CAMBRIDGE NORTH

BAT HIBERNATION SURVEY REPORT

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Bat Hibernation
Survey Report
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Appendices

1 INTRODUCTION

1.1 Background to the Study

1.1.1 In 2022, RPS was commissioned by Brookgate to carry out a bat roost assessment survey of tree and a large derelict shed (Building B1) north of Cambridge North Station.

1.1.2 This report forms an addendum to the Cambridge North Updated Ecology Survey report (RPS, 2022) and details the results of the recommended 2022-2023 bat hibernation surveys of Building 1 and update to the tree bat roost assessment.

1.1.3 At the time of the initial survey, the trees on site all appear to be in good health without potential bat roost features. However, due to dense scrub not all the trees could be inspected from all sides and it was recommended they be examined again during the winter.

1.1.4 Two rooms at the north of the building were considered to have moderate potential to be used as a hibernation roost due to the type and location of the structure, and further hibernation survey between December and February were recommended.

1.1.5 At the time of the initial survey, internal access to the two rooms was prevented due to the presence of asbestos. Hibernation surveys typically involve internal inspection of potential hibernation roosts to look for hibernating bats or evidence of bat use, and the use of static bat detectors to record bat calls within the structure. However, due to the restricted access from the asbestos debris, hibernation surveys using only static detectors were undertaken in December 2022, and January and February 2023.

1.2 Legislation and policy

1.2.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species. It is an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts

1.2.2 A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

1.2.3 A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

1.2.4 The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): barbastelle, Bechstein's, noctule, soprano pipistrelle, brown long-eared, greater horseshoe, and lesser horseshoe.

2 METHODS

2.1 Bat Roost Assessment

2.1.1 A detailed bat roost assessment was carried out on the trees on site that had obstructed views during the 2022 survey by Crystal Acquaviva (RPS Principal Ecologist), a Natural England bat class licence holder on the 20th March 2023 following best practice as described by the Bat Conservation Trust (Collins, 2016), English Nature's Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Joint Nature Conservation Committee's Bat Worker's Manual (Mitchell-Jones & McLeish, 2004). The location of the assessed trees are shown in Appendix A, Figure 1.

2.1.2 The trees were examined externally, and internally where accessible, for potential roosting places and access points for bats and for any evidence of bat use, using binoculars (Bushnell Legend).

2.1.3 Signs that could indicate use by bats include:

- bat droppings;
- staining of access points used by bats to enter the structure; and
- feeding remains such as moth and butterfly wings.

2.1.4 Trees were assessed for the potential to support bats roosts by checking for features such as holes, cavities or splits, and evidence like dark staining on a tree below a feature caused by the natural oils in the bats' fur, scratch marks around the feature or droppings below.

2.1.5 The trees suitability for roosting bats was also assessed by examining the surrounding habitat. Important habitat features surrounding the structure which may influence roost potential include whether the structure is in a semi-rural or parkland location, its proximity to a significant linear habitat features such as a watercourse, mature hedgerow, wooded lane or an area of woodland.

2.2 Hibernation Survey

2.2.1 Winter hibernation surveys were carried out during December 2022, and January and February 2023, following best practice as described by the Bat Conservation Trust (Collins, J., 2016).

2.2.2 Two detectors (Anabat Express and Anabat Swift) were deployed on a west facing windowsill, with microphones facing into the northern rooms of the building to record bat echolocation calls of any bats within the building. Detectors were deployed on the following dates

- 20.12.2022
- 12.01.2023
- 14.02.2023

2.2.3 On each survey, the detectors recorded activity nightly between sunset and sunrise for two weeks, to enable the later identification of bat species where possible. Calls were analysed using Analook and Kaleidoscope software to identify bat species recorded. The placement of detectors is shown in Appendix A, Figure 1.

2.3 Limitations

2.3.1 Bats can exhibit seasonal use of roosts and being so mobile may arrive and start using a site after it has been surveyed or be roosting elsewhere during the period it was surveyed. Therefore, it should be noted that these surveys provide a snapshot of ecological constraints found to be present at the time and should not be relied upon for periods longer than one year.

2.3.2 Internal inspection of the two rooms with hibernation roost potential within Building 1 could not be undertaken due to the presence of asbestos. However, the static detectors were pointing into the

rooms and would have recorded any bat activity within the rooms. Therefore, results from survey are considered to reliably show if bats use the building for hibernation or not.

Accurate Lifespan of Ecological Data

2.3.3 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for one year, assuming no significant considerable changes to the site conditions.

3 RESULTS

Trees

3.1.1 Three mature silver birch *Betula pendula* trees had dense ivy and minor lifted bark that could be used by bats for roosting, and thus are considered to have low bat roosting potential. The other assessed trees had not features suitable for roosting bats. Photographs of the three birch trees are provided in Appendix C.

Building 1

3.1.2 No recording of bat calls was found during any of the three survey periods.

4 CONCLUSIONS AND RECOMENDATIONS

4.1.1 The three birch trees with low bat roost potential will be lost as part of proposed works. Prior to start of works ivy will need to be removed by hand and the tree inspected and soft felled in the presence of a bat licenced ecologist, to confirm no bat roosts are present.

4.1.2 As the hibernation surveys did not record any bat activity, bats are likely not using the building as a winter hibernation roost. However, as bats can start using buildings at any time, it is recommended that immediately prior to the building's demolition an internal inspection of both rooms be undertaken by a suitably qualified bat ecologist outside of the bat hibernation period, which is November – February (inclusive). This will require the removal of asbestos and other debris preventing access to these rooms prior to the inspection.

4.1.3 Due to the proposed demolition of the building we recommend a single bat hibernation box is provided as part of the overall mitigation/enhancement package for the site. This can be placed on a new building or retained tree, 3 – 5 m above the ground in a northernly facing position. The exact position will need to be agreed with a bat ecologist and included in the landscape and ecology management plan (LEMP).

4.1.4 Additionally, the building was considered to also have moderate potential to be used as a summer day roost and feeding roost during the bat roost assessment survey. Therefore, this building will require two surveys to be undertaken between May and September (inclusive) with at least one of these surveys between May and August to confirm presence / absence of summer roosting bats, and if roosting bats are found, a bat mitigation licence will be required from Natural England, and any mitigation undertaken before the building can be demolished. This is discussed in further detail in the Cambridge North Updated Ecology Survey report (RPS, 2022)

4.1.5 Bats are nocturnal and adapted to roost and forage in low light conditions therefore any increases in artificial light levels can cause disturbance or disrupt existing flight paths. A sensitive lighting scheme for the Wild Park is outlined in the design to avoid disturbing foraging and commuting bats and other wildlife. The Wild Park will include an attenuation pond, Open Mosaic Habitat and grassland which will provide suitable habitat for invertebrates, providing a food source for foraging bats. The lighting within the Wild Park is not yet specified in detail but the principle is to have where feasible low-level lighting to allow future foraging of bats. Lighting on the boundaries of the site and along the guided busway will also be sensitively designed. The detail of the lighting design is subject to further approval post-determination.

4.1.6 Design recommendations for wildlife friendly lighting is included in the Statement on the impact and design of artificial light on bats produced by BCT in 2011, and updated guidance in by BCT in 2014 and 2018. Design recommendations for wildlife-friendly lighting are provided in Appendix B.

4.1.7 It is also recommended that the site be enhanced for bats with the provision of bat boxes to be included in the LEMP.

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APPENDICES

Appendix A
Figures

Figure 1: Static Detector Location

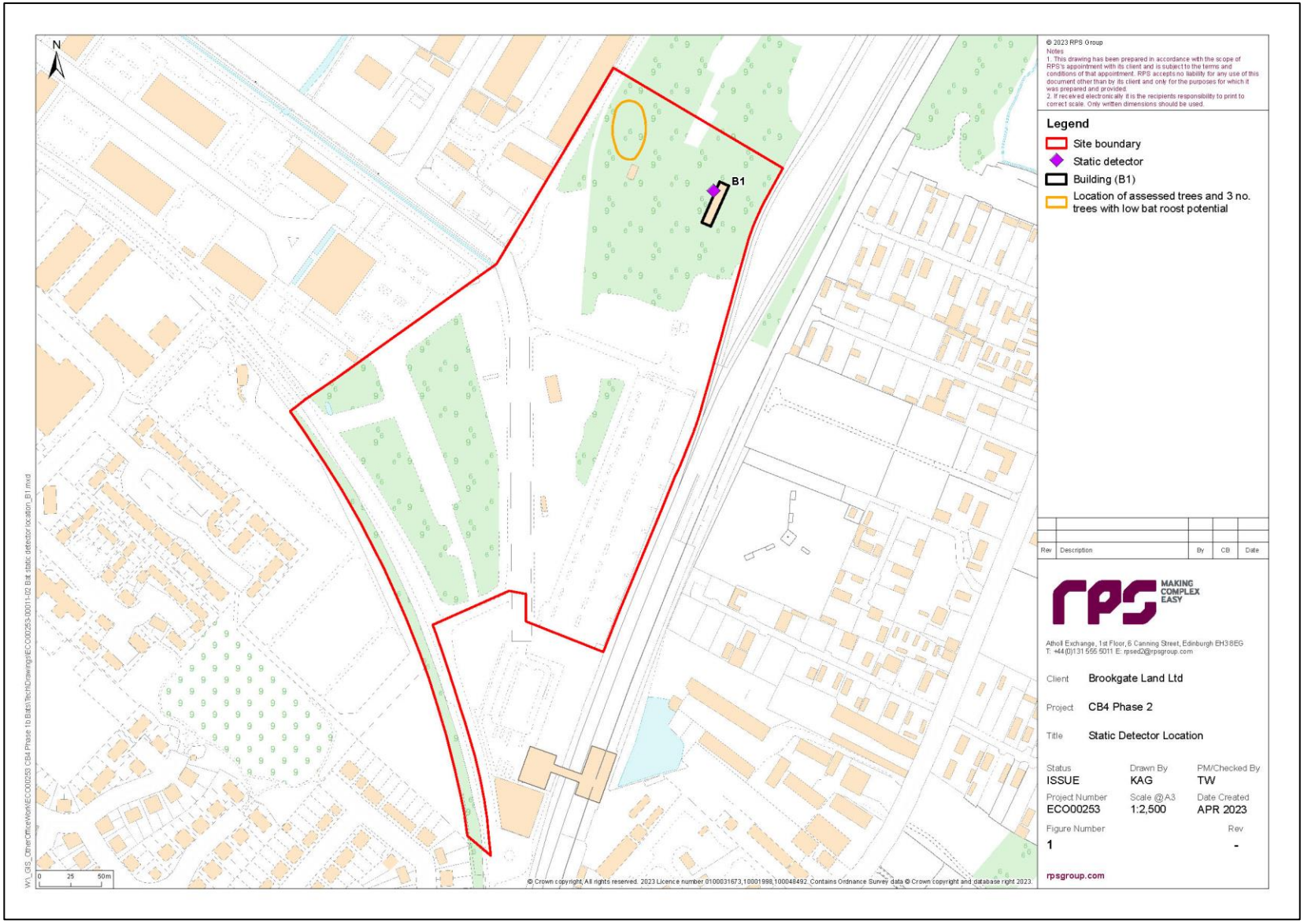
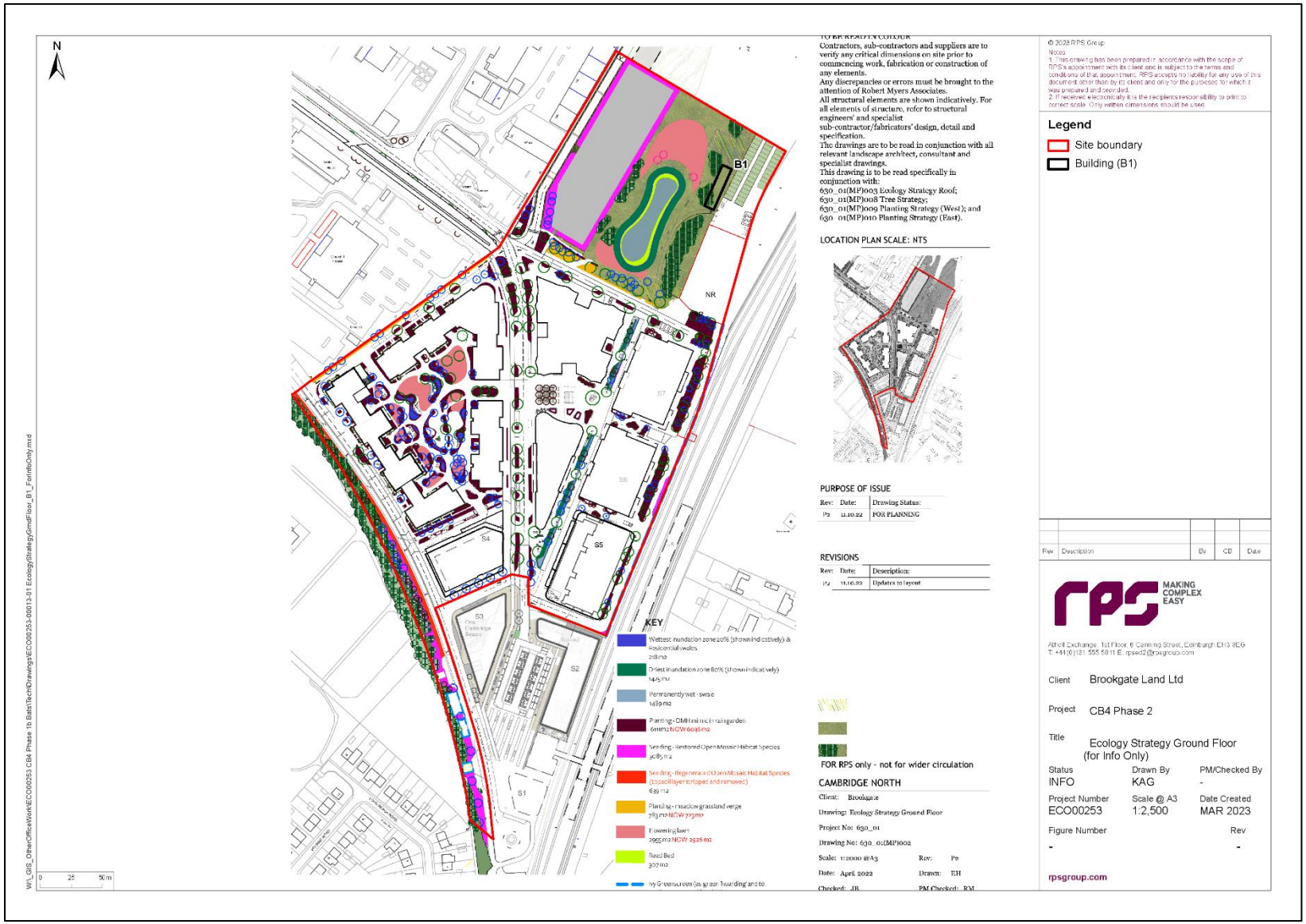


Figure 2: Location of building 1 (B1) overlayed onto the Master Plan



Appendix B
Impact and Design of Artificial Light for Bats

Design recommendations for wildlife-friendly lighting include:

- Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light;
- Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal;
- Use narrow spectrum bulbs to lower the range of species affected by lighting;
- Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation;
- Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the luminaire or with accessories, such as hoods, cowls, louvers and shields to direct the light;
- Reduce the height of lighting columns. Light at a low level reduces ecological impact. However, higher mounting heights allow lower main beam angles, which can assist in reducing glare;
- For pedestrian lighting, use low level lighting that is directional as possible and below 3 lux at ground level;
- Use embedded road lights to illuminate the roadway and light only high-risk stretches of roads, such as crossings and merges, allowing headlights to take up the slack at other times;
- Limit the times that lights are on to provide some dark periods for wildlife; and
- Use lighting design computer programs and professional lighting designers to predict where light spill will occur.

Appendix C
Photographs

Photo 1. Two silver birch trees with low bat roost potential.

Photo 2. Third silver birch tree with low bat roost potential.