

Site:	Moorhill Road, West End
Client:	Highwood Homes Ltd
Job Number:	B029375
Survey Type(s):	Bat Emergence Survey
Date of Survey(s):	16 th August 2022 & 31 st August 2022
File Location:	N:\Projects\784-B029375 Moorhill Road West End\60 Project Output\61 Work in Progress

INTRODUCTION

Tetra Tech was commissioned by Highwood Homes Ltd on 15th August 2022 to undertake bat emergence surveys of a tree (TN31) at the site known as Moorhill Road, West End. The site is to be redeveloped to create a 70-bed care home (use class C2) with access to Moorhill Road, parking, landscaping and other associated works. The site location is shown in Figure 1.

An Ecological Appraisal was undertaken on 5th May 2021¹. During the survey, all areas of the site were evaluated for their potential to support protected habitats and species, including a ground level inspection of all trees for bat roost potential.

During the Ecological Appraisal eleven trees were identified as having suitability for roosting bats. A further climbed assessment of the trees was completed of the trees (where safe to do so) and their suitability reassessed². The classifications were made based on the BCT Guidelines³. Descriptions of the trees and the Potential Roosting Features (PRFs) identified are given in Table 1.

Table 1 Potential Roosting Features on Trees within the Site

Target Note	Species	Description of Potential Roosting Features (PRFs)	Bat Roosting Potential – Ground Assessment	Bat Roosting Potential – Tree Climbed Assessment
TN3	Western red cedar <i>Thuja plicata</i>	A split was observed within the trunk of the tree on the southern aspect.	Low	Negligible
TN7	Sycamore <i>Acer pseudoplatanus</i>	A broken limb (approx. 4m above ground level) on the southern aspect of the tree had a knot hole. Assessment from ground level was unable to determine whether this formed a substantial cavity.	Moderate	Negligible
TN10	Sweet chestnut <i>Castanea sativa</i>	A dead tree with a single woodpecker hole (approx. 4m above ground level) on the eastern aspect of the trunk.	Moderate	Negligible

¹ Tetra Tech, (2021), *Moorhill Road, West End, Ecological Appraisal*. Written on behalf of Highwood Homes Ltd. Project Number B029375.

² Tetra Tech, (2022), *Moorhill Road, West End. Bat Roost Assessment*. Written on behalf of Highwood Homes. Project Number B029375

³ Collins, J. (ed.), (2016), *Bat Surveys for Professional Ecologists: Good Practice Guidelines*, 3rd Edition, The Bat Conservation Trust: London

Target Note	Species	Description of Potential Roosting Features (PRFs)	Bat Roosting Potential – Ground Assessment	Bat Roosting Potential – Tree Climbed Assessment
TN11	Sweet chestnut	A single woodpecker hole (approx. 2m above ground level) on the southern aspect of the trunk	Moderate	Low
TN24	Narrowleaf ash <i>Fraxinus angustifolia</i>	Two knotholes (approx. 1m above ground level) were observed on the southern aspect.	Moderate	Negligible
TN26	Pedunculate oak <i>Quercus robur</i>	A split was observed within a limb on the southern aspect (approx. 4m above ground level).	Low	Low
TN27	Sweet chestnut	Two woodpecker holes (approx. 2m and 3m above ground level) on the eastern aspect of the trunk.	Moderate	Low
TN29	Common lime <i>Tilia x europaea</i>	A single woodpecker hole (approx. 1.5m above ground level) on the southern aspect of the trunk.	Moderate	Low
TN30	Sycamore	Large cavity at the base of the tree.	Moderate	Low
TN31	Sweet chestnut	Two woodpecker holes within the southern aspect of the tree (approx. 2m and 4m above ground level)	Moderate	Moderate
TN36	Sweet chestnut.	A single woodpecker hole (approx. 3.5m above ground level) on the northern aspect of the trunk. A blue tit <i>Cyanistes caeruleus</i> was observed nesting within the cavity.	Low	Low

Tree TN31 was identified as the only tree to have moderate suitability or greater for use by roosting bats, which will be affected by the proposals. Bat presence/likely absence surveys of tree TN31 were therefore recommended, in accordance with the BCT Guidelines. Trees assessed as being of negligible and or low suitability were not subject to further surveys.

This report has been prepared by Project Ecologist Ben Cooke and the conditions pertinent to it are provided in Appendix A.

METHODOLOGY

BAT PRESENCE/LIKELY ABSENCE SURVEYS

Bat emergence and pre-dawn return surveys of tree TN31 were carried out on 16th and 31st August 2022, in accordance with the survey effort to determine bat presence/likely absence for a moderate suitability tree. Table 2 gives the dates, times and weather conditions of the survey.

Table 2 Details of the Dusk Emergence / Pre-dawn Return Survey of Tree TN31

Survey Date	Survey Type	Dusk / Dawn Times	Survey Times	Weather at the Start/End of the Survey
16.08.2022	Dusk	20:25	19:55 – 21:55	Start: 21.1°C; cloud cover 0%; still; no precipitation End: 19.3°C; cloud cover 0%; still; no precipitation
31.08.2022	Dawn	06:17	04:47 – 06:32	Start: 13.5°C; cloud cover 20%; still; no precipitation End: 12.7°C; cloud cover 10%; light breeze; no precipitation

Surveyors were positioned appropriately around the tree so that all accessible potential bat access points or roosting features could be seen. The location of tree TN31 and the position of surveyors (alongside the Canon XA11 infrared cameras) around the tree are shown on Figure 2.

Surveyors used an Elekon Batlogger M (full spectrum) to record bat calls. The dusk emergence survey commenced approximately 30 minutes before sunset and lasted for approximately 90 minutes after sunset, while the pre-dawn return survey commenced 90 minutes before sunrise and ended 15 minutes after sunrise. Bat calls were analysed where necessary, by Tetra Tech Project Ecologist, Ben Cooke using Bat Explorer software, version 2.1.10.1. Footage from the infrared cameras was analysed using Motion Meerkat to identify motion events. For the analysis, background variation was set to 3, organism speed was set to 3 and minimum object size was set to 0.01%. The subsequent images were reviewed by Tetra Tech Project Ecologist, Ben Cooke. Which also cross referenced the time of the movement to the sound files obtained by the surveyor's Batloggers.

LIMITATIONS

Surveys were completed within the optimum survey period (May to August inclusive) and under suitable weather conditions. Therefore, there are no constraints associated with survey timing or weather conditions.

As light levels drop after dusk, the visibility of features decreases over time. Conversely for dawn surveys, light levels are worst at the start of the survey, with visibility of features improving approaching sunrise. However, use of infrared cameras meant any late emerging or early returning bats would be recorded therefore this is not a constraint.

The details of this report will remain valid for a period of one year from the date of the final survey (i.e., until 31st August 2023), after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

RESULTS

BAT PRESENCE/LIKELY ABSENCE SURVEYS

Tree TN31

No bats were recorded roosting within the features identified within tree TN31 during the two surveys undertaken.

16th August 2022

A low level of bat activity by individual bats were observed during the survey which comprised of commuting and foraging behaviour of three bat species. These comprised common pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctula* and serotine *Eptesicus serotinus*.

The first bat recorded during the survey (a common pipistrelle) was at 20:41 pm approx. 15 minutes after sunset.

31st August 2022

A single bat species, common pipistrelle was recorded during the survey comprising a low level of activity by individual bats.

The last bat recorded during the survey (a common pipistrelle) was at 05:54 am over 30 minutes prior to sunrise.

LEGALISATION

All British bat species are given special protection within England by their inclusion on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended)⁴ and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)⁵.

As a result, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat's roosting place (even if bats are not occupying a roost at the time);
- Possess or advertise, sell or exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

With specific reference to the offence of disturbance, Regulation 41(1) of the Conservation of Habitats and Species Regulations 2017 states that a person commits an offence if they:

"...deliberately disturb wild animals of any such species [i.e., a European Protected Species] in such a way as to be likely significantly to affect:

⁴ HMSO, (2017). The Conservation of Habitats and Species Regulations 2017, [online] Available at <http://www.legislation.gov.uk/uksi/2017/1012/contents/made>, Accessed October 2022.

⁵ HMSO, (1981). *Wildlife and Countryside*, [online] Available at <http://www.legislation.gov.uk/ukpga/1981/69>, Accessed October 2022.

(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”.

Where development will result in damage to, or obstruct access to, any bat roost (whether occupied or not) or risks harming or significantly disturbing bats, a European Protected Species Licence (EPSL) is required from Natural England (NE) to allow the development to proceed.

Bats are also afforded more general protection in England (and Wales) within the Natural Environment and Rural Communities Act 2006. This imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, “to have due regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity” [Section 40 (1)]. It notes that “conserving biodiversity includes restoring or enhancing a population or habitat” [Section 40 (3)]. Consequently, attention should be given to dealing with the modification or development of an area if aspects of it are deemed important to bats, such as roosts, flight corridors and foraging areas.

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, when carrying out their normal (e.g., planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.

Seven species of bats (soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat *Rhinolophus hipposideros*, barbastelle *Barbastella barbastellus*, Bechstein’s bat *Myotis bechsteinii* and noctule) are listed under Section 41 of the NERC Act 2006⁶.

SUMMARY AND RECOMMENDATIONS

ROOSTING BATS

No bats were recorded roosting within the tree TN31 during the surveys. It is anticipated that the proposed development will therefore have no impact on roosting bats and no further survey, mitigation or licensing is required. However, it is considered that a precautionary approach should be undertaken and that tree TN31 should be soft felled in accordance with the Bat Survey Good Practice Guidelines. This is also the recommended approach for trees with the site subject to removal which were assessed as being of low suitability (see Table 1 for tree numbers).

Soft felling should comprise:

- Prior to felling the potential roosting features should be checked by torch and/or endoscope for the presence of roosting bats.
- Limbs with the identified features should be removed by cutting as close to the main trunk as possible.

⁶ HMSO, (2006), Natural Environment and Rural Communities Act [online] Available at <http://www.legislation.gov.uk/ukpga/2006/16/contents>, Accessed October 2022.

- These limbs should then be carefully lowered to the ground using ropes and left overnight with the feature facing upright to allow any bats present to disperse, before being chipped and removed from the site.
- Soft felling should take place under the supervision of a bat licensed ecologist.

In the unlikely events bats or evidence of bats (e.g., droppings) are found during works then work must immediately stop and a bat licensed ecologist consulted.

Breathable Roof Membranes

In the design and construction of any new buildings at the site, best practice should be considered, and the use of Breathable Roof Membranes (BRM) avoided in buildings which may support roosting bats. Instead, Type 1F bitumen and hessian under-felt should be considered as an alternative. Ongoing research has confirmed that no BRM are entirely bat-friendly, and all pose a risk to bats. As the membranes wear over time the fibres in the membrane become loose. Bats become entangled in the fibres and, unable to escape, dehydrate, and starve to death. As well as posing a risk to bats, BRMs are also degraded by bats and the efficiency of the membrane is impaired (i.e., the use of BRMs in situations where bats are present is detrimental to the efficient functioning of the BRM as well as to bats). One BRM product (TLX BatSafe) has passed the snagging propensity test however use of Type 1F bitumen and hessian under-felt remains the recommended option. Further detail is provided in Waring et al⁷.

Construction Timings

Construction activity should cease 30 minutes before sunset to avoid delaying the emergence of locally roosting bats. It is also recommended that construction activity commences again after sunrise to ensure that impacts to bats returning to local roosts does not occur.

Lighting

Artificial lighting tends to have an adverse effect on bats, and we recommend a series of measures to avoid or reduce this impact. It is recommended that lighting on the development site comprise LED lamps, with a low colour correlated temperature – preferably below 3500K (warm white). Lighting should be directed groundward to avoid light spillage, with hoods / shields as necessary. Light spill on boundary features to be used by commuting bats should not increase by more than 1 lux where possible⁸.

ENHANCEMENT MEASURES

Whilst enhancement is not a legal requirement, it is encouraged on site as it helps to meet the government objectives for planning to protect and enhance biodiversity, in accordance with the National Planning Policy Framework⁹.

⁷ Waring, S.D., Essah, E. A., Gunnell, K., Bonser, R. H. C., (2013), Double jeopardy: The potential for problems when bats interact with breathable roofing membranes in the United Kingdom, *Architecture and environment*, 1(1): 1-13.

⁸ ILP, (2018). Guidance Note 8: Bats and Artificial Lighting in the UK, [online] Available at <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>, Accessed October 2022.

⁹ Ministry of Housing Communities and Local Government, (2021), *National Planning Policy Framework*, [online] Available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_July_2021_web.pdf, Accessed October 2022.

Additional Roosts

Bat boxes can be attached to on retained trees within the site (a general-purpose bat box such as a Schwegler 1FF and 2FN or similar). These boxes should be placed on the northern and western side of the new building(s) which are less exposed to lighting and disturbance. Bat boxes should also be located at a height of at least 4m and away from walls / fences to prevent access by cats. Artificial light should not be directed at the entrance of the bat boxes placed within the site.

Habitat Planting

It is recommended that a diverse collection of native planting is incorporated into the landscaping design within the proposed development site. Structurally diverse vegetation and inclusion of native evening-blooming plants will attract insects which in turn will help to enhance the site for foraging bats¹⁰. Planting of 'bat-friendly' plants have the potential to enhance the site for bats.

Document Control			
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Date:	05.10.2022		
Prepared by:		Checked and Approved By:	
Ben Cooke, Project Ecologist		Laura Holmes MCIEEM, Associate Ecologist	

Figures

Figure 1 – Site Location Plan

Figure 2 – Tree Location and Surveyor Positions

¹⁰ BCT, (2015), Encouraging bats: A guide for bat-friendly gardening and living, [online] Available at http://www.bats.org.uk/pages/encouraging_bats.html. Accessed: October 2022.



Site Location Plan
Moorhill Road, West End
Highwood Homes Ltd



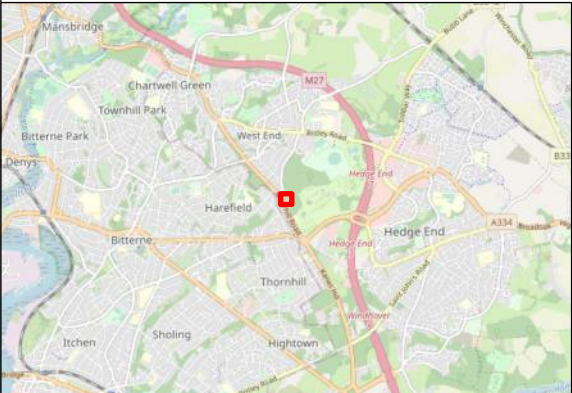
Legend
 Site boundary

Notes:

Drawn by: ella.christie	Figure No. 1
Checked by: BC	Revision No. B
Office: Southampton	06 October 2022

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Scale 1:500 @A3	NGR: 447107E 113542N

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Tree Location and Surveyor Positions

Moorhill Road, West End

Highwood Homes Ltd

Legend

- Site boundary
- ▲ Surveyor Locations
- Tree

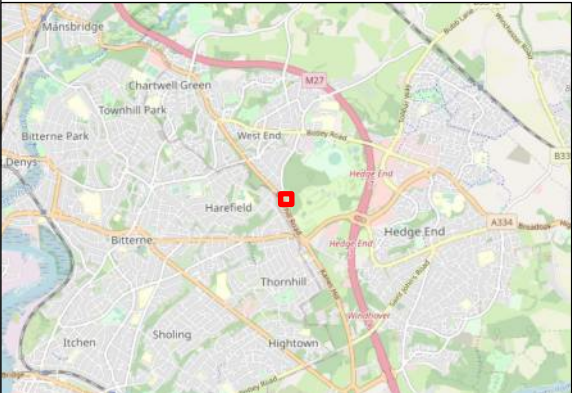


Notes:

Drawn by: ella.christie	Figure No. 2
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05 Meters 0510152025	British National Grid
Scale 1:500 @A3	NGR: 447104E 113542N

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The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

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