.0	Sycamore (*Acer pseudoplatanus*)	Mature	None	N/A	N/A	N/A	None recorded
T2	510305.0, 117400.0	Hybrid black poplar (*Populus ×canadensis*)	Semi-mature	None	N/A	N/A	N/A	None recorded
T3	510308.0, 117402.0	Hybrid black poplar	Mature	None	N/A	N/A	N/A	None recorded
T4	510308.0, 117399.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T5	510312.0, 117400.0	Hybrid black poplar	Mature	None	N/A	N/A	N/A	None recorded
T6	510315.0, 117399.0	Hybrid black poplar	Mature	Ivy (PRF-I)	Stem	From base to crown	All around tree	None recorded
T7	510333.0, 117385.0	Goat willow (*Salix caprea*)	Mature	Woodpecker hole (PRF-I)	Stem	2	S	None recorded
T8	510335.0, 117387.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T9	510343.0, 117386.0	Silver birch (*Betula pendula*)	Mature	None	N/A	N/A	N/A	None recorded
T10	510345.0, 117385.0	Silver birch	Semi-mature	None	N/A	N/A	N/A	None recorded
T11	510355.0, 117381.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T12	510351.0, 117388.0	Horse chestnut (*Aesculus hippocastanum*)	Mature	None	N/A	N/A	N/A	None recorded
T13	510354.0, 117391.0	Horse chestnut	Mature	None	N/A	N/A	N/A	None recorded
T14	510360.0, 117404.0	Horse chestnut	Mature	• Pruning cut (PRF-I) • Knot hole (PRF-I)	• Limb • Limb	• 3 • 3	• SE • NE	None recorded
T15	510365.0, 117410.0	Weeping willow (*Salix chrysocoma*)	Mature	None	N/A	N/A	N/A	None recorded
T16	510369.0, 117416.0	Horse chestnut	Mature	None	N/A	N/A	N/A	None recorded
T17	510370.0, 117422.0	Horse chestnut	Mature	None	N/A	N/A	N/A	None recorded
T18	510372.0, 117425.0	Tree of heaven (*Ailanthus altissima*)	Mature	None	N/A	N/A	N/A	None recorded
T19	510378.0, 117429.0	Common lime (*Tilia × europaea*)	Mature	None	N/A	N/A	N/A	None recorded

Tree No.	Location (Longitude and Latitude)	Tree Species	Tree Age	PRFs Present (PRF-I/PRF-M)	Location of PRF (Stem or Limb)	PRF Height (m)	PRF Orientation*	Signs of Bats
T20	510371.0, 117441.0	Wild cherry (*Prunus avium*)	Mature	None	N/A	N/A	N/A	None recorded
T21	510393.0, 117473.0	Cider gum (*Eucalyptus gunnii*)	Semi-mature	None	N/A	N/A	N/A	None recorded
T22	510396.0, 117482.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T23	510395.0, 117486.0	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T24	510396.0, 117488.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T25	510396.0, 117489.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T26	510400.0, 117490.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T27	510395.0, 117492.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T28	510396.0, 117495.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T29	510398.0, 117496.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T30	510397.0, 117498.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T31	510340.0, 117494.0	Norway maple (*Acer platanoides*)	Mature	None	N/A	N/A	N/A	None recorded
T32	510351.0, 117509.0	English oak (*Quercus robur*)	Semi-mature	None	N/A	N/A	N/A	None recorded
T33	510372.0, 117525.0	Wild cherry	Semi-mature	None	N/A	N/A	N/A	None recorded
T34	510375.0, 117521.0	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T35	510375.0, 117519.0	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T36	510376.0, 117518.0	Hornbeam (*Carpinus betulus*)	Semi-mature	None	N/A	N/A	N/A	None recorded
T37	510377.1, 117519.0	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T38	510378.0, 117518.6	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T39	510378.3, 117517.5	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T40	510379.4, 117517.1	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T41	510379.7, 117515.9	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T42	510381.4, 117515.5	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T43	510382.1, 117514.4	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T44	510383.0, 117513.2	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T45	510384.0, 117512.7	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T46	510384.4, 117511.4	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T47	510385.4, 117510.8	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T48	510385.8, 117509.7	Sycamore	Mature	None	N/A	N/A	N/A	None recorded

Tree No.	Location (Longitude and Latitude)	Tree Species	Tree Age	PRFs Present (PRF-I/PRF-M)	Location of PRF (Stem or Limb)	PRF Height (m)	PRF Orientation*	Signs of Bats
T49	510387.2, 117509.4	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T50	510387.4, 117507.6	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T51	510389.1, 117507.3	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T52	510390.3, 117506.4	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T53	510391.1, 117505.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T54	510392.3, 117505.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T55	510392.2, 117507.0	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T56	510390.6, 117511.9	Sycamore	Mature	None	N/A	N/A	N/A	None recorded
T57	510386.6, 117515.4	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T58	510380.4, 117522.2	Sycamore	Semi-mature	None	N/A	N/A	N/A	None recorded
T59	510375.2, 117526.0	English elm (*Ulmus minor*)	Dead	None	N/A	N/A	N/A	None recorded

*NE – North-East; SE – South-East; S – South.

5.2 Foraging and Commuting Habitats

Table 6 details the habitats, which were recorded on and adjoining the site, which could potentially support foraging and commuting habitats.

Table 6. Foraging and Commuting Habitats

Habitat / Feature Description	Connectivity to Potential Roost	Connectivity to Wider Landscape
Species-rich hedgerows	Roosts potentially present within nearby PRF trees (see Table 5). The hedgerows provide connectivity to known roosting in the wider landscape including a known breeding roost for common pipistrelles and brown long-eared bats located approximately 1.45 km to the east and The Mens SAC located 9.1 km to the north-west.	Via lines of trees and hedgerows to parcels of key foraging habitat for bats located in the wider landscape, including parcels of woodland.
Line of trees	Roosts potentially present within nearby PRF trees (see Table 5). The line of trees provides connectivity to known roosting in the wider landscape including a known breeding roost for common pipistrelles and brown long-eared bats located approximately 1.45 km to the east and The Mens SAC located 9.1 km to the north-west.	Via lines of trees and hedgerows to parcels of key foraging habitat for bats located in the wider landscape, including parcels of woodland.

5.3 Categorisation of Summer Roosting and Hibernation Suitability

Table 7 details the categorisation of summer roosting and hibernation suitability for the railings.

Table 7. Categorisation of Summer Roosting and Hibernation Suitability

Tree No.	Roosting Suitability (PRF-I/PRF-M/Negligible)	Justification
T1 – T5	Negligible	The trees lack any PRFs.
T6	PRF-I	T6 is situated on the southern site boundary neighbouring mature trees and adjacent to species-rich hedgerows, which lead to parcels of woodland in the wider landscape. T6 is cladded in ivy from base to crown on all aspects, which could potentially support an individual number of roosting bats. The PRF has been assessed as having negligible suitability to support hibernating bats due to the feature unlikely to offer stable temperature and humidity levels.
T7	PRF-I	T7 is situated on the southern site boundary neighbouring mature trees and adjacent to species-rich hedgerows, which lead to parcels of woodland in the wider landscape.

Tree No.	Roosting Suitability (PRF-I/PRF-M/Negligible)	Justification
		T7 has a shallow woodpecker hole on the southern elevation, approximately 2 m off the ground, which could potentially support an individual number of roosting bats. The PRF has been assessed as having negligible suitability to support hibernating bats due to the feature unlikely to offer stable temperature and humidity levels.
T8 – T13	Negligible	The trees lack any PRFs.
T14	PRF-I	T14 is situated on the southern site boundary neighbouring mature trees and adjacent to species-rich hedgerows, which lead to parcels of woodland in the wider landscape. T14 has a pruning cut on the south-eastern elevation and a knothole on the north-eastern elevation both approximately 3 m off the ground. Both features have been assessed as potentially supporting an individual number of roosting bats. The PRF has been assessed as having negligible suitability to support hibernating bats due to the feature unlikely to offer stable temperature and humidity levels.
T15 – T59	Negligible	The trees lack any PRFs.

5.4 Categorisation of Foraging and Commuting Suitability

Table 8 details the categorisation of habitats within/adjoining the site for their suitability to support foraging and commuting habitats for bats.

Table 8. Categorisation of Bat Foraging and Commuting Suitability

Habitat / Feature	Categorisation of Suitability	Justification
Species-rich hedgerows	Moderate	Continuous habitat connected to the wider landscape that could be used by bats for flight-lines such as hedgerows and lines of trees.
Line of trees	Moderate	Continuous habitat connected to the wider landscape that could be used by bats for flight-lines such as hedgerows and lines of trees.

6. Evaluation

All three trees with PRF features (T6, T7, and T14) were determined to have at least one PRF-I feature. All three trees are proposed to be retained and protected as part of the development proposals, meaning there will not be any direct impacts on the trees with PRF features; however, there could be indirect impacts on the trees through construction and operation activities associated with the development. Therefore, avoidance/mitigation measures for bats have been recommended in Section 7.

7. Recommendations

7.1 Trees

Native trees should be retained, where possible and any trees lost as a result of the proposed development, should be replaced with equivalent numbers of native species.

To prevent damage to retained trees during development, a buffer zone should be put in place to protect the rooting area (Root Protection Area, which is calculated in accordance with British Standard 5837, 'Trees in Relation to Construction'), in which no construction activities should be permitted.

7.2 Nesting Birds

Nesting bird habitat within the trees on site should be retained, as detailed in Section 7.1. However, if works which are likely to damage bird nests need to be carried out during the nesting period, there is potential that nesting birds could be harmed and disturbed. To ensure legal compliance, a check should be undertaken by an ecologist within 48 hours of works commencing, to confirm the presence/absence of nest sites. If nests sites are identified, works to that feature should be delayed until the nest site becomes inactive (species specific, but approximately 4-6 weeks maximum).

7.3 Foraging and Commuting Bats

Recommendations to minimise the potential impacts of artificial external lighting on bat activity, are provided below (Bat Conservation Trust, 2023):

- Avoid prolonged use of outside lighting during the period dusk to dawn, particularly during the bat active season (April to October).
- Security lighting should be on a motion sensor and short duration timer (1 minute).
- Lighting that is required for security or safety reasons, should use a lamp of no greater than 2000 lumens (150 Watts) and should comprise sensor activated lamps.
- Red light bulbs should be used, where possible, particularly along the southern and northern boundaries, as light-phobic species like great horseshoes, lesser horseshoes, and barbastelles, were recorded foraging/commuting in these areas of the site.
- LED luminaires with a warm white spectrum (<2700 Kelvin) are the preferred option and should be used where possible. Luminaires should feature peak wavelengths higher than 550 nm to minimise disturbance to bats. All luminaires should lack UV elements, metal halide and fluorescent sources should not be used.
- Lighting should be directed to where it is needed with minimal light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a downward

angle as possible and/or a specialist bollard that directs the light below the horizontal plane (<90o).

- Internal luminaires should be recessed where installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers with a low output and with cowls should be used to delineate path edges.
- Artificial lighting should not directly illuminate any potential bat roosting features or habitats of value to foraging bats, i.e., hedgerows and line of trees.

7.4 CEMP

A CEMP should be prepared for the site and subject to an appropriate planning condition in order to avoid and mitigate any potential impact on roosting/foraging/commuting bats. The CEMP should include, but not be limited to, the following:

- Site description, description of development and ecological background.
- Defining ecological features.
- Brief and objectives.
- Relevant legislation and planning policy.
- Defining the Ecological Clerk of works.
- Biodiversity protection zones and signage.
- Responsible persons and lines of communication.
- Ecological risk assessments.
- Practical measures to avoid ecological risks (Method Statements).
- Ecological clerk of works timing schedule.
- References.
- Figures.
- Appendices.

8. References

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9. Figures

9.1 Figure 1: Locations of Trees

9.2 Figure 2: Results of GLTA

T6 — PRF-I

KEY:

Ivy Cladding

aLyne ecology
London & South East
Tel: 01372 602372
Mob: 07443 652988

Client: Cygnature Homes

Project: South Hill, Pulborough

Figure Number, Version: Figure 2a, 001

Date: 06.03.2024

Title: Results of GLTA

Habitat locations and extent are approximate. Not to scale
Photographs taken on 06.03.2024.

T7 — PRF-I

KEY:

1 Woodpecker Hole

aLyne ecology
London & South East
Tel: 01372 602372
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Client: Cygnature Homes

Project: South Hill, Pulborough

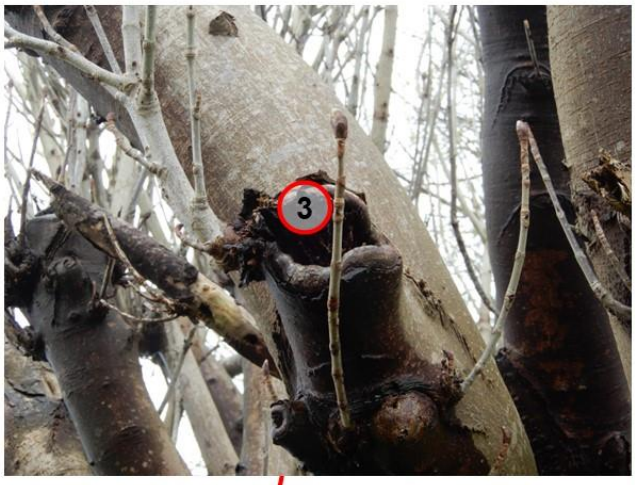
Figure Number, Version: Figure 2b, 001

Date: 06.03.2024

Title: Results of GLTA

Habitat locations and extent are approximate. Not to scale
Photographs taken on 06.03.2024.

T14 — PRF-I



KEY:

2	Knot Hole
3	Pruning Cut

aLyne ecology
London & South East
Tel: 01372 602372
Mob: 07443 652988

Client: Cygnature Homes

Project: South Hill, Pulborough

Figure Number, Version: Figure 2c, 001

Date: 06.03.2024

Title: Results of GLTA

Habitat locations and extent are approximate. Not to scale
Photographs taken on 06.03.2024.