# Poynton Pool Reservoir Flood Resilience Improvement Scheme

## **Bat Survey Report**

October 2022 BRJ10627-JAC-XX-XX-RP-EN-0003

> Cheshire East Council

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#### Poynton Pool Reservoir Flood Resilience Improvement Scheme – Bat Tree Climb Survey Report

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## **Executive Summary**

This report presents the findings of a bat ground level roost assessment and bat tree climb surveys undertaken by Jacobs Ltd on behalf of Cheshire East Council in relation to the proposed Poynton Pool Reservoir Flood Resilience Improvement Scheme, Cheshire (hereafter referred to as "the Scheme").

A Preliminary Ecological Appraisal undertaken by Jacobs in 2022 identified the need for ground level-based tree assessments to be carried out on 16 trees. This assessment categorised four trees with high Bat Roost Potential (BRP); seven trees with moderate BRP and five trees with low BRP.

Following the ground level assessment, tree climbing surveys were undertaken for the four high BRP trees and seven moderate BRP trees in accordance with the guidance outlined by Collins (2016).

The initial tree climb survey undertaken resulted in four trees having their BRP downgraded (T06, T11, T12 and T14). A second tree climb survey was then undertaken for eight remaining trees with moderate and high BRP.

No bat roosts were found during the tree climb surveys. However, it was noted that bats do exhibit roost switching behaviour and could be used by bats in the future.

A number of recommendations were therefore made including repeat bat surveys if the start of construction is delayed beyond Autumn 2023; soft felling of trees with BRP; use of safer working windows for bats (Spring and Autumn); avoidance of night working; and installation of bat boxes.



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#### 1.1 Background to the Scheme

Jacobs UK Ltd were commissioned by Cheshire East Council in early 2022 to undertake ecology surveys to support a planning application in relation to the proposed Poynton Pool Reservoir Flood Resilience Improvement Scheme, Cheshire (hereafter referred to as "the proposed Scheme"). The proposed Scheme is located within a public park, Poynton Park, adjacent to London Road North (A523) (Ordnance Survey (OS) grid reference SJ 922 846, see Figure 1). It is anticipated that the planning application will be submitted in December 2022 with work planned to commence in Autumn 2023.

The proposed Scheme will reinforce the retaining wall at Poynton Pool to prevent catastrophic flooding of homes and the strategic road network. The proposed Scheme will likely involve the removal of a strip of woodland located between Poynton Lake and the busy A523 road.

A recent Preliminary Ecological Appraisal (PEA) for the proposed Scheme (Jacobs, 2022) identified the need for ground level roost assessment and bat tree climb surveys. This report presents the results of these further bat surveys undertaken in May, June and August 2022.

#### **1.2 Survey Objectives**

The objectives were to:

- Provide information relating to the suitability of trees to support roosting bats within the survey area;
- Undertake and present the results of ground level roost assessment surveys for the proposed Scheme;
- Undertake and present the results of bat tree climb surveys undertaken for the proposed Scheme; and
- Following review of the survey results, provide recommendations for further survey, licensing and/or mitigation measures as appropriate.

#### 1.3 Legislation

All species of bat and their roost are afforded protection within the UK under the Wildlife and Countryside Act 1981 (as amended) and under the Conservation of Habitats and Species Regulations 2017 (as amended). This legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats;
- Deliberately or recklessly disturb bats; and
- Damage, destroy or obstruct access to bat roosts.



Where bat roosts are found to be present and may be impacted (directly or indirectly) by the proposed Scheme, a European Protected Species Licence granted by Natural England is required to authorise works that would otherwise be illegal.

Further details regarding the biology and habitat requirements, nature conservation status, legislation and policy framework for bats is summarised in Appendix A.



### Methodology

#### 2.1 Desk Study

A desk study was undertaken for the PEA by Jacobs (2022). That report should be referred to for a full analysis of the results in relation to bats.

#### 2.2 Ground Level Tree Assessment

A site visit was undertaken on 4<sup>th</sup> May 2022 to identify any trees likely to be affected by the proposed Scheme. They were assessed from ground level for their potential to support roosting bats, using a pair of binoculars and a high-power torch. Any Potential Roost Feature (PRF) was noted, as per best practice detailed in Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016). PRFs recorded for trees included but were not limited to:

- Knot holes (cavities with a collar resulting from natural branch loss);
- Cracks and splits in stems or branches;
- Woodpecker holes;
- Tear outs (cavities within an inverted tear shape wound created when a limb was torn from the main stem or other major limb);
- Impact shatters (cavities extending longitudinally into limb originating from a break along its length typically caused by impact with part of another tree);
- Other hollows or cavities including butt-rots (hollow section of main stem);
- Lifted bark (substantial areas of lifted bark); and
- Bat or bird boxes.

Each tree was assigned a category which relates to the value of the features identified during the ground level tree inspection. A description of these categories is presented in Table 2.1.

Roost Potential Category	Description
Confirmed roost	Evidence of a confirmed roost within a tree would include observations (visual and aural) of bats within or emerging from a roost as well as the presence of fresh or old bat droppings within or below the roost entrances. Other evidence of a confirmed roost includes smoothing and/ or staining around a roost entrance point.
High	A tree with one of more potential roost sites that are suitable for use by larger number of bats on a more regular basis and potentially for longer periods of time due



Roost Potential Category	Description
	to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which established after presence is confirmed).
Low	<ul> <li>A tree of sufficient size and age to contain potential roost features, but with none seen from the ground or features seen with only very limited roosting potential.</li> <li>However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and / or suitable surrounding habitat to be used on a</li> </ul>
Negligible	regular basis or by large numbers of bats.Negligible features likely to be used by roosting bats.

#### 2.3 Tree Climb Surveys

As per the guidelines (Collins, 2016), trees identified during the ground level assessment as having moderate or high potential for bats were subject to tree climb surveys: three surveys for trees with high potential and two surveys for those with moderate potential. No further surveys were required for trees with low or negligible potential.

Tree climbs were undertaken by ecologists who carry a Natural England licence to disturb bats. This was done by using a harness and ropes in order to carry out a detailed inspection of any potential roosting features identified during the ground level assessment. A torch and an endoscope were used to internally inspect all features, with information regarding dimensions and evidence of bats recorded. Tree climb was carried out during the day in dry conditions.

Initial climb surveys were undertaken on 8<sup>th</sup> June 2022 on all trees with moderate and high BRP. A second tree climb survey was undertaken on 8<sup>th</sup> August 2022. Any high roosting potential trees were subject to a further climb on 30<sup> h</sup> August 2022.

#### 2.4 Limitations

It should be noted that wind and rainfall throughout autumn and winter are likely to wash away any bat droppings at potential roost entrances that may have otherwise provided evidence of a roost. As such, the absence of droppings within the survey area should not be used to indicate a lack of species presence.

Bat roosts are transitory in nature and the presented results reflect conditions specific at the time of survey. The trees surveyed may not currently support a bat roost, but they may be used by roosting bats in the future, as many have features with potential for use as seasonal roosts.



The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document.



## 3 Results

#### 3.1 Ground Level Roost Assessment

A total of 16 trees were assessed as having BRP within the survey area. A summary of these results can be found in Table 3.1 below. Detailed results of the ground-based tree assessments are presented in Appendix B. The 16 surveyed trees were categorised as follows:

- Four trees with high BRP;
- Seven trees with moderate BRP; and
- Five trees with low BRP.

#### Table 3.1: Ground Level Roost Assessment

Tree Reference	Number of PRFs	Ground Level Assessment Grade					
T01	1	Low					
Т02	1	Low					
тоз	1	Low					
Т04	1	High					
Т05	1	Low					
Т06	1	Moderate					
Т07	1	Low					
т08	1	Moderate					
Т09	2	Moderate					
T10	1	Moderate					
T11	2	High					
T12	2	Moderate					
T13	2	High					
T14	1	Moderate					
T15	2	High					
T16	2	Moderate					



No confirmed bat roosts were identified during the ground-based assessments.

Following the ground level assessment, three tree climbing surveys were undertaken for the four high BRP trees and two for the seven moderate BRP trees in accordance with the guidance outlined by Collins (2016). No further surveys were required for the trees with low BRP.

#### 3.2 Tree Climb surveys

#### a) Revision of Bat Roost Potential (BRP) tree assessments

The initial tree climb survey was undertaken on 8<sup>th</sup> June 2022 on all 11 trees with high or moderate BRP.

This resulted in the BRP of four trees being downgraded because on inspection, it was found that the features weren't as suitable for roosting bats as they were perceived from the ground i.e., because the feature does not extend into a cavity. The results were as follows:

- Trees T06 and T14 were downgraded from moderate to negligible;
- T11 was downgraded from high to moderate; and,
- T12 was downgraded from moderate to low.

As a result, no further tree climb surveys were undertaken on three trees: T06, T12 and T14. Consequently, the trees now fall into the following revised BRP categories (see Table 3.2 below for a summary and Figure 1):

- Three trees with high BRP;
- · Five trees with moderate BRP;
- Six trees with low BRP; and,
- Two trees with negligible BRP.

#### Table 3.2: Roost Assessment following Initial Tree Climb

Tree Reference	Ground Level Assessment Grade	Grade following Initial Climb			
T01	Low	Low			
T02	Low	Low			
Т03	Low	Low			
T04	High	High			
Т05	Low	Low			
Т06	Moderate	Negligible			



Tree Reference	Ground Level Assessment Grade	Grade following Initial Climb				
Т07	Low	Low				
Т08	Moderate	Moderate				
Т09	Moderate	Moderate				
T10	Moderate	Moderate				
T11	High	Moderate				
T12	Moderate	Low				
T13	High	High				
T14	Moderate	Negligible				
T15	High	High				
T16	Moderate	Moderate				

No further changes were made to the BRP grades of any trees during the rest of the climb surveys.

### b) Tree Climb Surveys

During the tree climb surveys, no bats were found to be roosting in any of the features present.



## 4 Conclusions and Recommendations

The Ground Based Roost Assessment undertaken in May identified 16 trees with BRP within the survey area: four trees with high BRP, seven trees with moderate BRP and five trees with Low BRP.

Upon the first tree climb survey, the BRP of four trees were downgraded because it was found that the suitability of the features to support roosting bats were not as good as thought from ground level i.e., because the feature does not extend into a cavity). Further survey was not therefore required for three trees (T06, T12 and T14) and reduction of survey effort for one further tree (T11). Eight remaining trees were identified with high or moderate BRP.

No bat roosts were found during the tree climb surveys at this time. However, it should be noted that bats are likely to exhibit roost switching behaviour and the fact that no bats were found at this time does not mean that they will not be used by bats in the future. The following recommendations are therefore made in respect to the proposed Scheme:

- No further surveys are recommended for the proposed Scheme prior to commencement of construction in Autumn 2023 as survey data from 2022 will still be valid. However, if the start of construction is delayed then an Ecologist should be consulted further;
- Trees within this report identified as having a moderate or high BRP shall be removed by soft felling in sections and lowering these sections to the ground. This will be supervised by a Natural England bat licenced ecologist. Cutting through any cavities will be avoided;
- Felling works shall take place during the spring or autumn as these are the safer windows of working to avoid roosting bats at vulnerable times of year (i.e., hibernation and maternity seasons);
- Night working and the use of artificial lighting shall be avoided during construction, where possible. Any lighting used shall be directed away from any features with potential to be used by bats, with measures to prevent light spill in place. Where lighting must be used it will be designed in accordance with the guidelines in Bats and artificial lighting in the UK (Institute of Lighting Professionals & Bat Conservation Trust, 2018); and,
- It is recommended that bat boxes are installed on nearby retained trees to replace the bat habitat (i.e., PRFs) that will be lost to the proposed scheme to ensure measured net gain under the NPPF (National Planning Policy Framework).



## 5 References

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

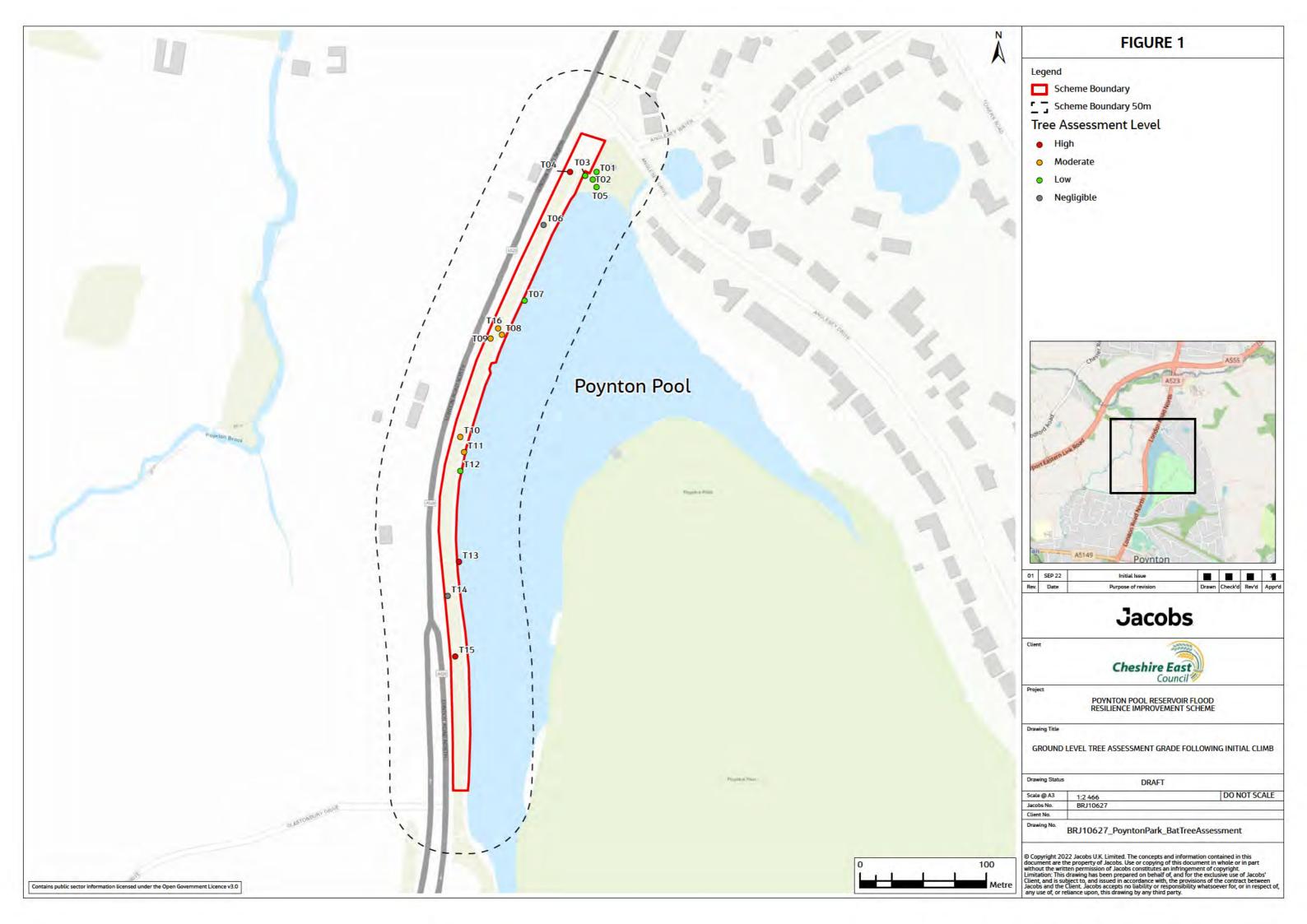
Hundt, L., (2012). *Bat Surveys Good Practice Guidelines*, 2<sup>nd</sup> Edition. Bat Conservation Trust.

Jacobs, (2022) Poynton Lake Preliminary Ecological Appraisal. Jacobs, Manchester.

Kunz, T., (1982) The Ecology of Bats. Plenum Press: New York.



Figur	res		





## Appendix A Summary of Bat Biology and Habitat Requirements

Summary of Biology and Habitat Requirements

Bats have evolved a number of behavioural, physiological and morphological features connected with their ability to fly and their nocturnal activity patterns (Kunz, 1982). British bats are entirely insectivorous and have a complex sonar system known as echolocation that enables them to find their insect prey and navigate around their environment at night. Echolocation involves emitting a rapid series of high frequency calls and then interpreting the returning echoes to build up a picture of their surroundings.

Bat's habitat requirements vary widely both at an individual and species level. Certain features such as woodland edges and freshwater pools support the highest densities of insects and are therefore often focal points for foraging bats (Walsh & Harris, 1996a<sup>1</sup>; 1996b<sup>2</sup>). Natter's (Myotis nattereri) and brown long-eared bats (Plecotus auritus) for example mainly forage chiefly in areas associated with water. Pipistrelle (Pipistrellus spp.), noctule (Nyctalus noctula), Brandt's (Myotis brandtii), whiskered (Myotis mystacinus), serotine (Eptesicus serotinus) and Leisler's bats (Nyctalus leisleri) are generalist in their feeding strategies and forage around water bodies, woodlands, hedgerows and pasture (Altringham, 2003<sup>3</sup>).

Bats use natural and man-made landmarks to navigate between roosts and foraging habitat (Schofield & Mitchell-Jones, 2003). Of particular importance are linear habitat features such as rivers, hedgerows and woodland edges as minor unlit roads or roads with hedgerows or tree lines. Distances that bats travel between roosts and foraging areas are variable both within and between species. For example, brown long-eared bats generally forage within 1-2km of a roost, whereas pipistrelles generally forage within 3-4km of a roost and a Leisler's may forage up to 14km from its roost (Hundt, 2012).

Bats use different types of roosts at different times of the year and different roosts within the breeding season. Bats hibernate between late October and March in an unexposed roost with a stable temperature, typically a cave, mine, cellar or tunnel. Around March, bats emerge from hibernation sites and move to their summer roosts, typically within man-made structures or suitable crevices in trees. Some of these roosts are used regularly (i.e. every summer) and for substantial periods of time, whereas others serve as 'transitional roosts' being used for only one or two days every year or temporarily (e.g. for one season only). Births occur during the summer months (June to August). The numbers of bats using roosts can vary from a single bat to hundreds of bats in a nursery colony or hibernation site (Altringham, 2003). Mating takes place between late August and early December, either at the winter hibernating site or at autumn mating sites.

<sup>&</sup>lt;sup>1</sup> Walsh, A. and Harris, S., (1996a) Feeding Habitat Preferences of Vespertillionid Bats in Britain. Journal of Applied Ecology 33: p. 508-518.

<sup>&</sup>lt;sup>2</sup> Walsh, A. and Harris, S., (1996b) Factors Determining the Abundance of Vespertillionid Bats in Britain: Geographical Land Class and Local Habitat Relationships. Journal of Applied Ecology 33: p 519-529.

<sup>&</sup>lt;sup>3</sup> Altringham, J. D., (2003) British Bats. New Naturalist Series. Harper Collins: London.



Legislation and Policy Framework

All bat species and their roosts and resting places are protected under Schedules 5 & 6 of the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights or Way (CRoW) Act 2000, and within Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) as European Protected Species. Part 3 (Protection of animals); Regulation 43 (1) of the latter makes it an offence to:

- Deliberately capture, injure or kill any wild animal of a European protected species;
- Deliberately disturb wild animals of any such species;
- Deliberately take or destroy the eggs of such an animal; or

•Dames or destroy a breeding or resting place of such an animal.

For the purposes of the legislation, the disturbance of wild animals includes any disturbance which is likely to impair their ability to survive, breed or reproduce or to nurture their young; or, in the case of hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species. In addition, there are also offences under this legislation pertaining to possession, control, sale and exchange of European Protected Species.

National Planning Policy Framework 2012 (NPPF) and Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on all public bodies, including local planning authorities, to consider Habitats and Species of Principal Importance listed in Section 41 of the NERC Act 2006 and Priority Species/Habitats within Biodiversity Action Plans when considering a planning application. There are 56 habitats and 943 species of principal importance which were initially identified as requiring conservation action under the UK Biodiversity Action Plan (UKBAP) and which continue to be regarded as priorities under the UK Post-2010 Biodiversity Framework. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006 "to have regard" to the conservation of biodiversity in England, when carrying out their normal functions. Bat species listed under Section 41 within Cheshire comprise soprano pipistrelle (Pipistrellus pygmaeus), brown long-eared bat (Plecotus auritus) and noctule bat (Nyctalus noctula).

Local Biodiversity Action Plans (BAPs) are provided to enhance biodiversity at the local and regional level. Ten species of bat are listed as within the Cheshire BAP: common pipistrelle (Pipistrellus pipistrellus), soprano pipistrelle, brown long-eared bat, noctule bat, whiskered bat (Myotis mystacinus), Brandt's bat (Myotis brandtii), Natterer's bat (Myotis nattereri), Daubenton's bat (Myotis daubentonii), Leislers bat (Nyctalus leisleri) and Serotine bat (Eptesicus serotinus).



Appendix B

## B Ground Level Roost Assessment and Tree Climbing Results

Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
T01	SJ 92348 84786	Sycamore	Mature	0.5	1	Dense Ivy cover over main trunk.	Full length of main stem	N/A	Low	Low	
т02	SJ 92345 84780	Sycamore	Mature	0.5	1	Dense Ivy cover over main trunk	Full length of main stem	N/A	Low	Low	
Т03	SJ 92339 84783	Sycamore	Mature	0.5	1	Dense Ivy cover over main trunk	Full length of main stem	N/A	Low	Low	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
T04	SJ 92327 84786	Sycamore	Over Mature	0.7	1	Pollarded tree with knot hole (tear out) cavity leading into stem.	3	North	High	High	
T05	SJ 92348 84774	Pine	Mature	0.5	1	Dense ivy- covered evergreen. Clear flightpaths in to feature.	Full length of main stem	N/A	Low	Low	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
T06	SJ 92306 84744	Sycamore	Mature	0.5	1	Rot hole on main trunk leading into cavity	3	South	Moderate	Negligible	
Т07	SJ 92291 84684	Oak	Dead	0.6	1	Dense ivy cover on dead tree next to Lake.	Full length of main stem	N/A	Low	Low	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
T08	SJ 92273 84657	Stump/ Beech	Dead	0.6	1	Dead tree stump with rotten core leading to cavity at low level	0.5	East	Moderate	Moderate	
T09	SJ 92264 84654	Lime	Mature	0.8	1	Woodpecker holes on main trunk leading to cavity	4	North	Moderate	Moderate	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
					2	Woodpecker holes	3.5	West			
T10	SJ 92240 84576	Sycamore	Mature	0.5	1	Split in trunk leading to fissure wound	0.2	North	Moderate	Moderate	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
T11	SJ 92243 84564	Oak	Over Mature	0.7	1	Cavity on stem	0.75	North	High	Moderate	
					2	Cavity on stem	3	North- west			
T12	SJ 92240 84549	Beech	Mature	0.5	1	Canker at ground level	0.5	East	Moderate	Low	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
					2	Canker higher up	4	East			
T13	SJ 92239 84477	Norway Maple	Mature	0.7	1	Woodpecker hole on main trunk	4	South- east	High	High	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
					2	Woodpecker hole on main stem	3.5	North- west			
T14	SJ 92230 84450	Oak	Mature	0.8	1	Rot hole into potential cavity from fallen limb	3	South	Moderate	Negligible	
T15	SJ 92236 84402	Beech	Mature	0.7	1	Hazard Beams	9	North- west	High	High	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
					2	Large cavity of stem	9	North			
T16	SJ 92270 84662	Lime	Mature	0.8	1	Long wound on stem	2.5	South	Moderate	Moderate	



Tree No.	Grid Reference	Tree Species	Tree Age	DBH (m)	PRF No.	PRF Descriptions	Height (m)	Aspect of PRF	BRP of Tree	BRP after Tree climbing	Photograph
					2	Long wound on stem	6	South			