



Greater Cambridge Partnership

Cambourne to Cambridge

Bat Roost Report





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Type of document (version) Public

Project no. 70086660

Our Ref. No. 70086660-BAT_RT-01

Date: October 2024

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1 Introduction

1.1 Project Background

- 1.1.1. The Cambourne to Cambridge project (C2C) is a proposed new 13.6km public transport route linking Cambourne and Cambridge. It will include a dedicated busway serving communities in Cambourne and the proposed Bourn Airfield development, as well as in Hardwick, Coton and the West Cambridge campus. A service road, to be used as a path for active travel, particularly by cyclists and pedestrians, will run alongside the busway. A new travel hub will be provided at Scotland Farm.
- 1.1.2. Scheme details are provided in the main report to the Environmental Statement (ES).

1.2 Ecological Background

- 1.2.1. Cambridge Ecology previously undertook a suite of bat roost suitability surveys between 2017 and 2021, comprising of preliminary bat roost assessments of trees and buildings. Dusk emergence and dawn re-entry surveys of trees and buildings (Cambridge Ecology, 2020a, 2020b, 2021a, 2021b) were carried out to characterise bat roosts where necessary. For full methodology of these surveys are detailed within the relevant reports.
- 1.2.2. During these surveys, a total of six non-breeding summer roosts of common species including: common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* were identified in trees between 2020 and 2021 (Cambridge Ecology, 2020b and 2021b)
- 1.2.3. Two incidental recordings of roosts in buildings were recorded in 2019 (Cambridge Ecology, 2020b). The details of these incidental records are detailed within the relevant reports. Only one building remained in the Scheme boundary as the Scheme was refined in 2021, this was surveyed during the 2021 suite of surveys whereby no bats were recorded emerging or re-entering the building (Cambridge Ecology, 2021b). Both buildings are currently outside the most recent Scheme boundary.

1.3 Brief and Objectives

- 1.3.1. WSP UK Ltd was commissioned by Greater Cambridge Partnership (GCP) to undertake a suite of roosting bat surveys, with the following objectives:
 - Undertake an updated desk-based assessment to identify nearby bat roosts likely to be impacted by the Scheme;
 - As a first phase Ground Level Tree Assessment (GLTA) surveys of trees were completed, to determine the suitability of trees to support roosting bats. Based on the results the following further surveys were completed:
 - Winter inspection of trees which were safe for aerial inspection, and which had been assessed as having moderate or high bat roosting suitability or identified as a confirmed roost.

- Winter inspections of structures, to assess the suitability of structures to support hibernating bats;
- Aerial/climbing inspections of trees graded as of moderate to high suitability to support bat roosts; and
- Dusk emergence and dawn re-entry surveys of trees graded as of moderate or high suitability, which were considered unsafe to climb or where tree climbing inspection proved inconclusive.

2 Relevant Legislation

- 2.1.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981. The full legislation should be referred to for detail.
- 2.1.2. Certain species of bats are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act, public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

3 Methodology

3.1 Desk Study

- 3.1.1. An updated desk study exercise was completed in March 2022. The objective of the desk study was to review information held by Cambridgeshire & Peterborough Environmental Records Centre (CPERC) and identify any nearby bat roosts likely to be impacted by the Scheme. The following information was requested from CPERC:
- Roosting barbastelle *Barbastella barbastellus* records within 10km of the Scheme; and
 - Other roosting bat species records within a 5 km radius of the Scheme.

3.2 Field Survey

Ground Level Tree Assessments

- 3.2.1. All trees within a survey area consisting of a 50m buffer of the centre line of the Scheme and within 120m of proposed illuminated junctions, hereby referred to as the 'Winter Survey Area', were subject to a GLTA, as shown on **Figure TR5-6-1-1, Annex A**. All GLTA surveys were completed by ecologists competent in recognising potential features of suitability for tree roosting bats.
- 3.2.2. Of the six trees identified in the Cambridge Ecology reports (Cambridge Ecology, 2020b and 2021b), only three of the trees remained in the Survey Area for the most recent Scheme Boundary. Two trees were confidently identified as previously surveyed by Cambridge Ecology, C2C-019 (T38, Cambridge Ecology (2021b)) and C2C-184 (T51, Cambridge Ecology (2020b and 2021b)). T39 (Cambridge Ecology, 2020b) could not be identified confidently, however it is considered to have been surveyed within the suite of surveys undertaken by WSP.
- 3.2.3. Trees were surveyed between November 2021 and May 2022, with the majority of trees being surveyed within the optimal period for GLTA November to April Inclusive. For a full list of dates, see **Table TR5-6-B-1 in Annex B**.
- 3.2.4. In reference to the good practice guidelines and industry standards (Collins, 2016), a visual inspection of the trees from ground level using binoculars and a high-powered torch was undertaken to search for features which provide potential roosting opportunities for bats such as:
- Woodpecker holes;
 - Rot holes;
 - Hazard beams;
 - Cracks and splits (e.g. frost cracks);
 - Knot holes;
 - Cankers;
 - Dense ivy; and

- Lifting/peeling bark.

3.2.5. Where potential roost features were identified, their location and a brief description were recorded, in order to aid further survey work as required. Where possible, each feature was visually inspected for evidence of 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).

3.2.6. Where features were present at a height possible for a ground-level inspection to be safely completed (e.g., <2m high), this was completed by a Level 2 licensed bat surveyor or a Level 2 accredited bat surveyor using torches, mirrors and/or an endoscope. Trees were categorised in line with the descriptions in **Table TR5-6-3-1**. Trees categorised as having negligible suitability to support roosting bats are not discussed further in this report, beyond those which were downgraded to negligible suitability following further inspection.

Table TR5-6-3-1 - Tree bat roost suitability classification (Collins, 2016)

Bat roosting suitability	Description of roosting behaviour
Confirmed	A tree with features confirmed to be used by roosting bats either by historic records or evidence recorded during survey.
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.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
Low	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features with only very limited roosting potential.
Negligible	A tree with features of negligible value to tree-roosting bats.

3.2.7. For trees assessed as being of low, moderate or high suitability, information on species, approximate height in metres, and age class was collected. Additionally, a ten-figure grid reference and photographs were collected for all trees assessed as low, moderate or high suitability.

Hibernation Surveys of Trees

- 3.2.8. Hibernation surveys were undertaken for all trees assessed as having moderate or high suitability during the GLTA surveys within the Winter Survey Area, as shown on **Figure TR5-6-1-1, Annex A**. In accordance with current best practice guidance (Collins, 2016), each tree was subject to two separate inspections, where possible, between January 2022 and March 2022, during the hibernation season, to determine the presence or likely absence of hibernating bats. For a full list of dates, see **Table TR5-6-B-1 in Annex B**.
- 3.2.9. Where possible, identified potential roosting features were inspected from ground level using a high-powered torch or endoscope as appropriate. Where potential or confirmed roosting features could not be inspected from ground level, an aerial inspection was completed with the use of a ladder or otherwise by a qualified tree-climbers holding or accredited under a Level 2 Natural England bat licence (or were supervised by an ecologist holding a Natural England Level 2 licence).
- 3.2.10. The hibernation surveys were largely conducted as an aerial inspection to fully inspect roosting features, however, hibernation surveys were not completed for trees with moderate or high which were considered unsafe to climb.

Hibernation Suitability Assessment Surveys of Structures

- 3.2.11. A review of aerial base mapping and ordnance survey mapping was undertaken prior to survey to identify structures with potential to support hibernation roosts within a 500m buffer of the centre line of the Scheme. The search focused on identifying structures likely to support an important hibernation roost i.e. non-residential structures such as caves, churches, underground structures, ice houses and pill boxes and buildings that will be demolished to facilitate the Scheme.
- 3.2.12. Important hibernation roosts are those which have been deemed suitable for a diverse range of species and/or large numbers of bats to hibernate. Buildings considered likely to support individual hibernating bats (e.g., residential properties and commercial properties) were excluded from the search, as it is considered that such structures are less likely to support hibernation roosts of greater importance e.g. County to International importance.
- 3.2.13. The exterior of each accessible structure was inspected for evidence of hibernating bats (e.g., droppings, urine staining, odour in poorly ventilated areas and live/dead bats). Surveyors used binoculars, high-powered torches and endoscopes to identify and investigate potential hibernation features used by bats.
- 3.2.14. Structures were subject to a single survey visit, undertaken between January 2022 and March 2022, during the hibernation season for bats (typically December to March inclusive, depending on weather conditions). Surveys of structures were undertaken on:
 - 18 January 2022;
 - 07 February 2022; and
 - 23 February 2022.

Summer Aerial Inspections of Trees

- 3.2.15. A new survey area was considered for summer surveys following the refinement of the Scheme design and further assessment of potential impacts arising from the Scheme. This 'Summer Survey Area' consisted of a 30m buffer around the Scheme, excluding the Proposed Bourn Airfield housing development, as shown on **Figure TR5-6-1-2, Annex A**. The GLTA survey was updated in May 2022 to cover any additional areas that had not been subject to GLTA in winter/spring 2022.
- 3.2.16. Trees with moderate and high suitability for roosting bats, as identified in the GLTA and not downgraded during the hibernation surveys and remaining in the Summer Survey Area, were subject to aerial inspection surveys described in this section, or dusk emergence/dawn re-entry surveys described in the section below.
- 3.2.17. All trees within the Summer Survey Area were surveyed for potential loss of roost through tree removal, as well as disturbance through noise and lighting impacts during construction and operation, with the following exceptions:
 - Trees that have been previously surveyed 2021 by Cambridge Ecology;
 - Trees where existing landscape features (such as tall hedgerows and tree lines) will provide a buffer from potential impacts;
 - Trees that are likely subjected to existing high levels of noise and lighting disturbance through existing infrastructure (such as the A428 and existing street lighting); and
 - Trees within the proposed Bourn Airfield housing development that will be surveyed by Thomson Ecology as part of their suite of ongoing surveys.
- 3.2.18. Negligible and low suitability trees did not receive a follow-up presence/likely absence survey in accordance with best practice survey guidance (Collins, 2016). Low suitability trees have been recorded on a plan and will be considered as part of the bat mitigation strategy for the Scheme.
- 3.2.19. Aerial inspection surveys were undertaken by qualified tree-climbers holding or accredited under a Level 2 Natural England bat licence (or were supervised by an ecologist holding a Natural England Level 2 licence).
- 3.2.20. Surveys were undertaken between May 2022 and September 2022. For a full list of dates, see **Table TR5-6-B-1 in Annex B**.
- 3.2.21. Surveyors undertook inspections with high powered torches, endoscopes and mirrors. Information about the features were noted, for example, dimensions and exposure to cold, rain and light. After inspection, the suitability of the potential roost feature was re-evaluated depending on the suitability of the feature to support roosting bats, and re-categorised as appropriate (as low, moderate or high).
- 3.2.22. The number of aerial inspections conducted for each tree was proportional to the level of bat roosting suitability assigned. In accordance with current best practice guidance (Collins, 2016), two aerial inspections were completed for trees with moderate suitability, and three

separate aerial inspections were completed for trees with high suitability or trees with confirmed roosting status. Each separate aerial inspection was considered as a separate survey visit.

Dusk Emergence and Dawn Re-Entry Surveys of Trees

- 3.2.23. Trees which could not be safely climbed or where climbing/ground level inspection surveys were inconclusive were subject to dusk emergence/dawn re-entry surveys to determine the presence or likely absence of roosting bats.
- 3.2.24. Dusk emergence/dawn re-entry surveys were undertaken by surveyors experienced in completing emergence/re-entry surveys for trees. Surveys were undertaken between June 2022 and September 2022. For a full list of dates, see **Table TR5-6-B-2** in **Annex B**.
- 3.2.25. Surveyors noted features on the tree or structure from which bats were observed emerging or returning. Surveyors recorded the species and time of activity, as well as noting any flight lines and comments on activity (i.e. commuting or foraging).
- 3.2.26. For emergence/re-entry surveys, the number of survey visits completed was proportional to the level of assigned bat roosting suitability as show in **Table TR5-6-3-2** overleaf. This is in line with current best practice guidance (Collins, 2016).

Table TR5-6-3-2 - Recommended number of presence/likely absence based on Collins (2016)

Roost suitability	Recommended minimum number of survey visits for trees
Low	No further survey required. Tree will be subject to checks immediately prior to felling.
Moderate	Two separate survey visits.
High	Three separate survey visits

- 3.2.27. Surveyors positioned themselves in order to achieve optimal visibility of the tree and any potential roosting features. In most cases one surveyor could survey the tree adequately, however, in some cases where there was restricted visibility or many features, a second surveyor was required.
- 3.2.28. Dusk emergence surveys began 15 minutes before sunset and continued for between 1.5 and 2 hours. The dawn re-entry surveys began between 1.5 to 2 hours before sunrise and continued until 15 minutes after sunrise.
- 3.2.29. Surveyors used full spectrum bat detectors to record and listen to bat echolocation calls. On every survey occasion, surveyors were aided by infra-red cameras to enable visibility of the tree in darkness.

Summer External Inspection of Buildings

3.2.30. A pre-works desk study was undertaken prior to survey to identify buildings that would be indirectly affected by the Scheme as it was anticipated that no buildings would be destroyed and therefore surveys were only undertaken in order to identify requirements for mitigation during construction. As such, no internal inspections were undertaken on any buildings and only external inspections were undertaken. The external building surveys consisted of all structures within 30m of the Scheme boundary subject to direct or indirect impacts, with the following exceptions:

- Structures where existing landscape features (such as tall hedgerows and tree lines) will provide a buffer from potential impacts;
- Structures adjacent to the proposed route where the buses will run online using existing road networks (such as St. Neots Road and within the Cambridge University campus) as such are already subject to impacts from the existing road network; and
- Structures within the proposed Bourn Airfield housing development site that will be surveyed by Thomson Ecology as part of their suite of ongoing surveys.

3.2.31. All buildings were surveyed in one day on 05 May 2022.

3.2.32. A visual inspection of the exterior of buildings using binoculars was completed to search for features which may provide potential roosting opportunities for bats. Where suitable features were noted, their location and a brief description of their character was recorded. Additionally, each feature was visually inspected for evidence indicating use by roosting bats such as droppings, urine staining, and scratch marks / characteristic staining (from fur oils). Buildings were categorised in line with the descriptions in **Table TR5-6-3-3** below.

Table TR5-6-3-3 - Roost Potential Categorisation

Category	Description
Confirmed	Building with features confirmed to be used by roosting bats either by historic records (verified appropriately), or evidence recorded during survey.
High	Building with highly suitable features capable of supporting larger roosts, and/or multiple roost locations. Generally, these buildings are located in proximity to highly suitable foraging/commuting habitat such that the presence of a roost is considered highly probable.
Moderate	Building exhibiting features with definite bat roost potential, but with only one or two suitable features suitable for larger roosts, or multiple features with the potential to be used by individual/small numbers of bats. Surrounding area includes good quality foraging habitat for bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland such that the presence of a roost is considered probable.

Category	Description
Low	Building with single, or few features capable of supporting individual/small numbers of bats e.g. external roosting features such as fascia or soffit boards, in which bats are considered less likely to be present. Or, a greater number or variety of features located in sub-optimal habitat such that bats would be less likely to use it e.g. isolated from foraging or commuting habitats.
Negligible	Building with no potential opportunities for roosting bats, or very few or minor features in an isolated/unsuitable location such that the presence of a roost is considered highly improbable. e.g. isolated from suitable foraging or commuting habitats.

3.3 Notes and Limitations

- 3.3.1. Due to the potential for bats to colonise potential roosting features over time, the results of the roosting bat surveys described in this report should be considered valid for up to 18 months in accordance with best practice guidelines (CIEEM, 2019). Should the submission of the planning application be delayed beyond this time, further surveys may be required to update the baseline data for the Scheme.
- 3.3.2. GLTA surveys can be undertaken at any time of year, but are optimal between November and April inclusive, as outside this period tree foliage may restrict visibility. The majority of GLTA surveys conducted in 2021/2022 were completed within this optimal period. Only three trees had GLTA surveys undertaken outside this optimal period and are not considered to pose a significant limitation to the results of this report.
- 3.3.3. A number of trees identified during the GLTA surveys were either unable to be aerially inspected as they were considered unsafe to climb or unable to be suitably inspected during the initial aerial inspection survey. This is not considered to be a significant limitation, as dusk emergence/dawn re-entry surveys were utilised as an alternative survey method to determine presence or likely absence of roosting bats in these instances.
- 3.3.4. Thirty-eight trees identified as having moderate to high suitability during the initial GLTA surveys were not subject to a full suite of surveys as they were ruled out from further survey as it was anticipated as that these trees would not be impacted by the Scheme, as discussed in the Section 3.2.15. Should the Scheme boundary drastically change to impact these trees, then further survey may be required.
- 3.3.5. Five trees identified as having moderate to high suitability during the GLTA surveys could not be accessed for further survey due to access constraints during the winter surveys. One tree remained in the Summer Survey Area and therefore was able to be surveyed. The remaining four trees were removed from the Summer Survey Area after Scheme refinement as they unlikely to be impacted by the Scheme.

- 3.3.6. One tree, C2C-182, outside both Survey Areas that was surveyed due to GPS variation has been retained for information purposes within the final table and within the map in the event that the alignment changes. The tree was subject to a GLTA, and a single aerial inspection over the survey period.
- 3.3.7. In June 2022, during one dusk emergence survey for C2C-184 there was an equipment failure, whereby one of two infra-red cameras did not record. The surveyor was able to observe the PRF for the duration of the survey and the remaining camera was able to cover both features. Therefore, it is considered that this does not pose any significant limitation to the results of this report.
- 3.3.8. Dusk emergence and Dawn re-entry survey times on several occasions started later or finished earlier than the stated methodology. Surveys started no more than seven minutes late or finished no more than 5 minutes early as shown in **Table TR5-6-B-2, Annex B**. This is not considered to be a significant limitation given that bats were not heard within at least 20 minutes of the surveys starting or finishing in these instances. In these instances, it was also considered highly unlikely that early emerging bats could have been missed, given the open habitats in which the trees were located.
- 3.3.9. The dawn re-entry survey on C2C-181 had to be abandoned approximately 25 minutes earlier than planned due to unscheduled heavy rain. One full dusk emergence survey was completed on this tree during 2022. Three surveys of this tree were undertaken in 2019 and two surveys were undertaken in 2021. The tree was referenced as T4 in the Cambridge Ecology Bat Activity Report (Cambridge Ecology, 2020b and 2021b) and no bat roosts were recorded in any of these surveys. As six surveys have been undertaken on this moderate suitability tree over the last three years, it is considered that this is not a significant limitation.

4 Results

4.1 Desk Study

- 4.1.1. The desk study returned no records of roosting bats within the Scheme boundary. A total of 101 records of roosting bats, excluding Barbastelle Bat, were located within 5km of the Scheme boundary. The majority of records were for Common Pipistrelle, Soprano Pipistrelle and *Pipistrellus* species, accounting for 57% of all records. Other species recorded roosting within 5km included Brown Long-eared Bat *Plecotus auritus*, Serotine *Eptesicus serotinus* and unidentified bats. The majority of recent records (within the last 10 years) seem to be located to the eastern end of the Scheme, nearest Cambridge, in urban areas.
- 4.1.2. The desk study returned no records of Barbastelle Bat roosts within 10km of the Scheme within the last 10 years, although 9 records of the species were returned that were older than 10 years. The nearest record was within 5km at Netherhall Farm in 2010 and the remaining were recorded on Wimpole Estate between 2001 and 2009.
- 4.1.3. The results of the desk study can be seen on **Figure TR5-6-2-1, Annex B**.

4.2 Trees

Ground Level Tree Assessments

- 4.2.1. A total of 255 trees were identified across both Winter and Summer Survey Areas as having bat roost suitability, as shown on **Figures TR5-6-2-2 to TR5-6-2-4, Annex B**. Due to the different survey areas in winter and summer, the total number of trees is higher than those stated below.
- 4.2.2. Within the Winter Survey Area, 210 trees were identified as having bat roost suitability. The number of each tree under each category are as follows:
 - Low roosting suitability: 67 trees;
 - Moderate roosting suitability: 119 trees; and
 - High roosting suitability: 24 trees.
- 4.2.3. Within the Summer Survey Area, 210 trees were identified as having bat roost suitability. The number of each tree under each category are as follows:
 - Low roosting suitability: 74 trees;
 - Moderate roosting suitability: 112 trees; and
 - High roosting suitability: 24 trees.
- 4.2.4. None of the trees surveyed were found to support roosting bats at the time of the GLTA survey.

Hibernation Surveys of Trees

- 4.2.5. Of the 166 moderate and high suitability trees identified across the winter and summer Survey Areas, a total of 117 trees were subject to hibernation surveys. The remaining 49

trees not subject to hibernation surveys: two were unsuitable for climbing surveys, two were outside the Winter Survey Area; 16 were not accessible; and 29 ruled out from further survey as it was anticipated as that these trees would not be impacted by the Scheme.

- 4.2.6. Of the 117 trees subject to hibernation surveys, 60 were downgraded in suitability on further inspection and one tree was upgraded in suitability. Eleven trees resulted in inconclusive aerial inspection surveys and therefore were not subject to the further summer aerial inspection surveys and instead assessed via dawn and dusk surveys. Full results for all trees and the locations of all trees provided in **Table TR5-6-B-1, Annex B**.
- 4.2.7. None of the trees surveyed were found to support roosting bats at the time of the hibernation surveys.

Summer Aerial Inspection Surveys of Trees

- 4.2.8. A total of 210 trees were recorded within the Summer Survey Area as having bat roost suitability. Of these trees, 84 were identified after the GLTA and/or hibernation inspection as having moderate or high suitability. Thirteen trees, as previously mentioned, were subject to dusk emergence and dawn re-entry surveys due to being unsuitable for aerial inspection and 14 trees were ruled out from further survey as it was anticipated as that these trees would not be impacted by the Scheme.
- 4.2.9. A total of 57 trees within the Summer Survey Area were therefore subject to summer aerial inspections. Of these trees, 19 were downgraded in suitability on further inspection and one confirmed roost was identified.
- 4.2.10. The confirmed roost was identified in Tree C2C-019 whereby a single Brown Long-eared Bat was recorded. This tree was located on the southern boundary of the field east of Coton Orchard. This tree had also been identified by Cambridge Ecology as supporting a Common Pipistrelle roost in 2019 and 2021 (T38, Cambridge Ecology, 2020b and 2021b).
- 4.2.11. Full results for all trees and the locations of all trees provided in **Table TR5-6-B-1, Annex B**.

Dusk Emergence and Dawn Re-entry Surveys of Trees

- 4.2.12. A total 13 trees were subject to dusk emergence and/or dawn re-entry surveys. No roosts were identified during these surveys.

Final Bat Roosting Suitability of Trees

- 4.2.13. Of the 210 trees subject to survey within the Winter Survey Area between November 2021 and September 2022, 188 were identified as having suitability to support roosting bats. The total number of trees in each category of suitability within the Winter Survey Area is as follows and is shown on **Figures TR5-6-2-5 and TR5-6-2-6, Annex B**:
 - Low roosting suitability: 106 trees;
 - Moderate roosting suitability: 65 trees;
 - High roosting suitability: 16 trees; and
 - Confirmed roost: one tree.

4.2.14. Of the 210 trees subject to survey within the Summer Survey Area between November 2021 and September 2022, 187 were identified as having suitability to support roosting bats. The total number of trees in each category of suitability within the Summer Survey Area is as follows and is shown on **Figures TR5-6-2-5 and TR5-6-2-6, Annex B**:

- Low roosting suitability: 119 trees;
- Moderate roosting suitability: 51 trees;
- High roosting suitability: 16 trees; and
- Confirmed roost: one tree.

4.3 Structures

Hibernation Suitability Assessment Surveys of Structures

4.3.1. The desk-based assessment identified 22 buildings that could provide suitability for hibernating bats, of these only six buildings were surveyed due to access constraints. A summary of the buildings surveyed is provided below in **Table TR5-6-4-1** whilst **Figure TR5-6-B-4, Annex B** provides the locations of all buildings scoped in and the results of buildings surveyed.

Table TR5-6-4-1 – Hibernation Suitability

Building Number	Building type	Location	Suitability
3	Barn	Bourn Airfield	Unsuitable
24	Barn	PX farms	Unsuitable
122	Commercial	Bourn Airfield	Unsuitable
124	Commercial – initially within Scheme	West Cambridge Site	Unsuitable
120	Icehouse, outbuildings and cellar	Madingley Hall Estate	Unsuitable

4.3.2. All buildings surveyed were assessed as being unsuitable for hibernating bats. This included an icehouse within Madingley Hall Estate which was closed off with corrugated sheet metal, see **Plate 5-6-4-1**. There were gaps between the corrugated sheet metal, however the icehouse was also blocked off with boarding and scaffolding. As shown within **Plate 5-6-4-2** the roof of the building had been damaged, and the structure blocked off for health and safety. It was considered unlikely that bats would be able to successfully access the remaining structure.

Plate 5-6-4-1 - Corrugated sheet metal encapsulating the icehouse



Plate 5-6-4-2 - Remains of the icehouse within Madingley Hall Estate



Summer External Inspection of Buildings

- 4.3.3. A total of eight buildings were identified within the Summer Survey Area were subject to external inspection, as shown on **Figure TR5-6-2-7, Annex B**.
- 4.3.4. Seven of the buildings were provisionally assessed as having high suitability for roosting bats as all were of an age where suitable entrance points into cavity features such as walls and lofts could be present, but not visible externally. One building within the West Cambridge site (West Cambridge Data Centre) was assessed as having negligible suitability for roosting bats as it was a recently constructed commercial building that was clad in metal.

- 4.3.5. No further surveys were considered necessary for summer roosting bats, as it was deemed that any impacts upon buildings could be adequately mitigated through sensitive construction which will be detailed in a Code of Construction Practice.

5 Summary

- 5.1.1. A total of 255 trees within both Survey Areas were subject to survey between November 2021 and September 2022.
- 5.1.2. GLTA identified 25 high suitability trees, 141 moderate suitability trees, 89 low suitability trees within the Winter and Summer Survey Areas. Of these, 117 moderate and high suitability trees were subject to hibernation inspections. The results of these surveys are as follows: 14 high suitability trees, 34 moderate suitability trees, 37 low suitability trees, 21 negligible suitability trees and 11 trees whereby climbing surveys were inconclusive.
- 5.1.3. Considering the change in Scheme boundary, a Summer Survey Area was adopted for the summer aerial inspection surveys and dusk emergence and dawn re-entry surveys. The results for these surveys resulted in a total of 230 trees having bat suitability (188 within the Winter Survey Area and 187 within the Summer Survey Area). One tree, C2C-019, present within the Winter and Summer Survey Area, was identified as having a confirmed roost of a single Brown Long-eared bat. This tree was also identified by Cambridge Ecology as supporting a Common Pipistrelle roost in 2019 and 2021 (T38, Cambridge Ecology, 2020b and 2021b).
- 5.1.4. The desk-based assessment identified 22 buildings that could provide suitability for hibernating bats, only of these only six buildings were surveyed due to access constraints. All buildings surveyed were assessed as being unsuitable for hibernating bats.
- 5.1.5. Eight buildings were identified within the Summer Survey Area. Seven were assessed as having high suitability for roosting bats and one was assessed as having negligible suitability for roosting bats.

6 References

Project References

Cambridge Ecology (2020a) Cambourne to Cambridge Better Public Transport: Stage 1 Bat Inspection Survey 2018-19.

Cambridge Ecology (2020b) Cambourne to Cambridge Better Public Transport: Stage 2 Bat Activity Surveys 2019-20

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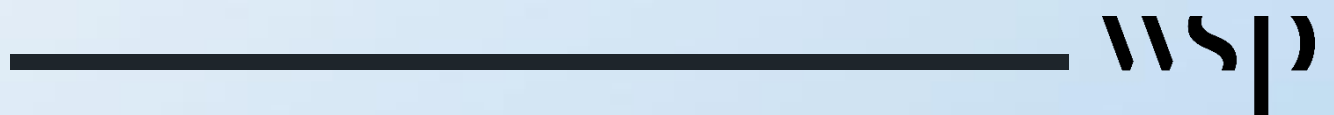
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Annex A

Study & Survey Areas



Path: \\uk.wspgroup.com\central_data\Projects\70086xx\70086660 - C2C TWAC Stage\03 WIP\Ecology\07 GIS & Mapping\OGIS Project\Bats\C2C- bat trees.qgz



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Legend

- C2C Scheme Boundary (DF4)
- Scheme Boundary
- Summer Building Survey Locations
- Summer Survey Area
- ESRI Satellite (ArcGIS/World Imagery)

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Revision Details	By Check	Date	Suffix
Drawing Status	FINAL		
Job Title			
Greater Cambridge Partnership Cambridge to Cambourne			
Drawing Title			
Winter Bat Survey Area			
Scale at A1		1:18,000	
Drawn UKMDP002			
Stage 1 Check MP	Stage 2 Check SC	Originated AS	Date 01/09/2023

0 200 400 600 800 1,000 m

Drawing Number

Figure 5.6.1-1

Path: \\uk.wspgroup.com\central_data\Projects\70086xx\70086600 - C2C TWAQ Stage\03 WIP\Ecology\07 GIS & Mapping\QGIS Project\Bals\C2C - bat trees.qgz



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- Legend
- C2C Scheme Boundary (DF4)
 - Scheme Boundary
 - Summer Building Survey Locations
 - Summer Survey Area
 - ESRI Satellite (ArcGIS/World_Imagery)

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Revision Details	By Check	Date	Suffix

Drawing Status

FINAL

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Summer Survey Area

Scale at A1 1:18,000.000018

Drawn	UKMDP002		
Stage 1 Check MP	Stage 2 Check SC	Originated AS	Date 01/09/2023

0 200 400 600 800 1,000 m



Drawing Number

Figure 5.6.1-2

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THE PURPOSE INTENDED AND ONLY
WRITTEN DIMENSIONS SHALL BE USED

- Legend
- Scheme Boundary
 - 2022 Desk Study Area excluding Barbastelle
 - Barbastelle 2022 Desk Study Area
 - Bat Roost Desk Study Data 2022:
 - Roost records excluding Barbastelle
 - Barbastelle roost records older than 10 years

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XXXXX	xx xx	xx xx	xx xx
XXXXX	xx xx	xx xx	xx xx
Revision Details	By Check	Date	Suffix

Drawing Status

FINAL

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Desk Study Results

Scale at A1

1:45,000

Drawn	UKHJR003	Originated	AS	Date	09/03/2023
Stage 1 Check	MP	Stage 2 Check	SC		

0 1,000 2,000 m



Drawing Number

Figure 5.6.2-1

Path: \\uk.wspgroup.com\\central\\data\\Projects\\70086xxx\\70086660 - C2C TWA0 Stage\\03 WIP\\Ecology\\07 GIS & Mapping\\QGIS Project\\Bats\\C2C - bat trees.qgz



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Legend

- C2C Scheme Boundary (DF4)
- Scheme Boundary
- Final Roost Suitability Results - Trees
 - High
 - Moderate
 - Low
 - Negligible
- C2C_Winter_Bat_Survey_Buffer_03.02.22 Bat survey
- ESRI Satellite (ArcGIS/World_Imagery)

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Revision Details	By Sketch	Date	Suffix

Drawing Status

FINAL

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Ground Level Tree Assessment
Results

Scale at A1

1:6,000.000006

Drawn	UKMDP002	Originated	AS
Stage 1 Check MP	Stage 2 Check SC	Originated AS	Date 01/09/2023

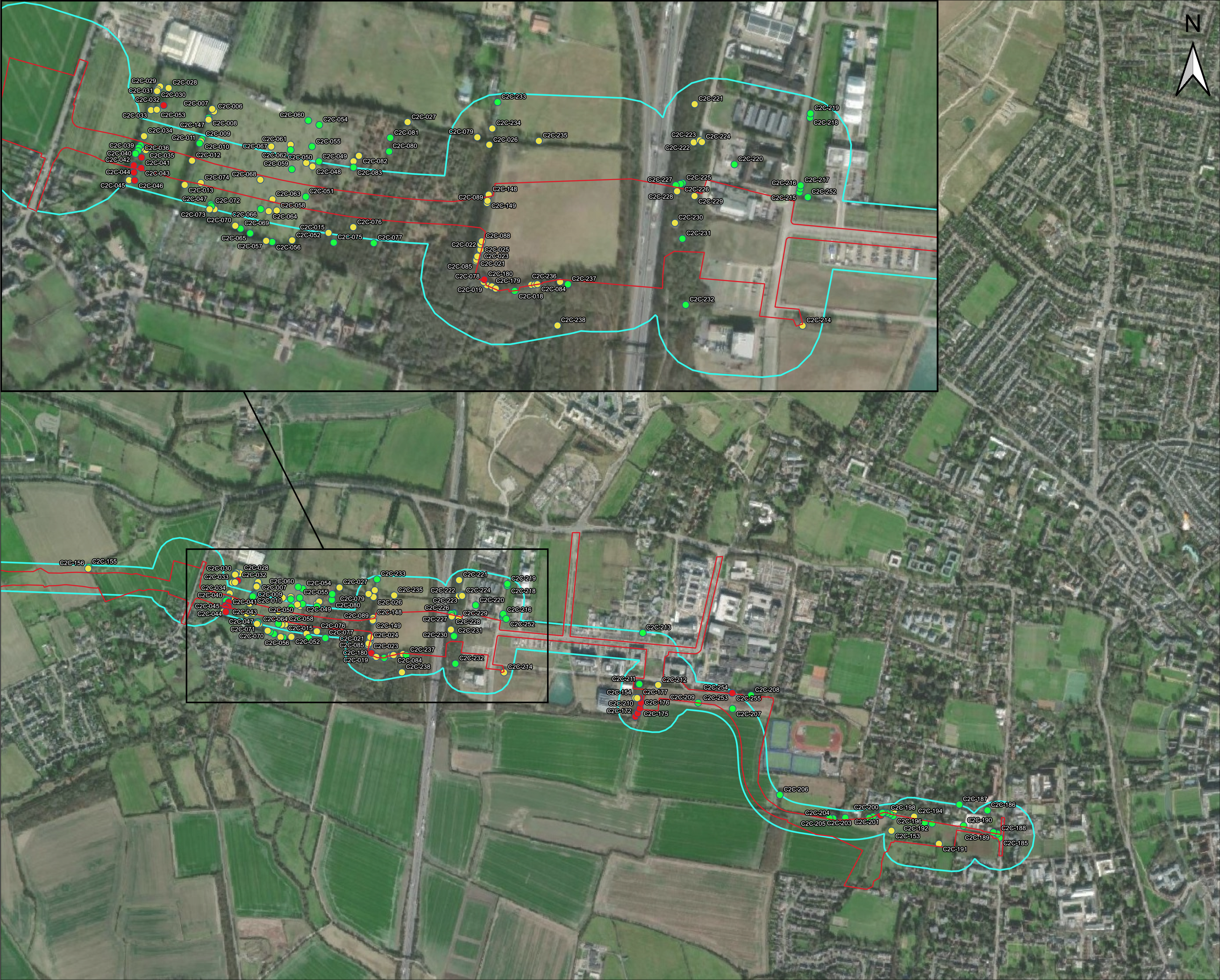
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wsp

Drawing Number

Figure 5.6.2-2

Path: \\uk.wspgroup.com\central\data\Projects\700866xxx\700866660 - C2C-TWAO Stage\03 WIP\Ecology\07 GIS & Mapping\OGIS Project\Bats\C2C- bat trees.qgz



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Legend

- Scheme Boundary
- Winter Survey Area
- GLTA Results
 - High
 - Moderate
 - Low

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Revision Details	By	Date	Suffix
Drawing Status	Check		

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Ground Level Tree Assessment
Results

Scale at A1

1:6,000

Drawn

UKHJR003

Stage 1 Check	Stage 2 Check	Originated	Date
MP	SC	AS	08/03/2023

0 200 400 m

wsp

Drawing Number

Figure 5.6.2-3

Path: \\uk.wspgroup.com\central\data\Projects\700866xxx\70086660_C2C-TWAO Stage\03 WIP\Ecology\07 GIS & Mapping\OGIS Project\Bats\C2C- bat trees.qgz



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- Legend
- Scheme Boundary
 - Winter Survey Area
 - GLTA Results
 - High
 - Moderate
 - Low

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Revision Details	By	Check	Date	Suffix
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Drawing Status

FINAL

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Ground Level Tree Assessment
Results

Scale at A1

1:6,000

Drawn	UKHJR003	Originated	AS	Date	08/03/2023
Stage 1 Check	MP	Stage 2 Check	SC		

0 200 400 m



Drawing Number

Figure 5.6.2-4

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- Legend
- Scheme Boundary
 - Final Roost Suitability Results - Trees
 - Confirmed Roost
 - High
 - Moderate
 - Low
 - Negligible

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Revision Details		By Check	Date	Suffix
Drawing Status		FINAL		
Job Title				
Greater Cambridge Partnership Cambridge to Cambourne				
Drawing Title				
Final Bat Roosting Suitability - Trees				
Scale at A1		1:10,000.00001		
Drawn		UKMDP002		
Stage 1 Check MP	Stage 2 Check SC	Originated AS	Date 04/10/2024	
0 400 800 m				
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wsp				
Drawing Number		Figure 5.6.2-5		

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Legend

Scheme Boundary

Final Roost Suitability Results - Trees

- Confirmed Roost
- High
- Moderate
- Low
- Negligible

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Revision Details	By	Date	Suffix
	Sketch		

Drawing Status

FINAL

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Final Bat Roost Suitability - Trees

Scale at A1

1:10,000.00001

Drawn	UKMDP002	Originated	AS	Date	04/10/2024
Stage 1 Check	MP	Stage 2 Check	SC		

0 400 800 m

Drawing Number

Figure 5.6.2-6

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- Legend
- Scheme Boundary
 - Summer Survey Area
 - Summer Building Survey Locations

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Revision Details	By	Date	Suffix
	Check		

Drawing Status

FINAL

Job Title

Greater Cambridge Partnership
Cambridge to Cambourne

Drawing Title

Summer Building Survey
Locations

Scale at A1

1:20,000

Drawn	UKHJR003	Originated	AS	Date	09/03/2023
Stage 1 Check	MP	Stage 2 Check	SC		

0 800 1,600 m



Drawing Number

Figure 5.6.2-7

Annex B

Overall Results

WSP

Table TR5-6-B-1 – Tree survey and results summary

Tree ref.	Tree Species	Grid reference	GLTA date	GLTA result	Hibernation Survey Type	Hibernation Survey 1 Date	Hibernation Survey 2 Date	Final Hibernation suitability	Summer Survey Type	Summer Survey 1 Date	Summer Survey 1 Date	Summer Survey 1 Date	Final Summer suitability	Final Suitability
C2C-001	Ash (Fraxinus excelsior)	TL3525359 748	08/02/2022	High	At height - Climbing	08/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-002	Ash (Fraxinus excelsior)	TL3515659 779	08/02/2022	High	At height - Climbing	08/02/2022	02/03/2022	High	At height - Climbing	11/05/2022	N/A	N/A	Low	Low
C2C-003	Ash (Fraxinus excelsior)	TL3514559 778	08/02/2022	High	At height - Climbing	08/02/2022	02/03/2022	High	At height - Climbing	11/05/2022	08/06/2022	06.09.22	High	High
C2C-004	Ash (Fraxinus excelsior)	TL3523859 763	08/02/2022	High	At height - Climbing	08/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-005	Ash (Fraxinus excelsior)	TL3517159 773	08/02/2022	High	At height - Climbing	08/02/2022	02/03/2022	High	At height - Climbing	11/05/2022	N/A	N/A	Low	Low
C2C-006	Alder (Alnus glutinosa)	TL4140459 113	16/11/2021	Moderate	At height - Climbing	19/01/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-007	Alder (Alnus glutinosa)	TL4140159 117	16/11/2021	Moderate	At height - Climbing	19/01/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-008	Alder (Alnus glutinosa)	TL4139659 104	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-009	Alder (Alnus glutinosa)	TL4138659 073	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-010	Alder (Alnus glutinosa)	TL4279258 759	16/11/2021	Moderate	Not suitable for hibernation surveys	N/A	N/A	Not suitable for climbing	Dusk emergence/ dawn re-entry	08/08/2022	06/09/2022	N/A	Moderate	Moderate
C2C-011	Alder (Alnus glutinosa)	TL4138559 070	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-012	Alder (Alnus glutinosa)	TL4137259 042	16/11/2021	Moderate	At height - Climbing	19/01/2022	10/02/2022	Moderate	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-013	Alder (Alnus glutinosa)	TL4136259 007	16/11/2021	Moderate	At height - Climbing	19/01/2022	10/02/2022	Moderate	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-014	Apple (Malus sp.)	TL4160659 041	16/11/2021	Moderate	Ground Level	11/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low

Tree ref.	Tree Species	Grid reference	GLTA date	GLTA result	Hibernation Survey Type	Hibernation Survey 1 Date	Hibernation Survey 2 Date	Final Hibernation suitability	Summer Survey Type	Summer Survey 1 Date	Summer Survey 1 Date	Summer Survey 1 Date	Final Summer suitability	Final Suitability
C2C-015	Apple (Malus sp.)	TL4157058 938	16/11/2021	Moderate	At height - Climbing	11/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-016	Poplar (Populus sp.)	TL4186458 862	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-017	Poplar (Populus sp.)	TL4186958 863	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-018	Poplar (Populus sp.)	TL4138359 067	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-019	Poplar (Populus sp.)	TL4179758 863	16/11/2021	Moderate	At height - Climbing	02/02/2022	02/03/2022	High	At height - Climbing	09/08/2022	23/08/2022	15/09/2022	Confirmed Roost	Confirmed Roost
C2C-020	Poplar (Populus sp.)	TL4179958 862	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-021	Poplar (Populus sp.)	TL4178458 901	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-022	Poplar (Populus sp.)	TL4178958 912	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-023	Poplar (Populus sp.)	TL4178958 912	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-024	Poplar (Populus sp.)	TL4179058 913	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-025	Poplar (Populus sp.)	TL4179058 921	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-026	Ash (Fraxinus excelsior)	TL4180359 065	16/11/2021	Moderate	At height - Climbing	10/01/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-027	Apple (Malus sp.)	TL4168459 098	16/11/2021	Moderate	Ground Level	10/01/2022	11/02/2022	Moderate	Ground Level	23/08/2022		N/A	Moderate	Moderate
C2C-028	Apple (Malus sp.)	TL4133859 147	16/11/2021	Moderate	Ground Level	10/01/2022	11/02/2022	Moderate	Ground Level	10/08/2022	N/A	N/A	Low	Low
C2C-029	Apple (Malus sp.)	TL4132659 150	16/11/2021	Moderate	At height - Climbing	10/01/2022	11/02/2022	Moderate	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate

Tree ref.	Tree Species	Grid reference	GLTA date	GLTA result	Hibernation Survey Type	Hibernation Survey 1 Date	Hibernation Survey 2 Date	Final Hibernation suitability	Summer Survey Type	Summer Survey 1 Date	Summer Survey 1 Date	Summer Survey 1 Date	Final Summer suitability	Final Suitability
C2C-030	Alder (Alnus glutinosa)	TL4132259 145	16/11/2021	Moderate	At height - Climbing	10/01/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-031	Apple (Malus sp.)	TL4132259 143	16/11/2021	Moderate	At height - Climbing	18/01/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-032	Apple (Malus sp.)	TL4273958 940	16/11/2021	High	At height - Climbing	19/01/2022	11/02/2022	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	26/07/2022	23/08/2022	12/09/2022	High	High
C2C-033	Alder (Alnus glutinosa)	TL4225258 996	16/11/2021	Moderate	At height - Climbing	19/01/2022	11/02/2022	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	08/08/2022	05/09/2022	N/A	Moderate	Moderate
C2C-034	Apple (Malus sp.)	TL4130359 078	16/11/2021	Moderate	At height - Climbing	10/01/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-035	Apple (Malus sp.)	TL4130559 057	16/11/2021	Moderate	Ground Level	10/01/2022	11/02/2022	Moderate	Ground Level	09/08/2022	07/02/2022	N/A	Moderate	Moderate
C2C-036	Apple (Malus sp.)	TL4225359 002	16/11/2021	Moderate	At height - Climbing	10/01/2022	11/02/2022	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	08/08/2022	05/09/2022	N/A	Moderate	Moderate
C2C-037	Alder (Alnus glutinosa)	TL4184058 853	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-038	Alder (Alnus glutinosa)	TL4133159 122	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-039	Alder (Alnus glutinosa)	TL4131359 115	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-040	Alder (Alnus glutinosa)	TL4129859 060	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-041	Apple (Malus sp.)	TL4225459 006	16/11/2021	High	At height - Climbing	10/01/2022	11/02/2022	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	15/08/2022	31/08/2022	12/09/2022	High	High
C2C-042	Apple (Malus sp.)	TL4128859 035	16/11/2021	High	At height - Climbing	10/01/2022	11/02/2022	High	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-043	Apple (Malus sp.)	TL4129959 032	16/11/2021	High	At height - Climbing	10/01/2022	11/02/2022	Moderate	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate

Tree ref.	Tree Species	Grid reference	GLTA date	GLTA result	Hibernation Survey Type	Hibernation Survey 1 Date	Hibernation Survey 2 Date	Final Hibernation suitability	Summer Survey Type	Summer Survey 1 Date	Summer Survey 1 Date	Summer Survey 1 Date	Final Summer suitability	Final Suitability
C2C-044	Apple (Malus sp.)	TL4128859 025	16/11/2021	High	At height - Climbing	10/01/2022	11/02/2022	High	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-045	Apple (Malus sp.)	TL4128159 014	16/11/2021	Moderate	Ground Level	10/01/2022	11/02/2022	Moderate	Ground Level	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-046	Apple (Malus sp.)	TL4226759 104	16/11/2021	High	At height - Climbing	10/01/2022	11/02/2022	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	26/07/2022	04/08/2022	12/09/2022	High	High
C2C-047	Unknown species	TL4129859 064	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-048	Apple (Malus sp.)	TL4154759 034	16/11/2021	Moderate	Ground Level	10/01/2022	11/02/2022	Moderate	Ground Level	07/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-049	Apple (Malus sp.)	TL4129559 061	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-050	Unknown species	TL4153859 039	16/11/2021	Moderate	At height - Climbing	10/01/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-051	Apple (Malus sp.)	TL4129459 056	16/11/2021	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-052	Apple (Malus sp.)	TL4151758 927	16/11/2021	Moderate	Ground Level	10/01/2022	N/A	Moderate	Ground Level	10/08/2022		N/A	Moderate	Moderate
C2C-053	Apple (Malus sp.)	TL4132159 116	10/01/2022	Moderate	At height - Climbing	10/01/2022	11/02/2022	Moderate	At height - Climbing	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-054	Apple (Malus sp.)	TL4129059 052	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-055	Apple (Malus sp.)	TL4129959 047	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-056	Apple (Malus sp.)	TL4128959 013	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-057	Unknown species	TL4208758 833	14/01/2022	Moderate	Ground Level	14/01/2022	N/A	Moderate	Ground Level	09/08/2022	N/A	N/A	Low	Low
C2C-058	Apple (Malus sp.)	TL4149558 970	14/01/2022	Moderate	At height - Climbing	11/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-059	Apple (Malus sp.)	TL4139958 979	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low

Tree ref.	Tree Species	Grid reference	GLTA date	GLTA result	Hibernation Survey Type	Hibernation Survey 1 Date	Hibernation Survey 2 Date	Final Hibernation suitability	Summer Survey Type	Summer Survey 1 Date	Summer Survey 1 Date	Summer Survey 1 Date	Final Summer suitability	Final Suitability
C2C-060	Apple (Malus sp.)	TL4155659 041	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-061	Apple (Malus sp.)	TL4151559 065	14/01/2022	Moderate	At height - Climbing	11/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-062	Apple (Malus sp.)	TL4153758 990	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-063	Apple (Malus sp.)	TL4148958 986	14/01/2022	Moderate	Ground Level	N/A	N/A	Moderate	Ground Level	10/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-064	Apple (Malus sp.)	TL4148358 969	14/01/2022	Moderate	At height - Climbing	11/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-065	Apple (Malus sp.)	TL4155659 094	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-066	Apple (Malus sp.)	TL4154659 063	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-067	Apple (Malus sp.)	TL4148759 063	14/01/2022	Moderate	At height - Climbing	11/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-068	Apple (Malus sp.)	TL4147159 014	14/01/2022	Moderate	Ground Level	11/02/2022		Moderate	Ground Level	10/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-069	Apple (Malus sp.)	TL4148858 924	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-070	Apple (Malus sp.)	TL4143558 948	14/01/2022	Moderate	Ground Level	11/02/2022	N/A	Moderate	Ground Level	09/08/2022	N/A	N/A	Low	Low
C2C-071	Apple (Malus sp.)	TL4181559 127	14/01/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	09/08/2022	N/A	N/A	Moderate	Moderate
C2C-072	Apple (Malus sp.)	TL4148058 926	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-073	Apple (Malus sp.)	TL4190558 867	14/01/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	09/08/2022	N/A	N/A	Low	Low
C2C-074	Apple (Malus sp.)	TL4138559 010	14/01/2022	Moderate	Ground Level	14/01/2022	N/A	Moderate	Ground Level	09/08/2022	07/09/2022	N/A	Moderate	Moderate

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C2C-075	Unknown species	TL4151759 030	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-076	Apple (Malus sp.)	TL4160658 946	14/01/2022	Moderate	Ground Level	10/01/2022	11/02/2022	Moderate	Ground Level	07/09/2022		N/A	Moderate	Moderate
C2C-077	Apple (Malus sp.)	TL4154159 100	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-078	Poplar (Populus sp.)	TL4179558 866	14/01/2022	Moderate	Ground Level	03/02/2022	02/03/2022	Moderate	Ground Level	10/05/2022	07/06/2022	10/08/2022	Moderate	Moderate
C2C-079	Ash (Fraxinus excelsior)	TL4178559 076	14/01/2022	Moderate	At height - Climbing	10/01/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-080	Apple (Malus sp.)	TL4151559 058	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-081	Apple (Malus sp.)	TL4145658 937	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-082	Apple (Malus sp.)	TL4161459 049	14/01/2022	Moderate	At height - Climbing	11/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-083	Apple (Malus sp.)	TL4147258 972	14/01/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-084	Poplar (Populus sp.)	TL4187258 863	03/02/2022	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-085	Poplar (Populus sp.)	TL4178358 897	03/02/2022	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-086	Poplar (Populus sp.)	TL4178458 898	03/02/2022	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-087	Poplar (Populus sp.)	TL4178558 903	16/11/2021	Moderate	At height - Climbing	03/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-088	Poplar (Populus sp.)	TL4179258 925	03/02/2022	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-089	Poplar (Populus sp.)	TL4179958 981	09/02/2022	Moderate	Ground Level	03/02/2022	02/03/2022	Moderate	Ground Level	10/05/2022	07/06/2022	N/A	Moderate	Moderate

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C2C-090	Ash (Fraxinus excelsior)	TL4144258 944	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-091	Alder (Alnus glutinosa)	TL4140558 972	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-092	Pendunculate oak (Quercus robur)	TL4140058 976	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-093	Pendunculate oak (Quercus robur)	TL4139758 972	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-094	Pendunculate oak (Quercus robur)	TL3522059 474	08/02/2022	Moderate	Ground Level	22/02/2022		Moderate	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-095	Pendunculate oak (Quercus robur)	TL4157758 923	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-096	Field maple (Acer capestre)	TL3553759 634	08/02/2022	Moderate	At height - Climbing	02/03/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-097	Horse chestnut (Aesculus hippocastanum)	TL4163558 923	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-098	Unknown species (Dead)	TL3571459 677	08/02/2022	Moderate	No access	No access	No access	No access	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-099	Oak species (Quercus sp.)	TL4226859 110	08/02/2022	High	At height - Climbing	08/02/2022	N/A	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	04/07/2022	15/07/2022	30/08/2022	High	High
C2C-100	Ash (Fraxinus excelsior)	TL3527359 752	08/02/2022	Moderate	At height - Climbing	08/02/2022	01/03/2022	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-101	Oak species (Quercus sp.)	TL3533159 715	08/02/2022	Moderate	At height - Climbing	22/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low

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C2C-102	Pendunculate oak (Quercus robur)	TL3648659743	09/02/2022	Moderate	At height - Climbing	25/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-103	Hawthorn (Crataegus monogyna)	TL4165859055	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-104	Hawthorn (Crataegus monogyna)	TL4165959075	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-105	Hawthorn (Crataegus monogyna)	TL4160659032	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-106	Hawthorn (Crataegus monogyna)	TL3345659423	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-107	Pendunculate oak (Quercus robur)	TL3517559772	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-108	Oak species (Quercus sp.)	TL3524259763	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-109	Oak species (Quercus sp.)	TL3655059746	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-110	Oak species (Quercus sp.)	TL4180658860	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-111	Oak species (Quercus sp.)	TL3657359746	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-112	Oak species (Quercus sp.)	TL3543159726	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-113	Oak species (Quercus sp.)	TL4356658306	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate

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C2C-114	Oak species (Quercus sp.)	TL4397958 228	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-115	Ash (Fraxinus excelsior)	TL4393758 323	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-116	Pendunculate oak (Quercus robur)	TL4383958 343	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-117	Pendunculate oak (Quercus robur)	TL3359559 462	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-118	Pendunculate oak (Quercus robur)	TL3521559 651	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-119	Unknown species	TL4397258 242	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-120	Pendunculate oak (Quercus robur)	TL4395858 247	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-121	Pendunculate oak (Quercus robur)	TL3520959 555	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-122	Pendunculate oak (Quercus robur)	TL3521659 637	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-123	Pendunculate oak (Quercus robur)	TL4385458 270	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-124	Ash (Fraxinus excelsior)	TL4374458 277	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate

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C2C-125	Ash (Fraxinus excelsior)	TL4371958 281	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-126	Ash (Fraxinus excelsior)	TL4360958 304	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-127	Ash (Fraxinus excelsior)	TL4359858 309	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-128	Ash (Fraxinus excelsior)	TL4358758 313	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-129	Ash (Fraxinus excelsior)	TL4357758 315	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-130	Ash (Fraxinus excelsior)	TL4357258 315	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-131	Ash (Fraxinus excelsior)	TL4353958 301	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-132	Oak species (Quercus sp.)	TL4352658 297	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-133	Oak species (Quercus sp.)	TL4344358 298	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-134	Oak species (Quercus sp.)	TL4340158 295	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-135	Willow sp (Salix Sp)	TL3693460 237	09/02/2022	Moderate	At height - Climbing	16/02/2022		Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible

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C2C-136	Ash (Fraxinus excelsior)	TL3728959 851	09/02/2022	Moderate	At height - Climbing	16/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-137	Willow sp (Salix Sp)	TL3747659 987	09/02/2022	Moderate	Ground Level	16/02/2022	02/03/2022	Moderate	Ground Level	14/06/2022	06/09/2022	N/A	Moderate	Moderate
C2C-138	Ash (Fraxinus excelsior)	TL3731059 865	09/02/2022	Moderate	At height - Climbing	16/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-139	Oak species (Quercus sp.)	TL4338858 296	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-140	Oak species (Quercus sp.)	TL3772959 654	09/02/2022	High	At height - Climbing	16/02/2022	02/03/2022	High	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	High
C2C-141	Pendunculate oak (Quercus robur)	TL3553159 645	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-142	Unknown species (Dead)	TL3540459 740	22/03/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	12/05/2022	N/A	N/A	Negligible	Negligible
C2C-143	Unknown species (Dead)	TL3541359 780	22/03/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	12/05/2022	N/A	N/A	Negligible	Negligible
C2C-144	Ash (Fraxinus excelsior)	TL4321558 377	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-145	Ash (Fraxinus excelsior)	TL3715660 657	09/02/2022	Moderate	Ground Level	09/02/2022	N/A	Moderate	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-146	Ash (Fraxinus excelsior)	TL4305158 677	09/02/2022	Moderate	No further survey required	N/A	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-147	Alder (Alnus glutinosa)	TL4139659 102	10/02/2022	Moderate	Ground Level	10/02/2022	02/03/2022	Moderate	Ground Level	09/08/2022	07/09/2022	N/A	Moderate	Moderate
C2C-148	Poplar (Populus sp.)	TL4180258 993	09/02/2022	Moderate	At height - Climbing	02/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible

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C2C-149	Poplar (Populus sp.)	TL4180058 984	09/02/2022	Moderate	At height - Climbing	03/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-150	Oak species (Quercus sp.)	TL4293158 697	09/02/2022	Moderate	At height - Climbing	09/02/2022	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-151	Willow sp (Salix Sp)	TL4215859 037	09/02/2022	Moderate	At height - Climbing	16/02/2022	N/A	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	13/06/2022	05/08/2022	N/A	Moderate	Moderate
C2C-152	Oak species (Quercus sp.)	TL3651159 745	09/02/2022	Moderate	At height - Climbing	02/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-153	Elder (Sambucus nigra)	TL4360358 252	09/02/2022	Moderate	Ground Level	02/02/2022	23/02/2022	Moderate	Ground Level	Summer 2022	N/A	N/A	Low	Low
C2C-154	Blackthorn (Prunus spinosa)	TL4271358 714	09/02/2022	Moderate	Ground Level	03/02/2022	24/02/2022	Moderate	Ground Level	Summer 2022	N/A	N/A	Low	Low
C2C-155	Ash (Fraxinus excelsior)	TL3535659 724	24/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-156	Ash (Fraxinus excelsior)	TL4081159 164	24/02/2022	Moderate	At height - Climbing	03/03/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-157	Ash (Fraxinus excelsior)	TL3647859 745	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-158	dead - possible ash	TL3521759 771	08/02/2022	Moderate	Ground Level	08/02/2022	02/03/2022	Moderate	Ground Level	12/05/2022	08/06/2022	N/A	Moderate	Moderate
C2C-159	Unknown species	TL4208359 010	08/02/2022	Moderate	At height - Climbing	08/02/2022	N/A	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	21/07/2022	12/08/2022	N/A	Moderate	Moderate
C2C-160	Unknown species	TL3892359 384	08/02/2022	Moderate	At height - Climbing	08/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-161	Oak species (Quercus sp.)	TL3895259 490	08/02/2022	Moderate	At height - Climbing	08/02/2022		Moderate	At height - Climbing	12/05/2022	07/06/2022	N/A	Moderate	Moderate
C2C-162	Unknown species	TL3897559 480	08/02/2022	Moderate	At height - Climbing	08/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low

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C2C-163	Ash (Fraxinus excelsior)	TL3647259 746	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-164	Ash (Fraxinus excelsior)	TL3517459 771	08/02/2022	Moderate	At height - Climbing	08/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-165	Ash (Fraxinus excelsior)	TL4191658 863	08/02/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	At height - Climbing	09/06/2022		N/A	Moderate	Moderate
C2C-166	Ash (Fraxinus excelsior)	TL3517759 767	08/02/2022	Moderate	At height - Climbing	08/02/2022	01/03/2022	Moderate	At height - Climbing	10/06/2022		N/A	Moderate	Moderate
C2C-167	Ash (Fraxinus excelsior)	TL3519359 770	08/02/2022	Moderate	At height - Climbing	08/02/2022	02/03/2022	Moderate	At height - Climbing	11/05/2022	08/06/2022	N/A	Moderate	Moderate
C2C-168	Ash (Fraxinus excelsior)	TL3524159 760	08/02/2022	Moderate	Ground Level	08/02/2022	02/03/2022	Moderate	Ground Level	12/05/2022	08/06/2022	N/A	Moderate	Moderate
C2C-169	Ash (Fraxinus excelsior)	TL3524259 760	08/02/2022	Moderate	Ground Level	08/02/2022	02/03/2022	Moderate	Ground Level	12/05/2022	08/06/2022	N/A	Moderate	Moderate
C2C-170	Oak species (Quercus sp.)	TL3653559 745	02/02/2022	Moderate	At height - Climbing	02/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-171	Oak species (Quercus sp.)	TL3646759 744	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-172	Oak species (Quercus sp.)	TL4271358 649	03/02/2022	High	At height - Climbing	03/02/2022	24/02/2022	High	At height - Climbing	10/05/2022	07/06/2022		High	High
C2C-173	Scot's pine (Pinus sylvestris)	TL4272158 667	03/02/2022	High	At height - Climbing	03/02/2022	24/02/2022	High	At height - Climbing	10/05/2022	07/06/2022		High	High
C2C-174	Unknown species	TL4272158 661	02/02/2022	High	At height - Climbing	02/02/2022	24/02/2022	High	At height - Climbing	10/05/2022	07/06/2022		High	High
C2C-175	Scot's pine (Pinus sylvestris)	TL4272858 678	03/02/2022	High	At height - Climbing	03/02/2022	24/02/2022	High	At height - Climbing	10/05/2022	07/06/2022		High	High
C2C-176	Scot's pine (Pinus sylvestris)	TL4273258 697	03/02/2022	High	At height - Climbing	03/02/2022	24/02/2022	High	At height - Climbing	10/05/2022	07/06/2022		High	High
C2C-177	Oak species (Quercus sp.)	TL4272658 715	03/02/2022	High	At height - Climbing	03/02/2022	24/02/2022	High	At height - Climbing	10/05/2022			High	High

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C2C-178	Ash (Fraxinus excelsior)	TL4208059 008	02/02/2022	High	At height - Climbing	02/02/2022	N/A	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	22/06/2022	12/07/2022	19/08/2022	High	High
C2C-179	Poplar (Populus sp.)	TL3892059 125	2018-2019	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	At height - Climbing	07/06/2022	N/A	N/A	Low	Low
C2C-180	Poplar (Populus sp.)	TL4179558 870	03/02/2022	High	At height - Climbing	03/02/2022		High	At height - Climbing	10/08/2022	07/09/2022		High	High
C2C-181	Ash (Fraxinus excelsior)	TL4207359 007	02/02/2022	Moderate	At height - Climbing	02/02/2022	N/A	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	25/07/2022	19/08/2022	N/A	Moderate	Moderate
C2C-182	Unknown species	TL3891659 120	24/02/2022	High	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	06/09/2022		N/A	Moderate	Moderate
C2C-183	Field maple (Acer capestre)	TL3541659 788	24/02/2022	High	No access	No access	No access	No access	Ground Level	44810			Low	Low
C2C-184	Ash (Fraxinus excelsior)	TL4210058 991	02/02/2022	High	At height - Climbing	02/02/2022	N/A	Climbing surveys inconclusive	Dusk emergence/ dawn re-entry	19/06/2022	12/07/2022	26/08/2022	High	High
C2C-185	Pendunculate oak (Quercus robur)	TL3646659 749	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-186	Unknown species	TL3708460 496	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-187	Common lime (Tilia x europaea)	TL3744761 182	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-188	Horse chestnut (Aesculus hippocastanum)	TL3746761 215	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-189	Horse chestnut (Aesculus hippocastanum)	TL3752261 501	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low

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C2C-190	Common lime (Tilia x europaea)	TL3752761 519	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-191	Black poplar (Populus nigra)	TL4376858 207	08/01/2022	Moderate	At height - Climbing	23/03/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-192	Blackthorn (Prunus spinosa)	TL3753361 541	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-193	Elder (Sambucus nigra)	TL3753861 560	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-194	Ash (Fraxinus excelsior)	TL4368258 301	08/02/2022	Moderate	No access	No access	No access	No access	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-195	Ash (Fraxinus excelsior)	TL4361158 320	08/02/2022	Moderate	No access	No access	No access	No access	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-196	Ash (Fraxinus excelsior)	TL3754261 578	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-197	Ash (Fraxinus excelsior)	TL3756161 645	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-198	Ash (Fraxinus excelsior)	TL3757361 691	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-199	Ash (Fraxinus excelsior)	TL3784762 075	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-200	Ash (Fraxinus excelsior)	TL3786862 089	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-201	Ash (Fraxinus excelsior)	TL3785962 120	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-202	Ash (Fraxinus excelsior)	TL3789662 119	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-203	Ash (Fraxinus excelsior)	TL3792062 084	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low

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C2C-204	Field maple (Acer capestre)	TL3790262 088	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-205	Field maple (Acer capestre)	TL3765961 858	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-206	Pendunculat e oak (Quercus robur)	TL3750961 494	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-207	Pendunculat e oak (Quercus robur)	TL3746361 313	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-208	Horse chestnut (Aesculus hippocastan um)	TL4311558 723	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-209	Field maple (Acer capestre)	TL3745761 296	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-210	Ash (Fraxinus excelsior)	TL4271958 714	08/02/2022	Moderate	At height - Climbing	24/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-211	Unknown species	TL3728360 848	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-212	Unknown species	TL4208258 929	08/02/2022	Moderate	Not suitable for hibernation surveys	N/A	N/A	Not suitable for climbing	Dusk emergence/ dawn re-entry	21/06/2022	26/08/2022	N/A	Moderate	Moderate
C2C-213	Silver Birch (Betula pendula)	TL3725260 807	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-214	Pendunculat e oak (Quercus robur)	TL4225658 803	08/02/2022	Moderate	At height - Climbing	23/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-215	Hawthorn (Crataegus monogyna)	TL3719860 726	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-216	Unknown species	TL3712260 590	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low

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C2C-217	Hawthorn (Crataegus monogyna)	TL3711060 570	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-218	Hawthorn (Crataegus monogyna)	TL3700260 312	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-219	Field maple (Acer capestre)	TL3700460 281	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-220	Unknown species	TL3699260 268	08/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-221	Ash (Fraxinus excelsior)	TL4210059 124	09/02/2022	Moderate	Ground Level	23/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-222	Blackthorn (Prunus spinosa)	TL4209959 069	09/02/2022	Moderate	Ground Level	23/02/2022	09/03/2022	Moderate	Ground Level	10/05/2022	07/06/2022	N/A	Moderate	Moderate
C2C-223	Elder (Sambucus nigra)	TL4210859 072	09/02/2022	Moderate	Ground Level	23/02/2022	09/03/2022	Moderate	Ground Level	10/05/2022	07/06/2022	N/A	Moderate	Moderate
C2C-224	Unknown species (Dead)	TL4211159 069	09/02/2022	Moderate	Ground Level	23/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-225	Silver Birch (Betula pendula)	TL3772059 644	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-226	Silver Birch (Betula pendula)	TL3521659 451	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-227	Silver Birch (Betula pendula)	TL3641659 790	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-228	Silver Birch (Betula pendula)	TL4207558 998	09/02/2022	Moderate	At height - Climbing	23/02/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-229	Willow (Salix sp.)	TL3891459 117	09/02/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	10/05/2022	N/A	N/A	Low	Low
C2C-230	Unknown species	TL4207258 952	09/02/2022	Moderate	Yes - tree climbing	23/02/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low

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C2C-231	Unknown species (Dead)	TL3643359 805	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-232	Scot's pine (Pinus sylvestris)	TL3713760 626	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-233	Poplar (Populus sp.)	TL3718960 710	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-234	Apple (Malus sp.)	TL4180759 089	09/02/2022	Moderate	Ground Level	25/03/2022	09/03/2022	Moderate	Ground Level	10/05/2022	07/06/2022	N/A	Moderate	Moderate
C2C-235	Apple (Malus sp.)	TL4187459 071	09/02/2022	Moderate	At height - Climbing	25/03/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-236	Plum (Prunus sp.)	TL3890659 119	09/02/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	10/05/2022	N/A	N/A	Negligible	Negligible
C2C-237	Unknown species (Dead)	TL3661259 745	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-238	Syacmore (Acer pseudoplatanus)	TL4190158 803	09/02/2022	Moderate	No access	No access	No access	No access	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-239	Pendunculate oak (Quercus robur)	TL3743759 935	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-240	Pendunculate oak (Quercus robur)	TL4081359 169	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-241	Pendunculate oak (Quercus robur)	TL3511459 774	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-242	Pendunculate oak (Quercus robur)	TL3891859 381	09/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-243	Ash (Fraxinus excelsior)	TL3515759 771	24/02/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low

Tree ref.	Tree Species	Grid reference	GLTA date	GLTA result	Hibernation Survey Type	Hibernation Survey 1 Date	Hibernation Survey 2 Date	Final Hibernation suitability	Summer Survey Type	Summer Survey 1 Date	Summer Survey 1 Date	Summer Survey 1 Date	Final Summer suitability	Final Suitability
C2C-244	Oak species (Quercus sp.)	TL3678859 731	24/02/2022	Moderate	At height - Climbing	03/03/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-245	Ash (Fraxinus excelsior)	TL3680259 743	24/02/2022	Moderate	At height - Climbing	03/03/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-246	Ash (Fraxinus excelsior)	TL3678559 744	24/02/2022	Moderate	At height - Climbing	03/03/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-247	Ash (Fraxinus excelsior)	TL3681559 733	24/02/2022	Moderate	Ground Level	03/03/2022	N/A	Low	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-248	Ash (Fraxinus excelsior)	TL3684559 735	24/02/2022	Moderate	At height - Climbing	03/03/2022	N/A	Negligible	No further survey required	N/A	N/A	N/A	No further survey required	Negligible
C2C-249	Oak species (Quercus sp.)	TL4272758 762	24/02/2022	Moderate	Ground Level	03/03/2022	N/A	No impacts	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	Moderate
C2C-250	Ash (Fraxinus excelsior)	TL3673659 752	24/02/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	At height - Climbing	06/09/2022	N/A	N/A	Low	Low
C2C-251	Field maple (Acer capestre)	TL3697359 707	24/02/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	06/09/2022	N/A	N/A	Negligible	Negligible
C2C-252	Hawthorn (Crataegus monogyna)	TL4226458 989	07/04/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-253	Unknown species	TL4304858 732	05/04/2022	Low	No further survey required	N/A	N/A	No further survey required	No further survey required	N/A	N/A	N/A	No further survey required	Low
C2C-254	Willow (Salix sp.)	TL4304958 731	05/05/2022	High	Not surveyed in winter	N/A	N/A	Not surveyed in winter	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	High
C2C-255	Willow (Salix sp.)	TL4305058 731	05/05/2022	High	Not surveyed in winter	N/A	N/A	Not surveyed in winter	No further survey required	N/A	N/A	N/A	No Summer surveys required - no impacts	High
C2C-256	Poplar (Populus sp.)	TL4181258 857	07/06/2022	Moderate	Not surveyed in winter	N/A	N/A	Not surveyed in winter	Ground Level	07/06/2022	10/08/2022		Moderate	Moderate

Table TR5-6-B-2 – Dusk emergence and dawn re-entry survey times

Tree ref.	Survey no.	Date	Sunset time	Sunrise time	Time start	Time end
C2C-010	1	08/08/2022	20:38:00		20:23:00	22:08:00
C2C-010	2	06/09/2022	19:38:00		19:23:00	21:08:00
C2C-032	1	26/07/2022	21:00:00		20:45:00	23:00:00
C2C-032	2	23/08/2022	20:07:00		19:52:00	21:37:00
C2C-032	3	12/09/2022	19:22:00		19:07:00	20:53:00
C2C-033	1	08/08/2022	20:38:00		20:23:00	22:38:00
C2C-033	2	05/09/2022	19:39:00		19:24:00	21:09:00
C2C-036	1	08/08/2022	20:38:00		20:23:00	22:23:00
C2C-036	2	05/09/2022	19:38:00		19:23:00	21:03:00
C2C-041	1	15/08/2022	20:24:00		20:15:00	21:56:00
C2C-041	2	31/08/2022	19:50:00		19:35:00	21:20:00
C2C-041	3	12/09/2022	19:22:00		19:07:00	20:52:00
C2C-046	1	26/07/2022	21:00:00		20:45:00	22:30:00
C2C-046	2	04/08/2022	20:45:00		20:30:00	22:15:00
C2C-046	3	12/09/2022	19:22:00		19:07:00	20:52:00
C2C-099	1	04/07/2022	21:23:00		21:07:00	22:53:00
C2C-099	2	15/07/2022		04:56:00	02:56:00	05:11:00
C2C-099	3	30/08/2022	19:53:00		19:38:00	21:23:00
C2C-151	1	13/06/2022	21:22:00		21:07:00	23:22:00
C2C-151	2	05/08/2022		05:25:00	03:19:00	05:40:00
C2C-159	1	21/07/2022	21:07:00		20:53:00	22:37:00
C2C-159	2	12/08/2022		05:38:00	03:38:00	05:53:00
C2C-178	1	22/06/2022	21:25		21:10:00	23:25:00
C2C-178	2	12/07/2022	21:18		21:03:00	23:18:00
C2C-178	3	19/08/2022		05:49:00	03:49:00	06:04:00
C2C-181	1	25/07/2022	21:02		20:50:00	22:32:00
C2C-181	2	19/08/2022		05:49:00	03:49:00	05:40:00
C2C-184	1	14/06/2022	21:22		21:07:00	23:07:00
C2C-184	2	12/07/2022	21:17		21:07:00	22:47:00

Tree ref.	Survey no.	Date	Sunset time	Sunrise time	Time start	Time end
C2C-184	3	26/08/2022		05:59:00	03:44:00	06:11:00
C2C-212	1	21/06/2022	21:24		21:16:00	23:24:00
C2C-212	2	26/08/2022		06:00:00	04:00:00	06:15:00



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