

Bat Mitigation Strategy for the Cricket Pavilion

Project name Arborfield - Sports and Community Infrastructure Parcel	Client Crest Nicholson Chiltern	Date 28 March 2024	Prepared by Caitriona Fenton
Checked by Rosie Walton	Approved by Max Wade		

1. Introduction

This document sets out ecological information in response to comments from the Local Planning Authority for the Reserved Matters Application (RMA) report at Arborfield, on behalf of Crest Nicholson Chiltern (the Client). The Sports and Community Infrastructure Parcel is undergoing an RMA under the outline planning consent for Arborfield Green (O/2014/2280, Wokingham Borough Council).

Following comments from the Wokingham Borough Council Biodiversity Officer, Duncan Fisher, during an online consultation meeting with the project team on 6 March 2024, it was agreed that AECOM would produce a note which sets out the bat mitigation for the cricket pavilion building, within Sports and Community Infrastructure Parcel.

Currently the cricket pavilion is known to have several day roosts for pipistrelle bats, on the basis of emergence surveys conducted in 2022 and 2023¹, meaning a Natural England mitigation licence will be required prior to demolition. Based on survey data to date, appropriate mitigation would be three bat boxes or bricks to replace the loss of roosts, as recommended by the bat mitigation guidelines².

Alternative roost provision (or mitigation) at the cricket pavilion was recommended in the 2014 Arborfield Garrison Bat Mitigation Strategy (hereafter referred to as the '2014 Bat Mitigation Strategy'), in the form of internal roost feature roof void improvements and external roost features. It was stated that this would be delivered by "*Enhancement of existing buildings (such as the cricket pavilion to be completed before removal of known roosts)*". At the time of the writing of the 2014 strategy no known roosts were present at the cricket pavilion and it was not anticipated to be demolished at the time of writing. The mitigation was recommended "to mitigate for the loss of potential roosting sites" and as mitigation for "*in combination effects*" as stated in the 2014 ES.

While the existing cricket pavilion will be completely demolished, removing the availability for enhancement of the existing structure, it is instead proposed to deliver an internal roosting feature within the new cricket pavilion as an enhancement feature. This would be in addition to the bat boxes that would meet requirements of the future Natural England mitigation licence, given the current roost status. It should be noted that all Arborfield bat licences form part of a wider bat licence masterplan³. The 2014 bat mitigation strategy states that "*a proportion of the roost mitigation will be carried out under Natural England development licence*". The bat internal roost feature would be added to the future licence application, as it can be monitored for a number of years afterwards.

The aim of this note is to identify what final bat mitigation details will be obtained by planning condition for the Sports and Community Infrastructure Parcel.

¹ AECOM (2023) Bat survey report Cricket Pavilion

² Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for development affecting bats. Version 1.1*. Chartered Institute of Ecology and Environmental Management, Ampfield.

³ AECOM (2022) Arborfield Garrison SDL Bat Licence Masterplan Version 10.0: December 2022

2. Background

This section provides the summary of past bat licences at Arborfield and the mitigation delivered to date, along with the commitments in the 2014 Bat Mitigation Strategy.

2.1 Arborfield Garrison Bat Surveys 2014

Previous surveys undertaken at Arborfield Garrison to inform the 2014 outline application confirmed the presence of at least five bat species roosting in over thirty buildings (and three trees) across Arborfield as follows;

- Common pipistrelle (*Pipistrellus pipistrellus*) in approximately 30 buildings;
- Soprano pipistrelle (*Pipistrellus pygmaeus*) in approximately 20 buildings;
- Brown long-eared bat (*Plecotus auritus*) in ten buildings;
- Natterer's bat (*Myotis nattereri*) in three buildings; and
- Serotine (*Eptesicus serotinus*) in one building.

These roosts were impacted as part of the phased development of Arborfield Green, which required separate Natural England EPS mitigation licences across the site, each linked to separate residential reserved matters or infrastructure development boundaries.

2.2 Arborfield Garrison Bat Mitigation Outline Strategy 2014

The document was developed to accompany the development outline planning application to provide the bat mitigation strategy for the Arborfield Garrison Strategic Development Location. The report detailed the rationale, proposed methodology and details of the outline bat mitigation strategy. It set out the approach to mitigating for **potential** impacts on bats. The report did not constitute a licence document; however, components of the strategy were incorporated into subsequent licence documents.

Potential impacts on bats included effects during construction. As multiple parcels were constructed at the same time it was predicted bats would be displaced from potential roosts in buildings and trees. The 2014 Bat Mitigation Strategy set out built mitigation features that would be constructed to provide alternative roost provision for bats, in an appropriate landscape (i.e. a green and dark corridor) separate to the mitigation required for development licences for loss of identified known roosts.

Built mitigation features were bat barns (Section 2.2.1); tree mounted bat boxes (Section 2.2.2); modifications of existing buildings; and integral bat boxes on residential buildings. Bat barns and tree mounted features have been secured via development licences, as they were included in the overall bat licence masterplan.

Modifications of existing buildings are remaining and they will be secured by future development licences and will be included in the future iterations of the overall bat licence masterplan. See Section 2.2.3.

2.2.1 Bat Mitigation Buildings – ‘Bat Barns’

Purpose built bat barns were designed using an outline specification in the 2014 Bat Mitigation Strategy and detailed further within the submitted mitigation licence applications for the secondary school (2015-7589-EPS-AD2) and Parcel T (2016-24999-EPS-MIT). The licence specifications were used by IDP architects in liaison with Wokingham Borough Council to produce a detailed design.

Two bat barns were constructed, one within the boundary of the Secondary School playing fields ‘School Bat Barn’ and one within the northern SANG (Suitable Alternative Natural Greenspace) ‘SANG Bat Barn’. Construction was completed in April 2016.

Construction of a third bat barn is anticipated, see Table 1 in Section 2.2.3.

2.2.2 Tree Mounted Bat Boxes

To date each licence included localised mitigation in the form of tree mounted bat boxes, within or adjacent to the boundary of that reserved matters or infrastructure application boundary. Bat boxes were generally of the smaller crevice or cavity types (Schwegler 2F of Chillon Woodstone) (although a few colony type boxes have been used, e.g. Schwegler

3FS), installed within tree lines or tree groups which form part of the site-wide dark corridor. The location of each box installed as part of mitigation licences is shown in Figure 1.

2.2.3 Future mitigation to be installed across Arborfield

Chapter 6 (Roost Replacement and Alternative Roost Provision) of the 2014 Bat Mitigation Strategy sets out the bat mitigation to be delivered across Arborfield. Specific roost loss mitigation will be carried out under Natural England mitigation licences which will dictate the exact roost provision, location and timescales.

The remaining mitigation items to be installed are shown in Table 1:

Table 1. Summary of Outline Alternative Roost Provision Delivery in Arborfield

Alternative Roost Provision	Number to be provided	Number delivered	Number remaining
Bat Barns Bespoke	3	2	1
Modifications to improve existing buildings for bats	4 (Cricket Pavilion, Stable Block, Moat House, Church)	0	4
Bat bricks within new buildings	1 in 20 newly constructed buildings and 3 bricks per large public building.	Parcel T: 7 no. Parcel Q: 4 no. U2: 3 no. C2: 2 no. Parcel AA: 2 no. Parcel U1 V2s: 5 no. Parcel V2n: 4 no. District Centre: 4 no. Parcel O2: 7 no.	TBC – number of bricks to be delivered depends on the number of buildings within each parcel
Combined bat / Swift boxes in Buildings	1 in 20 newly constructed buildings and 3 boxes per large public building.	Covered by the bat bricks	N/A
Bat boxes on Trees	4 hibernation boxes 25 in Northern SANG and 25 in the West Court SANG 20 within the dark corridors Bat boxes as specified by Natural England mitigation licences.	1 hibernation box 25 in the Northern SANG Natural England mitigation licences (7 colony boxes, 27 day roost / summer roosting boxes to date)	3 hibernation boxes 25 in the West Court SANG 20 in dark corridors Any further as required by future Natural England mitigation licences

There is a need to deliver alternative roost provision in existing buildings, particularly at the cricket pavilion building in the Sports and Community Infrastructure parcel. The next section describes this.

3. Cricket Pavilion – Bat mitigation

This section described the current status of bats at the cricket pavilion and the bat mitigation identified to be delivered for the parcel.

3.1 Current Status of Bats at the Cricket Pavilion

During the ecological survey for the RMA in August 2022, it was found that the building had suitability to support roosting bats. As a result, further surveys were recommended and the building was subject a suite of bat emergence/re-entry surveys in 2022 and 2023⁴, with confirmation that the building supports a soprano pipistrelle day roost (with two access points used) and a common pipistrelle day roost (with a single access point used) were present under the roof tiles. Therefore, a Natural England EPS Mitigation Licence to demolish the existing structure will be sought to address the impact of the loss of the roosts, following the granting of consent by the local planning authority.

Prior to the commencement of demolition, three bat boxes will be placed on trees within the parcel, to provide alternative roosts for bats during demolition, and also to provide suitable places to move bats to, should they be found during demolition. The tree-mounted bat boxes will be secured by the mitigation licence. This provision of bat boxes may need to be revisited upon completion of any updated surveys at the cricket pavilion to inform a EPSML.

3.2 Bat Mitigation Features at the Cricket Pavilion

Once the existing building has been demolished under a bat mitigation licence, a new cricket pavilion will be constructed, with bat mitigation features included. Following the 2014 Bat Mitigation Strategy, the building will be suitable for an internal roof void feature for bats and integral bat boxes externally.

Discussions have occurred between AECOM and the architect for the cricket pavilion, Edgingtons, and it has been agreed to include external bat features (integrated bat boxes and bat access tiles) at planning stage (RIBA stage 3) with a commitment to provide detailed designs for internal roof void features for bats in the next design stage (RIBA stage 4 - technical design).

The internal roost feature and external bat boxes will be secured by the mitigation licence, as set out in the 2014 Bat Mitigation Strategy.

3.2.1 Internal Roost Feature

The outline design for internal roost feature in a roof void, provided in the 2014 Bat Mitigation Strategy, will be used to inform the next design stage. An architect will design the internal roost feature, with guidance provided by the AECOM ecologist for the bat species to be targeted.

The 2014 outline design for modifications to improve existing buildings for bats is shown in Table 2 and this will be used to inform the next design stage, along with the 2023 Bat Mitigation Guidelines⁵.

⁴ AECOM (2023) *Arborfield Green: Cricket Pavilion Building Bat Report*.

⁵ Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for development affecting bats. Version 1.1*. Chartered Institute of Ecology and Environmental Management, Ampfield.

Table 2. Outline Design for Modifications to improve Existing Buildings for Bats

Modifications to Improve Existing Buildings for Bats	Summer, maternity and hibernation roosts for multiple species including pipistrelle, Natterer's and BLE bats	At a minimum the existing cricket pavilion (Building NW20) is proposed for enhancement. Additional buildings for potential enhancement could include the former stable buildings (47a) or other buildings such as the moat house (42) or church (NW19) dependent on further surveys.	Internal Roosting Features	Internal roof void improvements - Brown long-eared bats require space to fly within a roost and have been found roosting on Site. As suitable mitigation, it is recommended an area within a roof void is created especially for use by the brown long-eared bats. This space would also be suitable for other bat species requiring an internal flight space. - A 2-2.8m height by 5m width by m length roof space is required to provide a flying area for species such as brown-long eared bat. - Materials for the roosts should be rough (for grip), non-toxic or corrosive, with no risk of entanglement. The materials should also have suitable thermal properties that reduce 24 hour fluctuations but allow maximum thermal gain for summer roosts. A range of addition roost features can be provided within the roof void such rough boarding and suitable timbers from on Site roosts if available along with additional roost entrances such as Tudor Roof tiles. - A variation in temperature should also be provided within the roof void, with a heat source such as an internal heater or a 'hot box' (as for the bat barn) to provide areas of roof at a temperature of between 30°C and 40°C. This should further increase the possibility of the roof void being used by bats as a maternity colony where warmer temperatures are preferred. - Internal improvements must not bring bats into contact with Breathable Roof Membranes (BRMs) which have been proven to cause bat mortalities through entrapment within worn fibres.	
			External Roosting Features	External features - These should be installed on a case by case basis with consideration to avoid any building improvements that may impact upon the current use of buildings. External features are generally however unlikely to cause conflict with users, especially if due regard is given to placement in regards to lighting, entrances and any maintenance requirements. - A number of external features can be added to buildings to buildings to be retained such as bat bricks and boxes, as well as additional entrance points such as Tudor roof tiles. Note again that bats must not be brought into contact with Breathable Roof Membranes (BRMs). - Bat bricks are the preferred option being a permanent, low maintenance roost feature for crevice dwelling bats such as pipistrelle and Natterer's bat. - Heated external cavity boxes could be installed provide an additional type of roost provision such as for maternity colonies of crevice roosting species. These boxes normally incorporate a low wattage heater to minimise running costs and are available in different materials including wood. The requirement for their provision is likely to be dependent on further survey findings and the requirements of any Natural England development licences.	

3.2.2 Integral bat boxes

Integral boxes have been included on the general arrangement plans for the external design of the building for the planning stage (RIBA 3). The number and specification of boxes was informed from the 2014 Bat Mitigation Strategy. The proposed locations of the bat boxes are shown in the architect's drawings (Appendix B).

The type of box and dimensions are listed below:

- Schwegler 1MF bat and swift integrated nest box with bat slope: 460mm (w) 420mm (h) 225mm (d)
- Habibat 3S Integrated bat bricks: 215mm (w) 440mm (l) 105mm (d)
- Beddoes bat access tile: 600mm (w) x 300mm (l)

4. Conclusion

The bat mitigation strategy for the cricket pavilion has been informed by the current status of bats at the building, and the mitigation features in the 2014 Bat Mitigation Strategy to be delivered.

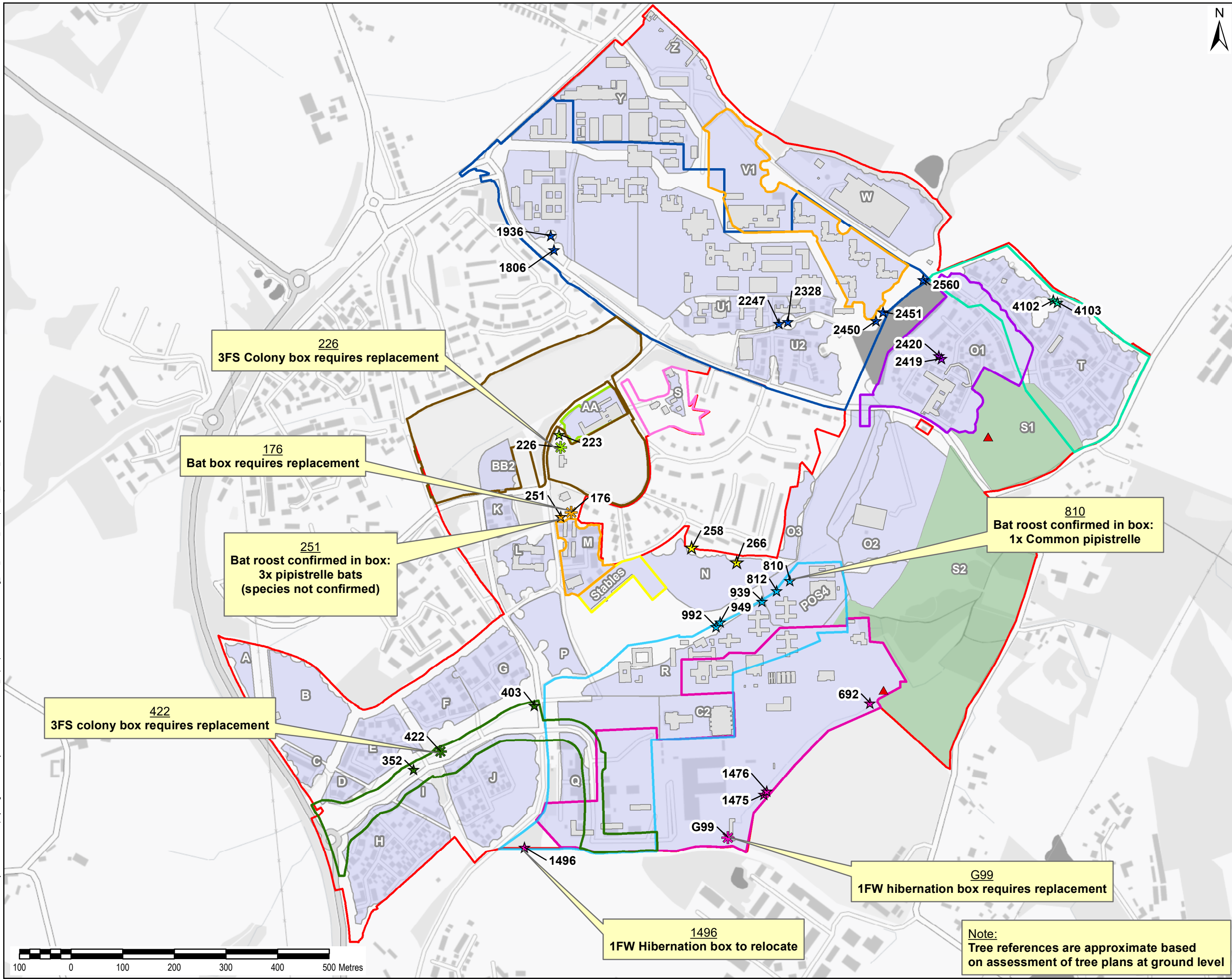
An internal roost feature in the roof void, a bat access tile and two integral bat boxes will be installed in the new cricket pavilion.

An outline design for the internal roost feature is provided in this document for the planning design stage (RIBA 3) and a detailed design will be provided by the architect with the guidance of an ecologist, in the next design stage (RIBA 4).

Appendix A Figures

Figure 1. Bat Mitigation at Arborfield

File Name: \\eu.aecomnet.com\EUProject\VolUKCPD\1-IE\projects\general\GIS\Projects\Arborfield\Garrison\02_Maps\Sports Pitches Bat Licence\Fig B2.1_Arborfield_Masterplan_Bat_Licence_LicencePhasing_V10.mxd



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Application Boundary
- Bat Barn
- Building
- SANGS
- Parcel Reference
- Parcel
- Tree Reference Number

Bat Licence Extent

- Expected Licence
- Sports Pitches
- Hazebrouck South
- NMRE
- Northern Rowcroft
- Parcel AA
- Parcel O1
- Parcel M
- Parcel T
- Parcel S
- Secondary School
- Stables

Mitigation Items

- Hazebrouck South Box
- NMRE Box
- Northern Rowcroft Box
- Parcel AA
- Parcel M
- Parcel O1 Box
- Parcel T Box
- Secondary School Box
- Stables Box
- NMRE Missing Box
- Parcel AA Missing Box
- Parcel M Missing Box
- Secondary School Missing Box

Copyright:
Contains OS data © Crown Copyright and database right 2017.

Purpose of Issue:
SITE WIDE BAT LICENCE SUMMARY

Client:
CREST NICHOLSON CHILTERN

Project Title:
ARBORFIELD GARRISON

Drawing Title:
**ARBORFIELD
GREEN BAT LICENCE
MITIGATION LOCATIONS**

Drawn: SB	Chk'd: CF	App'd: EC	Date: 26/01/2023
--------------	--------------	--------------	---------------------

AECOM Internal Project No:
60312043

Scale at A3:
1:6,750

THIS DOCUMENT HAS BEEN PREPARED BY AECOM LTD (AECOM) FOR THE SOLE USE OF THE CLIENT AND IN ACCORDANCE WITH GENERALLY ACCEPTED CONSULTANCY PRINCIPLES. THE BUDGET FOR FEES AND THE TERMS OF REFERENCE AGREED BETWEEN AECOM AND THE CLIENT. ANY INFORMATION PROVIDED BY THIRD PARTIES AND REFERRED TO HEREIN HAS NOT BEEN CHECKED OR VERIFIED BY AECOM. UNLESS OTHERWISE EXPRESSLY STATED IN THE DOCUMENT, NO THIRD PARTY MAY RELY UPON THIS DOCUMENT WITHOUT THE PRIOR AND EXPRESS WRITTEN AGREEMENT OF AECOM.

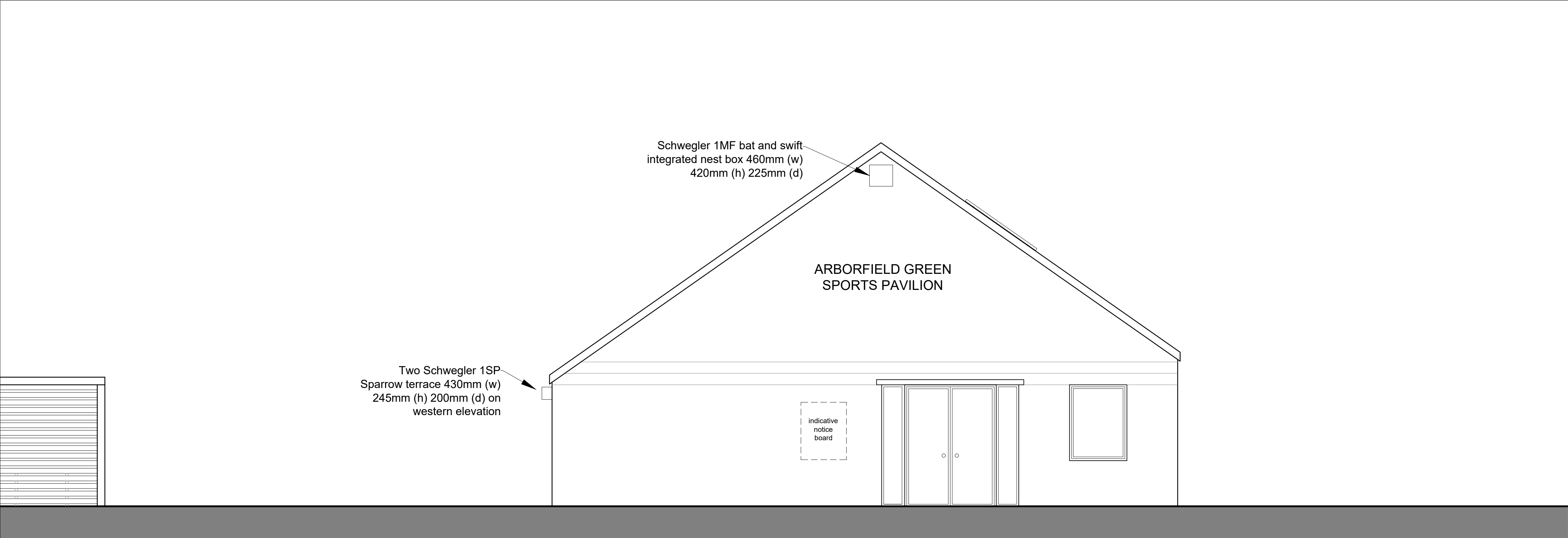
AECOM
Surrey House
4 Bedford Park
Croydon, CR0 2AP
T: +44 (0)20 8639 3500
www.aecom.com

AECOM

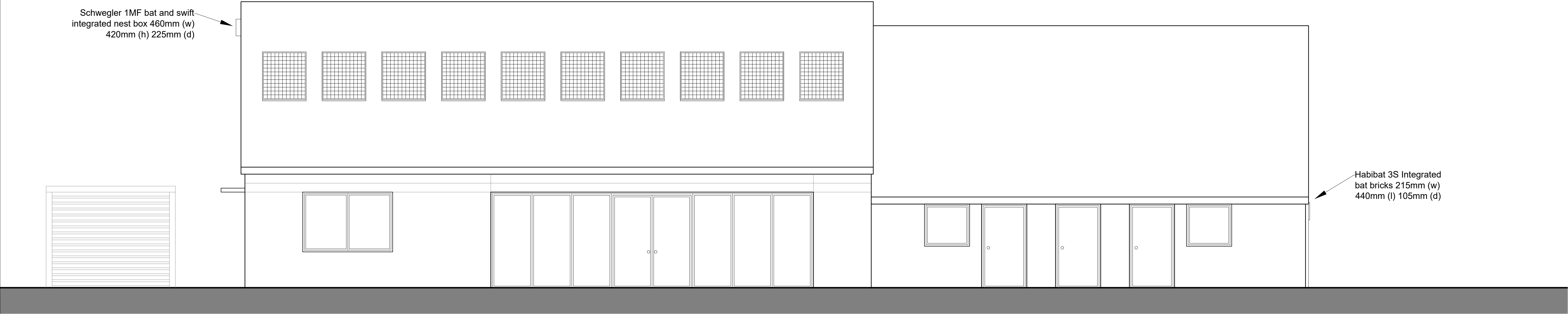
Drawing No: FIGURE B2.1	Rev: 02
-----------------------------------	-------------------

Note:
Tree references are approximate based on assessment of tree plans at ground level

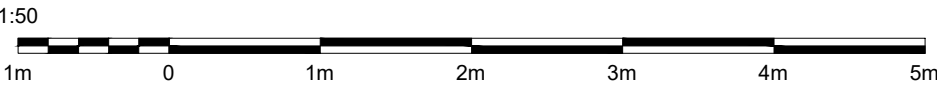
Appendix B Architect's drawings



Proposed South Elevation
Scale 1:50 @ A1



Proposed East Elevation
Scale 1:50 @ A1



REVISIONS		
A	General amendments	27.06.22
B	Amendments to cycle parking	11.07.22
C	Minor amendments	01.09.22
D	General amendments	09.05.23
E	Minor amendments	30.05.23
F	Minor amendments	28.07.23
G	Minor amendments	15.08.23
H	Minor amendments	08.12.23
J	Minor amendments	12.12.23
K	Minor amendments	18.03.24

NOTES
ALL DIMENSIONS MUST BE CHECKED ON SITE AND NOT SCALED FROM DRAWING. DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND STRUCTURAL DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS. ERRORS AND OMISSIONS TO BE REPORTED TO THE ARCHITECT. THIS DRAWING IS COPYRIGHT.

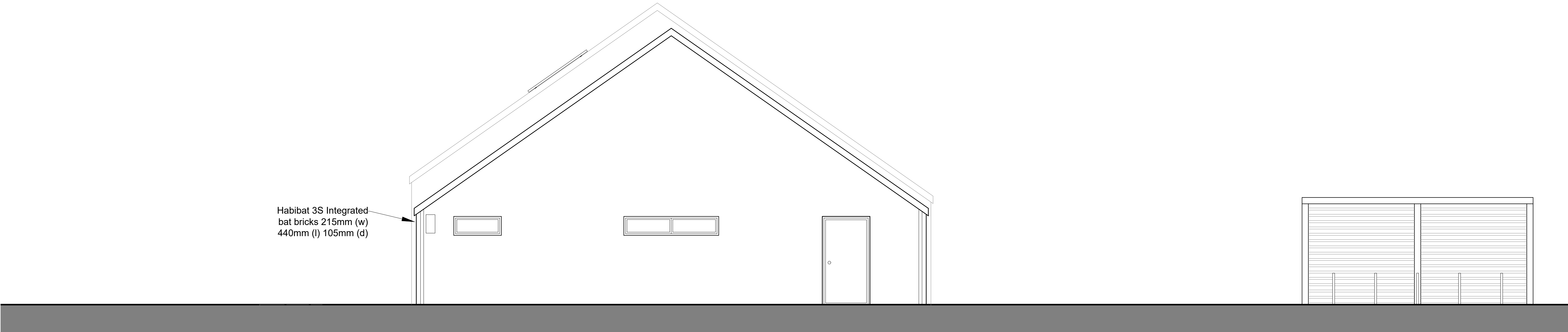
EDGINGTON
SPINK + HYNE
CHARTERED ARCHITECTS

MERIDIAN HOUSE, 2 RUSSELL STREET, WINDSOR,
BERKSHIRE, SL4 1HQ
TEL: 01753 857092 FAX: 01753 857096
WEB: www.edgingtons.co.uk EMAIL: mail@edgingtons.co.uk

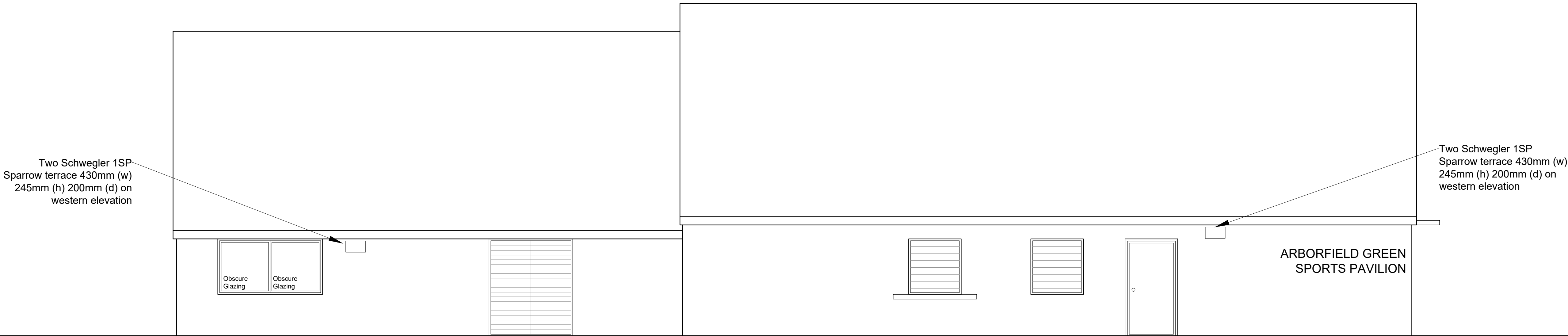
Arborfield Green Sports Pavilion
Arborfield Garrison
Wokingham

Proposed South & East Elevations

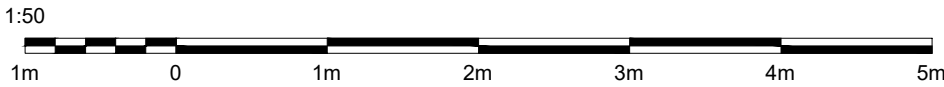
SCALE (A1)	1:50	CAD REF	5709-1300
DATE	May 22	DRAWN	VK
JOB No.	5709	DWG No.	1310 K



Proposed North Elevation
Scale 1:50 @ A1



Proposed West Elevation
Scale 1:50 @ A1



REVISIONS		
A	General amendments	27.06.22
B	Amendments to cycle parking	11.07.22
C	Minor amendments	01.09.22
D	General amendments	09.05.23
E	Minor amendments	30.05.23
F	Minor amendments	28.07.23
G	Minor amendments	15.08.23
H	Minor amendments	08.12.23
J	Minor amendments	18.03.24

NOTES
ALL DIMENSIONS MUST BE CHECKED ON SITE AND NOT SCALED FROM DRAWING. DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL AND STRUCTURAL DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS. ERRORS AND OMISSIONS TO BE REPORTED TO THE ARCHITECT. THIS DRAWING IS COPYRIGHT.

EDGINGTON
SPINK + HYNE
CHARTERED ARCHITECTS

MERIDIAN HOUSE, 2 RUSSELL STREET, WINDSOR,
BERKSHIRE, SL4 1HQ
TEL: 01753 857092 FAX: 01753 857096
WEB: www.edgingtons.co.uk EMAIL: mail@edgingtons.co.uk

Arborfield Green Sports Pavilion
Arborfield Garrison
Wokingham

Proposed North & West Elevations

SCALE (A1)	1:50	CAD REF	5709-1300
DATE	May 22	DRAWN	VK
JOB No.	5709	DWG No.	1311 J