Tree Assessment for Bats

Daisy Bank House, Cheadle, Staffordshire.

Author Matthew James Haydock

May 2018

Notice to Readers

This report has been prepared by Absolute Ecology with all reasonable skill, care and diligence, within the terms of the contract with the client. The actions of the surveyor on site, and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management (www.cieem.org.uk).

The results of the survey and assessment work undertaken by Absolute Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

Absolute Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

Absolute Ecology cannot accept responsibility for data collected from third parties.

Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

Executive Summary

Absolute Ecology LLP was commissioned to undertake a assessment of willow tree for the bat roost and bird potential at a site known as Daisy Bank Nursing Home, Leek Rd, Cheadle, Stoke-on-Trent, ST10 1JE. Grid reference: SK 00922 43656

The trees are located within the grounds of the former Daisy Bank Nursing Home

The proposed works will involve the removal of the existing tree.

The site holds a number of trees such as, Beech, Sycamore, Laburnum, Lawson Cypress, Weeping willow, Silver birch and Norway Maple. During the inspection it was identified that trees T2, T3, T4, T5, T11, T12, T13, T14, T15, T20 no potential for bats and T18 & T19 Low potential therefore requiring Reasonable Avoidance Measures.

During the inspection, the existing tree shows potential for nesting birds, therefore protection measures need to be put into place such as if nesting birds are present in the trees during the bird breeding season (March to September inclusive). If removal is planned during these months, a prior check for nesting birds should be undertaken by an ecologist on the day of removal. Any active nests that are found must not be moved or disturbed until fledglings have dispersed.

1. Bird Enhancements should be put in place (please See 5.2 Mitigation Measures).

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1. Introduction

1.1. Site Description

Absolute Ecology LLP was commissioned to undertake a tree inspection for bat roost potential at a site known as Daisy Bank Nursing Home, Leek Rd, Cheadle, Stoke-on-Trent, ST10 1JE. Grid reference: SK 00922 43656.

1.2. Proposed Works

It is proposed that the existing trees on site will be felled.

1.3. Best Practice Guidance

The scope of this Survey has been determined in line with the proportional approach to ecological survey, assessment and subsequent recommendations for avoidance and mitigation of impacts, which is encouraged in the emerging 'BS 42020: Biodiversity – Code of practice for planning and development'. This report has been prepared with du consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012)1,the emerging BS 42020 and the Bat conservation Trust Best Practice 3rd Edition 2016.

1.4. Aims of the Survey

1.3.1 The aims of the Preliminary Roost Assessment and presence/absence activity surveys is to provide an ecological evaluation of the following species within the proposed application area:

Bats
• Probability of bats and their roost sites being present at the proposed redevelopment site.
• To assess the roost status.
• To assess suitable food resources and habitat requirements.
• If a roost site is found, to provide an impact assessment.

Table 1. Aims of survey in relation to bats.

1.3.2 A bat roost is interpreted as 'any structure or place, which any wild bat uses for shelter or protection'. Bats tend to show a high fidelity to roosts. Subsequently, legal opinion regards a roost to be protected whether or not the bats are present at the time. There are many types of roost used by temperate bats during their annual cycle: Any structures found having evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite (if any):

Status	Description
Maternity / Nursery Roost	*used by breeding bats, where pups are born and raised to independence (Anecdotal evidence may support this prospect despite sub-optimal survey period).*
Hibernation Site	*where bats may be found during the winter. (This is assessed within the context of this report).*
Daytime Summer Roost	*used by males and/or non-breeding females (Seasonal limitations prevent robust analysis of this).*
Night Roost	*where bats rest between feeding bouts during the night but are rarely present during the day.*
Feeding Roost	*where bats temporarily utilize feeding perches and stations to eat an item of prey.*
Transitional (or Swarming) Site	*where bats may be present during the spring or autumn (This can not be assessed within the context of this report).*

Table 2. Bat roost status definitions

Birds
• Establish if birds are using the site.
• Locate nest sites, if present.
• Assess what types of activities were shown within the redevelopment site.
• Assess suitable food resources and habitat requirements.
• Provide an impact assessment, if nests are found.

Table 3. Aims of survey in relation to birds.

Barn Owl (*Tyto alba)*
• Establish presence onsite.
• Establish potential nest sites (PNS).
• Locate any active roost sites (ARS).
• Locate any temporary roost sites (TRS)
• Assess potential feeding and dispersal habitats (PFH)
• Provide an impact assessment, should barn owl(s) be present

Table 4. Aims of survey in relation to Barn Owl.

1.3.2 Assessment also considers potential effects on valued ecological receptors (VERs) and zones of influence (ZoI) during pre and post development, both onsite and off- site. The term Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. Should a likely significance of negative impacts be identified, further surveys, mitigation and enhancement measures will then be determined accordingly; to prevent, offset or reduce the degree of impact that may occur should development commence.

1.3.3 Should bats be present onsite, then a European Protected Species (EPS) development license issued by Natural England (NE) may be required prior to any works taking place. If required, further presence/absence survey should be undertaken and a mitigation strategy be implemented with Natural England and the Local Planning Authority. Should no further surveying effort be considered, then the report will include full justification and evaluation.

2. Methods

2.1. Summary of Survey Methods

1.1 All bat species resident in the UK have been recorded using trees, buildings and built structures, e.g. bridges, at some time during the year (Bat Conservation Trust, 3rd Edition 2016). Bats roost in natural holes, crevices and sheltered places. These features particularly tend to occur in mature trees. The most utilised types of tree are Oak spp., Ash, Beech and Scots Pine. Trees, especially when forming a linear feature, are also of value for navigation, foraging and as flight lines.

The trees were first visually inspected from the ground using binoculars and high-powered torches, where appropriate. Features were then inspected with an endoscope using a ladder for aerial tree climbing, when required.

The trees were assessed for their potential to support bat roosts. Signs of bat roosts in trees, according to the Bat Conservation Trust (BCT) (3rd Edition 2016), are as follows, these typically include bat presence, droppings, feeding remains, urine stains and grease marks. Notes were made on the following in accordance with the guidelines published by the BCT (2016 3rd Edition 2016) for the surveying of buildings and built structures: The trees present on site have been evaluated to assess which of the following

Categories they fall into (BCT 3rd edition): Known or confirmed roost

Low roost suitability	Moderate roost suitability	High roost suitability
May to August (structures) No further surveys required (trees)	May to September with at least one of surveys between May and August	May to September with at least two of surveys between May and August

Where feasible, given the amount of evidence collected, any structures with evidence of bats have been evaluated to assess which of the following categories they fall into, if any (BCT, 3rd Edition 2016):

In the absence of any evidence, trees and structures have been assigned a rating of suitability from negligible to high potential for supporting bats. The rating is based on the location of the structure in the surrounding landscape, the number and type of features suitable for use by bats and the surveyor's experience. For example, a structure with a high level of regular disturbance and few opportunities for access by bats that is in a highly urbanised area with few or no mature trees, parkland, woodland or wetland would have negligible potential. Conversely, a pre-20th-century or early 20th-century building with many features suitable for use by bats close to good foraging habitat would have high potential.

Survey methodology also utilized a number of passive monitoring techniques including an infra-red night-vision camera (XLT Bushnell Trophy CamTM: USA) to qualitatively record any evidence of bat activity inside the building during surveying periods. Further equipment included a NVMT-12x24 night vision scope (Yukon: USA), a SeeSnake 2 video endoscope, a GPS eTrex Venture HC, a hand net and a CB2 Clubman Deluxe high-power lamp with filter.

2.2. Pre-Survey Data Search

Ecological data searches supplied by Staffordshire Ecological Records were acquired to establish whether any notable protected bat species have been recorded within a 2-km radius of the proposed development area. Furthermore, a desktop study of the area using online resources was undertaken independently to corroborate the current overview of the site and its importance in the landscape. A number of electronic sources were consulted, including www.magic.gov.uk, www.naturalengland.org.uk and Google Earth.

2.3. Surveyor Information

Surveyor 1

Matthew Haydock – HND, ND, MIEEM, Natural England Bat Survey Class Licence CL18, Registration Number CLS01637. Matthew is an ecologist with four years' experience of environmental consultancy work. He holds a HND in Environmental Management with distinction. Matthew is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required. Matthew holds a Natural England and Countryside Council for Wales licence, since 1997, to disturb bats for the purposes of science and education or conservation and has held Development Licences to permit development works affecting bats. Matthew has been an active bat group worker with the Staffordshire Bat Group since 1997, conducting various surveys throughout Staffordshire and Derbyshire. He also works alongside the Bat Conservation Trust with various projects such as the National Bat Monitoring Project, and is now a corporate member of the Bat Conservation Trust.

2.4 Field Surveys

2.4.1. Habitat Survey

The existing tree is located within the grounds of the redundant Daisy Bank Nursing Home, Leek Rd, Cheadle, Stoke-on-Trent. The grounds itself is mainly hard standing and amenity grassland.

2.4.2. Roost Surveys

Equipment used to aid the survey included low and high-powered torches, ladders, binoculars and an endoscope.

Equipment used to aid the survey included low- and high-powered torches, ladders, binoculars and an endoscope. A preliminary bat and bird roost assessment of the building was undertaken on 22nd May 2018. Such scoping exercises can be undertaken throughout the year. Other than when assessing trees, environmental factors such as the weather do not have an impact upon the overall assessment survey results (see Table 5).

Table 5. Annual survey optimality for bats

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Inspection of hibernation roosts – semi-optimal survey period			Limited activity – sub-optimal for surveys	Summer roost emergence & re-entry surveys – optimal survey period					Limited activity – sub-optimal survey period	Inspection of hibernation roosts – semi-optimal survey period	
Internal roost surveys are possible/trees are best surveyed during winter											

The survey focused predominantly on the mill which is to be converted, the building on site was assessed during a less than optimal survey period, The inspection incorporated a visual assessment with the use of binoculars, torch, endoscope and ladders in full daylight to ascertain the following:

The internal & external inspection incorporated visual assessment with the use of torch, endoscope and ladders to undertake the following:

- To locate any potential roost/nest sites
- To listen for any bats and birds
- To examine cracks, splits, rot holes wood pecker holes for elements for anecdotal evidence, i.e. droppings, urine stains, corpses and feeding remains.

3. Results

3.1. Pre-Survey Data Search

3.1.2. Protected Species.

Seven British bat species are currently given UK BAP (2007) Priority Species Status: Eleven of the seventeen resident UK bat species occur in Staffordshire. Staffordshire Ecological Records show three UK BAP species being recorded within 2km of the proposed application area.

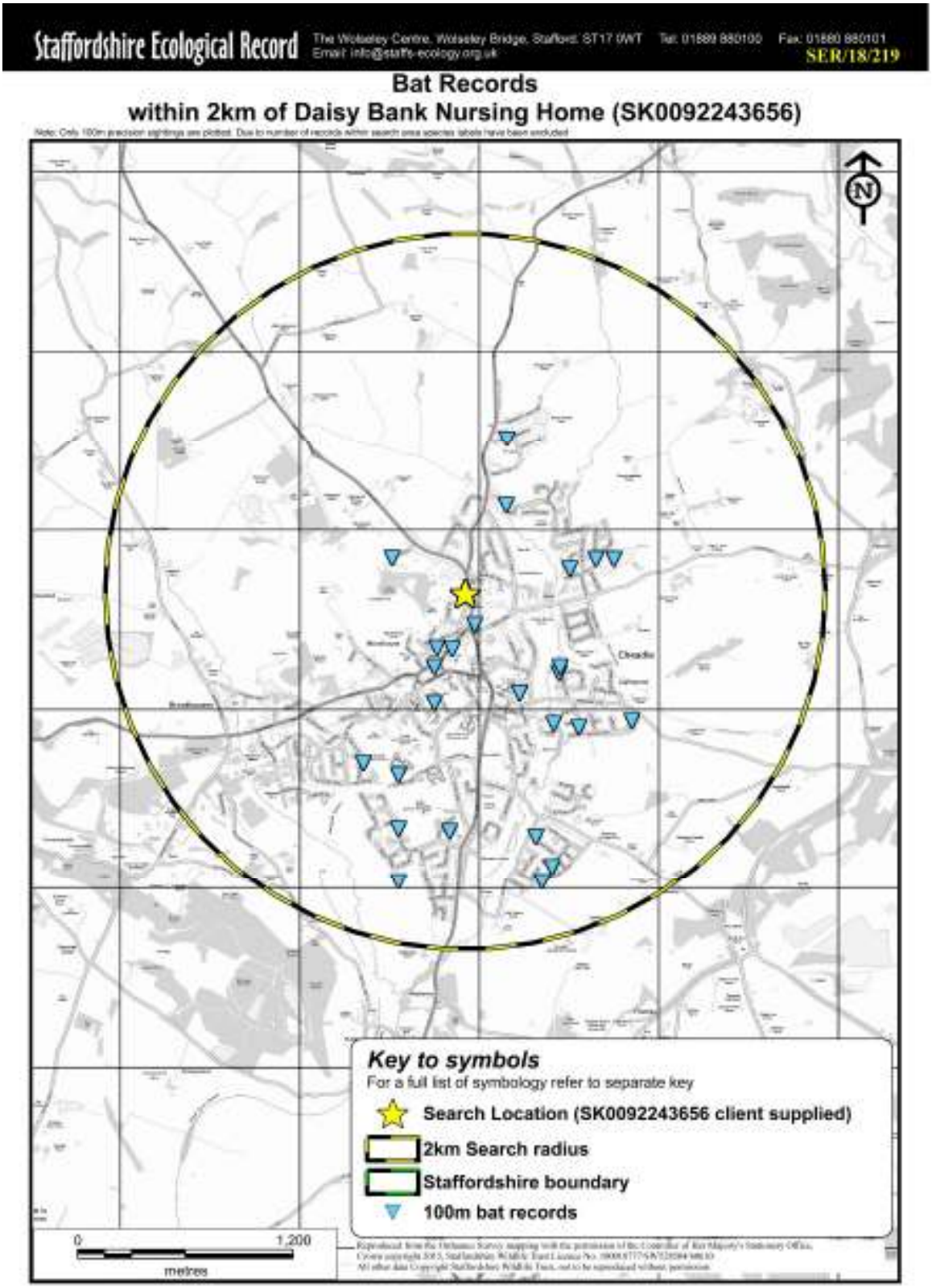
UKBAP	Common name	Species	2Km
☑	Brown long-eared bat	*Plecotus auritus*	☑
☑	Barbastelle bat	*Barbastella barbastellus*	☒
☑	Bechstein's bat	*Myotis bechsteinii*	☒
☑	Noctule	*Nyctalus noctula*	☑
☑	Greater horseshoe bat	*Rhinolophus ferrumequinum*	☒
☑	Lesser horseshoe bat	*Rhinolophus hipposideros*	☒
☑	Soprano pipistrelle	*Pipistrellus pygmaeus*	☑

UKBAP Bat species recorded within Staffordshire.

A further four/five bat species that are not currently given UK BAP consideration are also recorded within the county.

UKBAP	Common name	Species	Recorded within the county
☒	Natterer's bat	*Myotis Nattereri*	☒
☒	Daubenton's bat	*Myotis daubentonii*	☒
☒	Whiskered/ brandt bat	*Myotis mystacinus/brandtii*	☒
☒	Common pipistrelle	*Pipistrellus pipistrellus*	☑

Non UKBAP Bat species recorded within Staffordshire.


Staffordshire Ecological Record
The Wolseley Centre, Wolseley Bridge, Stafford, ST17 0WT
Email: info@staffs-ecology.org.uk
Tel: 01889 880100
Fax: 01889 880101
SER/18/219
Bat Records
within 2km of Daisy Bank Nursing Home (SK0092243656)
N
Key to symbols
For a full list of symbology refer to separate key
Search Location (SK0092243656 client supplied)
2km Search radius
Staffordshire boundary
100m bat records
0
1,200
metres

3.2. Field Surveys

3.2.1. Habitat Description

The habitat on site was found to be mainly improved and semi-improved grassland, with hedgerows dominating the boundary of the site.

3.2.2. Roost Surveys

During May 2018 survey, seven existing trees T2, T3, T4, T5, T11, T12, T13, T14, T15, T10 & T20 were inspected for the potential to support roosting bats (please see figure 1) below for trees location.

Tree number	Species	Features - yes/no	Description - type, height, aspect	Signs of Bats - droppings, smoothing, scratches, urine etc.	Inspected y/n	Potential Level	Emergence Survey - yes/no
T2	Weeping willow	No	A single tree showing, no features identified such as cracks or crevices Sparse covering of ivy	No	Yes	No	No
T3	Lawson Cypress	No	No features identified such as cracks or crevices	No	Yes	No	No
T4	Lawson Cypress	No	No features identified such as cracks or crevices	No	Yes	No	No
T5	Lawson Cypress	No	No features identified such as cracks or crevices	No	Yes.	No	No
T11	Sycamore	No	No features identified such as cracks or crevices	No	yes	No	No
T12	Norway Maple	No	No features identified such as cracks or crevices	No	Yes	No	No
T13	Norway Maple	No	No features identified such as cracks or crevices	No	Yes	No	No
T14	Norway Maple	No	No features identified such as cracks or crevices	No	Yes	No	No
T15	Silver birch	No	No features identified such as cracks or crevices	No	Yes	No	No
T17	Lawson Cypress	No	No features identified such as cracks or crevices	No	Yes	Low	No

			Sparse Covering of ivy				
T18	Lawson Cypress	No	No features identified such as cracks or crevices Sparse covering ivy	No	Yes.	Low	No

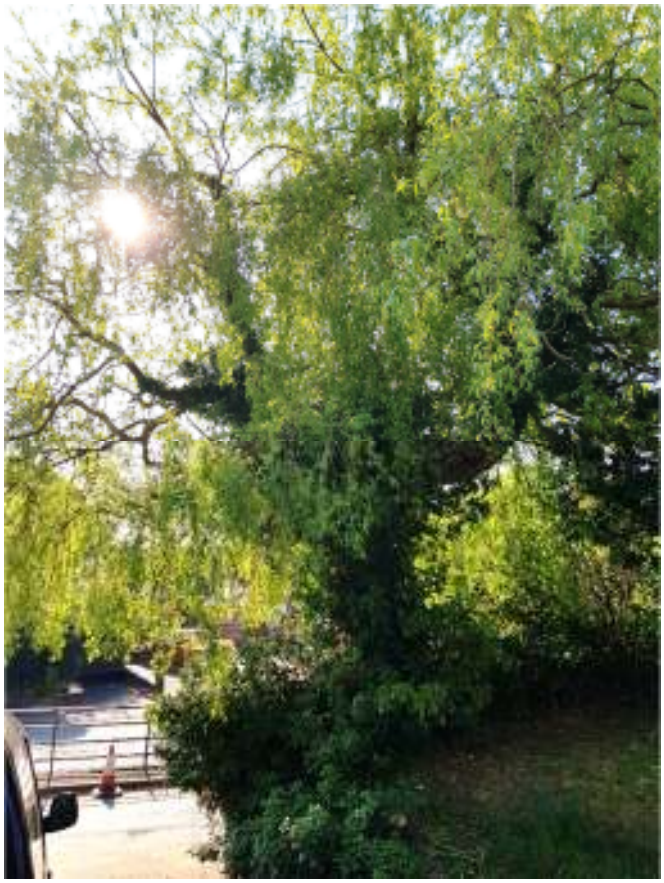


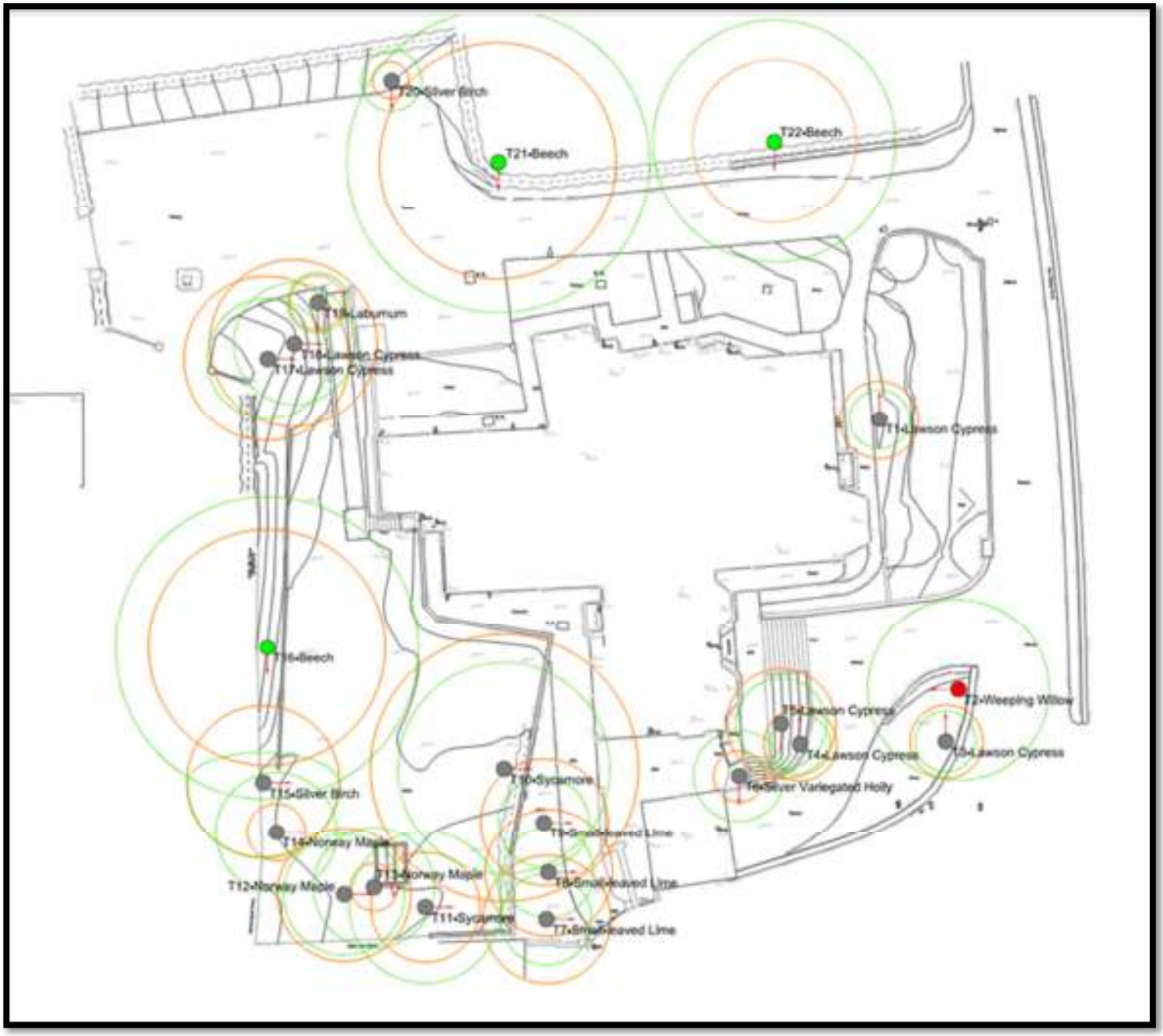
Plate 1: Showing T2 Weeping Willow.

Plate 2: Showing typical Lawson Cypress T3 tree on site.

Plate 3: Showing T18 Sparse ivy attached to the tree.

Plate 4: Showing sparse ivy situated on T17.

Figure 1: Showing tree location plan



4. Assessment

4.1. Constraints on Survey Information

The survey was completed with the season when bats are active.

4.2. Constraints on Equipment Used

No constraints were identified.

4.3. Potential Impacts of Development

4.3.1. Roost

Given the poor suitability for roosting bats it is considered highly unlikely that bats would reside within the tree.

4.3.1. Nesting birds

The trees on site do show suitability for nesting birds protection measures are not put in place the tree removal could have an impact on nesting birds.

4.4. Legislation and Policy Guidance

Unlike many smaller mammals, bats have low fecundity with a long and complex life cycle, which is played out over a large spatial landscape. Bats show a strong fidelity to different types of roosts throughout their annual cycle i.e. hibernacula, maternity, bachelor, satellite roosts and feeding perches. Linear features within the landscape such as hedgerows and tree lines are often used by bats for commuting, predator avoidance and foraging. Bats are highly social animals and loss of a single habitat alone can have a serious impact on populations. The status of many bat populations is tentative, being based on relatively few records and are highly susceptible to habitat loss and fragmentation. As such bats are given protected consideration within the following legislation and policy guidelines:

Policy guidelines

PAS 2010	The published 'PAS 2010' 'Planning to halt the loss of biodiversity' which is the government's new policy aimed at all authorities and developers involved in the planning process in the UK to halt biodiversity decline by 2010 and deliver net biodiversity gains as part of the green infrastructure provisions.
National Planning Policy Framework, Section 11:	The recently published framework in 2012, replaces the previous Planning Policy Statement 9. Section 11: Conserving and enhancing the natural environment, reaffirms the Governments commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife, aims to improve the quality of the natural environment, and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.
Article 10 of the EC Habitats Directive:	The published Article requires government to develop features such as 'stepping stones' on the landscape, such as clusters of ponds, tracts of rough grassland or scrubland and vegetated railway line embankments.
Wildlife and Countryside Act 1981:	All species of bat are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000. This legislation makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.
Conservation of Habitats and Species Regulations (2010)	The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is an offence to possess, sell or offer, or transport for sale any European species of bat or any part derived from such a species. These Regulations also remove the 'incidental result defence'. In other words, it is no longer a defence to show that the killing, capture or disturbance of a species covered by the Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of a lawful activity. Natural England can grant European Protected Species (EPS) licences in respect of development to permit activities that would otherwise be unlawful.

Natural Environment and Rural Communities Act (2006)	Under Section 40 of the Natural Environment and Rural Communities Act (2006), public bodies, including Local and Regional Planning Authorities, have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is known as The England Biodiversity List, all of which make up the UK BAP Priority Species. Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority to maintain, restore and enhance species and habitats.
Bird legislation	Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs and nestling's. Some rarer species, such as barn owls, are afforded extra protection.

Please note: If bat species are present at the site, the purpose of this report will only summarize the potential requirements for a bat mitigation package or project. A separate mitigation report or project will include the necessary compensation measures to maintain the conservation status of a European Protected Species.

5. Recommendations

5.1. Further Surveys

Bats

The inspection found that the existing trees T2, T3, T4, T5, T11, T12, T13, T14, T15, T20 showed no potential to support roosting bats therefore no further surveys are required. Trees T17 & T18 showed low potential therefore Reasonable Avoidance measures should be adopted.

Reasonable Avoidance Measures T17-T18

1.2 Where trees, which fall into Low potential, are to be removed it is recommended that they be 'soft felled' This is a generic term used to describe more cautious felling approaches, using lowering and cushioning techniques to reduce the impact of felling limbs, which may still have bats within the cavities. Limbs with cavities should be left at the base of the tree for 24 hours before removal from the site. Supervision should be conducted under an experienced Natural England Bat Licensed Ecologist.

1.3 Tree surgeons undertaking felling works should be warned of the possible presence of roosting bats (and/or nesting birds), and of their protected status. It should be clearly understood that in the event of any bats (or occupied birds' nests) being found the contractor must halt works in the area surrounding the roost (ie at least 15m from the identified roost) and contact the contracted ecologist.

Timing of works

1.4 There are no constraints with respect to the timing of works for the Low potential trees although it is recommended that any works be carried out outside the bird-nesting season of March to September. If any active nests are discovered then the nest and surrounding habitat must be left undisturbed until the young have fledged.

Care and vigilance during works

1.5 When removing trees or undertaking tree surgery works the following procedures should be employed in the event a bat or bats are discovered:-

Nesting Birds

If tree works are scheduled during the nesting bird season (March to September inclusive) then a prior check for nesting birds should be undertaken by a suitable qualified ecologist. Any active nests that are found must not be moved or disturbed until fledglings have dispersed.

6. Summary

The assessment of willow tree for the bat roost and bird potential at a site known as Daisy Bank Nursing Home, Leek Rd, Cheadle, Stoke-on-Trent, ST10 1JE. Grid reference: SK 00922 43656.

During the daytime inspection of the existing trees T2, T3, T4, T5, T11, T12, T13, T14, T15, T20 showed no potential to support roosting bats therefore no further surveys are required. Trees T17 & T18 showed low potential therefore Reasonable Avoidance measures should be adopted.

The trees themselves do pose potential for nesting bird, it is therefore considered that a precautionary approach should be conducted if removal is planned during the nesting season.

7. References

Bat Conservation Trust (2016). 3rd Edition *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust: London.

BSBI (2008). *BSBI 2007 List.* [Online]. Available at: http://www.bsbi.org.uk/html/database.html [accessed on 20th October 2010].

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Wildlife and Countryside Act 1981 (and amendments) (c.69). London: HMSO.

Appendix 1 Annual cycle of a temperate bat

January

February

March

Jan: Bats spend most of the winter hibernating, a state of inactivity characterised by lower body temperature, slower breathing, and lower metabolic rate. **Feb:** Bats are still hibernating. They have little fat left to live off of now. They may leave the roost on warmer nights to find food and a drink of water. **March:** Bats may begin to emerge and signs of limited activity can be seen. There are small numbers feeding as it gets warmer. In bad weather, they may become torpid.

April

May

June

April: Bats have mainly come out of hibernation and are hungry and active, feeding on most nights. They may be moving between several roost sites. They may become torpid (cool and inactive) again when cold. **May:** Bats are fully active and feeding. Females start forming maternity colonies and looking for suitable nursery sites, such as buildings or trees. Males will roost on their own or in small groups. **June:** Female bats usually give birth to a single pup, which they feed on their milk. Young bats are very small (less than an inch) with thin, slightly grey fur. Adult bats will catch thousands of insects each in a night.

July

August

September

July: Mothers continue to suckle young. Some young are growing fast and almost full-size; others are still very small. At around three weeks old, young bats are sometimes found on the ground as they learn to fly. **Aug:** At six weeks old, the young bats begin to catch insects for themselves and no longer need their mothers' milk. The summer maternity colonies begin to disperse and bats may move to mating roosts. **Sept:** Mating season begins, with males of most species using special mating calls to attract females, which can include purrs, clicks, and buzzing. Bats are also concentrating on building up fat stores for the coming months.

Activity Survey for Bats

Oct: More mating is taking place, and building up fat reserves is becoming crucial to survive the winter season. Bats are seeking suitable hibernation sites, and beginning periods of torpor. **Nov:** Periods of torpor are lasting longer. Some begin hibernation, to save energy over the colder months, when insects are harder to find. They are using stored fat as fuel. **Dec:** Bats are hibernating. They may roost on their own or in small groups, often in cool, quiet places like disused buildings, old trees or caves, where they hopefully won't be disturbed. **(Source: Bat Conservation Trust).**