Highways England

BAT HABITAT AND TREE ROOST INTERIM-BASELINE REPORT

A27 Arundel Bypass

A27_ECO_04.3_BATHIBERNATION AND PRA_INTERIM_BASELINE_ISSUE01
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Highways England

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A27 Arundel Bypass

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This report has been prepared by WSP on behalf of Highways England in relation to the A27 Arundel Bypass project ('the Scheme').

The contents of this report represent interim baseline survey findings collected at Project Control Framework Stage 2 (option selection) between spring 2017 and spring 2018 inclusive prior to the Preferred Route Announcement. The Scheme Options under consideration in 2017/early-2018 were Options 1, 3 and Option 5A.

It is intended that the baseline data presented in this report will be updated following further consultation at Stage 2 (2018/2019) and again for Project Control Framework Stage 3 (in 2020).

EXECUTIVE SUMMARY

This report presents the interim results of the preliminary bat roost and woodland habitat assessments for the A27 Arundel Bypass Scheme.

The Field Survey Area (which is defined as a zone extending to 100m from the outer boundary of the Scheme Options) contains habitat considered to be of high suitability for bats, including large areas of ancient woodland, woodland strips, and individual mature and veteran trees, which may provide roosting sites for bats.

All woodland blocks assessed contain trees with multiple features with potential to support roosting bats. Most woodlands contain a dense understory and a diverse range and age structure of tree species, providing a complex mosaic of habitats suitable to support clutter habitat adapted, rare woodland bats, and a diverse assemblage of UK bat species.

A preliminary roost assessment (PRA) was undertaken at ground level in January 2018 to assess the suitability of trees to contain bat roosts. A total of 238 trees were surveyed (excluding known roosts). The results of the survey were as follows: 15 trees of high suitability, 154 of moderate suitability and 69 of low or negligible suitability for bat roosts.

A hibernation survey in the form of an aerial inspection was completed in combination with the ground level assessment on 2012 trees which were suitable for climbing and considered to have suitability for bat roosts.

A second hibernation survey was completed at 66 trees which were identified as being suitable for hibernation during the initial hibernation survey. A single barbastelle was found hibernating in a tree in Binsted Wood complex Local Wildlife Site (LWS).

Tree roost suitability was modified to 32 trees with high suitability, 60 of moderate suitability and 146 of low or negatable suitability following the aerial climbing surveys completed in January and February 2018 (these numbers exclude the trees supporting bats identified during the radio-tracking surveys).

Further surveys are recommended to expand on the findings of this report with regards roosting bats and enhance the overall understanding of bats within the Field Survey Area.

1

INTRODUCTION

1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1. The scope of the A27 Arundel Bypass scheme as described in the Road Investment Strategy[1] is:

"*The replacement of the existing single carriageway road with a dual carriageway bypass, linking together the two existing dual carriageway sections of the road*".

1.1.2. This corresponds to the six km section of the A27 from the A284 Crossbush junction (east of Arundel) to the west of Yapton Lane (west of Arundel). The A27 currently goes through the South Downs National Park and the town of Arundel passing over the River Arun and crossing the railway line.

1.1.3. The Scheme Options taken forward to the Public Consultation were Options 1, Option 3 and Option 5A. These are briefly described individually below.

- **Option 1** consists of new dual carriageway from Crossbush junction south of the current A27 to the south-west of Arundel railway station, which connects with an upgraded A27 Ford Road junction, with a new bridge over the River Arun alongside the existing bridge. From Ford Road roundabout, which will be signalised, the existing A27 would be widened to dual carriageway; and
- **Option 3** is an off-line route from the existing A27 alignment. Option 3 would consist of a new dual carriageway corridor along its entire length. The proposed alignment will then be joined to the existing A27 via an extension of the existing infrastructure at Crossbush Junction. The alignment then runs westwards across the floodplain south of Tortington Priory and requires two new overbridges, firstly over the Arun Valley Railway Line and secondly over the River Arun. Its alignment diverges north through the Binsted Woods, Tortington Common and South Downs National Park, re-joining the existing A27 at Havenwood Park. It requires four new underbridges at Old Scotland Lane, Binsted Lane, Tortington Lane and at Ford Road; and
- **Option 5A** is a new dual carriageway from Crossbush junction south of the current A27. The alignment crosses the Arun Valley Railway, continuing west across the floodplain, over Ford Road, running south of Tortington Priory Scheduled Monument before going north through the Binsted Wood Complex and the South Downs National Park, re-joining the existing A27 at a new junction near Yapton Lane.

1.1.4. When referring to the combined footprint of the Scheme (all options), the term 'Scheme Options' is used in this report. When discussing the footprint of a single option, the Scheme Option number i.e. Option 1, Option 3 or Option 5A, is used.

[1] Road Investment Strategy for the 2015/2016 period – 2019/2020 Road Period, Department for Transport, March 2015

1.2 ECOLOGICAL BACKGROUND

1.2.1. The Field Survey Area contains habitat considered to be of high suitability for bats[2], comprising continuous high-quality habitat which is well connected to the wider landscape by features such as river floodplains, tree-lined watercourses, extensive hedgerows and large areas of ancient woodland. This complex of available habitat has the potential to support a wide assemblage of bat species, including rare woodland bats, non-typical of less habitat-diverse sites. Surveys are required of trees that might be directly or indirectly impacted by the Scheme Options[2].

1.2.2. Trees within the Field Survey Area[3] may provide roosting opportunities for bats. Bats use features in trees differently throughout the seasons, and may only use specific features seasonally. For example, bats may use trees as transitional summer roosts, hibernation or maternity roosts. Bats use a variety of features in trees such as woodpecker holes, rot holes, hazard beams, cracks and splits (e.g. frost cracks), knot holes, cankers, butt-rots, dense ivy and peeling bark.

1.2.3. Comprehensive survey data for bat species and habitats is required to inform the design development, planning and consent process for the Scheme. To achieve this objective, WSP undertook further bat surveys in addition to those included in this report as follows:

- Bat Conservation Trust[4] method: Bat activity transect surveys[5];
- Bat Conservation Trust method: Bat static automated surveys[5];
- Department for Environment, Food and Rural Affairs (Defra) method Local Effects (or Crossing Point) surveys[5];
- Defra method Landscape Scale Effects surveys[5]; and,
- Radio-tracking surveys[6] within the Study Area in July, August and September 2017/18 to locate important roosts, colonies and foraging ranges of bats within the Study Area.

1.2.4. These surveys confirmed the presence of two Annex II bat species roosting within the Field Survey Area: Bechstein's bat *Myotis bechsteinii* and barbastelle *Barbastella barbastellus* and additionally the data deficient[7] Alcathoe bat *Myotis alcathoe*.

1.2.5. These surveys provided a species list for the Field Survey Area as discussed in the individual reports and consolidated in the Environmental Impact Assessment.

1.2.6. The presence of grey long-eared bat *Plecotus austriacus* from the Study Area has not been ruled out, and further radio-tracking work in 2018 may confirm the presence of this species.

[2]Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust
[3] See section 2.1 for definition
[4] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust
[5] WSP (2019) A27_ECO_04.1_BAT ACTIVITY_INTERIM-BASELINE_ISSUE01
[6] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01
[7] As stated in Desk Study Results, taken from the Sussex bat group local distribution information on this species. Also listed nationally as data deficient.

1.2.7. Radio-tracking surveys have revealed several breeding colonies of woodland Myotis species, which travel to, and foraging within, the floodplain area, crossing over the River Arun[8]. Results of radio-tracking surveys are presented within the WSP report: Bat Radio-tracking Interim Baseline Report 2017.

1.2.8. Ongoing surveys will provide further information regarding known bat roosts within 100m of the Scheme Options.

1.3 BATS IN WOODLANDS

1.3.1. All species of bat in the UK use woodland edges and woodland rides for foraging and commuting within the wider landscape. The bat species that are known to roost in trees[9] include:

- Alcathoe bat *Myotis alcathoe*;
- Barbastelle *Barbastella barbastellus*;
- Bechstein's bat *Myotis bechsteinii*;
- Brandt's bat *Myotis brandtii*;
- Brown long-eared bat *Plecotus auritus;*
- Common pipistrelle *Pipistrellus pipistrellus;*
- Daubenton's bat *Myotis daubentonii;*
- Leisler's bat *Nyctalus leisleri;*
- Nathusius' pipistrelle *Pipistrellus nathusii;*
- Natterer's bat *Myotis nattereri;*
- Noctule *Nyctalus noctula;*
- Soprano pipistrelle *Pipistrellus pygmaeus; and*
- Whiskered bat *Myotis mystacinus*

1.3.2. The species listed above are likely to be present within the woodlands surveyed. Previous surveys have identified tree roosts within the Field Survey Area, including maternity roosts of Alcathoe bat and Bechstein's bat, as well as barbastelle roosts[10].

1.3.3. Highways England is undertaking an Environmental Impact Assessment of the Scheme Options to inform scheme development. Comprehensive survey data for bat tree roosts is required to inform Scheme Option selection and ultimately inform an Environmental Impact Assessment of the preferred Scheme Option selected'

[8] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01
[9] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust
[10] Whitby, D. (2016) Bat Survey and Trapping Survey, Binsted Woods. Animal Ecology and Wildlife Consultants Ltd.

1.4 AIMS AND OBJECTIVES

1.4.1. The aim of the surveys was to obtain baseline data on bat roosts in trees within the Field Survey Area (a zone extending to 100m from the outer boundary of the Scheme Options) by undertaking:

- A detailed desk study relating to bat roosts only[11];
- A woodland habitat assessment for bats within 100m of the Scheme Options;
- A preliminary ground level roost assessment comprising an external assessment of all trees within 100m of Scheme Options 1 and 5A to identify potential roost features;
- A climbed inspection survey to conduct internal inspections of the potential roost features identified during the ground assessment; and,
- Hibernation surveys in January and February 2018 to investigate the presence of hibernating bats in features identified as suitable for hibernation[12],[13] during the initial inspection survey, achieving the minimum of two visits as set out in the best practice guidelines[14] .

1.4.2. The objectives of this study are to:

- Use the baseline dataset to determine the importance of the Field Survey Area (defined in section 2.2) for roosting bats to inform the assessment of potential impacts on roosting bats;
- Outline requirements for further survey work to inform detailed mitigation design and for European Protected Species Mitigation Licence application; and,
- The results of this survey and subsequent recommendations, are included within this report. The contents of this report represent interim baseline survey findings collected at Project Control Framework (PCF) Stage 2 (option selection).

1.4.3. The results of this survey and subsequent recommendations, are included within this report. The contents of this report represent interim baseline survey findings collected at Project Control Framework (PCF) Stage 2 (option selection).

[11] Bat activity records and designated site data can be found within the WSP (2019) A27_ECO_04.1_BAT ACTIVITY_INTERIM-BASELINE_ISSUE01 and WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01

[12] Hibernation roosts tend to tend to have a constant cool temperature and high humidity, which allows the bats to use less energy regulating their temperature and may be deeper crevices than those used for other types of roost.

[13] Hundt, L. (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust, London.

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

2 METHODS

2.1 STUDY AND SURVEY AREAS

2.1.1. The following study areas were used for desk study and field survey work:

- Desk Study Area – a distance of 6km from the outer boundary of the Scheme Options was identified, within which bat records were obtained from the Sussex Biological Records Centre (hereafter the 'Desk Study Area'). This distance was selected based on the furthest bat core sustenance zone (barbastelle bats have the furthest reaching zone at 6km)[15].
- Field Survey Area – land within 100 meters of the outer boundary of the Scheme Options was identified for field survey work (hereafter the 'Field Survey Area'). Surveying to this distance is considered an appropriate and proportionate approach to determine both direct and indirect effects on bats in relation to the Scheme Options.

2.2 DESK STUDY

2.2.1. A desk study was undertaken to collate all records of bat roosts within 6km of the Scheme Options over the past 10 years. Verified records were obtained from the Sussex Biological Records Centre[16]. This data supplied included visual evidence of roosting bats (such as droppings), records from acoustic surveys, radio tracking data, roost presence and roost type (e.g. hibernation, maternity or unspecified roosts).

2.2.2. This information was supplemented by a review of radio tracking work undertaken for Mid-Arun Valley Environmental Survey (MAVES), including the May 2016[17] and June 2017[18] (interim) reports.

2.2.3. A review of the conservation status of bats present within the Field Survey Area, both within the UK, and Sussex, was also undertaken to provide context to the discussion section of the report.

2.3 FIELD SURVEY

WOODLAND ASSESSMENT

2.3.1. In June 2017 the woodlands within the Field Survey Area were first subject to a desk study using the Multi-agency Geographic Information for the Countryside[19] . Following this, the woodland within the Field Survey Area was subject to a woodland assessment.

2.3.2. WSP acknowledges the 'British Standard BS 8596:2015 Surveying for bats in trees and woodland – Guide' method. This document specifies an approach for surveying for bats in trees in woodland,

[15] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London. Section 3.7.
[16] This includes records submitted by the Sussex Bat Group.
[17] Whitby, D. (2016) Bat Survey and Trapping Survey, Binsted Woods AEWC Ltd. Private publication.
[18] Whitby, D. (2017) Bat Survey, Trapping Survey Interim report of results Binsted Woods. AEWC Ltd. Private publication
[19] MAGIC. (2018). Home. [Online]. Available at: http://www.magic.gov.uk/ [Accessed: March 2018].

and does not provide a standardised, quantifiable method for valuing woodland habitat for development purposes for bats.

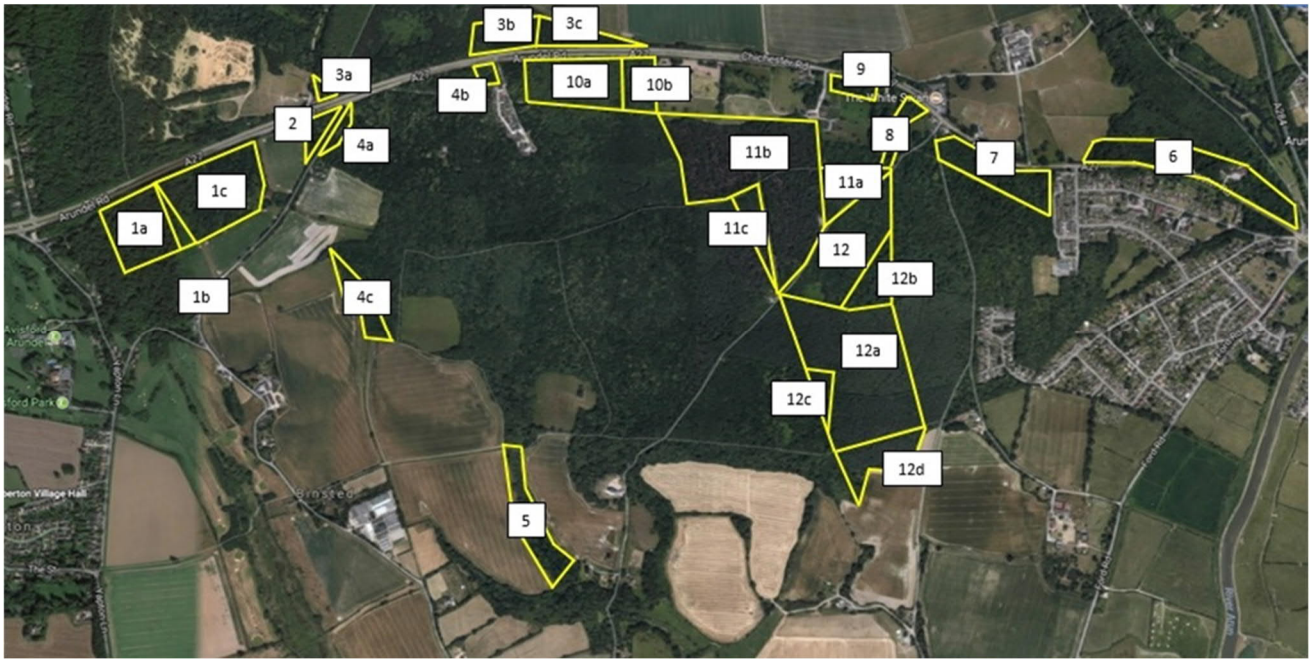
2.3.3. Using this document as a guide, WSP developed the following method[20] to assess woodland within the Scheme:

- The woodland was divided into blocks (defined as a forestry coupe or area of homogenous canopy vegetation as informed by habitat survey work), as seen in Figure 2-1 below;
- Each woodland block was walked in transect lines around the perimeter and through the centre of the woodlands where possible; and
- Each block was assessed as a whole, giving a value to the block for bats; taking into consideration feeding opportunities, commuting opportunities, bat species preferences and the highest suitability of potential roost features within each block.

2.3.4. The following data was recorded:

- Tree species present (canopy and understorey);
- Structure of the woodland;
- Presence of woodland rides;
- Suitability for foraging and commuting bats;
- Suitability for roosting bats; and
- The bat species likely to utilise the habitat.

Figure 2-1 - Woodland Blocks Assessed for Bat Suitability



[20] This methodology was confirmed by consultation with Natural England via their Discretionary Advice Service.

PRELIMINARY GROUND LEVEL ROOST ASSESSMENT

2.3.5. Assessments were carried out in January 2018 on all areas of woodland where access was permitted within the Field Survey Area, while trees were bare of foliage and a comprehensive-visual assessment could be made. This survey comprised of detailed visual assessments of the exterior of trees from ground level to look for features that bats could use for roosting with the aid of a high-powered torch, as per the approach recommended in the survey guidelines[21]. These surveys were conducted in daylight hours and all angles of the trees were assessed, searching for evidence indicating the current or historic use of the tree by roosting bats.

2.3.6. Where suitable features were observed, their location and a brief description of their characteristics was recorded and photos taken. Examples of suitable potential roost features include:

- Woodpecker holes;
- Rot holes;
- Hazard beams;
- Cracks and splits (e.g. frost cracks);
- Knot holes;
- Cankers;
- Butt-rots;
- Dense ivy plates; and
- Lifting/peeling bark.

2.3.7. Where possible, each feature was visually inspected for evidence indicating use by roosting bats including:

- Bat droppings in, around or below the potential roost feature;
- Urine staining below the potential roost feature;
- Scratch marks; and,
- Characteristic staining (from fur oils).

2.3.8. However, it is important to note that many bat roosts have no external signs of occupation, and depending on the structure of the feature internal evidence is easily washed away and broken down.

2.3.9. A tree may have more than one potential roost feature, however, the tree as a whole is categorised according to the highest suitability roost feature present. The category descriptions are provided in Table 2-1.

[21] Collins, J. (ed) (2016) Bat Surveys for professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Table 2-1 – Guidelines for Assessing Tree Roost Suitability[22]

Suitability	Description of roosting habitat
Negligible	Negligible habitat features on tree likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost sites but with none seen from the ground or features seen with only very limited roosting potential.
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, irrespective of species conservation status of this stage).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

2.3.10. Based on the features present and the location of the trees, the potential use of the potential roost feature was also considered, and grouped as follows[23]:

- Maternity (breeding roost);
- Summer / transitional (to include transitional, occasional, satellite, night and day roosts); and,
- Hibernation roost.

2.3.11. If a tree was categorised as having no potential roost feature or single potential roost feature of low suitability, then further surveys were not recommended, in accordance with recommended best practice[24] . However, where multiple suitable roosting features or evidence of bats were found during the ground level roost assessment, then further surveys in the form of aerial roost feature inspection surveys were undertaken.

POTENTIAL ROOST FEATURE INSPECTION SURVEY

2.3.12. The potential roost feature inspection surveys were carried out by aerial tree climbing surveys. Accessing the potential roost features using this method facilitated more detailed assessments of

[22] Collins, J. (ed) (2016) Bat Surveys for professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
[23] Hundt, L. (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust, London.
[24] Collins, J. (ed) (2016) Bat Surveys for professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

the potential roost feature and confidence in confirming or downgrading their likely suitability for bats. Additionally, surveyors were able to look for further evidence of a bat roost, such as live or dead bats, droppings, staining or odour.

2.3.13. When it was safe to do so, trees with potential roost features[25] were climbed by suitably qualified tree climbers and licenced bat roost visitors. With the use of harnesses and ropes, surveyors undertook inspections with endoscopes, mirrors and torches. Information about the features were noted, for example the dimensions and exposure, and the potential roost feature was reclassified as low, moderate or high roosting suitability.

HIBERNATION SURVEYS

2.3.14. Hibernation checks were conducted simultaneously with the preliminary roost feature assessment survey in January 2018. The trees with potential roost features which were considered suitable for hibernating bats during the January 2018 checks were climbed a second time in February 2018, as per conditions outlined in the best practice guidelines[26].

2.3.15. Hibernation inspections consisted of systematic survey of all potential roost features (e.g. cracks, crevices and voids) present on the trees using torches, mirrors and endoscopes, in accordance with best practice guidelines[27]. Hibernating bats crawl deep into crevices and their presence can be missed; therefore, other signs of bats were also searched for, including droppings around or below the feature and oil staining around the feature entrance.

2.3.16. Hibernation surveys were additionally conducted on 6 of the known tree roost sites (those which were climbable) that were discovered during the WSP 2017 radio-tracking surveys[28]. These potential roost features are described in Appendix C.

2.4 DATES OF SURVEY AND PERSONNEL

2.4.1. The bat surveys were led by an experienced surveyor (Natural England Class Licence number: 2015-15643-CLS-CLS). The lead surveyor had 10 years' experience of ecological survey, including extensive bat survey experience and has held a Natural England bat survey licence since 2015.

2.4.2. The aerial climbing surveys were completed twice, once in January 2018 and again in February 2018 by two teams of experienced surveyors. Each climbing team consisted of one certified tree climber (NPTC Level 2 Tree Climbing and Rescue awarded), one safety second bat ecologist with the same experience as stated above.

2.4.3. The assessment dates and survey teams are summarised in Table 2-2.

[25] Negligible trees did not receive a climbed inspection. Not all the Low suitability trees received a climbed inspection; this was determined by the surveying ecologist e.g. when features could not clearly be seen from the ground.
[26] Collins, J. (ed) (2016) Bat Surveys for professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
[27] Collins, J. (ed) (2016) Bat Surveys for professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
[28] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01

Table 2-2 – Dates and Details of the Surveyors for all Survey Types

Survey type	Dates	Surveyors
Woodland assessment for bats and baseline preliminary ground level roost assessment	June/July 2017	A WSP sub-consultant – Principal, licenced bat ecologist and Assistant Ecologist/ Arborist
Update preliminary ground level roost assessment	January 18th – 19th 2018	A WSP sub-consultant – Licenced bat ecologist and tree climber, Senior Arborist and tree climber, two tree climbers
January 22nd – 26th 2018		A WSP sub-consultant – Licensed bat ecologist and tree climber, Senior Arborist and tree climber, two tree climbers
January 29th – 31st 2018		A WSP sub-consultant – Principal, licenced bat ecologist and Assistant Ecologist/ Arborist
Preliminary Roost Feature assessment surveys	22nd January 2018 – 2nd February 2018	

2.5 NOTES AND LIMITATIONS

2.5.1. Eight trees were unsafe to climb and therefore potential roost features within these trees were not inspected. The suitability of these trees to support bats was determined from the preliminary ground level assessment. Further survey is recommended at these locations to investigate these potential roost features.

2.5.2. Due to the large number of trees within the woodlands in the Field Survey Area (e.g. Binsted Woods and Paine's Wood) a comprehensive survey locating all trees with potential roost features was not undertaken. However, the woodland assessment provides baseline data of value for the area considered for bats. Following the Preferred Route Announcement in 2018, more detailed investigations will be undertaken, identifying trees containing potential roost features within the woodland blocks affected.

2.5.3. It is important to note that bat roosts may not have external signs of occupation. Bat droppings rapidly decay in trees compared to building roosts, especially in the presence of invertebrates[29] . Therefore, a potential roost feature with no external signs of occupation does not mean it is not used by bats. This was taken into consideration during the inspection surveys.

2.5.4. The absence of bat records does not confirm absence of bats, as records are often incidental rather than being collected in a systematic method. Similarly, when conducting preliminary roost assessments, the absence of bats and bat evidence does not equate to bat absence, as in many situations it is not always possible to inspect all locations where bats may be present. It is therefore only possible to confirm presence during these surveys. Woodland roosting bats are also known to exhibit regular roost switching behaviour[29], and therefore the likelihood of discovering a roosting bat is low.

2.5.5. The use of trees and potential roost features by bats changes continually in response to changes of weather and microclimatic conditions. For example, high winds may result in the loss of a feature or may create a new one. This was evident after the preliminary ground level roost assessment was completed, where weather events (10 trees) or felling (two trees) caused features to be destroyed. An updated potential roost feature survey is therefore recommended to allow for such changes in available roosting opportunities to be taken into account.

2.5.6. None of the seven tree roosts identified during the 2016[30]-2017[31] radio-tracking work carried out by MAVES could be located during the 2018 surveys due to lack specific grid references and tree identification information. Further survey work will be required in due course to inform impact assessment and if these roosts are likely to be impacted they will need to be located by future surveys.

[29] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
[30] Whitby, D. (2016) Bat Survey and Trapping Survey, Binsted Woods AEWC Ltd. Private publication.
[31] Whitby, D. (2017) Bat Survey, Trapping Survey Interim report of results Binsted Woods. AEWC Ltd. Private publication

3 RESULTS

3.1 OVERVIEW

3.1.1. All woodland blocks within Field Survey Area contain features with potential to support roosting bats. Most woodlands contain a dense understory and a diverse range and age structure of tree species, providing a complex mosaic of habitats suitable to support clutter adapted rare woodland bats and a diverse assemblage of UK bat species.

3.1.2. During the preliminary ground level roost assessment, 238 trees were surveyed (excluding 21 known roosts from the radio-tracking study[34]) resulting in 15 trees of high suitability, 154 of moderate suitability and 49 of low suitability for bat roosts identified (Table 3-1). These numbers were modified to 32 high suitability trees, 60 of moderate suitability and 68 of low suitability following the aerial climbing surveys (these numbers exclude the trees located from the radio-tracking surveys).

3.1.3. Of the 238 trees, 201 were inspected during the aerial climbing surveys; 8 trees were unsafe to climb, 29 trees were not climbed due to either the feature or tree lost to felling or natural causes (as noted in Section 2.5) or due to the ecologist confirming negligible features from the ground. No bat roosts were found during the inspection surveys.

3.1.4. A second aerial hibernation survey were conducted on 60 trees which were identified as being suitable for hibernation during the inspection survey. They were also conducted on 6 of the 21 known summer tree roosts from the radio-tracking study[32]. The only roost recorded was that of a single barbastelle hibernating in a tree in Binsted Wood complex LWS.

Table 3-1 - Summary of the Number of Trees Surveyed Excluding Known Roosts

Survey	Number of trees surveyed
Preliminary ground level roost assessment	238
Aerial climbing inspection / first hibernation inspection	201
Second hibernation climb inspection - February	66

[32] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01

3.2 SPECIES RECORDS

3.2.1. The desk study generated 200 bat records, all within the Desk Study Area. All records are shown in (Appendix A). 55 confirmed records of roosting bats were from structures (which have been included in the structures report[33]) and a further 15 records from tree roosts.

3.2.2. Sussex Biodiversity Records Centre data indicated that bat roosts were widely distributed within the Desk Study Area. The majority of bat roost records were [redacted] approximately 1km north-west of the Field Survey Area, and 1km to the north-east [redacted]. Common pipistrelle roosts were also present [redacted] approximately 0.4km north of the Field Survey Area. Barbastelle roosts were recorded [redacted] approximately 1km east and west of the Field Survey Area respectively.

3.2.3. The MAVES commissioned bat surveys in 2016 and 2017 from Animal Ecology and Wildlife Consultants[34],[35]. A total of 12 roosting locations were identified, for barbastelle (1), Bechstein's bat (3), Alcathoe bat (4), serotine (4; outside of the Study Area). These surveys confirmed the presence of the following list of species, predominantly from the Binsted Wood complex LWS. These are presented Appendix A. Those with an asterisk (*) were identified by the MAVES to be breeding within the Desk Study Area:

- Barbastelle;
- Alcathoe bat (*);
- Bechstein's bat (*);
- Daubenton's bat;
- Natterer's bat (*);
- Whiskered bat (*);
- Brown long-eared bat (*);
- Nathusius' pipistrelle;
- Common pipistrelle;
- Soprano pipistrelle;
- Noctule (*); and
- Serotine (*).

3.2.4. The status[36] of each species both locally and nationally are detailed below within Table 3-2.

Table 3-2 - Status of Bat Species Recorded or Assumed to be Present Within the Desk Study Area

[33] WSP (2017) A27_ECO_04.2_BAT STRUCTURES_INTERIM-BASELINE_ISSUE01
[34] Whitby, D. (2016) Bat Survey and Trapping Survey, Binsted Woods AEWC Ltd. Private publication
[35] Whitby, D. (2017) Bat Survey, Trapping Survey Interim report of results Binsted Woods. AEWC Ltd. Private publication
[36] It should be noted that the distribution and status data was obtained from a national source and a local source, as such terminology may vary

Flight strategy	Species	Relative UK Distribution and Status[37]	Local Distribution and Status[38]
Cluttered Habitat Adapted Species	Brown long-eared bat	Widespread, relatively common	Relatively abundant, widespread
	Whiskered bat	Widespread, uncommon	Widespread, scarce
	Brandt's bat	Widespread, uncommon (slightly less common and widespread than Whiskered bat)	Widespread, scarce
	Natterer's bat	Locally common	Widespread, scarce
	Daubenton's bat	Relatively common, widespread	Fairly abundant, widespread
	Lesser horseshoe bat	Rare (restricted to Wales and western England)	One record
	Greater horseshoe bat	Rare (restricted to the south-west England and south Wales)	Very rare
	Bechstein's bat	Very rare, (restricted to southern Wales and parts of southern England)	Very rare
	Alcathoe bat	Data deficient	Very rare- hardly known

[37] Bat Conservation trust (2010) [Online] Available at: Species Factsheets http://www.bats.org.uk/pages/uk_bats.html Accessed 13 September 2017
[38] Sussex Bat Group (2018) [Online] Available at: http://www.sussexbatgroup.org.uk/batsinsussex Accessed 13 September 2017

Edge Habitat Adapted Species	Serotine	Uncommon, (largely restricted to the south)	Widespread, uncommon
	Common pipistrelle	Widespread, common	Widespread, abundant
	Nathusius' pipistrelle	Rare, but widespread, may be under recorded	Widespread, scarce
	Soprano pipistrelle	Widespread, common (England)	Widespread, fairly common
	Barbastelle	Very rare, widespread	Widespread, very rare
Open Habitat Adapted Species	Leisler's bat	Widespread, uncommon (England, although it may be under recorded)	Rarely recorded
	Noctule	Widespread, relatively common	Widespread, uncommon

3.3 WOODLAND ASSESSMENT

3.3.1. The desk study indicated that ancient and semi-natural woodland and ancient replanted woodland exist within the Field Survey Area, with blocks of coppice and plantation woodland consisting of broadleaved and coniferous woodland.

3.3.2. All woodland blocks surveyed have features with potential to support roosting bats, with a diverse range of species and age structures, providing foraging and commuting habitat for UK bat species.

3.3.3. A map showing the locations of the woodland blocks is provided in Figure 1 (Section 2.3). Raw data and descriptions of each of the identified woodland blocks are provided within Appendix B along with areas of ancient woodland and woodland habitat types from the National Forest Inventory.

3.3.4. Woodland blocks are described below (full descriptions and likely species presence are available in Appendix B):

- **The Hundredhouse Copse (blocks 1a, 1b and 1c)** provides good habitat for bats due to the high number of mature trees present (predominantly oak Quercus species and ash *Fraxinus excelsior*) providing multiple roosting opportunities. Six species of bat, including the rare Alcathoe bat, are known to roost within this woodland[39]. These include common pipistrelle, soprano pipistrelle, brown long-eared bat, Natterer's bat, whiskered bat, and Alcathoe bat. It is likely that

[39] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01

this woodland is also suitable for a further seven species, including Nathusius' pipistrelle, Bechstein's bat, barbastelle, Daubenton's bat, Leisler's bat, serotine and noctule. The woodland provides good foraging habitat and a high degree of habitat connectivity to the wider landscape.

- **Block 4a (Brickkiln Copse), 4b (Singer's Piece) and 4c (south-western part of Winchers Wood)** are part of a large continuous block of woodland and are all connected. The species detailed above for Hundredhouse Copse are also likely present in these woodland blocks. These blocks provide roosting, foraging and commuting habitat.
- **Block 5** provides good roosting, foraging and commuting habitats for at least seven species. Brown long-eared bat, Natterer's bat, whiskered bat, Alcathoe bat and Nathusius' pipistrelle are known to use this woodland, with Daubenton's bat and soprano pipistrelle caught in woodland just to the north during 2017 harp trapping surveys[40]. Other species likely to be present include Bechstein's bat, barbastelle, Leisler's bat, serotine, noctule and common pipistrelle.
- **Woodland block 6** lies north of the A27, close to Arundel town. It provides potential roosting features as well as foraging and commuting habitat along a bridleway, which runs through the woodland. This woodland is connected to further woodland to the north.
- **Woodland block 7** contains approximately 100 mature oak and ash trees and has a good vegetation structure providing roost sites, as well as good foraging and commuting habitat. Whilst the A27 does border the northern edge of the block, the woodland is highly connected to woodland in the wider landscape. Following the MAVES radio tracking surveys in 2016[41], a Bechstein's bat roost is known to be present in this woodland and a further 32 trees within this woodland contain potential roost feature. This woodland is suitable for use by woodland bat species.
- **Woodland blocks 9 and 10a** provide less suitable habitat compared to other woodland blocks. No potential roost features were observed in block 10a which is dominated by sweet chestnut *Castanea sativa*. It provides limited roosting opportunities for bats, it is considered that this may be due to the monoculture nature of the woodland. Whilst potential roost features were recorded within block 9, the woodland is isolated in comparison to other blocks and only has continuity to the east and south-east.
- **Woodland block 10c** comprises ancient replanted woodland with a variety of tree species. Foraging opportunities within the woodland are suitable for clutter habitat adapted bat species. The open rides provide good commuting routes and foraging habitat for multiple species. potential roost features have been recorded within this block. This block has good habitat connectivity, as it is contiguous to the larger woodland block of Binsted Wood complex LWS.
- **Woodland blocks 11a and 11b** provide woodland which is well connected to the wider landscape. They contain a variety of tree species and include mature trees with potential roost features. Blocks 12, 12a, 12b, 12c and 12d are also highly suitable for bats providing foraging areas and commuting routes (footpaths and bridleways) and are well connected to the larger woodland block of Binsted Wood complex LWS.

[40] Whitby, D. (2017) Bat Survey, Trapping Survey Interim report of results Binsted Woods. AEWC Ltd. Private publication
[41] Whitby, D. (2016) Bat Survey and Trapping Survey, Binsted Woods AEWC Ltd. Private publication

3.4 PRELIMINARY GROUND LEVEL ROOST ASSESSMENT

3.4.1. During the preliminary ground level roost assessment, 238 trees were surveyed (excluding the known roosts) resulting in 15 trees of high suitability, 154 of moderate suitability and 49 of low suitability to support a bat roost (Table 3-3).

3.4.2. A map of the trees that were assessed and their roost suitability and full descriptions of the potential roost features and the reasons for categorisation are shown in Appendix C. Photographs of a selection of trees with varying roost suitability are in Appendix D.

3.5 POTENTIAL ROOST FEATURE INSPECTION SURVEY

3.5.1. Following the aerial inspections, the suitability of roost features was revised. Full descriptions of the potential roost features and the reasons for categorisation can be seen in Appendix C. Table 6 shows the overall results alongside the results from the ground assessment. The number of high suitability roost features increased from 15 to 32, however, the number of trees categorised as having moderate roost suitability reduced from 154 to 60, while the number of trees categorised as low or negligible increased from 69 to 144.

3.5.2. Of the 238 trees, 201 were inspected during the aerial climbing surveys; 8 trees were considered unsafe to climb, 29 trees were not climbed due to either the feature or tree lost to felling or natural causes (as noted in section 2.5) or due to the ecologist confirming negligible features from the ground.

Table 3-3 - Tree Categories Identified During the Preliminary Roost Feature Assessment

Tree Category	Number of trees from ground assessment	Number of trees – updated following aerial climbing survey	Number of trees that were not safe to climb	Number of trees not climbed due to lack of features	Totals
High	15	32	0	0	32
Moderate	154	56	4	2	62
Low	49	53	3	12	68
Negligible	20	60	1	15	76
Total	218	201	8	29	238

3.6 HIBERNATION SURVEYS

3.6.1. Sixty trees within the Field Survey Area were considered suitable for hibernation. Details about the trees and descriptions of the suitable features are provided in Table 7 and the location of the trees in Appendix C. One of these trees was found to have a hibernating bat at the time of survey. Examples

of suitable hibernation features are shown in Appendix D along with the Preliminary Roost Assessment photographs.

3.6.2. A single barbastelle was found hibernating in tree R14 in Binsted Wood complex LWS. This tree is a known roost, which the WSP radio tracking surveys confirmed was used by Natterer's bats in summer 2017. This tree had two types of potential roost features, three vertical fissures on the main stem and limb damage. The barbastelle was found in a wound leading around hard wood, c.7 m high.

3.6.3. Of the 21 known summer tree roosts within the Study Area identified by WSP radio-tracking, 11 were climbable and were assessed for suitability for hibernating bats during the initial aerial inspection. Six of these trees were considered to contain features suitable for hibernation and received two climbing inspections with five trees considered to have no suitable potential roost features for hibernation. Six trees could not be precisely located (due to a number of suitable trees within close vicinity with features obscured within the canopy). Four tree roosts were not included as they fall outside of the Field Survey Area[42].

3.6.4. Roosts located in buildings are considered in the structures report[43].

Table 3-4 - Trees suitable for hibernating bats

Tree reference	Grid reference	Species	Features with suitability to support hibernating bats	Hibernation suitability	Proposed Option
T1	SU 97117 06796	Aesculus hippocastanum	Hazard beam with crevices - Open cavity extends vertically for 0.8m.	Moderate	5A
T2	SU 97128 06801	Aesculus hippocastanum	Knot hole - 8cm diameter cavity leading along branch 50cm. Crevices above.	Moderate	5A
T5	SU 97221 06758	Magnolia spp.	Large cavity in main stem – Extends up 50cm.	Moderate	5A
T11	TQ 00580 05857	Quercus robur	Woodpecker hole – 1 metre up, 3 holes behind bark plates. Each goes up 15cm.	Moderate	5A
T23	SU 98908 06199	Fraxinus excelsior	Woodpecker holes x 2 on dead limb – 7cm diameter,	Moderate	5A

[42] Marked as 'not assessed' in Figure 5.
[43] A27_ECO_04.2_BAT STRUCTURES_INTERIM-BASELINE_ISSUE01

			25cm deep, 80cm down, dry, good shelter.		
T24	SU 99205 05882	Quercus robur	Dead stem with tear and woodpecker hole - extends down 50cm and up 40cm and dry. Knot hole at base of limb. Limb hole on dead limb.	Moderate	5A
T25	SU 99018 05928	Fraxinus excelsior	Woodpecker holes x 2 - dry, back 20cm, squirrel nest.	Moderate	5A
T28	SU 98927 06115	Fraxinus excelsior	Very large hole on main stem, extends up into east limb - Very open smooth dry hollow cavity extends 90cm up into stem secure and good for owl.	High	5A
T29	SU 98086 06762	Fraxinus excelsior	Tear – Dry.	High	5A
T33	TQ 00176 05917	Quercus robur	Basal cavity - smooth, dry, sheltered, extends 1m.	High	5A
T36	TQ 00427 05900	Quercus robur	Snapped limb, tear out, cavity with calloused bark rolls on top - limb tear with exposed rotten heartwood. Well sheltered but quite open. Several secondary crevices leading up 30cm.	Moderate	5A
T38	TQ 00576 05808	Fraxinus excelsior	Cavity on top of limb, 30cm wide internally - Large cavity on top of limb that cannot be seen from the ground, diagonally up 30cm wide internally. Entrance 1.5m x 20 centimetres. Split down to base of limb - Goes up 2.5m from lowest point.	T38	TQ 00576 05808
T55	SU 99600 06001	Quercus robur	Hole in Vertical split from ground to 8m - hole with entrance 2 x 3cm. Goes up 20cm and goes down	High	5A

			unknown (endoscope not long enough). Hole in vertical split from ground to 8m - hole 15 x 5 entrance. Goes up 80cm, clean, dry, smooth, wedge shape at the top. Hole in Vertical split from ground to 8metres - Crevices between the dead wood and the reaction wood, one entrance is 2 x 6cm other entrance to the same cavity is 2 x 10cm. Goes up 10cm, crevices, debris. Hole in vertical split from ground to 8metres - Entrance 35 x 2cm. Up 15cm, smooth, dry. Top with a wedge shape. Vertical split from ground to 8m - Open inside, up 20cm, dry clean, smooth.		
T57	SU 99600 06001	Quercus robur	Knot hole on top of limb - Dry smooth, secondary cavities.	Moderate	5A
T58	SU 99593 05972	Quercus robur	Crack in trunk cavity, wood pecker hole – 100 x 2cm. 100cm back. Dry, rough, vertical.	High	5A
T59	SU 99584 05994	Quercus robur	Bark cavity - Entrance 3 x 15cm. back 20cm up 100cm. Dry, smooth, multiple crevices.	High	5A
T68	SU 99586 05995	Quercus robur	Large wound from base, possibly extends to crown - nice crevices behind lower callous rolls that likely extend further up the stem assessed from ground/ladder.	Moderate	5A
T72	SU 99770 05917	Quercus robur	Cavity tear out - wet, slugs, 20cm deep. Two chambers		

			that go up 30cm. Squirrel drey present. Cavity tear out - die back with callous roll and hollow behind. 10cm crevice goes up 50cm. Sealed at the top, dry.		
T73	SU 99800 05990	Fraxinus excelsior	Basal cavity, hollow - secure, dry, sheltered, multiple crevices, extends 1.5m up.	High	5A
T74	SU 99972 05925	Fraxinus excelsior	Basal cavity - smooth, dry, secure, up 1 metre.	High	5A
T77	SU 99984 05921	Quercus robur	Tear out, hollow stump – 15cm high, 12cm wide, quite exposed at start then dry and secure 60cm in.	Moderate	5A
T81	TQ 00662 05898	Fraxinus excelsior	Knot hole – 15cm up, dry, smooth, secure.	Moderate	5A
T86	SU 99937 05826	Quercus robur	Dropped branch with dark staining underneath.	High	5A
T91	TQ 02422 05884	Quercus robur	Cavity at dropped limb. Dead branch. Big hole on main stem.	Moderate	5A
T92	TQ 02381 05881	Quercus robur	Snapped branch with cavity. Snapped branch, possible cavity. Hole in north stem.	High	5A
T94	TQ 02298 05832	Quercus robur	Peeling bark and holes.	High	5A
T110	TQ 02280 05839	Quercus robur	Vertical cavity with internal rot - Cavity connected to top of tree, rotting heartwood.	High	5A

T119	TQ 02174 05872	Quercus robur	Limb wound (drop) with possible cavity.	Moderate	5A
T120	TQ 02214 06090	Quercus robur	Hole on main stem. Limb wound on main stem. Hole at base of main stem.	High	5A
T128	TQ 02246 06067	Quercus robur	Large holes at dropped limb with desiccation fissures.	High	5A
T133	TQ 00466 07136	Quercus robur	Very large trunk cavity with hole at top.	High	1
T137	TQ 00494 07104	Quercus robur	Knot hole.	High	1
A9	TQ 02622 05935	Quercus robur	Dead sections on branch, long, open cavity, hazard beam split and tear. Knot hole.	High	3
A17	SU 99577 07344	Fraxinus excelsior	Main stem hollow at base, cavity extends up.	Moderate	3
A19	SU 99805 07282	Quercus robur	Woodpecker hole. Loose bark.	High	5A
A20	SU 99788 07297	Quercus robur	4 hazard beams.	High	1
A24	TQ 00143 07177	Quercus robur	Woodpecker hole on main stem - Goes back 35cm, smooth sides, large, dry.	Moderate	1
A41	TQ 00446 07035	Quercus robur	Holes and loose bark - Callused bark edge leading 40cm, semi secure at base leading up additional 40cm, into secure crevice.	Moderate	1
A42		Quercus robur	Lifted bark at base of limb - Goes in about 30cm, dry, secure. Knot hole on underside of limb – 5cm diameter entrance up 20cm, in 10cm,	Moderate	1

			sludge in bottom. Dry, rough, some wood lice Bark partially stripped from branch with gap underneath - Goes up vertically, dry, secure, deadwood and detritus inside. Open on the top.		
A44	TQ 00403 07008	Quercus robur	Tear in main stem creating vertical cavity - Dry secure, sheltered. 4cm between bark and heartwood. Goes up over 2m. 20cm wide inside.	Moderate	1
A45	TQ 00403 07014	Quercus robur	Hazard beam split with vertical fissures - Dry, approximately 20cm long 4cm wide.	Moderate	1
A46	TQ 00408 07019	Quercus robur	Tear on south limb with woodpecker hole within - Extends 1 metre dry smooth.	High	1
A50	TQ 00386 07041	Fraxinus excelsior	Tear from ground to 1metre extending up inside tree - Leads up 1 metre into hollow stem, very rotten damp, secure.	High	1
A53	TQ 00336 07040	Fraxinus excelsior	Woodpecker hole in main stem – 20cm dry secondary crevices. Woodpecker hole in main stem – 20cm in up, dry sheltered, smooth 4cm wide.	High	1
A57	TQ 00277 07077	Quercus robur	Tear in centre of main stem - The north side has a crack clean, dry, secure, go up 60cm.	Moderate	
A59	TQ 00173 07133	Quercus robur	Dropped hazard beam - Dry, sheltered. Goes back 20cm horizontal 3cm.	High	1

A64	TQ 00462 07032	Quercus robur	Fallen branch with tear, occluded bark - Squirrel present, dome apex.	Moderate	1
A69	SU 98667 06879	Fraxinus excelsior	Woodpecker hole - dry, narrow, small, quite sheltered.	Moderate	1
A70	SU 97988 06917	Quercus robur	Woodpecker hole – up 1 metre, dry and smooth.	High	5A
A74	SU 98973 06019	Fraxinus excelsior	Knot hole on east limb – down 30cm, dry, sheltered, smooth.		5A
A75	SU 09896 05999	Fraxinus excelsior	Woodpecker hole – Goes up 5m to join internal tunnel, smooth, dry. Wound in stem – Goes back 15cm, up 10cm, damp. Wound – Goes 2m down, dry, smooth, secure	High	5A
A80	SU 98951 05944	Fraxinus excelsior	Knot hole on main stem - Basal cavity. Complex series of cavities, leading up 80cm.	High	5A
A81	SU 98962 05925	Fraxinus excelsior	Helical tear in limb - Dry, sheltered cavities. Tear in limb - Cavities on split branch Woodpecker hole on same limb – 10cm chamber. Woodpecker hole on main stem - Goes up into 30cm cavity, dry, smooth.	High	5A
A82	SU 98992 05873	Crataegus monogyna	Cavity in main stem - Dry, sheltered, crevices, clean, smooth, up 1 metre, wedge shaped.	High	5A
A83	SU 99014 05848	Prunus sp.	Tear into cavity on main stem - Dry, secondary	High	5A

			crevices, smooth, clean, up 40centimetres.		
A84	SU 99029 05901	Quercus robur	Tear with occluded bark on main stem.	Moderate	5A
A85	SU 99011 05912	Fraxinus excelsior	Cavity into main stem – exposed, up 1m, dry, smooth, sheltered, secure. Hole under main stem – Cambers goes up 15cm, dry, smooth, sheltered, crevices.	High	5A
A87	SU 99075 05864	Quercus robur	Large torn limb with gaps under occluded edges – 1.5m down, cracks, exposed.	Moderate	5A
A88	SU 99937 05826	Fraxinus excelsior	Woodpecker hole – 6cm deep, 25cm high, tapering to a point.	Moderate	5A
A91	TQ 00558 05828	Salix sp.	Hazard beam - callous rolls, goes up 30cm, dry and sheltered.	Moderate	5A
R1	[redacted]	Quercus robur	Cavity - 8 x 10cm cavity and smooth and dry inside.	Moderate	5A
R11	[redacted]	Salix sp.	Woodpecker holes - Cavities extend up and down 4 x 20cm, dry, sheltered and smooth.	Moderate	5A
R19	[redacted]	Quercus robur	Split dead branch - Goes back 20cm, debris, horizontal dry sides. Cavity at snapped limb - Goes up 15cm under the dead wood.	Moderate	5A
R8	[redacted]	Quercus robur	Large woodpecker hole on east limb - leads to 20 x 30cm domed canopy, dry, sheltered with nesting material at base.	High	1

R20	[redacted]	Quercus robur	Some features.	Moderate	5A
R22	[redacted]	Fagus sylvatica	3 vertical fissures in main stem. Limb damage.	Confirmed	5A

4 DISCUSSION AND RECOMMENDATIONS

4.1 WOODLAND ASSESSMENT

4.1.1. All woodland blocks surveyed were considered as having trees with potential roosting features; containing a diverse range of tree species and age structures, providing roosting, foraging and commuting opportunities for a broad assemblage of UK bat species.

4.1.2. The woodland blocks comprise semi-natural, ancient broadleaved woodland, coniferous plantation and ancient replanted woodland, containing mature oak Quercus sp., beech and ash trees as well as hazel *Corylus avellana*, English elm *Ulmus minor 'Atinia'*, sweet chestnut and silver birch *Betula pendula*, among other species. This diverse woodland, dense understory, woodland rides and the forest edges provide a mosaic of habitats creating rich foraging habitat, particularly for edge and clutter habitat adapted bats. These woodlands are also well connected to the wider wooded landscape of the South Downs National Park, of which Binsted Wood complex LWS comprises the southern-most extent.

4.1.3. All species of bats in the UK will utilise woodland edges and woodland rides for foraging and commuting within the wider landscape. However, 13 bat species are also known to roost in woodland trees, these include; barbastelle, Bechstein's bat, Alcathoe bat, Brandt's bat, Daubenton's bat, whiskered bat, Natterer's bat, Leisler's bat, noctule, Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle and brown long-eared bat[44]. Previous surveys and the desk study have identified roosts of three of the UK's rarest (and locally rare) species within these woodlands, the Alcathoe bat[45], barbastelle and Bechstein's bat[47].

4.1.4. It can be concluded that the woodland within the Field Survey Area is of high suitability for UK bat species and a valuable roosting resource. The woodland provides high quality roosting, foraging and commuting habitat for bats.

4.2 PRELIMINARY ROOST ASSESSMENTS

4.2.1. Twenty-one bat tree roosting locations were identified during the WSP 2017 radio-tracking surveys[46], in addition to the 12 roosts identified by MAVES[47], resulting in a minimum of 33 known tree roosts; not all of these roosts are within the Study Area.

4.2.2. Additionally, 238 trees were surveyed during the preliminary roost assessment and potential roost feature inspection surveys, identifying 32 trees of high roosting suitability and 60 of moderate roosting suitability within the Field Survey Area. These features are suitable for a mixture of maternity, hibernation, summer and occasional roost types (see Appendix C). These trees may

[44] Andrews, H. L. (2016) Bat Tree Habitat Key. AEcol Ecological Consultants.
[45] Data deficient
[46] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01
[47] Included on Figure 2 – Desk Study Records

require additional roost characterisation surveys as discussed in the Further Survey Recommendations section of this report.

4.2.3. The direct loss of the potential roost features identified will have negative effects on bats within the Field Survey Area, reducing the suitable, available roosting opportunities and therefore potentially the carrying capacity of the Field Survey Area for bats. These trees also need to be assessed collectively as a habitat, as groups of trees create features which provide an important function as connective habitat for bats travelling between the woodland and floodplain.

4.3 HIBERNATION SURVEY

4.3.1. The climbed inspections determined 66 trees suitable for hibernating bats.

4.3.2. A single barbastelle, a Habitats Directive Annex II species, was found hibernating in tree R22 in Binsted Wood. This tree is a known summer roost, which was used by Natterer's bats in summer 2017, identified during the WSP 2017 radio-tracking surveys. Movements of barbastelle are discussed further in the radio-tracking report[48] but indicates these animals are travelling from woodland north of the current A27, through Binsted Wood complex LWS to reach the floodplain both south and to the east of the River Arun.

4.3.3. Bats spend up to five months of the year hibernating, highlighting the importance of suitable hibernation sites and their conservation. It should be noted that tree roosts suitable for hibernation may also be used by bats at other times of the year if suitable for occasional summer and or maternity roosts, their importance as a roost should therefore not be undervalued.

[48] WSP (2019) A27_ECO_04.4_BAT RADIO-TRACKING_INTERIM-BASELINE_ISSUE01

5 FURTHER SURVEY RECOMMENDATIONS

5.1 WOODLAND

5.1.1. It is not proposed that any further emergence/re-entry survey or aerial inspection work is undertaken on trees within woodland. Due to the dense canopy and understory, without habitat manipulation, comprehensive surveys of potential roost features cannot be achieved. It is considered that the standard survey recommendations as per the BCT guidelines (three surveys for high potential trees, two for moderate during the bat active season) would not be sufficient to capture the presence of tree roosting species, which are known to exhibit regular roost switching behaviour. Section 6.3.6 of the BCT guidelines suggests when the efficiency and efficacy of inspection surveys are challenged, then alternative methods, such as radio-tracking, should be utilised. Radio-tracking surveys have been undertaken in 2017 and will be continued throughout the 2018 bat active season with the aim of locating further roosts within the Field Survey Area and wider landscape.

5.1.2. It is proposed that further work on roosts will commence in 2019, when a preferred route and detailed design for the Scheme is determined, and a greater understanding of information required to inform licencing requirements are obtained and agreed with Natural England.

5.2 TREES

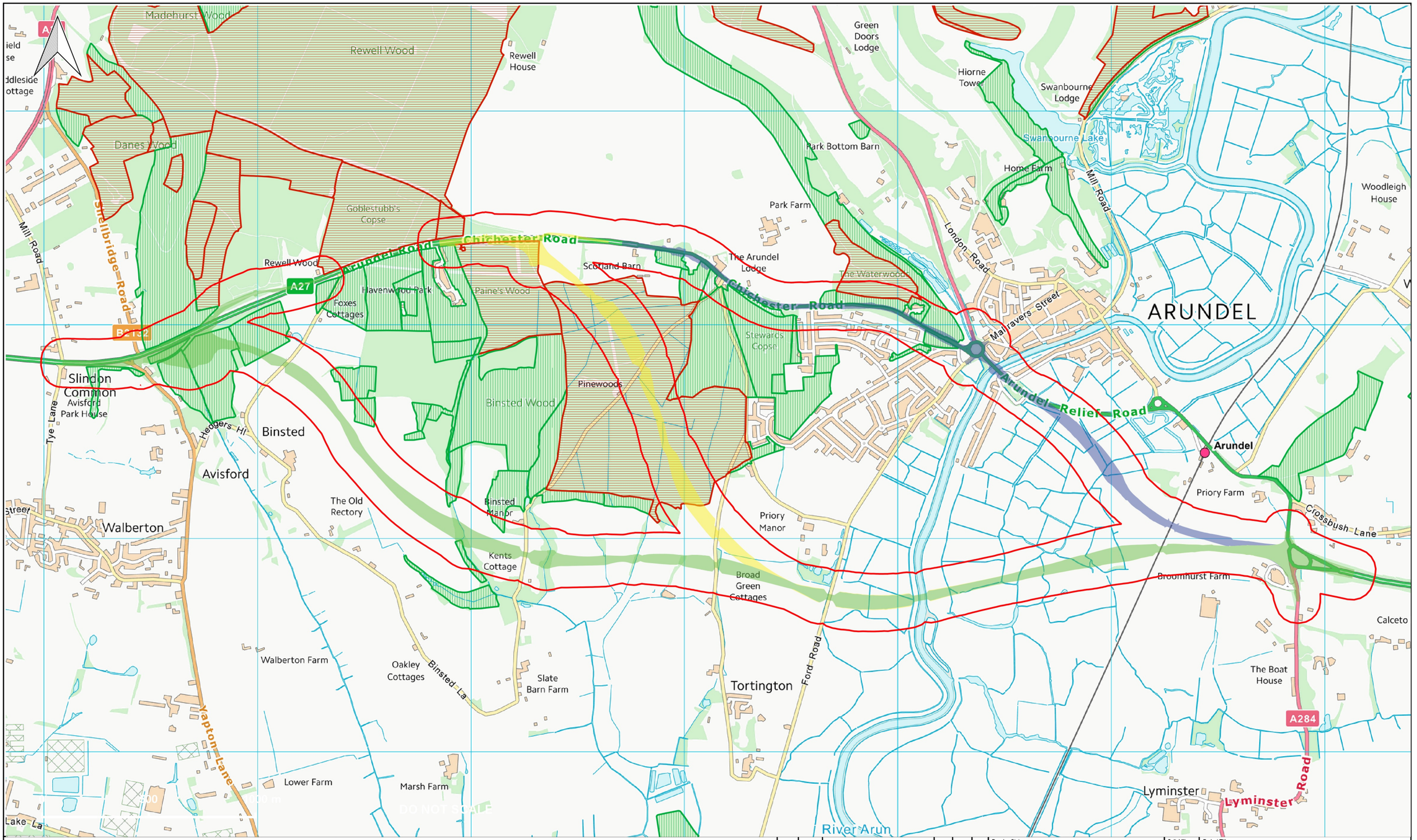
5.2.1. For potential roost features verified as moderate or high roost suitability, addition aerial inspection surveys are recommended during the bat active season in 2018 to find and characterise roosts within the Field Survey Area. Table 5-1 outlines recommended survey requirements.

Table 5-1 - Roost survey recommendations

Roost suitability	Number of surveys	Timing of surveys
Negligible/Low	None required	N/A
Moderate	One climbing inspection	May – August
High	Two climbing inspections	May – August

Appendix A

DESK STUDY DATA



KEY:

- Option 1
- Option 3
- Option 5A
- A27 100m Buffer
- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

Rev.	Date	Description	By	Chk'd	App'd
P01		FIRST ISSUE			

Drawing Status: Work In Progress
Suitability: S1

Project Title: REGIONAL INVESTMENT PROGRAMME A27 ARUNDEL

Drawing Title: APPENDIX A - Map 1: A27 WOODLAND ASSESSMENT FOR BATS

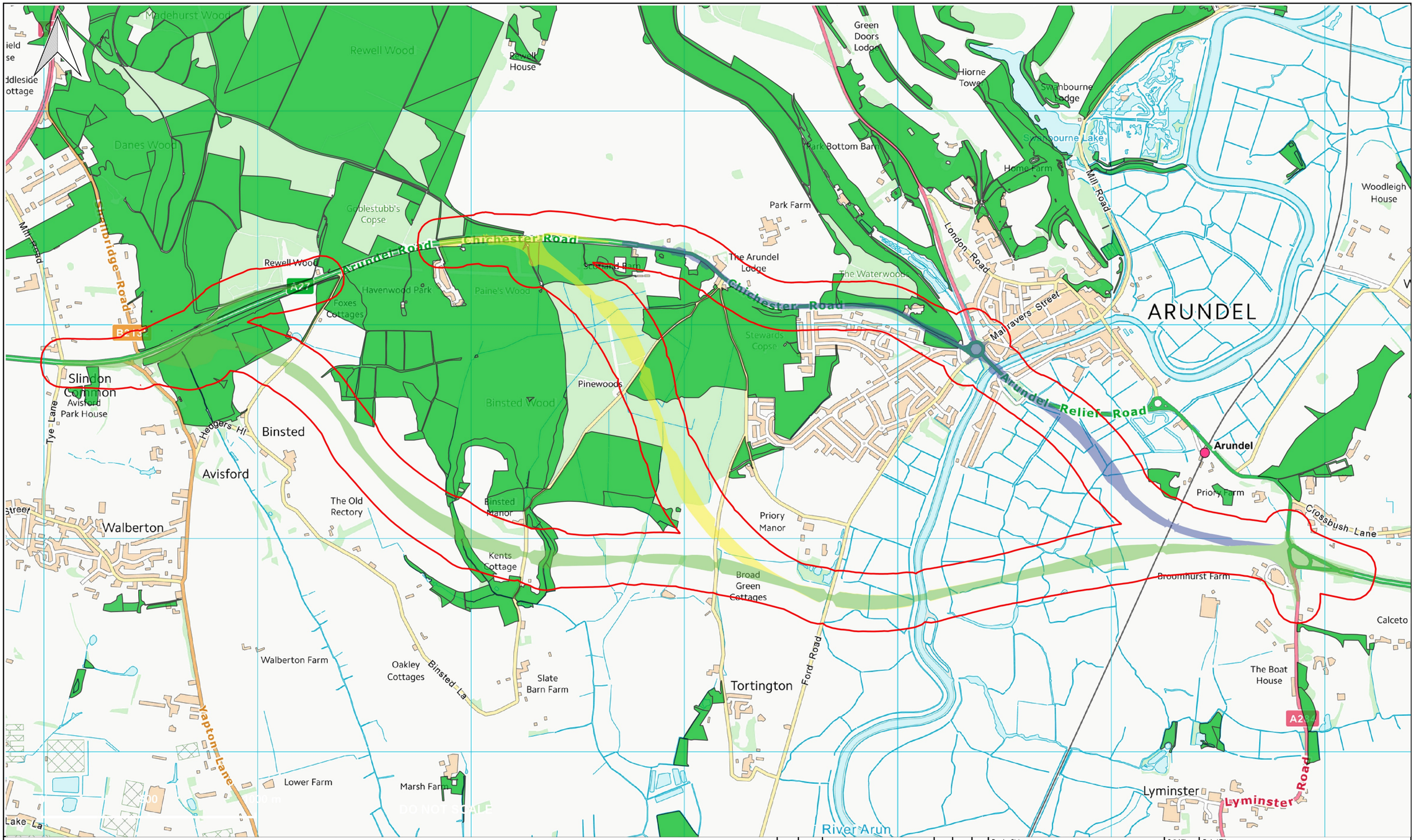
WSP House
70 Chancery Lane
London
WC2A 1AF
Tel: +44 (0)20 7314 5000
www.wsp.com

Client: Working on behalf of highways england

Scale	Drawn	Checked	Approved	Authorised
1:16,500	JR	KJ		-
Original Size	**Date**	**Date**	**Date**	**Date**
A3	04/06/18			

Drawing Number Project	Originator	Volume	Project Ref. No.
HE551523	WSP	GEN	3511134A
A27AR Location	**FI Type**	**ECO Role**	**01 Number**

Revision: P03



KEY:

- Option 1
- Option 3
- Option 5A
- A27 100m Buffer
- Deciduous woodland

Rev.	Date	Description	By	Chk'd	App'd
P01		FIRST ISSUE			

Drawing Status: Work In Progress
Suitability: S1

Project Title: REGIONAL INVESTMENT PROGRAMME A27 ARUNDEL

Drawing Title: APPENDIX A - Map 2: A27 WOODLAND ASSESSMENT FOR BATS

WSP House
70 Chancery Lane
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Client: Working on behalf of highways england

Scale	Drawn	Checked	Approved	Authorised
1:16,500	JR	KJ		-
Original Size	**Date**	**Date**	**Date**	**Date**
A3	04/06/18			

Drawing Number: Project HE551523 | Originator WSP | Volume GEN | Location A27AR | Type FI | Role ECO | Number 01

Project Ref. No.: 3511134A

Revision: P03

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Barbastella barbastellus	Western Barbastelle	[redacted]		2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Bat Survey
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Bat Survey
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Bat Survey
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2015	Bat Survey
Barbastella barbastellus	Western Barbastelle			2015	Radio-Tracked

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Barbastella barbastellus	Western Barbastelle	[redacted]		2015	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2014	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2014	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2014	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2014	Unknown
Barbastella barbastellus	Western Barbastelle			2014	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2014	Unknown
Barbastella barbastellus	Western Barbastelle			2014	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2014	Unknown
Barbastella barbastellus	Western Barbastelle			2014	Radio-Tracked
Barbastella barbastellus	Western Barbastelle			2013	Unknown
Barbastella barbastellus	Western Barbastelle			2013	Unknown
Barbastella barbastellus	Western Barbastelle			2013	Unknown
Barbastella barbastellus	Western Barbastelle			2013	Bat Trap
Barbastella barbastellus	Western Barbastelle			2016	Radio-Tracked

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Chiroptera sp.	Bat sp.	[redacted]		2015	Droppings
Chiroptera sp.	Bat sp.			2014	Roost Exit Count
Chiroptera sp.	Bat sp.			2013	Building Inspection
Chiroptera sp.	Bat sp.			2013	Building Inspection
Chiroptera sp.	Bat sp.			2013	Building Inspection
Chiroptera sp.	Bat sp.			2013	Building Inspection
Chiroptera sp.	Bat sp.			2013	Building Inspection
Chiroptera sp.	Bat sp.			2013	Building Inspection
Chiroptera sp.	Bat sp.			2012	Building Inspection
Chiroptera sp.	Bat sp.			2012	Building Inspection
Chiroptera sp.	Bat sp.			2011	Building Inspection
Chiroptera sp.	Bat sp.			2011	Building Inspection
Chiroptera sp.	Bat sp.			2011	Building Inspection
Chiroptera sp.	Bat sp.			2011	Building Inspection
Chiroptera sp.	Bat sp.			2010	Unknown

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2010	Building Inspection
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2008	Waterway transect
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2008	Waterway transect
Chiroptera sp.	Bat sp.	[redacted]	[redacted]	2007	Sunrise Survey
Eptesicus serotinus	Serotine	[redacted]	[redacted]	2016	Aural bat detector
Eptesicus serotinus	Serotine	[redacted]	[redacted]	2015	Aural bat detector

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Eptesicus serotinus	Serotine	[redacted]		2014	Droppings
Eptesicus serotinus	Serotine			2014	Aural bat detector
Eptesicus serotinus	Serotine			2014	Droppings
Eptesicus serotinus	Serotine			2014	Aural bat detector
Eptesicus serotinus	Serotine			2013	Bat Trap
Eptesicus serotinus	Serotine			2010	Field Observation
Eptesicus serotinus	Serotine			2010	Building Inspection
Eptesicus serotinus	Serotine			2009	Field Observation
Eptesicus serotinus	Serotine			2016	Radio-Tracked
Eptesicus serotinus	Serotine			2016	Radio-Tracked
Eptesicus serotinus	Serotine			2016	Radio-Tracked
Eptesicus serotinus	Serotine			2016	Radio-Tracked
Myotis sp.	Myotis Bat			2015	Aural bat detector
Myotis alcathoe	Alcathoe Bat			2016	Radio-tracking
Myotis alcathoe	Alcathoe Bat			2016	Radio-tracking
Myotis alcathoe	Alcathoe Bat			2014	Aural bat detector
Myotis alcathoe	Alcathoe Bat			2013	Bat Trap
Myotis bechsteinii	Bechstein's Bat			2012	Visual

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Myotis bechsteinii	Bechstein's Bat	[redacted]		2017	Radio-Tracked
Myotis bechsteinii	Bechstein's Bat			2017	Radio-Tracked
Myotis bechsteinii	Bechstein's Bat			2016	Radio-Tracked
Myotis brandtii	Brandt's Bat			2013	Bat Trap
Myotis brandtii	Brandt's Bat			2013	Bat Trap
Myotis daubentonii	Daubenton's Bat			2015	Aural bat detector
Myotis daubentonii	Daubenton's Bat			2015	Aural bat detector
Myotis daubentonii	Daubenton's Bat			2014	Aural bat detector
Myotis daubentonii	Daubenton's Bat			2013	Visual
Myotis daubentonii	Daubenton's Bat			2010	Unknown
Myotis daubentonii	Daubenton's Bat			2010	Unknown
Myotis daubentonii	Daubenton's Bat			2010	Unknown
Myotis daubentonii	Daubenton's Bat			2009	Field Observation
Myotis mystacinus	Whiskered Bat			2013	Bat Trap
Myotis mystacinus	Whiskered Bat			2013	Bat Trap
Myotis mystacinus/brandtii	Whiskered/Brandt's			2015	Aural bat detector

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Myotis mystacinus/brandtii	Whiskered/Brandt's	[redacted]		2015	Aural bat detector
Myotis mystacinus/brandtii	Whiskered/Brandt's			2015	Aural bat detector
Myotis mystacinus/brandtii	Whiskered/Brandt's			2014	Aural bat detector
Myotis mystacinus/brandtii	Whiskered/Brandt's			2013	Building Inspection
Myotis nattereri	Natterer's Bat			2015	Aural bat detector
Myotis nattereri	Natterer's Bat			2014	Aural bat detector
Myotis nattereri	Natterer's Bat			2013	Bat Trap
Myotis nattereri	Natterer's Bat			2010	Hibernacula Survey
Myotis nattereri	Natterer's Bat			2010	Hibernacula Survey
Nyctalus noctula	Noctule Bat			2016	Aural bat detector
Nyctalus noctula	Noctule Bat			2015	Bat Survey
Nyctalus noctula	Noctule Bat			2014	Aural bat detector
Nyctalus noctula	Noctule Bat			2010	Unknown
Pipistrellus sp.	Pipstrelle sp.			2015	Roost Exit Count
Pipistrellus sp.	Pipstrelle sp.			2014	Droppings

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Pipistrellus sp.	Pipstrelle sp.	[redacted]		2014	Droppings
Pipistrellus sp.	Pipstrelle sp.			2013	Droppings
Pipistrellus sp.	Pipstrelle sp.			2013	Building Inspection
Pipistrellus sp.	Pipstrelle sp.			2010	Unknown
Pipistrellus sp.	Pipstrelle sp.			2010	Building Inspection
Pipistrellus sp.	Pipstrelle sp.			2009	Field Observation
Pipistrellus sp.	Pipstrelle sp.			2009	Field Observation
Pipistrellus nathusii	Nathusius's Pipistrelle			2015	Aural bat detector
Pipistrellus nathusii	Nathusius's Pipistrelle			2015	Aural bat detector
Pipistrellus nathusii	Nathusius's Pipistrelle			2014	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2016	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2015	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2015	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2015	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2015	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2015	Re-entry survey

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Pipistrellus pipistrellus	Common Pipistrelle	[redacted]		2015	Re-entry survey
Pipistrellus pipistrellus	Common Pipistrelle			2015	Roost Exit Count
Pipistrellus pipistrellus	Common Pipistrelle			2015	Roost Exit Count
Pipistrellus pipistrellus	Common Pipistrelle			2015	Roost Exit Count
Pipistrellus pipistrellus	Common Pipistrelle			2015	Bat Survey
Pipistrellus pipistrellus	Common Pipistrelle			2014	Visual
Pipistrellus pipistrellus	Common Pipistrelle			2014	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2014	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2014	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2014	Field Observation
Pipistrellus pipistrellus	Common Pipistrelle			2013	Bat Trap
Pipistrellus pipistrellus	Common Pipistrelle			2013	Bat Trap
Pipistrellus pipistrellus	Common Pipistrelle			2013	Bat Trap
Pipistrellus pipistrellus	Common Pipistrelle			2013	Bat Trap
Pipistrellus pipistrellus	Common Pipistrelle			2013	heard

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Pipistrellus pipistrellus	Common Pipistrelle			2012	Building Inspection
Pipistrellus pipistrellus	Common Pipistrelle			2011	Field Observation
Pipistrellus pipistrellus	Common Pipistrelle			2011	Field Observation
Pipistrellus pipistrellus	Common Pipistrelle			2010	Unknown
Pipistrellus pipistrellus	Common Pipistrelle			2010	Unknown
Pipistrellus pipistrellus	Common Pipistrelle			2010	Unknown
Pipistrellus pipistrellus	Common Pipistrelle			2010	Aural bat detector
Pipistrellus pipistrellus	Common Pipistrelle			2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2016	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2016	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2015	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2015	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2015	Unknown

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2015	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2015	Unspecified
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2014	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2014	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2014	Aural bat detector
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2014	Unspecified
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2013	Bat Trap
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2013	Visual
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2013	Bat Trap
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2013	Bat Trap
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2013	Unspecified
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2010	Unknown

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)	[redacted]		2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2010	Unknown
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2009	Field Observation
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2009	Field Observation
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2009	Field Observation
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2009	Field Observation
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2009	Field Observation
Pipistrellus pygmaeus	Soprano Pipstrelle (55 kHz)			2008	Field Observation

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Plecotus sp.	Long-eared sp.	[redacted]		2015	Droppings
Plecotus sp.	Long-eared sp.			2015	Building Inspection
Plecotus sp.	Long-eared sp.			2014	Droppings
Plecotus sp.	Long-eared sp.			2014	Field Observation
Plecotus sp.	Long-eared sp.			2013	Droppings
Plecotus sp.	Long-eared sp.			2008	Building Inspection
Plecotus sp.	Long-eared sp.			2007	Building Inspection
Plecotus auritus	Brown Long-eared Bat			2014	Unknown
Plecotus auritus	Brown Long-eared Bat			2014	Unknown
Plecotus auritus	Brown Long-eared Bat			2014	Droppings
Plecotus auritus	Brown Long-eared Bat			2014	Bat Survey
Plecotus auritus	Brown Long-eared Bat			2013	Unknown
Plecotus auritus	Brown Long-eared Bat			2013	Unknown
Plecotus auritus	Brown Long-eared Bat			2013	Bat Trap
Plecotus auritus	Brown Long-eared Bat			2013	Droppings
Plecotus auritus	Brown Long-eared Bat			2013	Bat Trap

Scientific name	Vernacular name	Grid Reference		Year	Type
		X	Y		
Plecotus auritus	Brown Long-eared Bat	[redacted]		2013	Bat Trap
Plecotus auritus	Brown Long-eared Bat			2013	Bat Trap
Plecotus auritus	Brown Long-eared Bat			2013	Building Inspection
Plecotus auritus	Brown Long-eared Bat			2012	Building Inspection
Plecotus auritus	Brown Long-eared Bat			2012	Building Inspection
Plecotus auritus	Brown Long-eared Bat			2010	Building Inspection

Appendix B

WOODLAND ASSESSMENT DATA

Land parcel	Block	Tree species	Understory	Bat species present or likely present	Bat suitability
10415	1a Hundred - House Copse	Mature pedunculate oak *Quercus robur* woodland with occasional mature European *ash Fraxinus excelsior* up to 20 m in height. Mature silver birch *Betula pendula*, beech *Fagus sylvatica* and Sycamore *Acer pseudoplatanus* also present in woodland Approximately 205 mature oak/ash trees present 70% canopy cover	Open woodland with some understory species; Hazel *Corylus avellana*, Elm *Ulmus sp*. and Holly *Ilex aquifolium*.	Known: Common pipistrelle Soprano pipistrelle Brown long-eared bat Natterer's bat Whiskered Alcathoe bat Likely: Nathusius' pipistrelle Bechstein's bat Barbastelle Daubenton's bat, Leisler's bat	Good foraging habitat for *Myotis* sp., long-eared bats, serotine, Leisler's bat and pipistrelle species High degree of habitat connectivity to larger woodland area in the wider landscape
10415	1b Hundred - House Copse	Strip of woodland dominated by Cherry Laurel *Prunus laurocerasus* with approximately 15 mature oak and sycamore present	Open woodland with some understory species; Hazel *Corylus avellana*, Elm *Ulmus sp*. and Holly *Ilex aquifolium*.	The above known species were caught in the woodland adjacent to this block so are likely to be present.	
10415	1c Hundred - House Copse	Strip of semi-natural ancient broadleaved with approximately 24 mature oak trees. The main central area has more sycamores present and fewer mature broadleaved trees. Approximately 67 mature broadleaved trees present mainly comprised of oak and sycamore.	Dense understory -Mature hazel coppice is dominant with the occasional yew *Taxus baccata*	The above known species were caught in the woodland adjacent to this block so are expected to be present and likely present.	Tree species present are suitable for roosting bats but the understory is more cluttered
10415	2 Threecorner Copse	Semi-natural ancient broadleaved woodland. Dominated by mature beech trees and the occasional mature oak (approximately 17 in total)	No understory present	Continuous to Winchers Wood, similar species assesmblage likely to be present.	Continuous to the larger woodland block of Brick Kiln Copse Offers fewer bat roosting opportunities than Hundred house copse but foraging areas are still present Northern part of the copse is adjacent to the A27

10440	3a Western Block of Goblestubbs Copse	Ancient replanted woodland. Dominated by mature sweet chestnut *Castania sativa* coppice with hazel, holly elm and silver birch present Closed canopy	Cluttered understory	Unknown	Small area of woodland part of the larger woodland block of Goblestubbs Copse Although, its proximity to the A27 may reduce roosting and foraging opportunities
10440	3b	Ancient replanted woodland. Semi-mature Scot's pine *Pinus sylvestris* plantation with a mixture of young and semi-mature silver birch, ash, and ivy-clad Sitka spruce *Picea sitchensis*.	Cluttered woodland with limited understory and scrub layer with some close-growing beech saplings present	Unknown	Limited roosting opportunities for bats within plantation However, open rides provide good foraging and commuting habitat
10440	3c	Ancient replanted woodland A mixture of beech and ash (approximately 10 specimens), with hazel, sweet chestnut and silver birch is present on the northern edge of the woodland. Other species present include Sitka spruce Picea sitchensis and Cypress Cupressacea sp. Dense stands of sycamore saplings were present in the eastern corner of the woodland	Almost no understory or shrub layer present	Unknown	Possible habitat for roosting and foraging bats, although immediately adjacent to the duelled Block of the A27
10490	4a - north-western strip of Brickkiln Copse	Semi-natural ancient broadleaved woodland. Brick Kiln Copse has mature oak and beech trees present (approximately nine trees in total)	Holly and hazel	Continuous to 4c where 14 species are likely present, 4a is likely to support the same species	Offers fewer bat roosting opportunities than Hundred house copse but foraging areas are still present However, is in close proximity to the A27
10490	4b - northern strip of Singer's piece	Semi-natural ancient broadleaved woodland Mature oak and ash (approximately 10 trees in total)	Sweet chestnut and hazel	Continuous to 4c where 14 species are likely present, 4b is likely to support the same species	Offers fewer bat roosting opportunities than Hundred-House Copse but foraging areas are still present However, is in close proximity to the A27
10490	4c	Semi-natural ancient broadleaved woodland Mature oak and ash woodland	Hazel, holly and elm understory The woodland has a very good structure and a	Likely: Common pipistrelle Soprano pipistrelle Brown long-eared bat	Provides good roosting, foraging and commuting habitat for bats The woodland has a high degree of habitat

		Approximately 150 mature oak/ash trees present	cluttered understory	Natterer's bat Whiskered Alcathoe bat Serotine Nathusius' pipistrelle Bechstein's bat Barbastelle Daubenton's bat Leisler's bat Noctule	connectivity to larger woodland area in the wider landscape
10630 / 10685	5	Semi-natural ancient broadleaved woodland Mature and semi-mature oak, ash and willow Salix sp. Approximately 50 mature broadleaved trees	Hazel, holly, beech and field maple Acer campestre understory	Known: Brown long-eared bat Natterer's bat Whiskered Alcathoe bat Nathusius pipistrelle Daubenton's bat and soprano pipistrelle caught in woodland just to the north Likely: Bechstein's bat Barbastelle Brandt's bat Leisler's bat Serotine Noctule Common pipistrelle	Provides good roosting, foraging and commuting habitat for the seven species trapped in 2016 Possible that another eight UK bat species would be present around the woodland during the year
10860	6	Semi-natural broadleaved woodland / coniferous plantation The western and southern strip contains a mixture of mature ash, beech and sycamore The northern strip consists of mature European larch Larix decidua plantation with a semi-natural broadleaved border On the eastern side, the woodland contains the broadleaved tree species	Hazel, holly, elder Sambucus nigra, yew and hawthorn *Crateagus monogynea.*	Unknown	Bats are likely to roost in this woodland, which is connected to a larger woodland area in the north A bridleway runs between the broadleaved and coniferous areas of the woodland and provides good foraging and commuting habitat for bats

		mentioned previously with mature oaks present along the bridleway The woodland contains approximately 50 mature broadleaved trees			
11055	7	Semi-natural ancient broadleaved woodland Dominated by mature oak with mature sweet chestnut coppice, occasional silver birch, Scot's pine, holly, yew and ash Approximately 100 mature oak / ash	Dense understory of hazel The woodland has good structure	Between thirteen and fifteen UK bat species (as above) during the year	The woodland provides good roosting, foraging and commuting habitat for bats The woodland has a high degree of habitat connectivity to larger woodland area in the wider landscape
11000	8	Semi-natural ancient broadleaved woodland Dominated by mature ash, sycamore and oak Approximately 40 mature ash / oak / sycamore present	Holly and field maple understory	Between thirteen and fifteen UK bat species (as above) during the year	The woodland provides good roosting, foraging and commuting habitat for bats The woodland has a high degree of habitat connectivity to larger woodland area in the wider landscape
10940	9	Semi-natural ancient broadleaved woodland Dominated by mature ash, sycamore and oak with approximately 40 mature broadleaved trees present (Access not possible, viewed from plant nursery car park)	None recorded	Unknown	Access not permitted for hibernation surveys. Woodland more isolated than Block 8 and only has contiguity to the east and south-east, also its proximity to the A27 may limit roosting opportunities
10710	10a	Ancient replanted woodland Western part of the woodland is broadleaved plantation dominated by sweet chestnut, no other mature broadleaved trees present.	Little understory with holly present	Unknown	No potential roost features observed Limited roosting opportunities for bats due to the monoculture nature of the woodland
10710	10b	Ancient replanted woodland A ride running north to south from separates this small woodland block at	Hazel	Unknown	Foraging opportunities within the woodland would suit bats that can fly in a cluttered environment

		the eastern end, which comprises of sweet chestnut with some mature oak, silver birch and the occasional willow There is a further section of broadleaved woodland to the south that is separated by a ride running east to west and which comprises of sweet chestnut with some mature oaks Approximately 10 mature oak trees.			Open rides provide good foraging and commuting habitat and is continuous to the larger woodland block of Binsted Woods
10790	11a	Ancient replanted woodland Sweet chestnut coppice with semi-mature and mature oaks at the ride edges and occasional Scot's pine Secondary woodland with approximately 30 mature oaks present	Silver birch and hazel understory. Plantation is dense with open glades	Unknown	Open glades provide good foraging and commuting habitat and is continuous to the larger woodland block of Binsted Woods
10790	11b	Ancient replanted woodland Semi-mature Scot's pine plantation with stands of silver birch. Semi-mature oak, sweet chestnut and occasional hawthorn at edges of plantation woodland Approximately 10 mature oaks along the northern woodland edge Mature sweet chestnut, ash, cherry and beech present	The holly understory is very open between the canopy and ground level with hazel also present. Bracken dominates the herb layer	Unknown	Woodland ride through the centre of the section and a woodland ride running along the power lines. Open rides provide good foraging and commuting habitat and is continuous to the larger woodland block of Binsted Woods
10790	11c	Ancient replanted woodland Semi-mature oaks with hazel coppice Scot's pine and European larch plantation with a small stand of mature Sitka spruce	None recorded	Unknown	The mixed plantation nature of the woodland offered limited roosting opportunities for bats Foraging areas within the woodland exist in glades; with open rides providing good foraging and commuting habitat as part of the larger woodland block of Binsted Woods The location away from the A27 means that bats are likely to roost in this area

10885	12a	Ancient replanted woodland Semi-mature Scot's pine plantation with occasional mature oak and sweet chestnut present	Hazel and rhododendron Rhododendron ponticum understory that is very dense. Some woodland rides	Unknown	Woodland is away from the A27 - bats are likely to roost in this area. Foraging areas within the woodland exist through footpaths, with bridleways providing good foraging and commuting habitat as part of the larger woodland block of Binsted Woods
10885	12b	Ancient replanted woodland European larch plantation The mixed plantation nature of the woodland offered limited roosting opportunities for bats	Areas with dense hazel understory throughout and at plantation edge	Unknown	Woodland is away from the A27 - bats are likely to roost in this area Foraging areas within the woodland exist through footpaths, with bridleways providing good foraging and commuting habitat as part of the larger woodland block of Binsted Woods
10885	12, 12c and 12d	Ancient replanted woodland Old hazel coppice with occasional mature oaks and scattered Scots pine, and young to semi-mature silver birch. Some rhododendron present in Block 12c	None recorded	Unknown	Woodland is away from the A27 - bats are likely to roost in this area

Appendix C

FIELD SURVEY DATA

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
1	*A. hippocastanum*	SU 97117 06796	16	M	A	Hazard beam w/crevices	13	SE	T S	M	M	Y	N	✓	Open cavity - extends vertically for 0.8m. Mod.	M
					B	Hole at end of pruned limb	5	S	T	L				✓	Negligible	
					C	Large knot hole w/cavity	4	S	T S	M				✓	Open cavity extends in 20centimetres. Mod	
					D	Tear in midstem	4	W	T S	L				✓	Negligible	
					E	Tear in pruned limb	4	W	T	L				✓	Open covered, extends in 20centimetres. Mod.	
2	*A. hippocastanum*	SU 97128 06801	18	M	A	Knot hole	4	S	T S	M	M	Y	N	✓	Mod. 8centimetres diameter cavity leading along branch 50centimetres. Crevices above.	M
					B	Tear in one of main stems	8	S	T	L				✓	Negligible	
					C	Large vertical tear in limb w/ occluded edges. Two possible holes.	7, 4	S	T	L				✓	Low. Shallow hole at top of tear.	
3	*A. hippocastanum*	SU 97125 06808	15	M	A	2 knot holes on SW limb.	5	S	T S	M	M	Y	Y	✓	(SW limbs away from road checked) Neg. shallow, wet	N
					B	Stem tear w/ rolled edges	8	SW	T S	L				✓	Neg. up facing bowl.	
4	*Q. ilex*	SU 97258 06779	14	M	A	Large cavity at dropped limb	6	N	T S	M	M	Y	N	✓	Low	L
5	*Magnolia sp.*	SU 97221 06758	16	M	A	Large trunk cavity at base	1	E	T S H	M	M	Y	N	✓	Low, exposed.	M
					B	Large cavity in main stem	7	S	T S H	M				✓	Mod. Extends up 50centimetres.	

[50] Maternity, Hibernation, Summer, Transitional

[51] Confirmed, High, Moderate, Low, Negligible

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					C	Knot hole at end of west limb.	9	W	T S	L				✓	Low, shallow.	
					D	Knot hole at end of SW limb.	8	SW	T S	L				✓	Low, shallow.	
6	*Q. robur*	SU 98289 07332	20	M	A	Rotten hazard beam limb	15	SW	T	L	L	N	Y	X	N/A	Unsafe (N)
7	*C. sativa*	SU 98337 07267	N/A	N/A	N/A	Felled, no longer a potential roost	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
8	*Q. robur*	03051 05925	9.5	M	A	Ivy not dense	N/A	N/A	N/A	L	L	N	N	X	N/A	Not climbed (N)
9	*Q. robur*	03051 05935	9	M	A	Ivy not dense	N/A	N/A	N/A	L	M	Y	N	✓	Negligible	N
					B	Knot hole, possibly opened by woodpecker	5	NE	S H	M				✓	Negligible	
					C	Lifted bark, dead branch	6	E	T	L				✓	Negligible	
10	*F.excelsior*	TQ00571 05867	18	M	A	Knot hole on elbow of limb	9	SW	T S	M	M	Y	N	✓	Negligible, shallow	N
11	*Q. robur*	TQ00580 05857	15	M	A	Woodpecker hole	8	SE	T S H	M	M	Y	N	✓	1m up, 3 holes behind bark plates. Each goes up 15centimetres. M	M
12	*A. campestre*	98312 06770	15	M	A	Limb weld	3.5	S	T	L	L	Y	N	✓	check for rot	L
						fallen stem may have contained original feature	N/A	N/A	N/A	N/A		N/A	N/A	X	N/A	
13	*Q. robus*	SU 98323 06776	15	SM	A	Knot hole, tapering	6	SE	T	M	M	Y	N	✓	Negligible, exposed, wet, too shallow	N
14	*Q. robur*	98321 06774	20	M	A	Limb crack	8	W	T	M/L	M	Y	N	✓	Negligible, open, no hollows, exposed	N

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
15	*F.excelsior*	98360 06791	22	M	A	Woodpecker hole	15	N	T S	M	M	Y	N	✓	Negligible, shallow	N
					B	Knot hole on east stem	8	E	T S	L				✓	Negligible	
16	*Q. robur*	SU 98323 06776	20	M	A	Knot hole on main stem	5	NE	T	L	L	N	N	✓	Negligible	N
17	*F.excelsior*	98340 06796	20	SM	A	Limb tear on east stem, exposed to rain	10	W	T	L	L	Y	N	✓	Negligible	N
18	*Q. robur*	SU 98924 06050	20	M/OM	A	Dead limb with occluded bark	6	E	T S	L	M	Y	N	✓	Negligible	N
					B	Dropping limb, hazard beam	3	SE	T S	L				✓	Negligible	
					C	Knot hole on hazard beam	3	E	T S H	M				✓	Negligible	
					D	Hazard beam	3	S	T S	L				✓	Negligible	
19	*Q. robur*	SU 98934 06000	17	M	A	Tear in limb	8	NE	T	M	M	Y	N	✓	Bark of branch on the stem not seen from ground, cavity leading up 20centimetres. Damp	M
					B	Dropped limb, hazard split	12	N	T S	M				✓	Split ** leading up 20centimetres, secondary cavities	
20	*F.excelsior*	SU 98898 06205	19	M	A	Loose bark and holes on dead limb	6	SE		L/M	M	Y	N	✓	Negligible	N
21	*F.excelsior*	SU 98908 06199	21	M	A	Tear on north leader	10	N	T	L	N			✓	Negligible	N
22	*F.excelsior*	SU 98909 06173	23	M	A	Hole on main stem	9	NE	T S	M	M	Y		✓	Negligible	N
					B	Knot hole on limb	16	N	T S					✓	Negligible	
					C	Tear on main stem	17	W	T S H					✓	Negligible	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
23	*F.excelsior*	SU 98908 06199	25	M	A	Woodpecker holes x2 on dead limb	10	N	T S H	M	M	Y		✓	7centimetres diameter, 25centimetres deep, 80centimetres down, dry, good shelter	M
					B	Tear in trunk	5.5	NE	T S					✓	Negligible	
24	*Q. robur*	SU 99205 05882	23	M	A	Dead stem w/ tear and woodpecker hole	9	NE	T S H M	M	M	Y	N	✓	Moderate extends down 50centimetres and up 40centimetres and dry	M
					B	Knot hole	12	E	T S	L				✓	Negligible	
					C	Dead limb w/ gap at occluded bark	18	NE	T S	L				✓	Negligible	
					D	Woodpecker hole on middle stem	14	SE	T S H	M				✓	Negligible	
					E	Knot hole on lower limb	8	S	T S	L				✓	Negligible	
					F	Hole on bur	9	SE	T S H	M				✓	Negligible	
					G	Knot hole at base of limb	13	S	T S	L				✓	Moderate	
					H	Limb hole on dead limb	12	S	T S	L				✓	Moderate	
					I	Large woodpecker hole on live limb	17	S	T S H	M				✓	Negligible	
25	*F.excelsior*	SU 99018 05928	20	M	A	Woodpecker holes x2	12	S	T S H	M	M	Y	N	✓	Moderate, dry, back 20cm, squirrel nest	M
					B	Tear in main stem staining beneath	10	N	T S	L				✓	Negligible	
					C	Woodpecker hole	17	N	T S H	M				✓	Negligible	
26	*F.excelsior*	SU 99016 05943	21	M	A	Knot hole	15	E	T S	M	M	Y	N	✓	Negligible	N
					B	Knot hole	10	E	T S	L				✓	Negligible	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
27	*F.excelsior*	SU 98970 06017	18	M	A	Large cavity in main stem	5	N	T S H M	L/M	M	Y	N	✓	Rotten, going up 40centimetres open ** cannot read notes	M
28	*F.excelsior*	SU 98927 06115	16	M	A	Very large hole on main stem, extends up into east limb	6	N	T S H	M	M	Y	N	✓	Very open smooth dry hollow cavity extends 90centimetres up into stem secure and good for owl	H
29	*F.excelsior*	SU 98086 06762	12	M	A	Knot hole	4	S	T S H	L	H	Y	N	✓	Low, 6centimetres deep	H
					B	Knot hole	4	W	T	L				✓	Shallow	
					C	Crack	3	E	T S H M	H				✓	High suitability, dry	
30	*Q. robur*	TQ 02808 06069	12	M	A	Hazard beam w/ straight edge cut	4	SW	T	L	L	N	N	X	N/A	Not climbed (L)
					B	Horizontal tear with occluded bark w/ potential gap, deadwood in crown	4	E	T	L				X	N/A	
					C	Split at end of branch	6	E	T	L				X	N/A	
31	*Q. robur*	TQ 02646 06074	13	M	A	Holes in base of tree at roots, potential cavity	0.2	N/W	T S H M	M	M	Y	Y	✓	Negligible	N
					B	Tear in main stem staining beneath	10	NW	T	L				✓	Negligible	
					C	Occluded bark and possible cavity at base of dead branch, including lifted bark and hole on branch	5	N	T S	M				✓	Negligible	
					D	Straight cut with occluded bark and possible cavity	6	S	T S	M				✓	Negligible	
					E	lifted bark, hole in base of dead stem	4	S	T	M				✓	Negligible	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					F	Dead branch, tear beneath, loose bark	6	W	T S	M				✓	Negligible	
32	*Q. robur*	TQ00151 05967	16	SM		No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
33	*Q. robur*	TQ00176 05917	22	M	A	Basal cavity	0 to 3.5	SW	H	M-H	H	Y	Y	✓	High, smooth, dry, sheltered, extends 1m	H
34	*Q. robur*	TQ00204 05929	9	OM	A	Loose bark. Tree mostly dead, top snapped, some regeneration	0 to 2	SE	T S	M	M	Y	Y	✓	Moderate, exposed, wet, open	M
35	*Q. robur*	TQ00204 05929	19	M	A	Torn out limb, possible cavity at end	7	NE	T S H	M	M	Y	Y	✓	Low, exposed, open, wet	L
					B	Loose bark	11	NE	T S	L				✓	Low, too loose, exposed	
36	*Q. robur*	TQ00427 05900	18	M	A	Snapped limb, tear out, cavity with calloused bark rolls on top.	7	NE	T S H	M	M	Y	N	✓	Limb tear with exposed rotten heartwood. Owl pellets in base, unknown species. Well sheltered but quite open. Several secondary crevices leading up 30centimetres. Moderate	M
37	*Q. robur*	TQ00493 05902	16	M	A	Dead limb base with tear out and cavities	6	E	N/A	M	M	Y	N	✓	Loose/flaking bark with good gaps. Whole section has small crevices.	M
38	*F.excelsior*	TQ00576 05808	22	M	A	Knot hole	10	W	T S H	M	M	Y	N	✓	Negligible, damp, shallow, limited shelter	H
					B	Cavity on top of limb	10	SW	T S H	M				✓	Large cavity on top of limb that cannot be seen from the ground diagonally up. 30centimetres wide internally - high suitability. Entrance 1.5m x 20. Split down to base of limb. CANNOT BE SEEN FROM GROUND. 3m above feature A. Hibernation potential. Crow nest material at base. Goes up 2.5m from lowest point.	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
39	*Q. robur*	TQ00665 05783	15	M	A	Small hole/tear in dead limb.	8	SW	N/A	M	M	Y	N	✓	Low very exposed from the top	L
40	*Q. robur*	TQ00679 05779	16	M	A	Dead limb, underside partially torn out. Loose bark at base with minor cavities	6	E	N/A	L	L	N	N	X	N/A	Not climbed (L)
41	*Q. Robur*	TQ00169 05902	24	M	A	Limb tear out, occluded wound.	11	W	T S	M	M	Y	N	✓	Ex - 40centimetres long, 3centimetres wide, bark 6centimetres under callous roll.	M
					B	Tear	10	S	T S	L				✓	Too open, big dome -Neg	
					C	Dead limb	10	N	T S	L				✓	Too open, big dome- Neg	
42	*Q. robur*	TQ00167 05893	22	M		No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
43	*Q. robur*	TQ00161 05833	14	M	A	Wound/dead limb, central	7	S	T S H	M	M	Y	N	✓	Low, goes back 6centimetres, open, wet	M
44	*Q. robur*	TQ00151 05755	18	M	A	Limb tear out	9	W	T S H	M	M	Y	N	✓	Low, goes back 6centimetres, open, wet	M
45	*Q. robur*	SU 99625 05882	16	OM	A	Knot hole	8		T S	L	L	Y	N	✓	5cm diameter. 5cm back. Exposed	L
					B	Hazard beam	8		T S	L				✓	Exposed, 1m long	
46	*Q. robur*	SU 99624 05914	20	M		Wound in branch. Facing north	10	N	T S	M	M	Y	N	✓	Damp. Horizontal for 40cm, secure,	M
47	*Q. robur*	SU 99613 05950	16	M	A	Woodpecker hole	8	N	T S	M	M	Y	N	✓	5centimetres diameter. Wet, rough, cavity go way up 1meter. Exposed	H
					B	Cavity	2		T S	H	H	N	N	✓	Smooth, dry, clean. 10centimetres high 6cm wide. Cavity go up 12cm	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
48	*Q. robur*	SU 99628 05961	20	OM	A	Cavity on the base of dead branch	7	N	T S H	L	L	Y	N	✓	Wet. Go up 8cm. exposed	L
					B	Branch cavity	11	N	T S H	L				✓	4cm diameter. Goes back 8cm. dump, rough	
49	*Q. robur*	SU 99620 05968	18	M		Knot hole	14	S	T S	M	M	Y	N	✓	5centimetres diameter. Horizontal along the bark 12centimetres. Cylindrical chamber.	M
50	*Q. robur*	SU 99627 05976	20	M		No evidences of cavities	N/A	N/A	N/A	N/A	N	N/A	N/A	✓	Negligible	N
51	*Q. robur*	SU 99630 05990	20	M		No evidences of cavities	N/A	N/A	N/A	N/A	N	N/A	N/A	✓	Negligible	N
52	*F.excelsior*	SU 99623 05995	15	M		Woodpecker hole	5	S	T S H	N	N	Y	N	✓	Shallow	N
53	*Q. robur*	SU 99616 05990	20	M		Woodpecker hole	6	SE	T S	M	M	Y	N	✓	5cm diameter	M
54	*Q. robur*	SU 99604 05987	18	M		Tear out. Missing hard wood	8	E	T S	N	N	Y	N	✓	Too exposed. Not suitable for shelter.	N
55	*Q. robur*	SU 99600 06001	20	OM	A	Hole in vertical split from ground to 8m	12	NW	T S H	M	H	Y	N	✓	Hole with entrance 2x3centimetres. Goes up 20centimetres and goes down unknown (endoscope not long enough), Moderate potential	H
					B	Hole in vertical split from ground to 8m	8	NW	T S H	M				✓	Hole 15x5 entrance. Goes up 80centimetres, clean, dry, smooth, wedge shape at the top	
					C	Hole in vertical split from ground to 8m	6	NW	T S H	H				✓	Crevices between the dead wood and the reaction wood, one entrance is 2x6centimetres other entrance to the same cavity is	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
															2x10centimetres. Goes up 10centimetres, crevices, debris.	
					D	Hole in vertical split from ground to 8m	4	NW	T S H	M				✓	Entrance 35x2. It goes up 15centimetres, smooth, dry. Top with a wedge shape	
					E	Vertical split from ground to 8m	3	NW	T S H	M/H				✓	Open inside, It goes up 20centimetres, dry clean, smooth	
56	*Q. robur*	SU 99589 06001				No visible features					N				Not completed	N
57	*Q. robur*	SU 99593 05972	20	OM	A	Limb tear wound	8		T	M	M	Y	N	✓	Active squirrel hole. Smooth dry secure shelter. 15centimetres high till secondary access	M
					B	Knot hole on top of limb	8		T S H	L				✓	Dry smooth, secondary cavities	
58	*Q. robur*	SU 99584 05994	20	M		Crack trunk cavity, wood pecker hole	7	E	T S H M	H	H	Y	N	✓	100x2centimetres. 100back. Dry, rough, vertical	H
59	*Q. robur*	SU 99586 05995	20	OM		Bark cavity	7	E	T S H M	H	H	Y	N	✓	Entrance 3x15cm. back 20cm up 100cm. Dry, smooth, multiple crevices	H
60	*Q. robur*	SU 99395 05998	20	OM		Hazard beam. Wound in hardwood, overhanging	12	S	T S	M	M	Y		✓	Large split. Suitable shelter. Horizontal 20cm. some debris and dump	M
61	*Q.robur*	SU99742 05835	12	M	A	Dead limb large split on main stem	5	NW	T S	M	M	Y	N	✓	LOW exposed wet	L
62	*Q.robur*	SU99744 05842	14	M		No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X		N
63	*Q.robur*	SU99748 05852	14	M	A	Knot hole end of limb	9	NE	T S	M	M	Y	N	✓	LOW full of heartwood	L

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
64	*Q.robur*	SU99757 05881	13	M		No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X		N
65	*Q.robur*	SU99759 05890	17	M	A	Knot hole	8	NE	T S H	M	M	Y	N	✓	Low, shallow, damp, exposed	L
66	*Q.robur*	SU99762 05900	16	M	A	Small split in dead limb	9	NW	T S	L	L	N	N	X	N/A	Not climbed (N)
67	*Q.robur*	SU 99765 05910	17	M	A	Small hollow limb on first lateral	6	SW	T S	L	L	N	N	X	N/A	Not climbed (N)
68	*Q.robur*	SU 99770 05917	11	M	A	Large wound from base, possibly extends to crown (cant see because of ivy)	0	W	T S H	M	M	Y	N	✓	Mod nice crevices behind lower callous rolls that likely extend further up the stem assessed from ground/ladder	M
69	*Q.robur*	SU 99783 05962	17	M	N/A	No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
70	*F.excelsior*	SU 99791 05971	16	M	A	Weld/ wound x2	5.5/4	W	T S	M	M	Y	N	✓	Too open/ exposed wet both neg	N
71	*F.excelsior*	SU 99801 05990	14	M	N/A	No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
72	*Q.robur*	SU 99800 05990	16	M	A	Cavity tear out squirrel drey.	8	SE	H	M	M	Y	N	✓	A, MOD wet, slugs, in 20centimetress the two chambers that go up 30centimetres. Squirrel drey confirmed	H
					B	Cavity tear out	8	SE	H	M				✓	HIGH die back with callous roll and hollow behind. 10cm crevice goes up 50cm. sealed at the top, dry. Hibernation potential.	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
73	*F.excelsior*	SU 99972 05925	14	M	A	Basal cavity, hollow	0 to 1.5	N	H	H	H	Y	N	✓	High, secure, dry, sheltered, multiple crevices, extends 1.5m up	H
74	*F.excelsior*	SU 99984 05921	15	M	A	Basal cavity.	0 to 3	E	T S H	H	H	Y	N	✓	High, smooth, dry, secure, up 1m	H
75	*Q. robur*	TQ 00007 05920	20	M	A	Loose bark/ plates with ivy.	8	E	T S	M	M	Y	N	✓	Moderate, dry, secure	M
76	*F.excelsior*	TQ 00610 05909	18	M	A	No features	N/A	N/A	N/A	N/A	N	N	N	X	N/A	Not climbed (N)
77	*Q. robur*	TQ 00662 05898	18	M	A	Dead limb	7	N	T S	M	M	Y	N	✓	low, open, narrow	M
					B	Tear out, hollow stump	8	SE	T S H M	M				✓	15centimetres high, 12centimetres wide, quite exposed at start then dry and secure 60centimetres in.	
78	*Q. robur*	SU 99951 05837	18	M	A	Limb tear and cavity on limb	10	SE	T S H	M	M	Y	N	✓	Neg., cavity full of heartwood	N
79	*Q. robur*	SU 99937 05793	22	M	A	Limb dying back, loose bark.	9	E	T S	M	M	Y	N	✓	Low, 2centimetres deep, too shall.	M
					B	Base of same limb between bark and limb	9	E	T S	M				✓	Mod., good shelter, bit damp, 40centimetres wide, 3x4centimetres, 30centimetres deep.	
80	*Q. robur*	SU 99950 05858	22	M	A	Ivy on stem	3	N	T	L	L	N	Y	✓	Low, no plates or matting	L

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
81	*F.excelsior*	SU 99937 05826	18	M	A	Knot hole	6	NE	T S H	M	M	Y	N	✓	Mod. 15centimetres up, dry, smooth, secure	M
82	*Q. robur*	TQ 02628 05977	9.2	M	A	Tear in dead branch	2.5	W	T	L	L	N	N	X	N/A	L
83	*Q. robur*	TQ 02629 05977	N/A	N/A	A	Dead tree recently felled, stump pulled from ground	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
84	*Q. robur*	TQ 02629 05968	11	M	A	Straight cut branch, bark inclusions	5	E	T	L	L	N	N	X	N/A	Not climbed (L)
					B	Strapped branch, bark small cavity	4	S	T	L				X	N/A	
					C	Dead branch, cavity with cracks, sunlight visible through	4	NW	T	L				X	N/A	
85	*Q. robur*	TQ 02438 05875	18	M	A	Snapped top limb	3	S	T	M	L	N	N	X	N/A	Not climbed (L)
					B	Vertically snapped limb	4	W	T	L				X	N/A	
					C	Dropped limb	7	N	T	L				X	N/A	
86	*Q. robur*	TQ 02422 05884	20	M	A	Hole at branch base on main stem	6	E	T	M	H	Y	N	✓	Low suitability	H
					B	Woodpecker hole with staining underneath	11	E	T S H M	M				✓	Low suitability	
					C	Dropped branch with dark staining underneath	11	E	T S H M	M				✓	H - HIBERNATION POT.	
					D	Bird hole on limb off main stem	13	S	T S H M	M				✓	N	
					E	Dropped limb	13	S	T	L				✓	Low suitability	
87	*Q. robur*	TQ 02407 05897	18	M	A	Peeling bark on dead stem	all	S	S	L	M	Y	N	✓	Low suitability	L
					B	Peeling bark on mid stem (live)	10	N	T	L				✓	Low suitability	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					C	Peeling bark on north stem (live)	15	NW	T	L				✓	Low suitability	
					D	Peeling bark on midstem (live)	14	W	T	L				✓	Low suitability	
					E	Dropped limb with hole on branch (live)	10	W	T S	M				✓	Low suitability	
88	*Q. robur*	TQ 02376 05850	18	M	A	Peeling bark, possible cavity on limb	8	E	T S H	M	M	Y	N	✓	Low suitability	L
89	*F.excelsior*	TQ 02382 05865	18	SM	A	No features	N/A	N/A	N/A	N/A	N	N/A	N/A	✓	N/A	N
90	*Q. robur*	TQ 02384 05924	18	M	A	Snapped off branch	2	N	T S	L	L	N	N	✓	N/A	L
91	*Q. robur*	TQ 02381 05881	24	M	A	Cavity at dropped limb	7.5	W	T S H M	M	H	Y	N	✓	M	M
					B	Dead branch remaining	7	W	T S	L				✓	Negligible	
					C	Dead branch, possible cavity	10	N	T S H	M				✓	M	
					D	loose bark, possible hole at end of limb	13	NW	T S	L				✓	N	
					E	Big hole on main stem	10	NE	T S H M	M				✓	M	
92	*Q. robur*	TQ 02298 05832	17	M	A	Snapped branch with cavity	16	NE	T S H M	M	M	Y	N	✓	M	H
					B	Cavity through north stem	5.5	NE	T S	L				✓	Low suitability	
					C	Split branch (hazard), loose bark	10	S	T S H	L				✓	Low suitability	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					D	Snapped branch, possible cavity	5	N	T S H	M				✓	H - HIBERNATION POT.	
					E	Hole in north stem	11	E	T S H	M				✓	H - HIBERNATION POT.	
94	*Q. robur*	TQ 02280 05839	15	M	A	Hazard beam, split, loose bark	7	N	T S	L	M	Y	N	✓	N	H
					B	Peeling bark and holes	9	S	T S	M				✓	H - HIBERNATION POT.	
					C	Hole and loose bark	6	S	T S	L				✓	Low suitability	
95	*Q. robur*	TQ 02258 05846	15	SM	A	ivy covering main stem	2m -13	NS EW	T	M	M	Y	Y	✓	No features identified - Negligible	N
96	*Q. robur*	TQ 02085 06072	10	M	A	Large split in main stem from root to 5m	5	S	T S H	L	M	Y	N	✓	Low suitability	L
					B	Hole, possible cavity	4	S	T S H	M				✓	Negligible	
97	*Q. robur*	TQ 02059 06067	10	M	A	Vertical split on main stem, possible cavity	2.5	S	T S H	L	M	Y	N	✓	Low suitability	L
					B	Hole at base and 2.5m, possible cavity	0	S	T S	M				✓	Low suitability	
98	*Q. robur*	TQ 02000 05861	20	M	A	Hole does not extend	2	NE	T	L	L	N	N	X	N/A	L
					B	Some missing bark on dead limb	5	NE	T	L				X	N/A	
99	*Q. robur*	TQ 02019 05867	20	M	A	Hole in main stem from dropped limb, no cavity	3	W	T	L	L	N	N	X	N/A	L
					B	Some dropped and dead limbs, all vertical features, exposed to rain	5	N/A	T S	L				X	N/A	
100	*Q. robur*	TQ 02025 05866	20	M	A	Hole in main stem 15centimetres across, bird guano at entrance	3	N	T S H M	L	M	Y	N	✓	Low suitability	L

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					B	Hole on main stem, very small	5	E	T S	L				✓	Low suitability	
101	*Q. robur*	TQ 02034 05862	18	M	A	No visible features	N/A	N/A	N/A	N/A	N	N	N	X	N/A	Not climbed (N)
102	*Q. robur*	TQ 02041 05863	10	M	A	Hole at 4m joins to hole on south, extends internally up to 7m and open at top. Water stains at base of hole.	4	N	T S	L	L	N	N	X	Extensive water damage, not climbed	Not climbed (N)
103	*Q. robur*	TQ 02058 05860	15	M	A	Snapped limb, possible cavity	6	E	T S	L	L	N	N	X	N/A	Not climbed (L)
104	*Q. robur*	TQ 02082 05853	13	M	A	Split in main stem from base to 3.5m with possible cavity above.	0 to 3.5	S	T S	M	M	Y	N	✓	Low suitability	L
105	*Q. robur*	TQ 02084 05814	20	M	A	Split on main stem	2	S	T S	M	M	Y	N	✓	Negligible	N
106	*Q. robur*	TQ 02084 05790	20	M	A	Possible crevice along limb with missing bark	5	N	T S	M	M	Y	N	✓	Negligible	N
					B	Hole in main stem	1	S	T S	M				✓	Negligible	
107*	*Q. robur*	TQ 02105 05866	15	M	A	Barn owl pellets x2 at base of tree	0	S	T S	L	M	Y	N	✓	Low suitability	L
					B	Hole in stem with bird guano on edge and white fluffy feathers inside	3	S	T S	L				✓	Negligible	
					C	Hole on vertical stem with possible cavity	9	S	T S	M				✓	Low suitability	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					D	Corvid nest	12	Centre	N/A	N/A				✓	Negligible	
108*	*Q. robur*	TQ 02109 05868	15	M	A	Small round hole from fallen branch.	6	E	T S	L	L	N	N	✓	Negligible	N
					B	Bark missing from limb, not suitable all healed	6	N	T S	L				✓	Negligible	
109	*Q. robur*	TQ 02140 05863	15	M	A	Multiple dead limbs, possible cavities at end of branch	4	N	T S	M	M	Y	N	✓	Low suitability	L
110	*Q. robur*	TQ 02174 05872	11	M	A	Multiple dropped limbs and cavities	5	N/E	T S H M	M	M	Y	N	✓	Low suitability	H
					B	2 branches missing and vertical cavity	5.5	S	T S	L				✓	Low suitability	
					C	Vertical cavity with internal rot	0.5 to 2.5	S	T S	L				✓	H - HIBERNATION POT.	
111	*Q. robur*	TQ 02179 05896	10	SM	A	Dying limb with loose bark	4.5	SW	T S	L	M	Y	N	✓	Low suitability	L
					B	Crevices, loose bark and possible cavity	10	S	T S	M				✓	Low suitability	
112	*Q. robur*	TQ 02189 05901	18	M	A	Hole 15centimetres across in main stem, bird nest	4	SE	T H M	M	M	Y	N	✓	Low suitability	L
					B	Branch cut off, possible hole above, main stem	5	NE	T S	L				✓	Negligible	
					C	Hole on vertical limb	10	W	T S H	L				✓	Negligible	
					D	Small hole in main stem	4	SE	T S	L				✓	Negligible	
113	*Q. robur*	TQ 02137 06084	12	M	A	Large hole at base of main stem, 1m long, possible cavity	1	N	T S H M	M	M	Y	Y	✓	Low suitability	L

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
114	*Q. robur*	TQ 02141 06079	15	M	A	Numerous dropped limbs on main stem with loose bark and crevices	6	NE/ SW	T S	L	L	Y	N	✓	Low suitability	L
115	*Q. robur*	TQ 02150 06081	18	M	A	Hole from dropped limb	4.5	NE E	T S H	M	M	Y	N	✓	M	L
					B	Numerous dropped limbs on S/SE with loose bark	4	S/S E	T S	L				✓	Low suitability	
116	*Q. robur*	TQ 02177 06087	17	M	A	Bark missing on limbs and stem over many areas	8	E	T	L	M	Y	N	✓	Low suitability	L
					B	Hazard beam limb	8	SW	T S	M				✓	Low suitability	
117	*Q. robur*	TQ 02187 06090	18	M	A	Hole on east pointing stem, with dark staining	12	S	T S H	M	M	Y	N	✓	Negligible	N
118	*Q. robur*	TQ 07195 06095	20	M	A	Hole on main stem	9	N	T S H	L	M	Y	N	✓	Negligible	N
					B	Possible cavity on main stem (dropped limb)	7	NE	T S H	M				✓	Negligible	
					C	Dropped limb on main stem	9.5	W	T S	L				✓	Negligible	
119	*Q. robur*	TQ 02214 06090	20	M	A	Limb wound (drop) with possible cavity	12	W	T S H	M	M	Y	N	✓	M	M
120	*Q. robur*	TQ 02246 06067	15	M	A	Hole on main stem	4	NW	T S H	M	M	Y	N	✓	H - HIBERNATION POT.	H
					B	Limb wound on main stem	9	E	T S H	M				✓	H - HIBERNATION POT.	
					C	Hole at base of main stem	0.5	E	T S H	L				✓	H - HIBERNATION POT.	

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121	*Populus sp.*	TQ 02245 06207	25	M	A	Main stem wound with hole at apex	18	NW	T S H	M	M	Y	Y	X	UNSAFE TO CLIMB	UNSAFE (M)
					B	Hole into cavity next to remaining limb	6	SW	T S H	M				X	UNSAFE TO CLIMB	
122	*Populus sp.*	TQ 02244 06204	30	M	A	Hole in side limb	8	SE	T S H	M	M	Y	Y	X	UNSAFE TO CLIMB	UNSAFE (M)
					B	Big hole on southern limb	15	S	T S	L				X	UNSAFE TO CLIMB	
					C	possible cavity on southern limb	17	S	T S H	L				X	UNSAFE TO CLIMB	
123	*Q. robur*	TQ 01939 06300	20	M	A	Hazard beam split	10	E	T S	L	L	N	Y	X	N/A	L
124	*Q. robur*	TQ 01986 06292	20	SM	A	No visible features	N/A	N/A	N/A	N/A	N	N/A	N/A	X	N/A	Not climbed (N)
125	*Q. robur*	TQ 02108 06314	20	M	A	Hole from dropped limb	6	E	T S H	M	M	Y	N	✓	M	L
					B	Snapped branch, possible cavity	4	E	T S H	L				✓	Low suitability	
126	*Q. robur*	TQ 02125 06320	12	M	A	Hole on main stem, possible cavity	3.5	W	T S H M	M	M	Y	N	✓	Negligible	N
					B	Twisted limb snapped off	7	W	T S	L				✓	Negligible	
					C	Dropped limb	6.5	E	T S	L				✓	Negligible	
127	*Q. robur*	TQ 02051 06372	22	M	A	Possible cavity in dropped limb	8	W	T S H	M	M	Y	N	✓	Negligible	N
128	*Q. robur*	TQ 00466 07136	25	M	A	Large frost crack in limb with callused edges x2	10 & 12	E	T S	M	M	Y	N	✓	Low suitability	H
					B	Fallen limb with callused edges	4	S	T S	M				✓	M	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					C	Large holes at dropped limb with desiccation fissures	4	S	T S H	M				✓	H - HIBERNATION POT.	
					D	Knot hole and crack in limb	10	SW	T S	L				✓	Low suitability	
					E	Loose bark on limb	10	W	T S	L				✓	Low suitability	
					F	2x knot hole on west limb	11	S	T S	L				✓	Low suitability	
129	*Q. robur*	TQ 00494 07137	20	M	A	Dead limb with gaps at base	8	E	T S	M	M	Y	N	✓	Low suitability	M
					B	Dropped limb, callused edge	12	E	T S	M				✓	Low suitability	
					C	Trunk cavity at dropped limb	4	E	T S	M				✓	Low suitability	
					D	Loose bark under large broken limb	4	SW	T S	M				✓	Low suitability	
					E	Broken limb callused edges	17	SW	T S	M				✓	M	
130	*Q. robur*	TQ 00500 07140	18	M	A	Dying limb with loose bark and cracks	3	SW	T	L	M	Y	N	✓	Low suitability	L
					B	Knot hole	6	SW	T S H	M				✓	Low suitability	
131	*Q. robur*	TQ 00543 07121	25	M	A	Broken limb	6	S	T S	M	M	Y	N	✓	Low suitability	L
					B	Broken limb with fissures	12	SE	T S	M				✓	Low suitability	
					C	Dead limb, loose bark at base	11	SW	T S	M				✓	Low suitability	
					D	Broken limb x2	10	N	T S	L				✓	Low suitability	
					E	Dead limb	8	E	T S	L				✓	Low suitability	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
132	*Q. robur*	TQ 00553 07096	25	M	A	Dropped limb	12	W	T S	M	M	Y	N	✓	Low suitability	L
					B	Large dropped limb with fissures	14	W	T S	M				✓	Low suitability	
					C	Dead limb, lifted bark	14	NE	T S	M				✓	Low suitability	
					D	Broken limb with fissures	13	NE	T S	M				✓	Low suitability	
133	*Q. robur*	TQ 00494 07104	24	M	A	dropped limb hazard beam	8	S	T S	M/H	H	Y	N	✓	Low suitability	H
					B	Dropped limb hole on main stem	8	W	T S	L				✓	Low suitability	
					C	Frost damage split limb	9	S	T S	L				✓	Low suitability	
					D	Dead limb hazard beam	9	W	T S	L				✓	Low suitability	
					E	Dead limb with loose bark	12	W	T S	L				✓	Low suitability	
					F	dropped limbs with occluded edge	12	NE	T S	L				✓	Low suitability	
					G	Very large trunk cavity with hole at top	2 to 5	E	T S H	M				✓	H - HIBERNATION POT.	
					H	Knot hole	6	SE	T S	L				✓	Low suitability	
134	*Q. robur*	TQ 00491 07102	25	M	A	Knot hole at base of limb	10	S	T S	M	M	Y	N	✓	Low suitability	L
					B	Dead, cracked limb with fissures	9	S	T S	L				✓	Low suitability	
					C	Dropped limb hole on main stem	14	SW	T S	L				✓	Low suitability	
					D	Torn off limb with fissures - same limb dead limb with loose bark	15	E	T S	L				✓	Low suitability	
135	*Q. robur*	TQ 00508 07096	25	M	A	Dropped limb, callused edges, 2nd dropped limb 2m higher up same limb	16/ 18	NE	T S	M	M	Y	N	✓	Negligible	N
					B	Dropped limb (south limb)	18	E	T S	L				✓	Negligible	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
136	*Q. robur*	TQ 00123 07173	21	M	A	Broken limb with fissures	6	S	T S	M	M	Y	N	✓	Negligible, damp	M
					B	Hazard beam, loose bark and fissures	9	S	T S	M				✓	Moderate, dry, crevice goes up 30cm	
137	*Q. robur*	SU 99520 07264	12	SM	A	Knot hole	3	SW	T S	M	M	Y	N	✓	H - HIBERNATION POT.	H
					B	Vertical split downwards into tree	7	E	T	L				✓	Negligible	
					C	missing bark, dead branch	8	N	T S	M				✓	Negligible	
					D	Twist and tear	8	W	T S	M				✓	Negligible	
138	*Q. robur*	SU 99525 07250	12	M	A	Knot hole	8	N	T	L	L	N	N	✓	N/A	L
139	*Q. robur*	SU 99526 07294	21	M	A	Split along top of mid limb	7	N	T	L	L	N	N	✓	N/A	L
140	*F.excelsior*	SU 99523 07306	23	M	A	Dense ivy cover from 1m up, approximately 5centimetres thick, 1 inch gap behind	1 to 15	E	T S	M	M	Y	N	✓	Low suitability for T S	L
141	*Q. robur*	SU 99544 07369	24	M	A	Hole in pruned limb	2.5	E	T	L	L	N	N	✓	N/A	L
142	*F.excelsior*	SU 99581 07331	20	M	A	Woodpecker hole on main stem x2	10	W	T S	M	M	Y	N	✓	Negligible	N
143	*F.excelsior*	SU 99621 07279	22	M	A	Hazard beam, limb now dropped, hung in nearby tree	10 & 20	N	T	L	L	N	N	✓	N/A	L
144	*Q. robur*	SU 99636 07310	10	M	A	Lifted bark	2 to 4	S	T	L/M	M	Y	Y	X	UNSAFE TO CLIMB	UNSAFE (M)

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					B	Fissure on limb	3 to 4	S	T	L/M				X	UNSAFE TO CLIMB	
					C	Hole at base of limb	7	S	T	M				X	UNSAFE TO CLIMB	
145	*F.excelsior*	SU 99620 07324	22	M	A	Limb hole at end	10	E	T S	M	M	Y	N	✓	Negligible	N
146	*F.excelsior*	SU 99608 07333	22	M	A	Hazard beam.	5	N	T	L	L	N	N	✓	N/A	L
A1	*Q. robur*	TQ 02204 05857	20	SM	A	No visible features				L	L	N	N	X	N/A	Not climbed (L)
A2	*Q. robur*	TQ 02072 06309	16	SM	A	Ivy coverage immature, no other features likely				L	L	N	N	X	N/A	Not climbed (L)
A3	*Q. robur*	TQ 02045 06300	18	SM	A	No visible features				L	L	N	N	X	N/A	Not climbed (L)
A4	*Q. robur*	TQ 01951 06294	18	M	A	No visible features				L	L	N	N	X	N/A	Not climbed (L)
A5	*Q. robur*	TQ 02140 05863	15	M	A	Hazard beam, not suitable	6	N		L	L	N	N	✓	NEGLIGIBLE	N
A6	*Q. robur*	TQ 02085 05836	20	M	A	No features				L	L	N		X	N/A	Not climbed (L)
A7	*Q. robur*	TQ 01995 05848	20	M	A	Lifted bark on dead limb, open to prevailing wind	4	SW	T	L	L	N		X	N/A	Not climbed (L)

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A8	*Q. robur*	TQ 02645 06056	9.4	M	A	Live tree with tears in dead branch	2.5	W	T	L	N			✓	NEGLIGIBLE	N
A9	*Q. robur*	TQ 02622 05935	11	SM	A	Dead sections on branch, long, open cavity, hazard beam split and tear	4	E	T	M	M	Y	N	✓	H - HIBERNATION POT.	H
					B	Knot hole	4	S	T	M					H - HIBERNATION POT.	
A10	*Q. robur*	TQ 02624 05927	10	M	A	Bark missing from main stem, cracks to cambium, lifted bark	2 to 10	NW	H S	M	M	Y	Y	✓	LOW	L
					B	Missing branch, bark included	12	NW	H S	M				✓	LOW	
					C	Split from base, joined to feature 'A' missing bark, lifted bark	n/a	S to N	S	M				✓	LOW	
A11	*F. sylvatica*	SU 99519 07276	20	M	A	Fold in bark of main stem, possible crevice	6	N	T	L	L	N	N	X	N/A	Not climbed (L)
					B	Canker, bark lifted on main stem	0 to 2.5	E	T	L				X	N/A	
					C	Knot hole x4	4, 5, 15, 11	SE, E	T	L				X	N/A	
A12	*F.excelsior*	SU 99527 07314	13	SM dead	A	Desiccation fissure, rotten heartwood on main stem	0 to 3	S	H S T	M	M		Y	X	N/A	Unsafe (M)
A13	*F.excelsior*	SU 99532 07321	23	M	A	Rotten heartwood of main stem with large trunk cavity, multiple gaps	0 to 1	SE	H S T	M/H	H	Y	N	✓	NEGLIGIBLE	N
					B	Knot hole	11	W	H T	M				✓	NEGLIGIBLE	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					C	Fissure from dropped limb	12	W	H T	M				✓	NEGLIGIBLE	
					D	Woodpecker holes x2	13	SW	H T	M				✓	NEGLIGIBLE	
					E	Callused underside of limb	5	N	S T	M				✓	NEGLIGIBLE	
					F	Limb weld w/ possible cavity	5	N	S T	M				✓	NEGLIGIBLE	
A14	*F.excelsior*	SU 99532 07321	23	M	A	Dense ivy cover, gaps between ivy and trunk	1 to 4	N	S T	M	M	Y	N	✓	NEGLIGIBLE	N
					B	Knot hole	7	E	S T	L				✓	NEGLIGIBLE	
A15	*A. campestre*	SU 99523 07353	19	M	A	Split in limb w/ callused sides, vertical fissure	5 to 6	E	T	M	M	Y	N	✓	NEGLIGIBLE	N
A16	*F.excelsior*	SU 99528 07347	23	M	A	Large knot hole on main stem.	19	E	H S T	M	M	Y	N	✓	NEGLIGIBLE	N
					B	Small knot hole on corner of south-east limb	15	SE	S T	M				✓	NEGLIGIBLE	
					C	Hole on main trunk at base of limb, possible cavity	10	NE	S T	M				✓	NEGLIGIBLE	
A17	*F.excelsior*	SU 99577 07344	22	M	A	Main stem hollow at base, cavity extends up	0 to 2	S	M H S T	M/H	M	Y	N	✓	MODERATE	M
A18	*F.excelsior*	SU 99643 07288	20	M	A	Hole in limb, possible cavity, callused edges	7	S	T	M	M	Y	N	✓	LOW	L
A19	*Q. robur*	SU 99805 07282	10	M	A	Woodpecker hole	8.5	E	H S T	M/H	H	Y	N	✓	H - HIBERNATION POT.	H
					B	Loose bark	8	E	H S T	M				✓	H - HIBERNATION POT.	
A20	*Q. robur*	SU 99788 07297	26	M	A	Multiple hazard beams x4	8, 11,	S, SW,	T	M	M	Y	N	✓	H - HIBERNATION POT.	H

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
							11, 8	E, W								
A21	*Q. robur*	SU 98332 06786	18	SM	A	Welded stem w/ calluses	5	W	T	L	L	N	N	✓	NEGLIGIBLE	N
A22	*Q. robur*	SU 00128 07230	22	M	A	Broken vertical stem	18	N	T	L	L	N	N	✓		L
A23	*Q. robur*	SU 00107 07220	20	M	A	Ivy coverage	3	E	T	L	L	N	N	✓		L
A24	*Q. robur*	TQ 00143 07177	20	M	A	Woodpecker hole on main stem	7	E	H S T	M	M	Y	N	✓	Goes back 35cm, smooth sides, large, dry - moderate HIBERNATION POT.	M
					B	Snapped limb	10	E	T	M				✓	N	
A25	*A. pseudoplatanus*	TQ 00152 07166	20	M	A	Woodpecker hole	4	W	H S T	M	M	Y	N	✓	N	N
A26	*Q. robur*	TQ 00193 071154	15	SM dead	A	Multiple knot holes	5 to 9	E	H S T	M	M	Y	N	✓	N	N
					B	loose bark	5 to 9	E	S T	M				✓	N	
A27	*F. sylvatica*	TQ 00191 07152	22	SM	A	2 flute holes	8	N	H S T	M	M	Y	N	✓	N	N
A28	*F. sylvatica*	TQ 00236 07136	11	SM	A	Frost damage with small access into cavity, top exposed	11	S	T	L	L	N	N	✓	N	N

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A29	*A. pseudoplatanus*	TQ 00222 07165	18	SM	A	Holes in main stem, frost damage	8	S	S T	M	M	Y	N	✓	N	N
A30	*Q. robur*	TQ 00288 07138	25	M	A	Large frost damage stem on west limb	14	N,	H S T	M	M	Y	N	✓	N	N
					B	hazard beam with fissures	14	N	T	L				✓	N	
					C	broken limb with loose bark and gaps around calluses	20	W	T	L				✓	N	
A31	*Q. robur*	TQ 00289 07148	22	M	A	2 knot holes on dead branch with loose bark	10	NE	T S H	M	M	Y	N	✓	N	N
A32	*Q. robur*	TQ 00294 07112	25	M	A	Knot hole	10	S	T S H	M	M	Y	N	✓	N	N
					B	hazard beam	17	N	T	L				✓	N	
A33	*Q. robur*	TQ 00328 07110	20	M	A	Large knot hole	12	SW	T S H	M	M	Y	N	✓	N	N
A34	*C. sativa*	TQ 00325 07108	16	M	A	2 large knot holes with large fissures between	10 to 12	S	T S H	M	M	Y	N	✓	N	N
A35	*F.excelsior*	TQ 00328 07114	20	M	A	Gaps under bark at base of west limb. B: dropped limb hole	10, 10	SW, N	T S	M	M	Y	N	✓	N	N
A36	*Q. robur*	TQ 00328 07091	20	M	A	Large fissure	15	SE	T S	M	M	Y	N	✓	N	N
A37	*Q. robur*	TQ 00392 07075	15	M	A	Knot hole	7	NW	S	L	L	N	N	✓	N	N
					B	Loose bark	7	NW	S	L				✓	N	

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A38	*F.excelsior*	TQ 00411 07059	20	M	A	Knot hole with calluses edges	11	E	T S	M	M	Y	N	✓	N	N
A39	*Q. robur*	TQ 00430 06981	17	M	A	Knot hole	12	SE	T S H	M	M	Y	N	✓	Crevice east 5m, limited shelter, low suitability. Feature 7m with mod suit. Extends 20centimetres with dry dusty dome and secondary crevices lead up 5cm. Hole at 5m on north with low suit.	M
A40	*C. sativa*	TQ 00450 06995	20	M	A	Knot hole	12	S	T S	M	M	Y	N	✓	Low	L
					B	Knot hole	12	E	T S	M				✓	Low	
A41	*Q. robur*	TQ 00446 07035	14	M	A	Holes and loose bark	11	NE	T S	M	M	Y	N	✓	Calluses bark edged leading 40centimetres, semi secure at base leading up additional 40, into secure crevice	M
A42	*Q. robur*	TQ 00440 07024	20	M	A	Lifted bark at base of limb	10	S	T S	M	M	Y	N	✓	Goes in about 30centimetres, dry, secure M	M
					B	Knot hole on underside of limb	10	S	T S					✓	5centimetres diameter entrance up 20centimetres, in 10cm, sludge in bottom. Dry, rough, some wood lice. M	
					C	2 holes on underside of north branch	18	S	T S					✓	L	
					D	bark partially stripped from branch with gap underneath	18	S	T S					✓	Goes up vertically, dry, secure, deadwood and detritus inside. Open on the top so only an M	
A43	*Dead - bark missing*	TQ 00409 07015	20	M	A	Multiple woodpecker holes	9 to 10	SE, S	T S	M	M		Y	X	DEAD TREE NOT SAFE TO CLIMB	UNSAFE (M)

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A44	*Q. robur*	TQ 00403 07008	20	M	A	Dead limb with fissures and occluded edges	12	N	T S	L	L	N	N	✓	N/L	M
					B	Tear in main stem creating vertical cavity	1	SW	T S					✓	Dry secure, sheltered, hibernation potential. 4centimetres between bark and heartwood. Goes up over 2m. 20centimetres wide inside.	
A45	*Q. robur*	TQ 00403 07014	19	M	A	Tear in west limb near base, possible cavity	11	E	T S	M	M	Y	N	✓	N/L	M
					B	Hazard beam split with vertical fissures	16	S	T S					✓	Dry, approximately 20centimetres long 4centimetres wide M	
A46	*Q. robur*	TQ 00408 07019	18	M	A	Tear on south limb with woodpecker hole within	11	S	M H S T	M	M	Y	N	✓	Extends 1 m dry smooth, high potential	H
					B	2 large tears in main stem with possible holes at top	11 & 7	E						✓	Extends 1 m smooth but wet and moderate	
					C	Tear with woodpecker hole in branch	11	N						✓	L	
					D	Woodpecker hole in main stem	12	W						✓	L	
A47	*Q. robur*	TQ 00377 07033	20	M	A	Tear in south-west limb with hole.	16	NE	S T	M	M	Y	N	✓	L	L
					B	Occluded bark with gap next to heartwood	11	SE						✓	L	
					C	Fissure on dead limb	7	N						✓	Sheltered not secure, good low	
A48	*Q. robur*	TQ 00360 07026	22	M	A	2 holes on dead limb	11	N	S T	L	L	N	N	✓	Hollow branch 1m long exposed dry smooth open, mod. Transitional	M
A49	*F.excelsior*	TQ 00382 07039	18	M dead	A	Woodpecker hole	7	W	S T	L	L	N	Y	✓	Not safe to climb	UNSAFE (L)

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A50	*F.excelsior*	TQ 30038607041	18	M	A	Tear from ground to 1m extending up inside tree	1	NW	H	M	M	N	N	✓	Leads up 1m into hollow stem, very rotten damp, secure mod, high hibernation suitability	M
A51	*F.excelsior*	TQ 00367 07045	21	M	A	Knot hole main stem	7	W	S T	L	L	Y	N	✓	N	N
A52	*C. sativa*	TQ 00342 07030	17	M	A	Large woodpecker hole and 4 smaller above.	3	N	M H S T	M	M	Y	N	✓	Hole with cobwebs, 15centimetres with domed apex, sheltered, dry, moderate suitability.	M
					B	Lifted bark on largest stem with gap.	6	NW	S T	M				✓	Heart wood limited shelter low suitability	
A53	*Fraxinus excelsior*	TQ 00336 07040	19	M	A	Woodpecker hole on main stem	6	S	H S T	M	M	Y	N	✓	High, 20 centimetres dry secondary crevices	H
					B	Woodpecker hole on limb	7	S	H S T					✓	Low	
					C	Hole at dropped limb on main stem	8	NW						✓	Low	
					D	Woodpecker hole in main stem	10	NE						✓	20centimetres in up, dry sheltered, smooth 4centimetres wide, high.	
A54	*F.excelsior*	TQ 00344 07074	13	SM	A	Hole on main stem	12	N	S T	M	M	N	Y	✓	Low	L
A55	*Q. robur*	TQ 00316 07052	19	M	A	Knot hole	8	S	H S T	M	M	Y	N	✓	Dead insects, one main cavity with drey. Sub cavity with L potential	M
					B	Hazard beam	12	N	S T	L				✓	Sheltered gap narrow, no bigger than 3 centimetres, dry	
A56	*Q. robur*		18	M	A	Loose bark	8.5	S	T	L	L	Y	N	✓	Go in 5cm, wet, secure, expose	L

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														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
		TQ 00308 07087			B	Hole and occluded bark at base of dead limb	13	E	H S T	L				✓	3centimetres deep, wet, expose, shallow	
A57	*Q. robur*	TQ 00277 07077	22	M	A	Tear in centre of main stem	Mid	5	M H S T	M/H	M	Y	N	✓	Shallow, exposed, damp in the south side. The north side has a crack clean, dry, secure, go up 60cm	M
					B	Tear on limb	S	10	S T	M				✓	Tear out 15, 2cm wide, into the tree 4centimetres and go up 2cm, dry, small. Low	
					C	Dead limbs with fissures and loose bark	E	8	T	L				✓	Hole in the mid branch, clean, dry, open at the other end	
					D	Tear on limb with hole	N	12	S T					✓	Negligible	
A58	*C. sativa*	TQ 00202 07098	23	M	A	Woodpecker hole	4.5	N	H S T	L/M	M	Y	N	✓	Negligible	N
					B	Knot hole	6	W	S T					✓	Negligible	
					C	Dead limb with occluded bark	10	W	T					✓	No features or cavities. Negligible	
A59	*Q. robur*	TQ 00173 07133	22	M	A	Dropped hazard beam next to road	6	W			M	Y	N	✓	Dry, shelter, exposed. Go back 20cm horizontal. 3cm high	M
					B	Dropped hazard beam	12	NE						✓	Negligible	
A60	*Q. robur*	TQ 005520 070053	20	M	A	Possible large hole in stem, difficult to see	12	S	T S	M	M	Y	Y	✓	Low	M
					B	Felled branch and occluded bark w/ possible hole	8	W	T S	L				✓	Moderate	
					C	Hazard beam split facing road	12	N	T S	M				✓	Low	
A61	*Q. robur*	TQ 00515 07072	20	M	A	Multiple dead branches in crown. No visible features from ground but age and	0 - 20	N E S W	T S	L	L	N	Y	N/A	N/A unsafe to climb	UNSAFE (L)

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey: BT1 feature	Inspection survey: Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	Tree category after climb
						maturity w/ potential for features higher up.										
A62	*Q. robur*	TQ 00499 07002	15	dead	A	Standing dead wood, woodpecker hole	4	SE	T S H M	M	M	N	Y	X	Unsafe to climb - pealing bark, numerous roosting places over stem	UNSAFE (L)
					B	Woodpecker hole	5	SE	T S H M	M				X		
					C	Lifted bark over whole stem	1 to 10	S & W	T S	L				X		
A63	*C sativa*	TQ 00482 07010	11	SM	A	3 leaders, main leader has vertical tear in stem	0.5 to 1.5	E	T S	M	L	N	Y	X	Feature checked from ground	L
A64	*Q. robur*	TQ 00462 07032	20	M	A	Tear in branch w/ hole in inner wood	11	SE	T S	M	M	Y	N	✓	Low	M
					B	Cracks in side branch	9	S	T S	L				✓	Negligible	
					C	Fallen branch, occluded bark	7	N	T S	L				✓	Squirrel present on apex, moderate suitability without squirrel	
A65	*F.excelsior*	SU 98345 06777	18	M	A	Woodpecker hole	7	E	T S H		L	Y	N	✓	Low, too shallow	L
A66	*F.excelsior*	SU 98362 06761	9	Dead /OM	A	Woodpecker hole	2.5	E	T S H	M	M	Y	N	✓	Up 20centimetres, damp but secure, dirty.	M
A67	*F.excelsior*	SU 98385 06702	13	SM	A	Woodpecker hole chewed by squirrel round edges leading to woodpecker hole above.	7	SW	T S H	M	M	Y	Y	✓	6centimetres tapered, horizontal, exposed 4 x 4centimetresex. Low. 16centimetres deep, very wet, flat.	L
					B	Limb tear out, occluded wound.	7	NW	T S H	M				✓	Low full of heartwood.	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A68	*F.excelsior*	SU 98418 06666	19	SM	A	Woodpecker hole.	11	E	T S H	M	M	Y	N	✓	Connected bottom to top.	M
					B	Woodpecker hole	11	W	T S H	M				✓	4 entrance points, hollow, smooth, partially exposed.	
A69	*F.excelsior*	SU 98667 06879	18	SM	A	Wound with cavity and woodpecker hole	10	SE	T S H	H	M	Y	Y	✓	Low, totally open, exposed	M
					B	Woodpecker hole	11	SW	T S H	M				✓	Moderate, dry, narrow, small, quite sheltered	
A70	*Q. robur*	SU 97988 06917	17	SM	A	Woodpecker hole	9	SE	T S H	H	H	Y	Y	✓	High, up 1m, dry, smooth	H
					B	Wound with cavity and woodpecker hole	3 to 9	E	T S H	M				✓	Up 2m	
A71	*F.excelsior*	SU 98925 06173	23	M	A	Knot hole on east limb	8	NE	T S H	M	M	Y	N	✓	Severe fungus infection	M
					B	Woodpecker holes x1	12	SE	T S H	M				✓	Occupied by squirrels	
					C	Wound on limb	12	SE	T S H	L				✓	Low, shallow, small, limited shelter	
A72	*Q. robur*	SU 98928 06112	14	M	A	Knot hole on west limb	5	N	T S H	L	M	Y	N	✓	Low suitability, damp, shallow	M
					B	Knot hole on main stem	7	S	T S	M				✓	Moderate, 4centimetres diameter, 10centimetres deep, up 8centimetres - dry with nest inside	
A73	*F.excelsior*	SU 98918 06092	18	M	A	Knot hole on limb	7	N	T S H	M	M	Y	N	✓	Moderate - 6centimetres diameter, dry	H
					B	Hole at base of tree extends up	0	N	T S H M	M				✓	High - HIBERNATION SUITABILITY, hole goes up 2m, numerous secondary crevices, secure, dry	
					C	Tear on main stem	3	E	T S	M				✓	High - HIBERNATION SUITABILITY	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A74	*F.excelsior*	SU 98973 06019	20	M	A	Knot hole on east limb	10	E	T S	L/M	M	Y	N	✓	Down 30. Dry, shelter, smooth	M
A75	*F.excelsior*	SU 09896 05999	20	M	A	Woodpecker hole	4	N	T S H	L	M	Y	N	✓	Negligible	H
					B	Woodpecker hole	20	E	T S H	L				✓	Goes back 9centimetres	
					C	Woodpecker hole	8	N	T S H	L				✓	goes up 2 m to join wound	
					D	Woodpecker hole	6	N	T S H	L				✓	Negligible	
					E	Woodpecker hole	7	N	T S H	H				✓	Goes up 5m to join internal tunnel, smooth, dry - High hibernation potential	
					F	Woodpecker hole	7	N	T S H	L				✓	Negligible	
					G	Woodpecker hole	8	N	T S H	L				✓	Negligible	
					H	Woodpecker hole	8	N	T S H	L				✓	Negligible	
					I	Limb tear	22	W	T S H	M				✓	Low suitability, limited shelter, goes down 8centimetres	
					J	Wound in stem	11	N	T S H	M				✓	Goes back 15centimetres, up 10centimetres, damp, Moderate suitability	
					K	Wound	9	S	T S H	H				✓	Goes 2 m down, dry, smooth, secure, high potential.	
A76	*F.excelsior*		16	M	A	Wound in main stem/cavity	6	N	T S H	N	M	Y	N	✓	Negligible	M

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
		SU 98969 06013			B	Woodpecker hole x2	13	E	T S H	M				✓	Dirty, good shelter	
					C	Wound	12	W	T S	M				✓	Active squirrel drey, link with woodpecker hole	
A77	*F.excelsior*	SU 98983 06004	20	M	A	Knot hole	9.5	SW	T S	M	M	Y	N	✓	Shallow cavities	L
					B	Knot hole	11	SW	T S	L				✓	Shallow cavities	
A78	*F.excelsior*	SU 98949 05953	24	M	A	Hole at base of limb	16	N	T S H	L/M	M	Y	N	✓	Shallow	N
					B	Woodpecker holes on same limb	17	N	T S H	L/M				✓	Negligible	
A79	*F.excelsior*	SU 98963 05959	26	M	A	Rotting limb w/ woodpecker holes	14	SW	T S H	L	M	Y	N	✓	Negligible	L
					B	Woodpecker hole on main stem	20	SW	T S H	L/M				✓	Extends down 20centimetres, leaf litter	
A80	*F.excelsior*	SU 98951 05944	26	M	A	Knot hole on main stem	20	SE	T S H	M	H	Y	N	✓	Basal cavity. Complex series of cavities, leading up 80cm	H
A81	*F.excelsior*	SU 98962 05925	25	M	A	Rotten stem	6	W	T S H M	M	M	Y	Y	✓	Negligible	H
					B	Helical tear in limb	10	NE	T S H M	M				✓	Dry, sheltered cavities - High hibernation suitability	
					C	Tear in limb	10	S	T S H M	M				✓	Cavities on split branch - High suitability	
					D	Woodpecker hole on same limb	12	NW	T S H M	M				✓	10centimetres chamber, moderate suitability	
					E	Woodpecker hole on main stem	9.5	NW	T S H M	M				✓	Goes up into 30centimetres cavity, dry, smooth - high hibernation suitability	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
A82	*C. monogyna*	SU 98992 05873	15	M	A	Cavity in main stem	0	n/a	T S H M	M	M	Y	N	✓	Dry, sheltered, crevices, clean, smooth, up 1m, wedge shaped, high for TSHM	H
A83	*Prunus sp.*	SU 99014 05848	25	M	A	Tear into cavity on main stem	0.5	E	T S H	M	M	Y	Y	✓	Dry, secondary crevices, smooth, clean, up 40centimetres, high for TSH	H
A84	*Q. robur*	SU 99029 05901	23	M	A	Tear with occluded bark on main stem	10	W	T S H	M	M	Y	N	✓	Mod for TSH, open and exposed, good for owl	M
A85	*F.excelsior*	SU 99011 05912	15	M	A	Cavity into main stem	0	S	T S H	M	M	Y	N	✓	Exposed, up 1m, dry, smooth, sheltered, secure, mod/high for T S H M	H
					B	Hole under main stem	4	N	T S H	M				✓	Camber goes up 15centimetres, dry smooth sheltered, crevices, high for H	
					C	Knot hole	5	N	T S H	M				✓	Dry, sheltered mod for T S, back 17centimetres cone shape	
A86	*F.excelsior*	SU 99075 05864	15	M	A	Knot hole on main stem x2	5, 8	E	T S H	M	M	Y	N	✓	In 2centimetres, wet, negligible	N
					B	Tear in limb, occluded sides	11	E	T S H	M				✓	Crevices, very exposed,	
A87	*Q. robur*	SU 99075 05864	22	M	A	Large torn limb with gaps under occluded edges	12 to 16	E	T S H	M	M	Y	N	✓	1.5m down, cracks, exposed	M
					B	Frost damage, occluded edges, possible gap	15	E	T S H	M				✓	Exposed, damp, negligible	
					C	2nd frost damage further up branch	18	E	T S	L				✓	Exposed, damp, negligible	

Tree No.	Species	Grid Ref.	Tree Height (m)	Age (OM/M/SM/I)	Feature Ref.	Description of feature e.g. Trunk cavity, Branch cavity, Split, Loose bark, Ivy cover, Callus roll, Woodpecker hole, Other	Height (m)	Aspect (N/E/S/W)	Suitability[50]	Ground assessment of roost suitability[51]	Overall Tree	Climb required?	Tree unsafe to climb	Inspection survey		Tree category after climb
														BT1 feature	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?	
					D	Hazard beam	17	SE	T S	L				✓	Exposed, negligible	
A88	*F.excelsior*	SU 99937 05826	20	M	A	Woodpecker hole	12	NW		M	M	Y	N	✓	Mod. 6centimetres deep, 25centimetres high, tapering to a point	M
A89	*Q. robur*	TQ 00659 05787	17	M	N/A	No features	N/A	N/A	N/A	N/A	N	N/A	N/A	X		Not climbed (N)
A90	*P. nigra*	TQ 00630 05825	14	M	A	Two main stems splitting out.	5	SE	T S H	M	M	Y	Y	✓	Moderate feature checked from ground. Several secondary crevices dry and sheltered	M
A91	*Salix spp.*	TQ 00558 05828	15	M	A	Hazard beam	5	W	T S	L	M	Y	N	✓	Low open	M
					B	Hazard beam	8	E	T S	L				✓	Low open	
					C	Hazard beam	9	E	T S H	M				✓	Moderate, callous rolls, goes up 30centimetres, dry and sheltered	
A92	*Q. robur*	TQ 00348 07068	18	M	A	Knot hole at base of dead limb	9	S	T S	L	M	Y	N	X		Not climbed (M)
					B	Hazard beam	11	N	T S H	M				X		

Tree No.	Found by	Tree species	Bat species	Grid reference	Tree height (m)	Age (OM/M/SM/I)	Feature reference	Description of feature e.g. trunk cavity, branch cavity, split, loose bark, dense ivy cover, callus roll, woodpecker hole, other	Height (m)	Aspect (N/E/S/W)	Suitable for (maternity, hibernation, summer, transitional roosts)	POTENTIAL ROOST FEATURE Ground assessment of suitability e.g. confirmed, high, moderate, low, negligible	Overall tree category	Aerial climb required? (Y/N)	Tree unsafe to climb (Y/N)	POTENTIAL ROOST FEATURE Inspection Survey	
																Feature checked ✓	Assessment and description of feature (C/H/M/L/N) e.g. suitability, size, bats present?
R1	MAVES	-	*Myotis alcathoe*	[redacted]	-	-	-	No description available	-	-	-	-	-	-		x	Not found
R3	Arbeco	*Quercus robur*	*Myotis alcathoe*	[redacted]	22	M	-	Red and white tape, two woodpecker holes	-	-	T	Previous roost	M	Y	N	x	Top woodpecker hole has active wasp nest inside, cavity is large, unsuitable for roosts due to wasps Lower woodpecker hole is damp with smooth sides and low suitability for T S

R21	Arbeco	*Fraxinus excelsior*	*Myotis nattereri*	[redacted]	26	M	-	Red and white tape, large ash, no visible features	N/A	N/A	T	Previous roost	L	Y	N	x	No features present on tree
R1	Arbeco	*Quercus robur*	*Myotis alcathoe*	[redacted]	24	M	-	Woodpecker hole	14	N	S T	-	M	Y	N	□	Wound open leads down 6cm with debris in base. Low suitability for roost
R11	Arbeco	*Quercus robur*	*Myotis alcathoe*	[redacted]	20	M	A	Woodpecker hole in limb tear	17	N	T S H	Previous roost	M	Y	N	□	Tree located south of R7, shallow hole 6cm depth, low suitability for roost
							B	Cavity	8	-	-	-	-	-	-	□	8 x 10cm cavity and smooth and dry inside
R11	Arbeco	*Salix sp.*	*Plecotus auritus*	[redacted]	20	M	A	Woodpecker hole	3	E	M H S T	Previous roost	M	Y	N	□	Cavities extend up and down 4 x 20cm, dry, sheltered and smooth
							B	Woodpecker hole	7	S							
							C	Woodpecker hole	10	E							

R17	Arbeco	*Quercus robur*	*Plecotus auritus*	[redacted]	-	-	-	Large oak tree in SW area of Barns Copse. No obvious roost features - lots of dead wood and broken branches.	-	-	S T	Previous roost	M	-	-	-
R9	MAVES	*No info*	*No information*	-	-	-	-	No description available	-	-	-	-	-	-	-	x	Not found
R10	MAVES	*No info*	*Myotis alcathoe*	[redacted]	-	-	-	No description available	-	-	-	-	-	-	-	x	Not found
R11	MAVES	*No info*	*Barbastella barbastellus*	[redacted]	-	-	-	No description available	-	-	-	-	-	-	-	x	Not found
R19	Arbeco	*Quercus robur*	*Myotis nattereri*	[redacted]	20	OM	A	Oak tree within island of trees in field. Split dead branch	5	SE	-	M	M	Y	-	□	Goes back 20cm, debris, horizontal dry sides
							B	Wound	8	S	-	L				□	Debris, goes back 5cm
							C	Cavity at snapped limb	5	S	-	M				□	Goes up 15cm under the deadwood
R22	Arbeco	*Fraxinus excelsior*	*Myotis nattereri*	[redacted]	20	M	A	Three vertical fissures in main stem	5 to 9	NW	TS	PC	C	Y	N	□	Wound leading around hard wood up

							B	Limb damage	5	E	-	-	-	-	-	□	50cm narrow, tight secure, barbastelle in feature at 7m
R23	Arbeco	*Quercus robur*	*Myotis nattereri*	[redacted]	20	M	A	Oak on edge of Binsted Wood. Split, dead limb off main stem x2	7, 7.5	W	T S	L	C	Y	N	□	Low, exposed, wet
R16	MAVES	-	*Myotis alcathoe*	-	-	-	-	-	-	-	-	-	-	-	-	x	Not found
R20	Arbeco	*Quercus robur*	*Myotis nattereri*	[redacted]				Oak tree in small woodland copse. Some features with moderate suitability								□	Some features with moderate suitability
R18	MAVES	*Fraxinus excelsior*	*Myotis bechsteinii*	-	-	-	-	-	-	-	-	-	-	-	-	x	Not found
R9	Arbeco	*Quercus robur*	*Myotis bechsteinii*	[redacted]	25	M	A	Multiple dead limbs - no gaps visible from ground	-	-	-	Previous roost	-	-	-	□	No suitable features found on tree
							B	Knot hole at base of skinny dead limb	17	W	-	PC	-	Y	N		

R8	Arbeco	*Quercus robur*	*Myotis bechsteinii*	[redacted]	20	OM	A	Large woodpecker hole on east limb	18	S	M H S T	PC	C	Y	N		Leads to 20x30cm domed canopy, dry, sheltered with nesting material at base
R7	Arbeco	*Quercus robur*	*Myotis bechsteinii*	[redacted]	22	M	A	Dead tree	5 to 12	NW	M H S T	PC	C		Y	x	Not found
R13	Arbeco	-	*Plecotus auritus*	[redacted]	-	-	-	No description available	-	-	-	-	-	-	-	x	Not found

Appendix D

EXAMPLES OF ROOST FEATURES AND SUITABILITY

Photo reference	Image	Description / Comment
[redacted]		Example of HIGH suitability Very large hole on main stem, extends up into east limb - Very open smooth dry hollow cavity extends 90cm up into stem, secure
[redacted]		Example of HIGH suitability. Crack – dry

Photo reference	Image	Description / Comment
[redacted]		Example of HIGH suitability Crack trunk cavity - 100x2cm. Dry, rough, vertical
[redacted]		Example of MODERATE suitability Dead stem w/ tear and woodpecker hole - extends down 50cm and up 40cm and dry

Photo reference	Image	Description / Comment
[redacted]		Example of MODERATE suitability Knot hole at base of limb
[redacted]		Example of MODERATE suitability Limb hole on dead limb

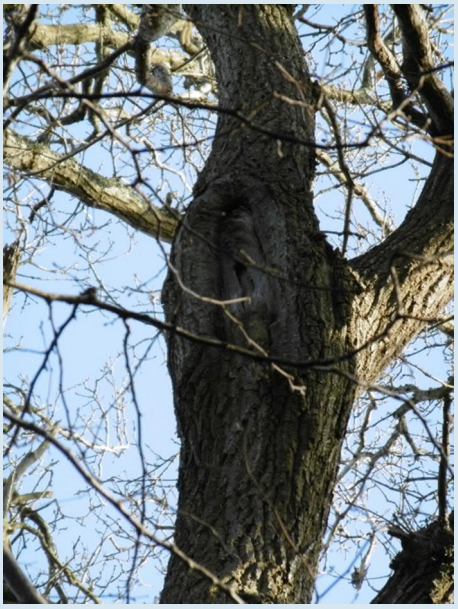
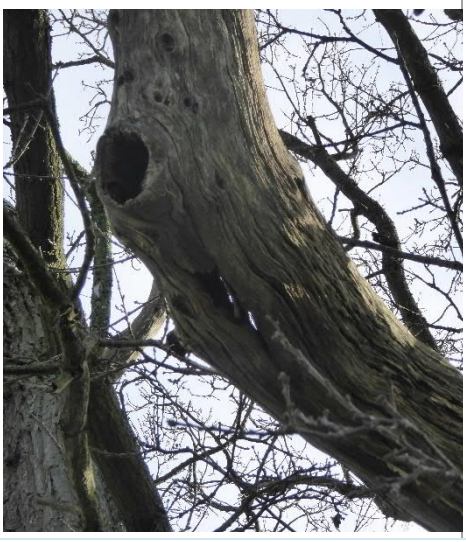
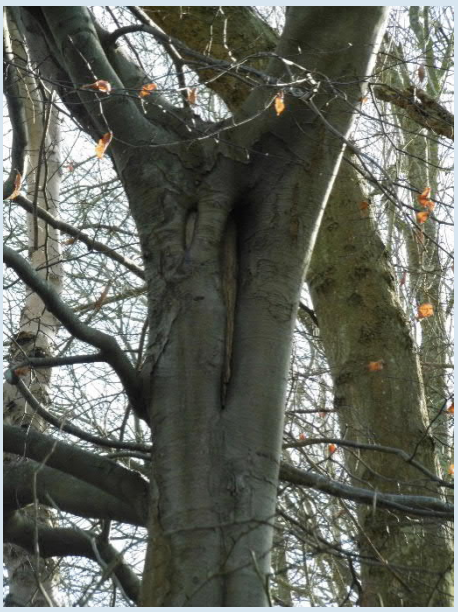
Photo reference	Image	Description / Comment
[redacted]		Example of LOW suitability Tear in south-west limb with hole
[redacted]		Example of LOW suitability Dead branch, cavity with cracks, sunlight visible through

Photo reference	Image	Description / Comment
[redacted]		Example of LOW suitability Straight cut branch, bark inclusions
[redacted]		Example of HIBERNATION suitable Dead sections on branch, long, open cavity, hazard beam split and tear

Photo reference	Image	Description / Comment
[redacted]		Example of HIBERNATION suitable Dropped branch with dark staining underneath
[redacted]		Example of HIBERNATION suitable Knot hole
[redacted]		Confirmed hibernation roost (barbastelle)

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