

## GEOSPHERE ENVIRONMENTAL

REPORT NUMBER: 5941,EC,BAT,SJ,KL,14-09-23,V2

SITE: Former Chambers Bus Depot, Bures

DATE: 14/09/2023



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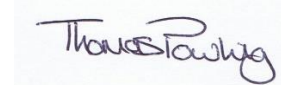
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## VERSION RECORD

Version	Date	Version Details	Prepared By	Admin
V1	27-09-23	Original written by Katie Linehan and reviewed by James Booty	KL	CJ
V2	14-09-23	Updated to include updated emergence survey.	SJ	HP

## Non-Technical Executive Summary

<b>Report Description</b>	<p>This report has been prepared by Geosphere Environmental Limited for Rose Builders and relates to the proposed residential and commercial development of the site at Former Chambers Bus Depot, Bures.</p> <p>The purpose of the report is to ensure that the ecological baseline provided by the previous survey effort within version 1 of this report in 2021 is still reliable based on updated survey effort undertaken in 2023. This report details the results of both the 2021 and 2023 survey effort, in combination, to provide recommendations for mitigation.</p> <p>The purpose of the overall survey is to confirm the presence/likely absence of roosting bats within buildings suitable for roosting bats, determine species and numbers of bats using any identified roosts and characterise any identified roosts.</p> <p>Recommendations for avoidance measures, mitigation, compensation and enhancement are included.</p>
<b>Background Information</b>	<p>A Preliminary Ecological Appraisal and Bat Scoping Assessment was undertaken by GEL in August 2021 (ref.<b>R.1</b>) and confirmed the following:</p> <ul style="list-style-type: none"> <li>• B1, has high bat roost potential (BRP) (a single bat dropping was noted on external brickwork);</li> <li>• B2, has low BRP;</li> <li>• B3, has moderate BRP.</li> </ul> <p>Three activity surveys were recommended for builds with high potential, two surveys for moderate and one survey for low potential builds.</p> <p>The foraging habitat onsite is considered to be of very low value due to the majority of the site comprising hardstanding. Boundary vegetation offers limited foraging opportunities and commuting routes for bats. Additional foraging surveys were not recommended.</p>
<b>Summary of Main Findings</b>	<p>Initial roost surveys were undertaken between 17 August and 10 September 2021. These surveys confirmed a maximum count of two soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) egressing building B1, during the first roost survey on 20 August 2021. No roosts were confirmed within buildings B2 and B3, during the surveys.</p> <p>The updated survey was undertaken on the 23<sup>rd</sup> August 2023 whereby one common pipistrelle was observed emerging from the same section of building as the two soprano pipistrelles observed in the 2021 surveys.</p>

	<p>Soprano and Common pipistrelle are two of the most common and widespread bat species in England, including locally to the site (Suffolk). Therefore, based upon these survey results, the surveyed area is considered to be of Site value for roosting bats.</p> <p>During surveys, species recorded foraging and commuting in the surrounding area included soprano pipistrelle and common pipistrelle (<i>Pipistrellus pipistrellus</i>) with occasional passes by brown long-eared (<i>Plecotus auritus</i>) and Noctule (<i>Nyctalus noctula</i>).</p>
<p><b>Ecological Constraints</b></p>	<p>UK legislation protects all bat roosts from damage, destruction, modification or disturbance. The proposed works have the potential to damage or destroy the identified roost. In addition, the surveys undertaken provide a snapshot as to current use. As bats are a mobile species, it would be prudent to approach destructive works cautiously for builds without confirmed roosts where potential roost features exist, as bats could potentially use features in the interim.</p>
<p><b>Avoidance measures &amp; Timings of Works to reduce impact</b></p>	<p>Where possible, following the mitigation hierarchy, building B1, should be retained within the development proposals to allow roosting bats to continue to utilise it.</p> <p>The foraging habitat onsite is very limited. It is best practice to retain as much bat existing foraging habitat as possible in the final development (in this case, hedgerows along the boundaries). If this is not possible, any hedgerow to be removed should be replaced elsewhere onsite, with shrub and tree species considered beneficial to wildlife.</p> <p>Lighting recommendations have been made within this report to reduce impact on bats during construction and post development.</p>
<p><b>Mitigation</b></p>	<p>A Natural England (NE) European Protected Species (EPS) Mitigation Licence will be required prior to any works that will impact the identified roost within B1. As building B2, is connected to B1, works undertaken on B2, have potential to impact the roost within B1. As a result, no works to B2 with potential to impact roosting bats in B1 should be undertaken until a NE EPS Mitigation licence has been granted for B1.</p> <p>For any licence application, survey data will be required for the most recent survey period (May to September).</p> <p>Repeat pre-construction activity surveys may be required depending on the time lapse between this report and construction start dates to confirm that buildings B2 and B3, remain absent of roosts and to ensure that the roost status of B1, hasn't changed. The number of surveys will be determined by the length of time passed.</p>
<p><b>Enhancement Opportunities</b></p>	<p>Bat bricks/boxes should be incorporated into new buildings within the scheme.</p>

	<p>Any planting proposed for the scheme should utilise species considered beneficial to wildlife such as Wild Cherry, Rowan, Common Hawthorn, Ivy, Lavender, Rosemary, Thyme, Ox-eye Daisy, Red Campion and Primrose. Planting night scented flowers including Jasmine and Honeysuckle would also be beneficial to foraging bats.</p>
<b>Conclusions</b>	<p>Results have confirmed that building B1 is a summer roost used by low numbers of soprano and common pipistrelle. Recommendations within Section 5 of this report should be adhered to, to reduce the impact on protected species.</p> <p><b>A Natural England (NE) European Protected Species (EPS) Mitigation Licence will be required prior to any works that will impact the identified roost within B1.</b></p>

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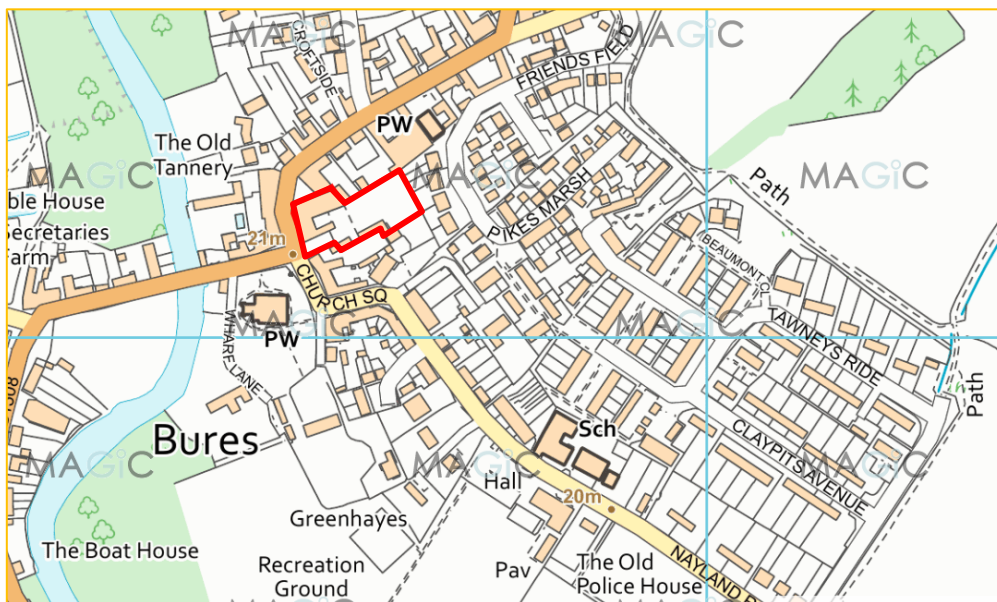
## 1. INTRODUCTION

This report has been prepared by Geosphere Environmental Limited for Rose Builders and relates to the proposed residential and commercial development of the site at Former Chambers Bus Depot, Bures. Any limitations and conditions pertaining to the report are stated within Appendix 1 with a full list of technical references provided within Appendix 2.

The purpose of the report is to ensure that the ecological baseline provided by the previous survey effort within version 1 of this report in 2021 is still reliable based on updated survey effort undertaken in 2023. This report details the results of both the 2021 and 2023 survey effort, in combination, to provide recommendations for mitigation.

The report relates to the proposed development of the 0.3-hectare (ha) site as shown in Drawing ref. 241373-PUR-00-00-DR-A-2001 included within Appendix 3. The site is located at National Grid reference TL907340.

The development boundary is shown on Figure 1 below:



**Figure 1 –The proposed development boundary is outlined in red**

### 1.1 Background Information

A Preliminary Ecological Appraisal and Preliminary Roost Assessment (PRA) was undertaken by GEL in August 2021 (ref.**R.1**) and confirmed the following:

- B1, has high bat roost potential (BRP) (a single bat dropping was noted on external brickwork);
- B2, has low BRP;



- B3, has moderate BRP.

Three activity surveys were recommended for builds with high potential, two surveys for moderate and one survey for low potential builds. Limitations of the PRA included no loft hatch present in some areas of B1, reducing access to the full loft space.

The foraging habitat onsite is considered to be of very low value due to the majority of the site comprising hardstanding. Boundary vegetation offers limited foraging opportunities and commuting routes for bats, therefore additional foraging surveys were not recommended. The preliminary roost assessment of the established trees onsite identified no trees with bat roost potential.

## 1.2 Aims

The purpose of the overall survey is to confirm the presence/likely absence of roosting bats within buildings suitable for roosting bats, determine species and numbers of bats using any identified roosts and characterise any identified roosts.

Recommendations for avoidance measures, mitigation, compensation and enhancement are included.

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## 2. LEGISLATIVE AND POLICY CONTEXT

### 2.1 Current UK Legislation

Within England and Wales, bats are protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Under the regulations, public bodies have a duty in exercising their functions to provide for the protection of 'European Sites' and 'European Protected Species' (EPS). This legislation makes it illegal to kill or disturb any bats, or to damage, destroy or block access to a place of shelter.

Seven species of bat are listed as species of principle importance under section 41 of the Natural Environment and Rural Communities Act 2006. All public bodies, including local authorities, are obligated to consider whether their activities can contribute to the protection of wildlife, with reference to species of principle importance.

The reader is referred to the original legislation for definitive interpretation.

### 2.2 Planning Policy

The recommendations of this report are in line with the key principles of the Ministry of Housing, Communities and Local Government (MHCLG) (July 2021) National Planning Policy Framework (NPPF) (ref. **R.2**) and Government Circular 05/06: Biodiversity and Geological Conservation – (ref. **R.3**).

Local planning policies relating to ecology are invariably based upon the conservation of species protected under the above legislation, including species and habitats of principal importance listed under Section 41 of the NERC Act 2006; and the protection of designated sites.

All of these features are considered within the scope of this preliminary ecological appraisal and therefore any recommendations made herein are likely to be in line with this policy.

### 3. METHODOLOGY

#### 3.1 TECHNICAL APPROACH

The activity surveys were undertaken in accordance with Bat Conservation Trust (BCT), JNCC and UK bat mitigation guidelines (refs. **R.4**, **R.5** and **R.6** respectively). Works are undertaken following the principles of the Ministry of Housing, Communities and Local Government (MHCLG) (July 2021) National Planning Policy Framework (NPPF) (ref. **R.2**).

#### 3.2 Personnel

The bat roost surveys undertaken in 2021 were conducted by James Booty (Senior Ecologist) (Level 2 Bat Survey Licence number: 2015-11511-CLS-CLS), Duncan Sweeting (Level 2 Bat Survey Licence Number 2015-16145-CLS-CLS) (sub-contracting Ecologist) Rachel Hall (Ecologist) (Bat Survey Licence number: 2020-46136-CLS-CLS), Tom Cox (Ecologist and Arboricultural Consultant), Charles Kilshaw (sub-contracting Ecologist) Zeinab Faris (Assistant Surveyor), Chole Kingsmead (Assistant Surveyor), Joe Glenwright (Assistant Surveyor) and Henry Leonard (Assistant Surveyor).

The update emergence survey completed in 2023 was conducted by Sarah Jarrett (Ecologist), Duncan Sweeting (Level 2 Bat Survey Licence Number 2015-16145-CLS-CLS) (sub-contracting Ecologist), Tracy Aimes (Arboricultural and Ecological Assistant), Eleanor Baker (Graduate Ecologist) and Fletcher Telling (Seasonal Ecologist).

#### 3.3 Updated Internal Inspection

An updated internal inspection of the buildings was undertaken by James Booty (Senior Ecologist) (Level 2 Bat Survey Licence number: 2015-11511-CLS-CLS) on 17 February 2023.

This section of the survey focuses on internal areas which provide the correct environmental conditions for roosting bats and the evidence of bat activity, most often loft spaces/roof voids. These include:

- Searching dark, warm undisturbed areas normally in the roof space such as, joins in traditional roof joists and beams, behind the ridge beam or roofing felt and any cracks or crevices in the bricks or stonework that could be used as a roost site;
- Inspecting the walls, floor and any flat areas such as on top of beams were examined for bat droppings, feeding remains and bat corpses.

#### 3.4 Summer Roost Surveys

To ensure all aspects that were highlighted as having roost potential were observed during the survey, multiple surveyors observed each structure from a fixed point. The locations of the surveyors during building emergence/re-entry surveys are shown on Drawing ref. 5941,EC/001/Rev0 in Appendix 3.

Dusk emergence surveys commenced 15 minutes before sunset and concluded between 90 and 120 minutes after sunset, depending upon the potential for late emerging species, to ensure that all species of bats were afforded time to egress from the roost. Dawn re-entry surveys commenced between 90 and 120 minutes before dawn (depending upon potential for early returning species) to 15 minutes after sunrise, to ensure that all species of bats are afforded time to return to their roost.

Building B1, onsite was deemed to have high potential therefore three surveys were undertaken comprising of one dawn and two dusk surveys. Building B2, was considered low potential, therefore a single dusk survey was undertaken. Building B3, was considered moderate potential, therefore two surveys were undertaken.

Surveys covering B1, B2 and B3 were undertaken between 17 August 2020 and 10 September 2021. An update survey on B1 was conducted on the 23<sup>rd</sup> August 2023. Specific timings of surveys, and a record of the weather during the surveys are included in Appendix 4.

Surveyor and camera positions are shown on Drawing ref. 5941,EC/003/Rev0 in Appendix 3, and survey timings can be found in Appendix 4. The 2023 update summer emergence survey on B1 followed the same methodology and surveyor locals as the 2021 survey.

### 3.5 Equipment

Each surveyor used a Wildlife Acoustics Echo Meter Touch (EMT) Pro with Amazon Fire 8 HD tablet. An AnaBat Express detector was deployed providing additional coverage. Recordings were analysed using Kaleidoscope and AnalookW software where necessary to aid accurate species identification.

Night Vision Aids (NVAs) were used during each survey (ref. **R.7**). During the 2021 surveys, a Canon XA15 infrared (IR) camcorder, supported by Nightfox XB10 850nm IR and Nightfox XC5 850nm IR torches was used with video footage played back to determine numbers, locations and species of bats emerging from roost (if any). Anabat Express detectors were also deployed alongside IR cameras during surveys 1 and 3 on B1 and the survey on B2.

For the update visit each surveyor used a Wildlife Acoustics Echo Meter Touch (EMT) Pro with Amazon Fire 8 HD tablet. Two Guide TrackIR 19 thermal imaging monocular and a Canon XA15 infrared (IR) camcorder, supported by Nightfox XB10 850nm IR and Nightfox XC5 850nm IR torches was used. A Nightfox Whisker camera was also used to support the survey data.

NVAs were viewed in real time once light levels became too low for human eye observation of the survey structures, using an external monitor connected to the IR camcorder and a wireless tablet connected to the thermal scope.

All NVAs were set to record for the duration of the survey, with video footage played back to determine numbers, locations and species of bats emerging from roost, (if any).

Images from cameras at the darkest point of the night are included in Appendix 5.

### 3.6 Ecological Impact Assessment

The ecological evaluation and impact assessment detailed below is based upon CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom, (ref. **R.8**).

CIEEM Guidelines state that the value or potential value of an ecological resource or feature should be determined within a defined geographical context from an international to site scale as follows in Table 1 below:

<b>Table 1 - Assessment of Conservation Value of Bat Species</b>	
<b>Geographical Frame of Reference</b>	<b>Brief Description</b>
International	<ul style="list-style-type: none"> <li>• A species which is part of the cited interest of a SAC;</li> <li>• A species which regularly occurs in internationally or nationally important numbers. (&gt;1% of international population).</li> </ul>
National	<ul style="list-style-type: none"> <li>• A species which is part of the cited interest of a SSSI onsite or with direct habitat connectivity with the site;</li> <li>• A nationally important population of a European species/ s41 NERC species of principal importance.</li> </ul>
Regional	<ul style="list-style-type: none"> <li>• Species listed as principal importance under s41 NERC, which are not covered above, and which regularly occurs in regionally important numbers in a feature such as a woodland, hibernation roost or maternity roost.</li> </ul>
County	<ul style="list-style-type: none"> <li>• Species listed as principal importance under s41 NERC, which regularly occurs in county important numbers in a feature such as a woodland, hibernation roost or maternity roost;</li> <li>• Habitats which support sustainable populations of a species that is rare or scarce within a county.</li> </ul>
District	<ul style="list-style-type: none"> <li>• Sustainable populations of a species that is rare or scarce within the locality/listed on the local BAP;</li> <li>• Good quality foraging habitat (e.g., woodland) with good linkages to the wider environment supporting diverse assemblages of commonly encountered bat species;</li> <li>• A significant roost (such as large maternity) for regularly occurring species.</li> </ul>
Local	<ul style="list-style-type: none"> <li>• Good quality foraging habitat with linkages to the wider environment;</li> <li>• Areas of habitat with medium or high potential to be utilised as a roost site by commonly encountered species in relatively low numbers.</li> </ul>
Site	<ul style="list-style-type: none"> <li>• Low populations of common species utilising areas of the site for foraging or commuting purposes;</li> <li>• Summer roost with few individual common bats.</li> </ul>

## 4. FIELD SURVEY RESULTS

### 4.1 Site specific limitations

Visibility of the building B3, was reduced due to high brightness from the streetlight in front of B3.

Brown Long-eared (*Plecotus auritus*) bats echolocate quietly and often undetectably. For this reason, this common and widespread species may have been under recorded at the site. To reduce this limitation, infra-red cameras were utilised during surveys.

### 4.2 2021 - B1, B2, B3 Summer Bat Roost Surveys

Two Soprano pipistrelle (*Pipistrellus pygmaeus*) were noted egressing building B1 at 20.48pm during the first roost survey on 20 August 2021. Sunset was at 20.11pm. Bats were recorded emerging from beneath ridge tiles on the oldest section of B1. The general egress location is shown on Drawing ref. 5941,EC/002/Rev0 included in Appendix 3.

No bats were noted entering or egressing from buildings B2 or B3.

During surveys, species recorded foraging and commuting in the surrounding area included soprano pipistrelle and common pipistrelle (*Pipistrellus pipistrellus*) with rare passes by brown long-eared (*Plecotus auritus*) and noctule (*Nyctalus noctula*). Regular passes noted by Pipistrelle species has been shown on Drawing ref. 5941,EC/002/Rev0, included in Appendix 3, with these species noted foraging for invertebrates around existing light sources.

### 4.3 2023 - B1 Internal Inspection & Summer update survey

The internal inspection undertaken in 2023 confirmed no change in conditions of the buildings since the original PRA undertaken in 2021.

A common pipistrelle (*Pipistrellus pipistrellus*) was noted egressing building B1 at 20:28 on 23 August 2023, approximately 23 minutes after sunset. Bats were recorded emerging from beneath ridge tiles on the oldest section of B1. The general egress location is shown on Drawing ref. 5941,EC/004/Rev0 included in Appendix 3.

The focus of the survey was on B1, however no emergence from the adjoining B2 was noted throughout the duration. Passes by brown long-eared bats and noctule were observed, but neither species was observed emerging.

During surveys, species recorded foraging and commuting in the surrounding area included common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle with two passes by brown long-eared (*Plecotus auritus*) and noctule (*Nyctalus noctula*).

#### 4.4 Assessment of Ecological Value

The ecological value of the site for bats has been measured using two separate approaches: conservation status of species and nature conservation value of habitats.

##### 4.4.1 Conservation Status of Bats

The conservation status of the species noted onsite are show in in Table 2, below:

<b>Table 2 - Conservation status of bat species noted onsite</b>				
<b>Common Name and Site Use</b>	<b>Scientific Names</b>	<b>Relevant Legislation</b>	<b>Conservation Status in England*</b>	<b>Conservation Status in Suffolk**</b>
Common pipistrelle (confirmed roosting in 2023, regular passes and foraging).	<i>Pipistrellus pipistrellus</i>	Hab Regs Sch 2, WCA sec 9.	Least Concern.	'Only bat species to be recorded in every 10km <sup>2</sup> of county'.
Soprano pipistrelle (confirmed roosting in 2021).	<i>Pipistrellus pygmaeus</i>	Hab Regs Sch 2, WCA sec 9, NERC S41, UKBAP.	Least Concern.	'Similar distribution to Common Pip'.
Noctule (overhead passes only).	<i>Nyctalus noctule</i>	Hab Regs Sch 2, WCA sec 9, NERC S41, UKBAP.	Least Concern.	'Widespread distribution'.
Brown Long-eared (rare passes – less frequent than Pipistrelle).	<i>Plecotus auritus</i>	Hab Regs Sch 2, WCA sec 9, NERC S41, UKBAP.	Least Concern.	'Common and widespread'.

##### 4.4.1.1 Value of Habitats for Bats

During the 2021 surveys a low number (two at the time of surveying) of Soprano pipistrelle were confirmed summer roosting beneath ridge tiles within building B1. No roosts were confirmed within buildings B2 and B3, during the surveys.

During the 2023 update survey, a single common pipistrelle was observed emerging from the same section of building as the two soprano pipistrelles observed in the 2021 surveys.

Soprano and Common pipistrelle are two of the most common and widespread bat species in England, including locally to the site (Suffolk). Therefore, based upon these survey results, the surveyed area is considered to be of Site value for roosting bats.

Surveys were designed to determine the presence/likely absence of roosting bats within the survey area. Therefore, the value of the site as a whole for foraging and commuting bats cannot be reliably assessed using these results, however the vegetation onsite is very limited and is restricted to a defunct species-poor hedgerow and ruderal vegetation.



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## 5. ECOLOGICAL CONSTRAINTS AND RECOMMENDATIONS FOR MITIGATION AND ENHANCEMENT OPPORTUNITIES

### 5.1 Roosting Bats - Buildings

Results have confirmed that building B1 is a summer roost used by low numbers of soprano and common pipistrelle. Given the activity noted and variety of potential access points for bats to access the building (lifted tiles on most areas of B1), it is likely that the bats recorded roosting at the site will use other areas of B1 for roosting depending upon environmental variables such as temperature and humidity. The survey area is considered to be of site importance for roosting bats.

UK legislation protects all bat roosts from damage, destruction, modification or disturbance. The proposed works have the potential to breach this legislation. Therefore, if impacts to B1 cannot be avoided within the proposals, **a Natural England (NE) European Protected Species (EPS) Mitigation Licence will be required prior to any works impacting B1 to ensure that they are undertaken legally.**

No roosts were recorded within buildings B2 to B3 in 2021. As building B2, is connected to B1, any works undertaken on B2 has potential to impact the roost within B1. As a result, an EPS Mitigation licence should be obtained prior to works impacting building B2.

For any licence application, survey data will be required for the most recent survey period (May to September). Therefore, repeat pre-construction activity surveys may be required depending upon the time lapse between this report and construction start dates to confirm that buildings B2 and B3 remain absent of roosts and to ensure the roost status of B1 hasn't changed. The number of surveys will be determined by the length of time passed.

### 5.2 Roost Mitigation

Mitigation and compensation measures associated with impacts to bats and their roosts will be detailed within the Method Statement section of the NE EPS Mitigation Licence. These are likely to include:

- A 'toolbox talk' by a licensed bat worker to all contractors prior to works;
- Supervision of all works with the potential to encounter bats by a suitably experienced Ecologist;
- Placement of bat boxes suitable for the species involved onsite prior to commencement. As previously agreed with the Client, a bat box will need to be installed at least 4m up on the south aspect of the retained elevation of the existing brick building;
- Inclusion of compensatory roost provisions suitable for the species involved within the proposed development.

The surveys undertaken provide a snapshot as to current use. Bats are mobile species which move between a number of roost sites throughout the year. Therefore, it would be prudent to approach destructive works cautiously in areas where potential roost features are present in B2 and B3.

This could include hand removal of potential roost features within B2 and B3 under guidance or supervision of a suitably qualified Ecologist.

If any bats are encountered unexpectedly during works when an Ecologist is not present, works should cease until advice has been sought, and followed, from a suitably qualified Ecologist.

### 5.3 Foraging and Commuting habitat

The foraging habitat onsite is very limited. It is best practice to retain as much existing foraging habitat as possible in the final development (in this case hedgerows along the boundaries). If this is not possible, any hedgerow to be removed should be replaced elsewhere onsite, with shrub and tree species considered beneficial to wildlife.

### 5.4 Lighting during Construction

Lighting of building B1, should not exceed current levels during any works at the site, unless undertaken under a NE EPS Mitigation Licence which permits illumination of the roost. It is best practice to avoid overnight working (between sunset and sunrise), to avoid disturbance to foraging and commuting bats.

During the construction phase, lighting should be directed away from boundary vegetation and areas of suitable foraging habitat (hedgerows), to ensure light does not obstruct bat flight paths or disrupt bat foraging activities.

### 5.5 Lighting within Final Development

A sensitive lighting scheme should be designed in coordination between a qualified Lighting Engineer and a suitably qualified Ecologist, according to current best practice guidelines (ref. **R.9**). This should ensure that foraging or commuting habitat (either retained or created within the development) remains as unlit as possible to allow continued and future use by bats.

Lighting can act as a barrier to bats, potentially restricting their movement between habitats. Any lighting to be included within the proposed development, should ideally be UV free LEDs emitting warm white light (<2700 Kelvin) with peak wavelength >550nm.

Below are broad examples of what could be considered regarding lighting for the scheme to reduce impact:

- With the aid of a lighting professional, all outdoor light fittings should be designed to reduce glare from adjacent surfaces, including the ground;
- Lighting columns throughout the development should be carefully designed to minimise light spill;
- Luminaires should be restricted to those with good optical control and no upward spill and mounted horizontally;
- Where appropriate all lighting should be set on motion-sensors and 1-minute timers;
- Where necessary, to achieve additional lighting control, control accessories such as baffles, hoods and cowls can be used to direct lighting.

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## 6. BIODIVERSITY ENHANCEMENTS

Bat bricks/boxes should be incorporated into new buildings within the scheme. These should be positioned at least 4m above the ground, sheltered from strong winds and exposed to the sun for part of the day (usually orientated south to southwest). Example bat bricks and boxes are included in Appendix 6.

Any planting proposed for the scheme should utilise species considered beneficial to wildlife such as Wild Cherry, Rowan, Common Hawthorn, Ivy, Lavender, Rosemary, Thyme, Ox-eye Daisy, Red Campion and Primrose. Planting night scented flowers including Jasmine and Honeysuckle would also be beneficial to foraging bats. Example species are included within Appendix 7.

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## 7. CONCLUSIONS

Results have confirmed that building B1 is a summer roost used by low numbers of soprano and common pipistrelle. Given the activity noted and variety of potential access points for bats to access the building, it is likely that the bats recorded roosting could use other areas of the building for roosting. The survey area is considered to be of site importance for roosting bats.

**A Natural England (NE) European Protected Species (EPS) Mitigation Licence will be required prior to any works that impact B1.** As building B2 is connected to B1, works undertaken on B2, have potential to impact the roost within B1. As a result, works to B2, with the potential to impact bats roosting within B1, should be carried out once a Mitigation Licence for B1, has been granted.

For any licence application, survey data will be required for the most recent survey period (May to September). In addition, repeat pre-construction activity surveys may be required depending upon the time lapse between this report and construction start dates to confirm that buildings B2 and B3 remain absent of roosts. The number of surveys will be determined by the length of time passed.

Habitats onsite are considered important on a site scale for foraging and commuting bats. Recommendations are made in Section 5 to ensure that impacts to these habitats are avoided. This includes design of a bat sensitive lighting scheme to the satisfaction of a suitably qualified and experienced ecologist.

Bat boxes/bricks and a wildlife friendly planting scheme should be incorporated into the final development to provide additional roosting opportunities. Appendices 5 and 6 provide examples.

An Enhancement Scheme detailing the proposed mitigation and compensation should be submitted and approved by the Local Authority prior to construction works.

Provided that the mitigation, compensation and enhancement measures within are adhered to, it is considered likely that the development could proceed with no significant impact on local bat populations.

# APPENDICES

## Appendix 1 – Report Limitations and Conditions

### General Limitations and Exceptions

This report was prepared solely for our Client for the stated purposes only and is not intended to be relied on by any other party or for any other use. No extended duty of care to any third party is implied or offered.

Geosphere Environmental Ltd does not purport to provide specialist legal advice.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon until considered in the context of the whole report.

Interpretations and recommendations contained in the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based upon current legislation in force at that time.

### Ecology Limitations and Exceptions

Any limitations associated with the report will be stated. The consequences of any limitations, findings and/or recommendations in the report are made clear in line with CIEEM (2013) 'Guidelines for Preliminary Ecological Appraisal' (GPEA) and BSI (2013) BS 42020:2013 Biodiversity – 'Code of practice for planning and development'.

This report is prepared and written in the context of the proposals stated in the introduction to this report and should not be used in a differing context.

The wildlife and habitats present on any site are subject to change over time. Surveys of this kind can have limited validity, with the possibility of behaviour patterns and territory boundaries varying over time, due to the dynamics of adjacent populations.

New information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to us for re-assessment and, if necessary, re-appraisal.

It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the natural environment.

The scoping survey does not assess the presence or absence of a species, but is used to assess the potential for habitat to support them. Additional surveys may be recommended if, on the basis of the preliminary assessment or during subsequent surveys, it is considered reasonably likely that protected species may be present.

This survey does not constitute an invasive species survey and should not be treated as such.

Owing to seasonal variances and prevailing weather, conditions may sometimes be sub-optimal for surveying and this may delay or disrupt planned survey programmes. If applicable, full details are given in the report.

Geosphere Environmental Ltd may not be aware of information that could be held by other organisations or individuals, and it is always possible for features of nature conservation interest to be unrecorded during surveys.

Scientific survey data will be shared with local biological records centre in accordance with the CIEEM professional code of conduct.

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## Appendix 2 – References

- R.1.** Geosphere Environmental, (2021), Preliminary Ecological Appraisal and Bat Scope, 5823,EC,PEA,Bat Scope/RH,KL/18.08.21/V1
- R.2.** Ministry of Housing, Communities and Local Government (MHCLG) (July 2021) National Planning Policy Framework (NPPF).
- R.3.** ODPM (2005) Government Circular: Biodiversity and Geological Conservation – statutory obligations and their impact within the planning system.
- R.4.** BCT (2016). ‘Bat Surveys – Good Practice Guidelines’ Bat Conservation Trust, London, 3rd edition.
- R.5.** JNCC (2004). ‘Bat Workers Manual’ 3rd edition. Joint Nature Conservation Committee, Peterborough.
- R.6.** Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.
- R.7.** BCT (2022) ‘Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys’
- R.8.** CIEEM, (2016). Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (Second edition dated January 2016).
- R.9.** Institution of Lighting Professionals (2023) Bats and artificial lighting at night – Guidance Note 08/23



## Appendix 3 – Drawings

Proposed Development - 241373-PUR-00-00-DR-A-2001

Bat Survey: Surveyor Location Plan 2021 – Drawing ref. 5941,EC/001/Rev0

Bat Survey: Results Plan 2021 – Drawing ref. 5941,EC/002/Rev0

Bat Survey: Surveyor Location Plan 2023 – Drawing ref. 5941,EC/003/Rev0

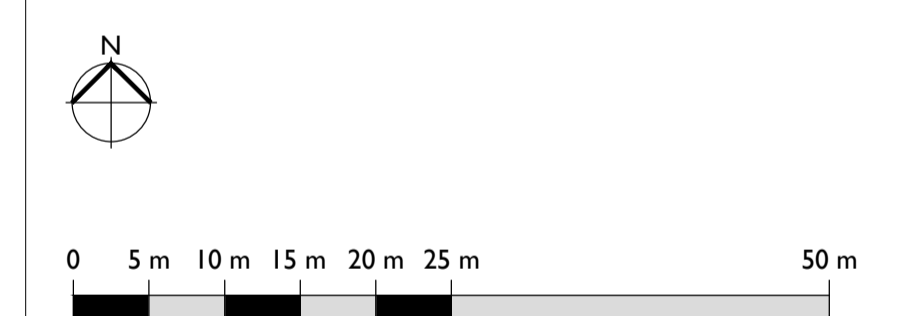
Bat Survey: Results Plane 2023 – Drawing ref. 5941/EC/004/Rev0



**Notes:**  
 Drawings are based on survey data and may not accurately represent what is physically present.  
 Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.  
 All dimensions are in millimeters unless noted otherwise.  
 Purcell shall be notified in writing of any discrepancies.

- Key Plan**  
 not to scale
- 1 Bedroom Apartment
  - 2 Bedroom Apartment
  - 3 Bedroom House/Apartment
  - 4 Bedroom House
  - 5 Bedroom House
  - Retail/Convenience Store

1. Existing pavement widened to improve visibility at junction
2. New retail convenience store
3. Stair and lift core to first floor apartments
4. Secure cycle storage for apartment residents
5. Secure refuse storage for apartment residents
6. Refuse storage for convenience store
7. Convenience store customer car parking
8. Cycle hoops for public/customer use
9. Access road resurfaced and landscaped
10. Existing brickwork envelope and roof retained
11. Existing shopfront retained
12. Car parking for apartment residents
13. Screen planting to boundaries
14. New brickwork wall to define threshold into residential
15. House 1 - 4 bedroom house
16. House 2 - 4 bedroom house
17. House 3 - 3 bedroom house
18. House 4 - 3 bedroom house
19. House 5 - 5 bedroom house
20. House 6 - 3 bedroom house



REV	DATE	BY	CHK	DESCRIPTION
P01	03/08/2021	PB	PB	Issue for comment
P02	04/08/2021	EL	PB	Issue for Information

CLIENT  
**TBC**  
 PROJECT  
**Former Chambers Bus Depot, Bures**  
 JOB NUMBER  
**241373**



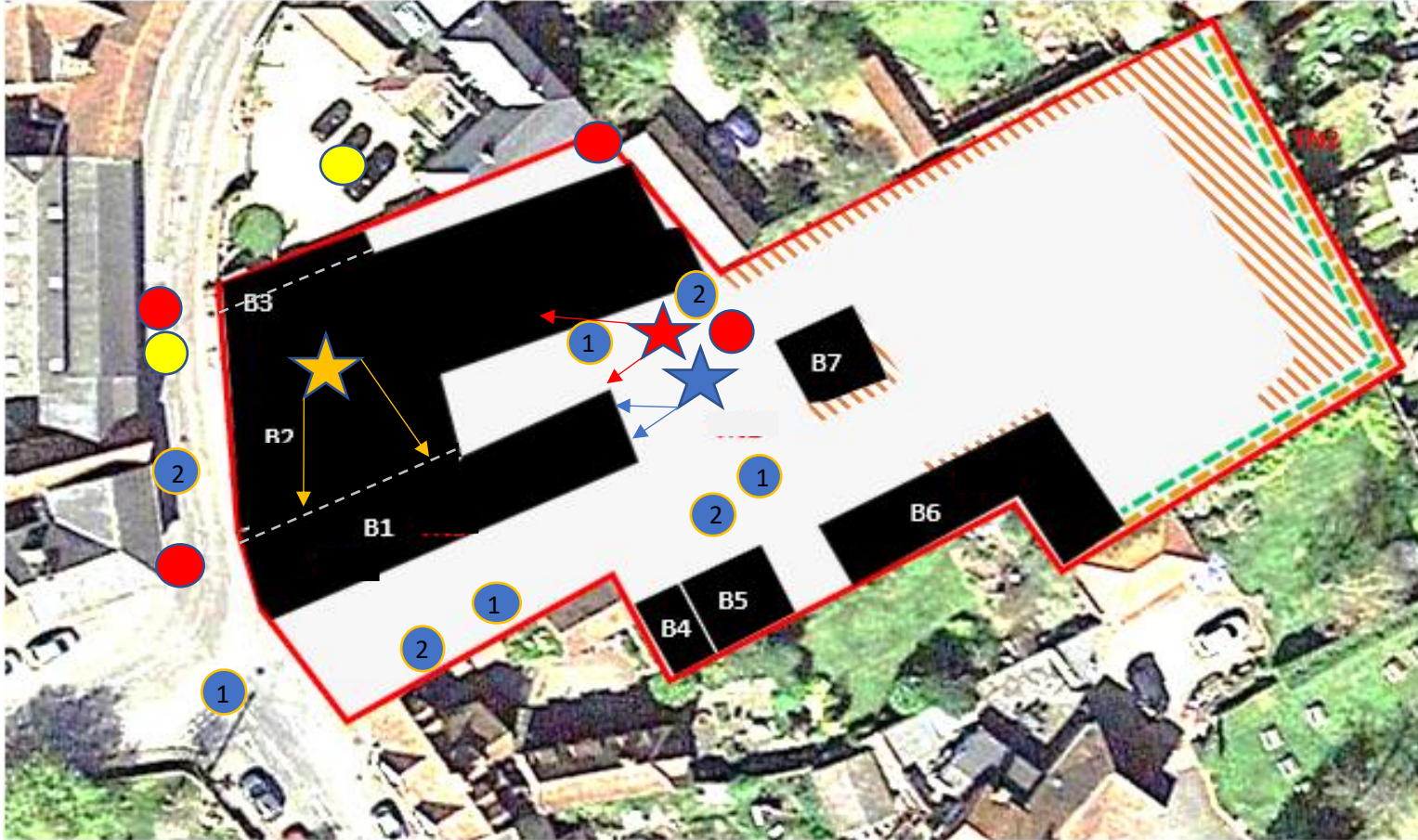
TITLE  
**Ground Floor Plan**  
**As Proposed**

SIZE	SCALE	LAST REVISED	DRAWN	CHECKED
A1L		04/08/2021	EL	PB

REV  
**P02** **S2 - For Information**  
 DRAWING NAME  
**241373-PUR-00-00-DR-A-2001**







**I** **As Proposed Ground Floor**  
**2001** **1:200**





GEOSPHERE ENVIRONMENTAL

**LEGEND**

-  B1 Surveyor Locations - Survey X
-  B2 Surveyor Locations
-  B3 Surveyor Locations
-  Camera Location (B1 Survey 1)
-  Camera Location (B1 Survey 3)
-  Camera Location (B2 survey 1)

**SOURCE**

[© OpenStreetMap contributors](#)

**PROJECT**

Former Chambers Bus Depot, Bures, Suffolk, CO8 5AB

**TITLE**

Bat Survey Surveyor locations

**DRAWING NUMBER**

**5941,EC/001/Rev0**

**SCALE**

As marked

**DATE**

22/09/2021

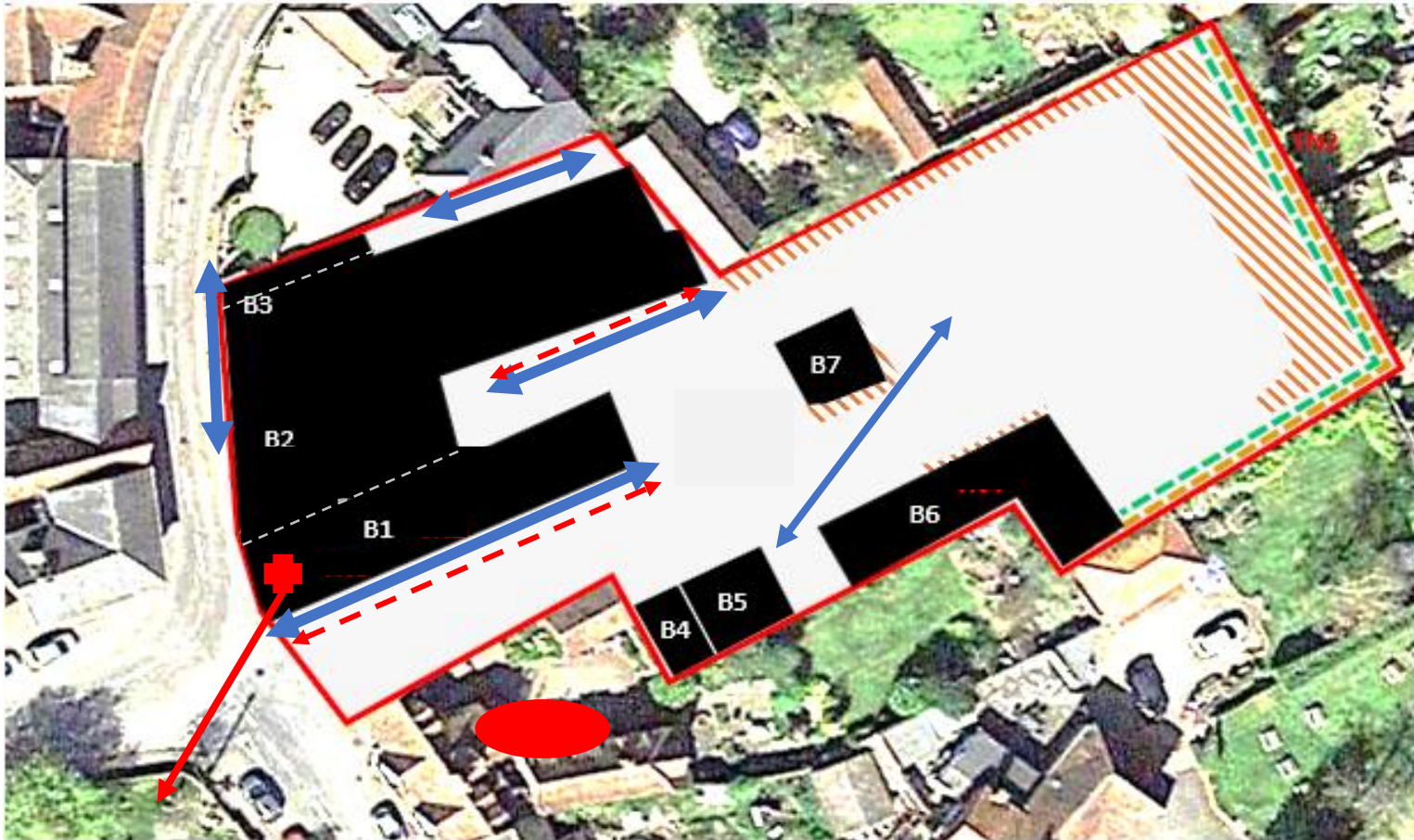
**DRAWN BY**

HL






**CHECKED BY**

KL





**LEGEND**

-  Common Pipistrelle Passes/foraging
-  Soprano Pipistrelle Passes/foraging
-  Soprano Pipistrelle (x2) Egress location
-  Soprano Pipistrelle (x2) foraging around chimney (25/08/21)
-  Soprano Pipistrelle flight path from roost

**SOURCE**

[© Google Maps](#)

**PROJECT**

Former Chambers Bus Depot, Bures, Suffolk, CO8 5AB

**TITLE**

2021 Bat Survey Results Plan

**DRAWING NUMBER**

**5941,EC/002/Rev0**

**SCALE**

As marked

**DATE**

22/09/2021

**DRAWN BY**

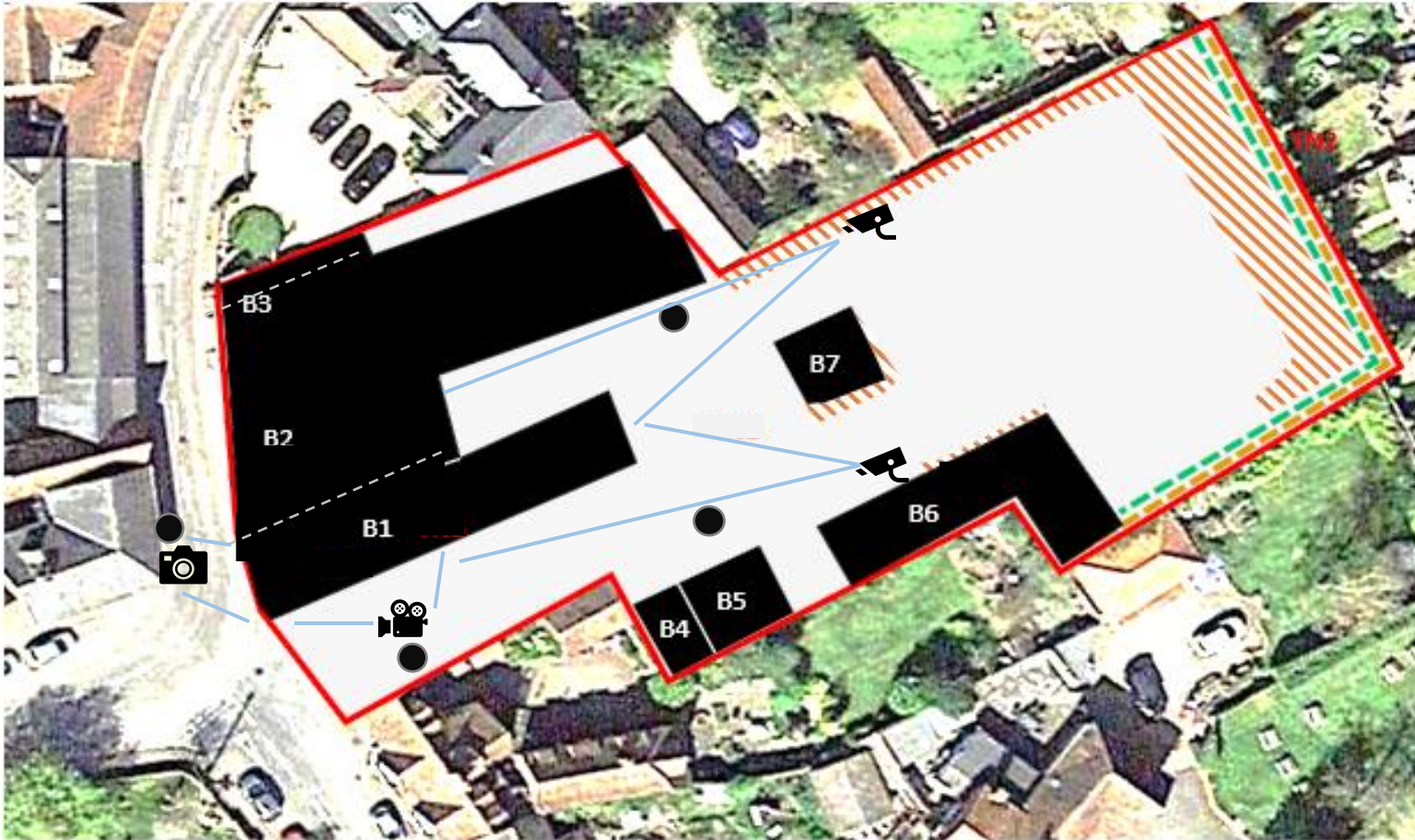
HL

**CHECKED BY**






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**LEGEND**

-  Surveyor Locations
-  Infrared Camera
-  Thermal camera
-  Night fox Whisker
-  Viewshed of cameras (indicative fo surveyor view)

**SOURCE**

[© 2023 Google, Imagery © 2023 Bluesky, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, Map data © 2023](#)

**PROJECT**

Former Chambers Bus Depot, Bures, Suffolk, CO8 5AB

**TITLE**

Bat Survey Surveyor locations

**DRAWING NUMBER**

**5841,EC/003/Rev0**

**SCALE**

As marked

**DRAWN BY**

SJ

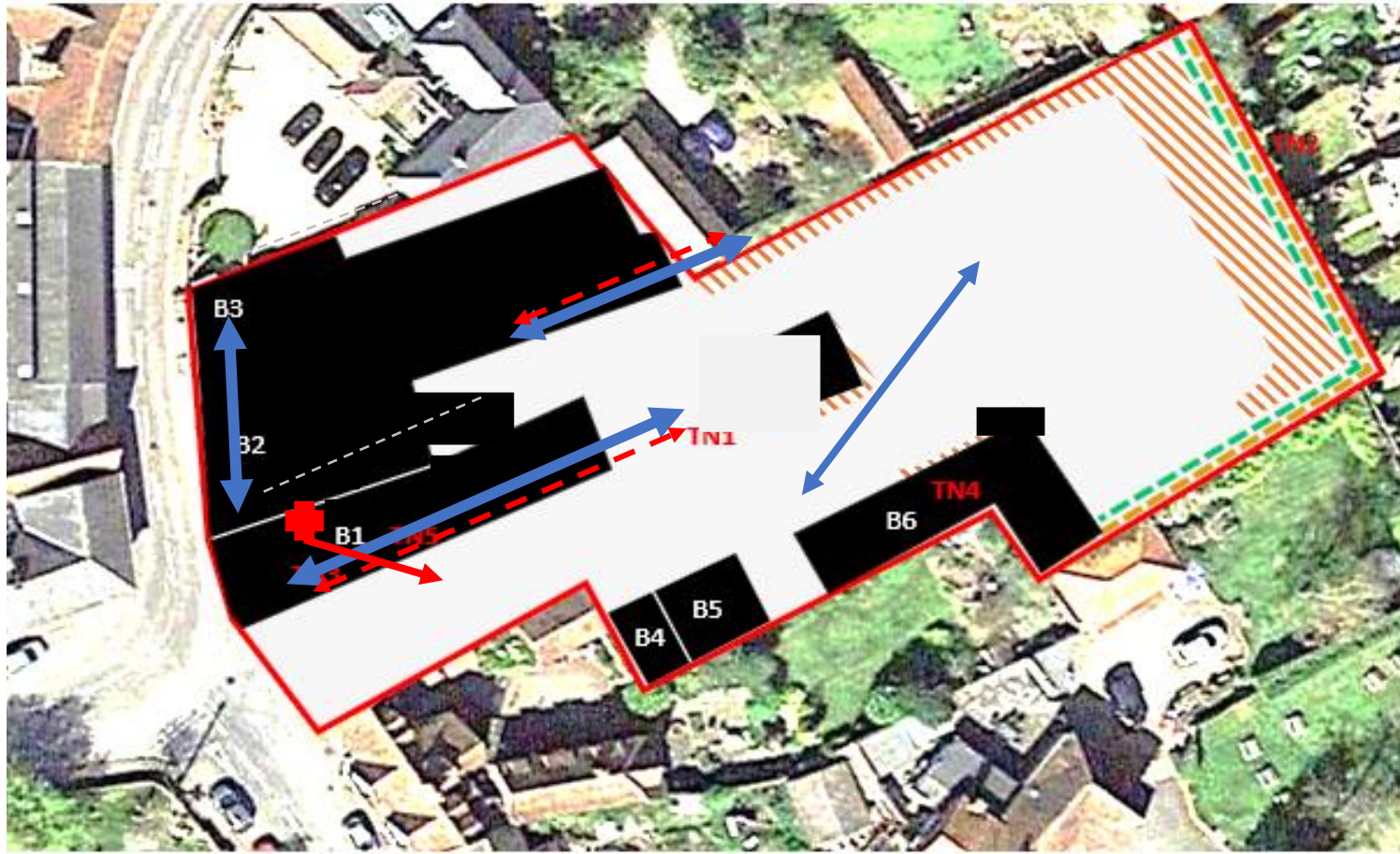
**DATE**

06/09/2023

**CHECKED BY**





KL





GEOSPHERE ENVIRONMENTAL

**LEGEND**

-  Common Pipistrelle Passes/foraging
-  Soprano Pipistrelle Passes/foraging
-  Common pipistrelle egress location
-  Common pipistrelle flight path from roost

**SOURCE**

[© Google Maps](#)

**PROJECT**

Former Chambers Bus Depot, Bures, Suffolk, CO8 5AB

**TITLE**

2021 Bat Survey Results Plan

**DRAWING NUMBER**

**5941,EC/004/Rev0**

**SCALE**

As marked

**DATE**

08/09/2023

**DRAWN BY**

HL

**CHECKED BY**

KL



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# Appendix 4 – Roost Survey Timings & Weather



# BAT ACTIVITY SURVEYS - WEATHER RECORDS



**Project Number:** 5941,EC

**Date:** 14/09/2023

**Project Name:** Former Chambers Bus Depot, Bures

**Surveyor Names:** James Booty (Senior Ecologist) (Bat Survey Licence number: 2015-11511-CLS-CLS), Rachel Hall (Ecologist) (Bat Survey Licence number: 2020-46136-CLS-CLS), Tom Cox (Ecologist and Arboricultural Consultant), Zainab Faris (Assistant Surveyor), Chole Kingsmead (Assistant Surveyor), Joe Glenwright (Assistant Surveyor), Henry Leonard (Assistant Surveyor), Charles Kilshaw (Assistant Ecologist) and Duncan Sweeting (Assistant Ecologist), Sarah Jarrett (Ecologist), Tracy Aimes (Arboricultural and Ecological Assistant), Eleanor Baker (Graduate Ecologist) and Fletcher Telling (Seasonal Ecologist).

Date	Survey/Building	Time		Ambient Temp (°C)		Time of Sun Set	Wind Speed* (Beaufort)	Cloud Cover (%)	General Weather Observation
		Start	End	Start	End				
17/08/2021	Survey 1/B3	20:05	21:47	17	16	20:16	1	100%	
20/08/2021	Survey 1/B1	19:56	21:40	20	17	20:11	1	50%	
24/08/2021	Survey 1/B2	19:52	21:33	17	15	20:01	0	0	
25/08/2021	Survey 2/B1&B2	19:44	21:42	17	15	20:00	2-4	100%	
25/08/2021	survey 2/B3	19:48	21:46	17	15	20:00	2-4	100%	
10/09/2021	Survey 3/B1	04:18	06:30	17	16	06:23	1	70%	
23/08/2023	Survey 4/B1	19:50	22:05	22	20	20:05	0-1	10%	

**\*Beaufort Scale**

Beaufort Scale		Wind Speed (mph)	Beaufort Scale		Wind Speed (mph)
<b>0</b>	Calm	0 - 1	<b>4</b>	Moderate breeze	13 - 17
<b>1</b>	Light air	1 - 3	<b>5</b>	Fresh breeze	18 - 24
<b>2</b>	Light breeze	4 - 7	<b>6</b>	Strong breeze	25 - 30
<b>3</b>	Gentle breeze	8 - 12	<b>7</b>	Near gale	31 - 38



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## Appendix 5 –Screenshots from NVA’s

**Screenshot 1**



**Screenshot 2**



**NOTE**

**Screenshot 1**

View from the Canon Infrared camera at the darkest point of the night.

**Screenshot 2**

View from the Nightfox Whisker at the darkest point of the night.

**Screenshot 3**

View from the northern TrackIR pro Thermal monocular at the darkest point of the night.

**Screenshot 3**



**Screenshot 4**



**Screenshot 4**

View from the southern TrackIR pro Thermal monocular at the darkest point of the night.

**PROJECT**

Former Chambers Bus Depot, Bures

**PROJECT NUMBER**

5941,EC

**TITLE**

**Screenshots from NVA's**

**DATE**

14/09/2023

**PAGE NO.**

1 of 1

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## Appendix 6 - Example Bat Boxes & Bat Bricks

## EXAMPLE BAT BRICKS AND BOXES

### Integrated Bat Box: Istock Enclosed Bat Box 'B'



Large 215 x 290mm



Large Bespoke  
215 x 290 mm



Small Red  
215 x 215 mm

The Istock Enclosed Bat Box 'B' is designed for integration into the wall of new buildings or conservation projects and is intended to provide summer roosting space for pipistrelles specifically. It provides a discrete home for bats, with several roosting chambers to provide zones of differing temperatures within the box. The bats are contained within the box itself and the entrance at the bottom allows droppings to fall out, meaning that the box is maintenance free.

### Integrated Bat Box: Standard bat Box



Bat boxes can be supplied in brick fronted, half bond and quarter bond brickwork or alternatively with a stainless-steel mesh fitted to the front. The mesh is designed for optimum adhesion in render and stonework applications. A basic version can be fitted directly behind weatherboarding or into studwork.

These bat boxes are best positioned in sunlit clusters, at a height of 3-6 metres and ideally facing a variety of aspects as bats will move around a building as the seasons change.

This product makes an ideal bat house for most of the UK's bat species, including Pipistrelles, who will use it for roosting, hibernating and (in maternity roosts) bringing up their young. The entrance hole and internal design can be tailored to suit different species of bat e.g. Bechstein's and Serotine.

The box is self-cleaning. The bat boxes are supplied with a non-removable front as standard.

#### SOURCE

<https://www.nhbs.com/ibstock-enclosed-bat-box-b>

#### SOURCE

<http://www.birdbrickhouses.co.uk/brick-nesting-boxes/bat-box/>

#### TITLE

**Example Bat Bricks and Boxes**

#### DATE

14/09/2023

#### PAGE NO.

1 of 3

### External Bat Box: Schwegler 1FQ bat box



The structure of the 1FQ has been designed with bat behaviour in mind. For example, the outside of the front panel has been roughened to enable the animals to land and hang onto it securely. Access is via a step-like recess which enables even young and inexperienced bats, to safely access the box. The inside of the box has rough pieces of wood incorporated which provide good insulation and are also used by the bats as perches. The internal layout provides three different areas from which bats can hang and which offer different levels of light and temperature. There are also non-slip areas, gaps ranging from 1.5 to 3.5cm in width and various places for individuals to hide.

Installation of the 1FQ is achieved using the four screws and plugs provided. The back panel is initially screwed onto the wall (using four screws) and then the front panel is attached to this. It can easily be attached to most types of external brick, timber or concrete and can also be placed inside a roof space. (If fixing to timber then the gaps between the wall and the box should be sealed with silicone to prevent moisture being trapped here). The box should be positioned a minimum of three metres above the ground and where there is a clear flight path for bats entering and leaving. If desired, the front panel can be painted to match your building using an air-permeable paint.

**SOURCE**  
<http://www.nhbs.com/title/16055>  
1

### External Bat Box: 1FF Schwegler Bat Box with Built-in Wooden Rear Panel



The Schwegler 1FF bat box is spacious enough for bats to use as a summer roost or nursery site and is open at the bottom, allowing droppings to fall out so it does not need cleaning. The 1FF is, therefore, especially suitable for hanging in inaccessible places such as high in trees, or on steep slopes and house walls.

The 1FF is manufactured from long-lasting Woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects.

The inner dimensions of the 1FF have a reducing width making it ideal for bat species which inhabit crevices such as pipistrelle and noctule bats. For conservation projects and studies, the entire front of the box can be easily swung open for inspection purposes.

The 1FF bat box can be sited in trees or on buildings and is best positioned at a height of between 4 to 6 metres.

**SOURCE**  
<https://www.nhbs.com/1ff-schwegler-bat-box-with-built-in-wooden-rear-panel>

**TITLE**  
**Example Bat Bricks & Boxes**

**DATE**  
14/09/2023

**PAGE NO.** 2 of 3

## External Bat Box: 2F Schwegler Bat Box with Double Front Panel



This box has a front panel and a second inner wooden panel fitted to it to create a cavity wall. This provides ideal quarters for bats that inhabit crevices, such as Nathusius' Pipistrelle (*Pipistrellus nathusii*), Daubenton's Bat (*Myotis daubetonii*) and the Common Pipistrelle (*Pipistrellus pipistrellus*).

It has been designed as a summer roosting space for bats and has a simple entrance hole at the front. The Schwegler 2F double front panel is removable and can be converted in to a bird nest box using a replacement 1B front panel if there is no evidence of bat activity after a couple of years. The 2F Double Front Panel is manufactured from long-lasting Woodcrete, which is a blend of wood, concrete and clay which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects. Woodcrete is breathable and maintains a stable temperature inside the box and the 2F is painted black to absorb warmth. It also provides a good rough surface for bats to cling on to and climb.

The 2F Double Front Panel bat box can be sited in trees or on buildings and is best positioned at a height of between 3 to 6 metres.

### SOURCE

<https://www.nhbs.com/2f-schwegler-bat-box-with-double-front-panel>

## External Bat Box: Vincent Pro Bat Box



This attractive bat box has been designed by leading bat researcher, Collin Morris, based on a tried and tested design from the Vincent Wildlife Trust.

The box features three vertical chambers of different sizes, providing ideal roosting space for a variety of species. Beneath the crevice entrances is a ladder which provides a rough surface for bats to land.

Proven with seven UK species: Barbastelle, Leisler's, common pipistrelle, soprano pipistrelle, brown long-eared, Natterer's and whiskered bat.

### SOURCE

<https://www.nhbs.com/vincent-pro-bat-box>

### TITLE

**Example Bat Bricks and Boxes**

### DATE

14/09/2023

**Please note that once bats have inhabited a roost (integrated or external box) they may only be disturbed by licensed bat workers.**

### PAGE NO.

3 of 3

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# Appendix 7 – Example Plant Species to Attract Bats



# PLANTS CONSIDERED BENEFICIAL TO BATS

The lists of plants below are considered suitable species for foraging bats. When buying native plants, ensure they are from a reputable source, as many wildflowers are illegally taken from the wild.

## Trees

Common Name	Latin Name	Common Name	Latin Name
Apple	<i>Malus domestica</i>	Plum	<i>Prunus domestica</i>
Bird Cherry	<i>Prunus padus</i>	Rowan	<i>Sorbus aucuparia</i>
Crab Apple	<i>Malus baccata</i>	Sugar Maple	<i>Acer saccharum</i>
Medlar	<i>Mespilus germanica</i>	Sycamore	<i>Acer pseudoplatanus</i>
Norway Maple	<i>Acer platanoides</i>	Whitebeam	<i>Sorbus aria</i>
Pear	<i>Pyrus communis</i>	Wild Cherry	<i>Prunus avium</i>

## shrubs

Common Name	Latin Name	Common Name	Latin Name
Field Maple	<i>Acer campestre</i>	Butterfly Bush	<i>Buddleja davidii</i>
Hazel	<i>Corylus avellana</i>	Golden Ball Buddleia	<i>Buddleja globosa</i>
Hawthorn	<i>Crataegus monogyna</i>	Hebe	<i>Hebe spp.</i>
Heather	<i>Erica vagans</i>	Privet	<i>Ligustrum ovalifolium</i>
Cherry Laurel	<i>Prunus laurocerasus</i>	Wayfaring	<i>Viburnum lantana</i>

## Climbers

Common Name	Latin Name	Common Name	Latin Name
Dog Rose	<i>Rosa canina</i>	Ivy	<i>Hedera helix</i>
Guelder Rose	<i>Viburnum opulus</i>	Jasmine (night scented)	<i>Cestrum nocturnum</i>
Honeysuckle	<i>Lonicera periclymenum</i>		

## Herbaceous Plants

Common Name	Latin Name	Common Name	Latin Name
Angelica	<i>Angelica sylvestris</i>	Lemon Balm	<i>Melissa officinalis</i>
Aubretia	<i>Aubretia deltoidea</i>	Marjoram	<i>Origanum majorana</i>
Candytuft	<i>Iberis sempervirens</i>	Knapweed	<i>Centaurea nigra</i>
Corn Cockle	<i>Agrostemma githago</i>	Mallow	<i>Malva sylvestris</i>
Cornflower	<i>Centaurea cyanus</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Corn Marigold	<i>Glebionis segetum</i>	Primrose	<i>Primula vulgaris</i>
Borage	<i>Borago officinalis</i>	Yarrow	<i>Achillea millefolium</i>
English Marigolds	<i>Calendula officinalis</i>	Rosemary	<i>Rosmarinus officinalis</i>
Lavender	<i>Lavandula spp.</i>	Sweet Cicely	<i>Myrrhis odorata</i>
Musk Mallow	<i>Malva moschata</i>		

**TITLE**  
**Plants Considered Beneficial to Bats**

**DATE**  
14/09/2023

**PAGE NO.** 1 of 1





GEOSPHERE ENVIRONMENTAL

**Ec**

**Ecology.**

**Fr**

**Flood Risk.**

**Ge**

**Geotechnical.**

**En**

**Environmental.**

**Kw**

**Knotweed.**

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