BAT ROOST POTENTIAL SURVEY REPORT

at

Carlinghow Mills
507 Bradford Road
Batley
West Yorkshire
WF17 8LL

Client:
Hamzah Umar

Client Address:
Carlinghow Mills
507 Bradford Road
Batley
WF17 8LL

Client Contact:
07976889057 (Tel)

JCA Ref:
20127/AD

Date of Report:
04/02/23

JCA Limited
Arboricultural & Ecological Consultants

Quality Assurance

Version	**Desktop Survey Completed:**		**Site Surveyed:**		**Report Completed:**		**Reviewed:**	
	Date	Name	Date	Name	Date	Name	Date	Name
Planning	01/02/23	Helen Chambers	02/02/23	Amy Donaldson Eve Goodwin	04/02/23	Amy Donaldson	07/02/23	Audrey Bourdais Paull
							08/02/23	Adam West

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct.*

Risk Assessment Completed	AD
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

JCA Ltd was commissioned by **Hamzah Umar** to provide ecological advice to inform works at **Carlinghow Mills**, hereafter referred to as 'the site'. The site is located at **507 Bradford Road, Batley, West Yorkshire, WF17 8LL**, Ordnance Survey (OS) National Grid Reference SE 23827 24771.

The purpose of this report is to present the findings of the survey, an interpretation of the findings and to provide recommendations for undertaking the proposed works in accordance with relevant legislation.

Bats and their roosts are protected under UK law. Development works that are likely to affect bats or their roost sites must be completed under licence from the statutory conservation body, in this case Natural England (NE).

The field survey was undertaken on 02/02/23 to identify any bat roost potential of the building. The survey found a number of features in which bats may roost, the building has therefore been deemed to have low bat roosting potential.

An evaluation of the site, likely impacts of the scheme upon bats and recommendations for proceeding with works in compliance with legislation are presented in Chapters 4, 5 and 6 of this report.

Contents

1. Introduction

1.1 Background

1.1.1 In January 2023, JCA Ltd was commissioned by **Hamzah Umar** to undertake a Bat Roost Potential (BRP) survey of a site located at **507 Bradford Road, Batley, West Yorkshire, WF17 8LL** hereafter referred to as 'the site'.

1.1.2 A BRP survey is required where development proposals include demolition of a structure or where a structure will be modified in such a way that bats or their roosts could be directly impacted if present. This survey type may also be needed where bats roosting in a structure could be indirectly impacted by development activities outside the roost.

1.2 Details of Proposed Development

1.2.1 The scheme is external modifications to the existing warehouse building to form an office with associated access and parking.

1.3 Site Location

1.3.1 The site is located at Ordnance Survey (OS) National Grid Reference **SE 23827 24771**, with nearby postcode **WF17 8LL**. The site is bordered primarily by commercial and industrial units. The Bradford Road A652 lies to the direct north of the site, and the Carlinghow Brook lies to the direct south of the site. There is a woodland parcel to the wider northeast of the site.

1.4 Scope of Works

1.4.1 The following elements of work were included in the bat survey programme:

- Desktop study – a review of historical records of bats in the surrounding area, including the results of recent ecological surveys in the area.
- Field surveys – a field survey in daylight hours to assess whether features are present within the buildings/trees on site which bats may roost in.

- Ecological report – detailing the survey results, implications for the disturbance of the buildings/trees and recommendations.

1.5 Survey and Report Aims

1.5.1 The main aim of the BRP survey was to locate and map features which bats could use for entry/exit and roosing and to search for signs of bats.

1.5.2 The BRP survey aims to:

- Identify if actual or potential roosts are present (and if so, where).
- Locate bat roost access points.
- Identify where bat roost are located and how bats get to them from the access points.
- Identify the species and numbers of bats potentially present.
- Determine the type of roost (e.g. maternity roost, transitional roost, hibernation site, etc).
- Gain sufficient information to allow the potential impacts on bats of the proposed works to be assessed and for appropriate avoidance, mitigation and/or compensation measures to be designed.

1.5.3 The aims of the report presented are to:

- Outline the legislative protection given to bats.
- Report on the findings of a desk-based study undertaken to identify any existing records for bats which are relevant to the site.
- Summarise the findings of the BRP survey and provide an assessment of the potential ecological constraints to the proposed works at the site.
- Provide recommendations for further survey, avoidance, mitigation and/or enhancement where appropriate.

1.6 Legislative Context

1.6.1 In the UK all species of bat and their roosts are fully protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, with additional protection offered under Schedule 5 of the Wildlife and Countryside (WCA) Act 1981 (as amended). This makes it an offence to:

- Deliberately or recklessly capture, injure or kill a bat;

- Deliberately or recklessly disturb in a way that would affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- Damage or destroy a bat roost (this is an 'absolute' offence);
- Intentionally or recklessly obstruct access to a bat roost; and/or
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.

1.6.2 Under this legislation a roost is determined as any structure or place used for shelter. As bats tend to re-use the same roosts, the roost is protected whether the bats are present at the time or not.

1.6.3 Please see **Appendix 1** for a more detailed overview of the UK legislation protecting bats.

2. Methodology

2.1 Desktop Study

2.1.1 A desktop study has been undertaken in order to obtain any relevant records of bats from West Yorkshire Ecology Service (WYES) within a 2km radius of the site.

2.2 Field Surveys

2.2.1 The field survey was planned and conducted with reference to Bat Surveys: Good Practice Guidelines 3rd Edition (Collins, 2016). The survey was conducted in January 2023.

The site was surveyed by Amy Donaldson (Graduate Ecologist, JCA Ltd) and Eve Goodwin (Graduate Ecologist, JCA Ltd) under the guidance of Adam West (Principal Ecologist, JCA Ltd; NE Level 2 bat survey class licence registration number 2016-24724-CLS-CLS) for foraging, commuting and roosting potential. A detailed search of the building on site was conducted during daylight hours in order to identify potential bat roosting sites and look for evidence of bat activity and photographic evidence was taken (please refer to **Appendix 4**).

2.2.2 The survey was conducted by an experienced surveyor using the following equipment to ensure an accurate assessment; a printed site map, camera, a 1 million candlelight torch, binoculars, and ladders.

2.2.3 Signs that bats have previously or are currently using a potential roost site include:

- Scratch marks, urine and oil stains around holes in buildings or trees.
- Droppings, carcasses and/or food remains found around the site.
- Bats observed flying in/out of a hole in a building or tree.
- Bats heard ‘chattering’ within a potential roost site, especially on warm summer days.

2.2.4 During the bat scoping survey, the building on site was subject to an external and internal survey to establish the suitability of the structure to support roosting bats in accordance with Collins (2016). The criteria

for assigning a roost suitability category are presented in **Table 1** below:

Table 1: Guidelines used for assessing the bat roosting suitability of a site (taken from Collins, 2016)

Roosting Suitability	Potential Roosting Features (PRFs) Present
Negligible	No visible features on the site likely to be used by roosting bats. No signs of bats found during the initial assessment.
Low	A structure with one or more potential roosting opportunities that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough shelter, protection, surrounding habitats, or the appropriate conditions to be used on a regular basis by larger numbers of bats e.g. unlikely to support hibernation or maternity roosts. A tree of sufficient size and age to contain features suitable for bat roosting, but with no features seen from the ground. No signs of bat use found during the initial assessment.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The feature(s) are unlikely to support a roost of high conservation status. Signs (potential signs) of bat use found during the initial assessment.
High	A structure or tree with one or more potential roost sites that could be used by bats due to the size of the potential roosting feature which is sufficient to provide: shelter, protection, optimal conditions and surrounding habitats. The features have the potential to support large colonies of bats (e.g. maternity or hibernation) for long periods of time. Signs of bat use present.

2.2.5 The category of roosting suitability assigned to a feature is used to determine what further survey effort is required to ascertain the presence/likely absence of bats within that feature, as shown in **Table 2** below:

Table 2: Recommended minimum number of survey visits for presence/likely absence surveys (taken from Collins, 2016 and the Bat Conservation Trust, 2022).

Negligible roost suitability	Low roost suitability	Moderate roost suitability	High roost suitability
No futher survey required	One dusk emergence survey visit, augmented with	Two separate dusk emergence survey visits, both	Three separate dusk emergence survey

	Night Vision Aids (NVAs) (structures). No further surveys required (trees).	augmented with NVAs.	visits, all augmented with NVAs.

2.3 Survey Constraints

2.3.1 It must be highlighted that the absence of any signs of bat presence (droppings, feeding remains, etc.) is not proof that the site is not being used by bats. Weathering and other factors will often remove any signs of bat activity, especially when present on the exterior of a building or a tree. Many bat species will have several roost sites which they regularly move between and therefore an absence during a survey visit does not exclude their presence at a later date.

2.3.2 The site was surveyed in clear and dry conditions. There were no perceived limitations that would significantly impact on the conclusions and recommendations given within this report.

2.3.3 The details of this report will remain valid for 18 months. Beyond this period, if the proposed works have not commenced, a new review of the ecological conditions must be undertaken.

3. Results

3.1 Desktop study results

3.1.1 Local Data Centre Records: WYES has been commissioned to provide the records held for bat species within a 2km radius of the survey site. The results have been summarised below. It should be noted that the absence of records should not be taken as confirmation bat species are absent from the search area.

3.1.2 The site falls within the Kirklees Bat Alert Zone.

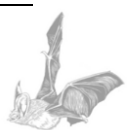
3.1.3 Please see **Table 3** below for a summary of the bat records from the last ten years obtained from WYES. **Table 4** summarises all bat roost records within 2km of the site received from WYES.

Table 3: Summary of bat records from the last ten years held by WYES within 2km of the site.

Common Name	Scientific Name	On site	Within 500m	500-1000m	1001-2000m	Notes
Noctule	*Nyctalus noctula*	×	✓	✓	✓	Six field records from 2014 and 2019, including one record of foraging. The closest record was 299m away.
Common pipistrelle	*Pipistrellus pipistrellus*	×	✓	✓	✓	Ten field records from 2013 to 2019, including four records of foraging. The closest record was 299m away.
Soprano pipistrelle	*Pipistrellus pygmaeus*	×	✓	×	✓	Three field records from 2014 to 2020, including one foraging record. The closest record was 299m away.
Pipistrelle species	*Pipistrelle* sp.	×	✓	×	×	One field record from 2019, 299m away.

Table 4: Summary of bat roost records held by WYES within 2km of the site.

Common Name	Scientific Name	On site	Within 500m	500-1000m	1001-2000m	Notes
Common pipistrelle	*Pipistrellus pipistrellus*	×	×	✓	✓	Seven roosts records from 2003 to 2014. One was deemed a possible roost and one was a maternity roost. The closest



						record was the maternity roost, 678m away.
Pipistrelle species	*Pipistrelle* sp.	×	×	✓	✓	Three roost records and one 'in building' record. These were dated from 2005-07, with the closest record 574m away.
Vesper bat species	*Vespertilionidae* sp.	×	✓	×	✓	Three roost records and two 'in building' records. These were dated from 2005-07, with the closest record 418m away.

3.2 Field Survey Results

3.2.1 Habitats Present

The site contains a warehouse building and a car park. A slow-paced brook lies to the direct west of the site and the Bradford Road lies to the direct east of the site.

3.2.2 Building Assessment

Building One

The building is a large brick-built warehouse with a flat metal roof. There is no loft space nor roofing membrane.

PRFs PRESENT: There are multiple areas of missing mortar in which bats could roost, particular around the doorframes on the eastern and western aspect (**Appendix 3, Photo 3**), and between additions/renovations to the building (**Appendix 3, Photo 4**). The flashing around the western ridge has lifted, which could permit access into the building (**Appendix 3, Photo 6**). Gaps above the roller door could also permit access into the building (**Appendix 3, Photo 5**). Whilst there was no loft space nor roofing membrane on the interior of the building, there were small amount of missing mortar in which bats may roost. Missing brick was visible on the southern and western aspect of building, which could permit access into the cavity wall (**Appendix 3, Photo 1**).

4. Interpretation of Survey Results

4.1 Bat Records

4.1.1 The site is within the Kirklees Bat Alert Zone. Five species of bat have been recorded within 2km of the site, all of which were recorded within 500m of the site. Furthermore, there are 13 roosts within 2km of the site, the closest of which is within 500m. This suggests that the area is of moderate value to roosting bats.

4.2 BRP Survey

4.2.1 A number of features were identified on site in which bats may roost. Please refer to **Section 3.2** and **Appendix 1** for further details. Bradford Road, to the north of the site, is a particularly busy road, and the consistent lighting levels are likely to deter bats. However, the beck to the south of the site is favourable to bats, as it attracts a range of invertebrates for bats to feed on and provides a linear commuting corridor.

4.2.2 Based on the proximity of roost records, the type of PRFs present and the proximity of high quality bat foraging habitat, this site is considered to have **low** potential for supporting roosting bat species during their active period between May and September. Please see **Tables 1 and 2** above for the guidelines used for assessing the roosting potential of a site. Please note these guidelines are applied using the professional judgement of the licenced bat worker undertaking the assessment.

4.3 Impacts of the Proposed Development

4.3.1 The proposed works are anticipated to have potential impacts on bats, roosting provision for bats, and the maintenance of favourable conservation status of local and/or national bat populations.

4.3.2 The proposed development is also expected to adversely impact the brook adjacent to site, through indirect effects such as increased air pollution (via dust production) and windblown debris. This could also impact protected species which may utilise the brook. Further recommendations are therefore outlined in **Section 5.1.4**.

5. Recommendations

5.1.1 **One dusk emergence survey is required,** which is to be augmented with Night Vision Aids (NVAs). The survey must be carried out between May and September and in suitable weather conditions.

5.1.2 Upon completion of the survey if any bats are found to emerge or re-enter the buildings, the roost type will be able to be then accurately characterised. If bats are then confirmed to be roosting onsite, a Bat Mitigation Licence may be applied for from Natural England, and a mitigation plan devised so the development causes as little impact on the local bat populations as possible.

5.1.3 All lighting must consider wildlife and be in accordance with the ILP Guidance GN01 and GN09 (2018). A key point is the avoidance of internal and external light spill. Where possible, lighting should be timed, or on sensors and avoid the hours between sunset and sunrise, when bats are out foraging.

It is important to avoid:

- Uniform levels of luminance across the site.
- Metal halide and florescent lighting.
- Upward tilting lighting that increases skyline luminance.

Instead, the following should be installed:

- Dark buffer zones.
- Screening in the form of vegetation, fences and structures.
- Appropriately designated darkened areas.
- Luminaries absent of UV elements.
- LED luminaries with a sharp cut-off, low intensity and good rendition.
- A warm white spectrum (<2700 kelvin) to reduce blue light.
- Peak luminaire wavelength at a minimum of 550nm.
- Downward directional luminaires with upward light ratios of 0%.
- Lower light columns to limit light spill.
- Recessed internal light fixtures.
- Window glazing treatments or automated blind systems.

5.1.4 A **Construction and Environment Management Plan (CEMP)** is recommended in order to outline protection measures to the brook

adjacent to site, and any protected species which may be utilising the brook.

6. References

Bat Conservation Trust and Institute of Lighting Professionals (2018) *Guidance Note 08/18: Bats and artificial lighting in the UK*. ILP, Rugby

Bat Conservation Trust (2022). *Interim guidance note*. Available from: Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf (bats.org.uk)

Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines.* English Nature, Peterborough

Mitchell-Jones, A.J. & McLeish, A.P. (2012) *The Bat Workers' Manual.* Pelagic Publishing, Exeter.

Collins (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition, Bat Conservation Trust, written 2016

Relevant Legislation:

Wildlife and Countryside Act 1981 http://jncc.defra.gov.uk/page-3614

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. https://www.legislation.gov.uk/ukdsi/2019/9780111176573

Countryside and Rights of Way Act 2000
http://www.legislation.gov.uk/ukpga/2000/37/pdfs/ukpga_20000037_en.pdf?view=interweave

Appendices

Appendix 1: Legislation Pertaining to the Protection of Bats

All bat species have, for some time, been protected under Schedule 5 of the Wildlife & Countryside Act 1981. However, the effective protection for bats now comes from Schedule 2 of the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019, which defines "European protected species of animals". Changes to legislation, and devolution, mean the law is difficult to summarise succinctly across the UK, but the strong legal protection for bats and roosts remains.

It is an offence across the UK to:

- deliberately or recklessly capture, injure or kill a bat
- deliberately or recklessly disturb in a way that would affect their local distribution or abundance, or affect their ability to survive, breed or rear young
- damage or destroy a bat roost (this is an ‘absolute’ offence)
- intentionally or recklessly obstruct access to a bat roost
- possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat

'Deliberately' in this context may be interpreted as someone who, although not intending to capture/injure or kill a bat, performed the relevant action, being sufficiently informed and aware of the consequence his/her action will most likely have.

In this interpretation, a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". Because bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time.

Appendix 2: Site Plan Showing Bat Roost Potential

Potential Roosting Features Map: Carlinghow Mills

Surveyed building

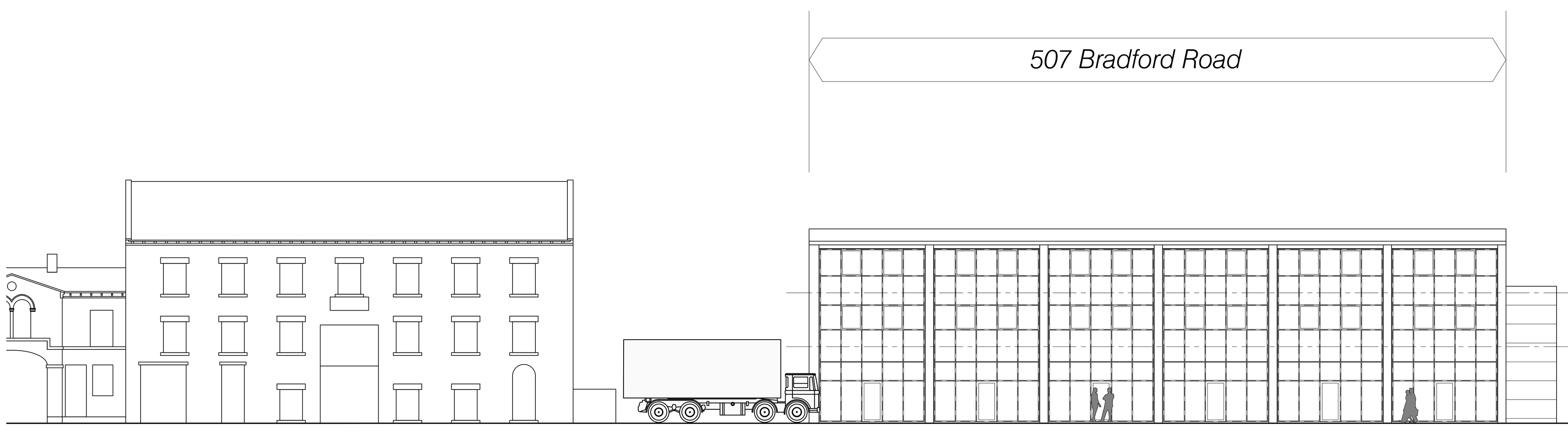
Potential Roosting Features:

- Missing mortar
- Lifted flashing
- Missing brick
- Gap above roller door

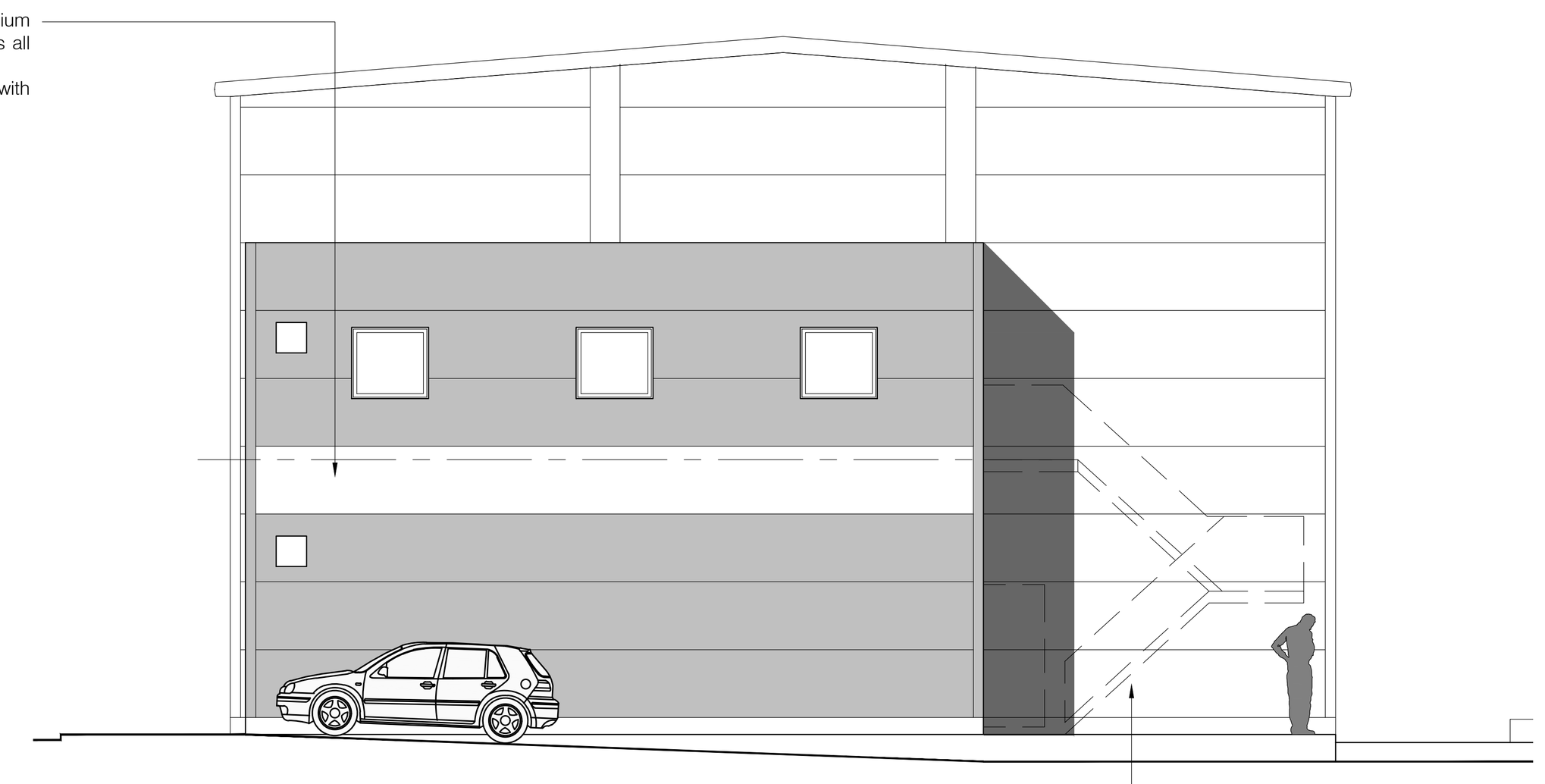
0 2.5 5 m

N
W E
S

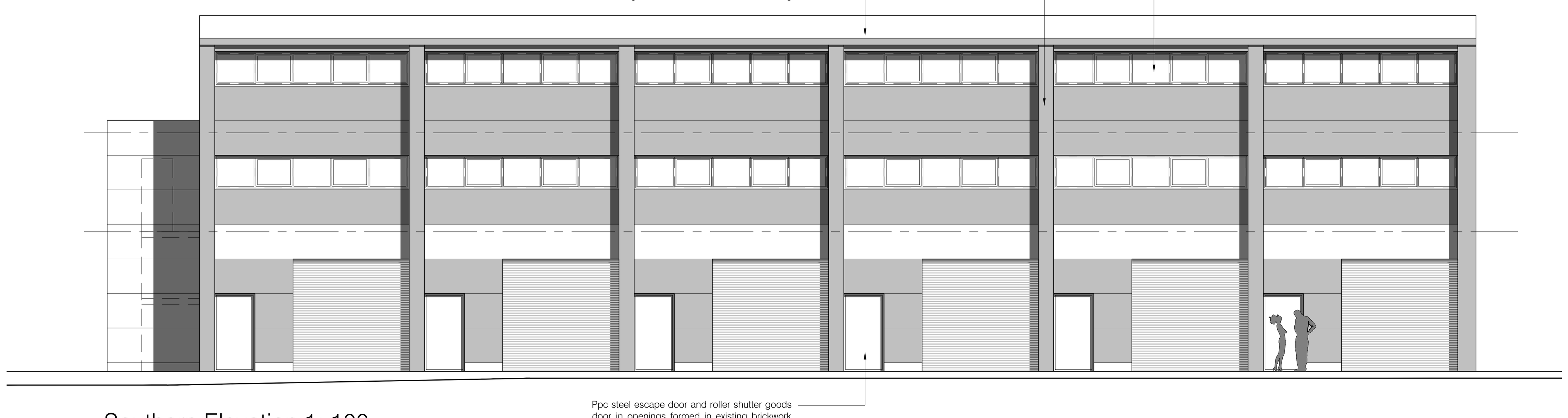
Appendix 3: Proposed Development Plan



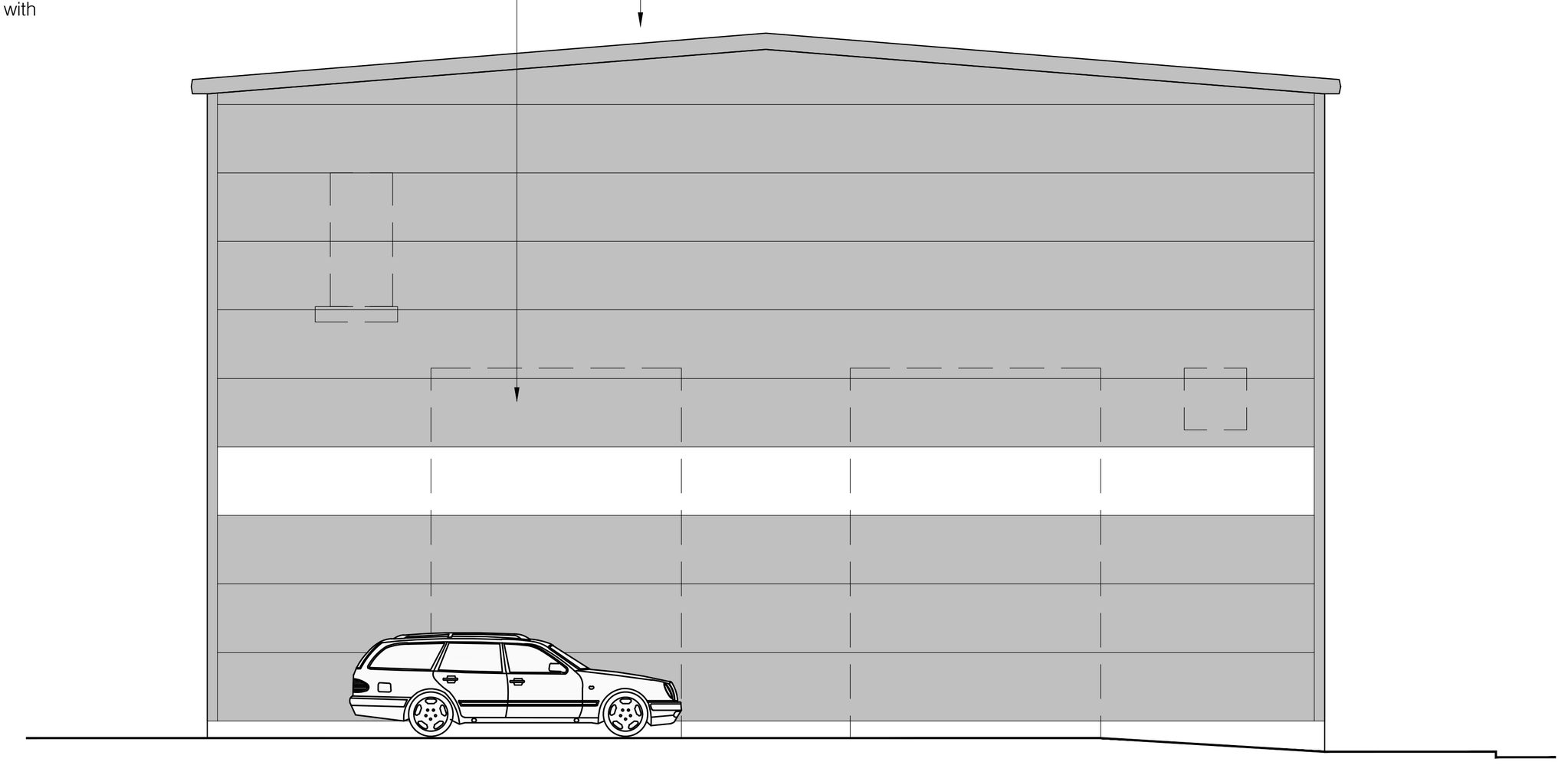
Bradford Road Elevation 1: 200



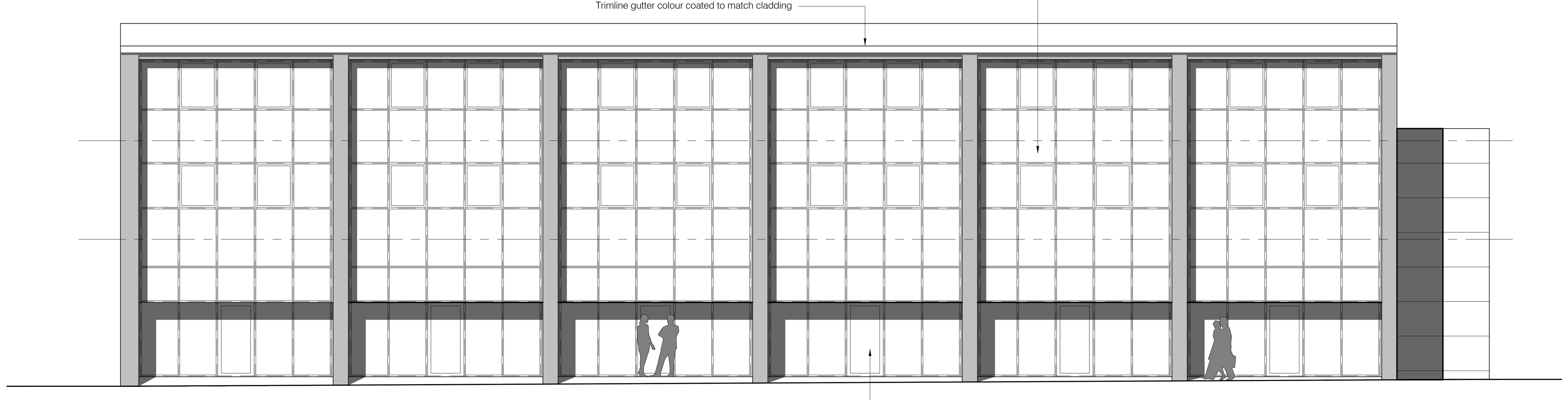
Western Elevation 1: 100



Southern Elevation 1: 100

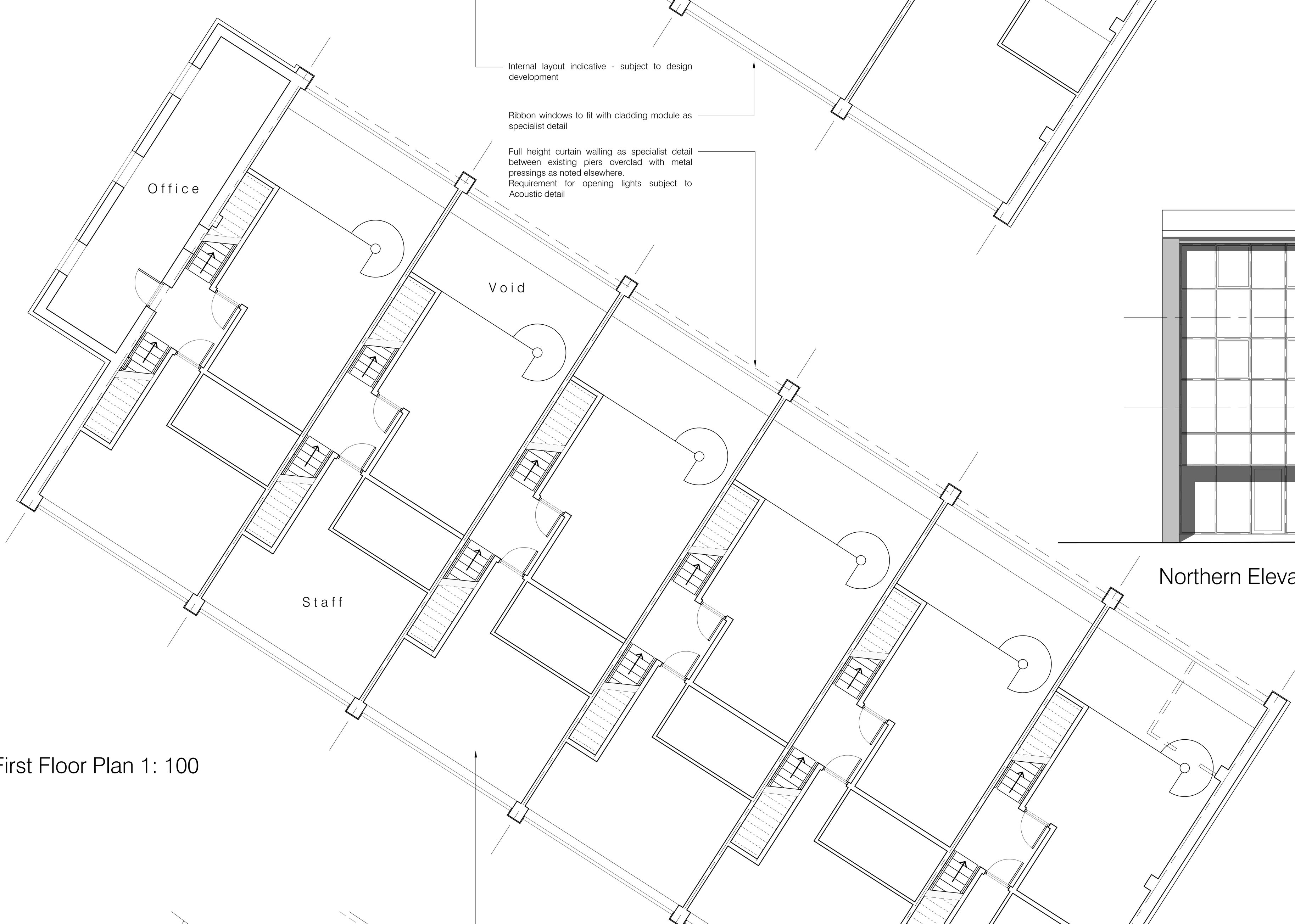


Eastern Elevation 1: 100



Northern Elevation 1: 100

Second Floor Plan 1: 100



First Floor Plan 1: 100

Ground Floor Plan 1: 100

Block Plan 1: 200

Drawings based on Ordnance Survey (Streetwise License No 100047474) and preliminary survey – design and drawing content subject to further Site Surveys, Structural Survey, Site Investigations, Planning and Statutory Requirements and Approvals.

Carlinghow Mills

Rev. Des.		Date
A	Label amended	June 22

0 1 2 3 4 5m
Scale 1:100

Architecture and Design, The Studio, Coal Pit Lane, Brighouse HD6 4HW T: 01484 717115 info@jg-d.co.uk www.jg-d.co.uk

Project	Proposed external alterations at 507 Bradford Rd, Batley WF17 8LL	
Client	Mr H Umar, Carlinghow Mills, 499 Bradford Road, Batley WF17 8LN	
Dwg Title	(20832)2_Scheme as proposed	A
Scale	1:100, 200, 500 @ A0	
Date	June 22	

Appendix 4: Photographic Evidence

Photo 1: The southern aspect of the building. Missing brick circled.

Photo 2: The brook running adjacent to the south of the site.

Photo 3: The doorframe on the eastern aspect of the building with significant amounts of missing mortar, as circled.

Photo 4: Areas of missing mortar around additions/ renovations to the building.

Photo 5: Gap under the roller door.

Photo 6: Lifted flashing on the north-eastern corner of the building.

Appendix 5: Bat Survey Calendar

Figure 1: Survey timings calendar (taken from BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary ecological appraisal - fieldwork												
Preliminary roost assessment – structures[a]												
Emergence/re-entry survey for maternity or summer roosts[b]												
Emergence/re-entry[c] survey for transitional roosts[b]												
Emergence survey for mating roosts[b]												
Hibernation survey – structures[a]												
Preliminary ground level roost assessment - trees[d]												
Potential roost feature (PRF) inspection survey - trees												
Ground level bat activity survey – transects and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey												
Back-tracking survey												
Trapping survey[e]												
Radio tagging and tracking survey[e]												

= optimal period = sub-optimal period

= weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October surveys are not acceptable in Scotland.

[a] Not including trees

Appendix 6: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.

Appendix 7: Author Qualifications

Adam West, Principal Ecologist

BSc (Hons) Animal and Wildlife Management

Adam joined JCA to lead the expanding ecology department. Having returned to education as a mature student, Adam studied Countryside Management for two years before undertaking a Batchelor's degree, for which he was awarded First Class Honours. Adam has many years' experience in ecological consultancy, working on projects ranging from individual planning applications to national infrastructure projects. Adam holds a Natural England Level 1 great crested newt survey class licence, a Natural England Level 2 bat survey class licence (and the Scottish and Welsh equivalents) and a CSCS card.

Audrey Bourdais Paull, Graduate Ecologist

BSc (Hons) Zoology

Audrey graduated in 2020 in Zoology at the University of Leeds and joined JCA in 2022. Audrey volunteered for many years with various wildlife conservation and rescue organisations, as well as working on various projects to develop a variety of field survey techniques, report writing and data analysis skills. Audrey is looking forward to developing her ecology consultancy experience with JCA, as well as combining her previous dog training and detection work with ecology to expand into ecology detection dogs.

Helen Chambers, Graduate Ecologist

MSc by Research in Environmental Studies, BSc (Hons) Wildlife Conservation with Zoo Biology

Helen joined JCA in 2022 after completing her master's by research degree at the University of Salford. In 2019 Helen graduated with First Class Honours BSc Wildlife Conservation with Zoo Biology, where she gained theoretical knowledge of, and practical experience with, wildlife monitoring and wildlife legislation. She is hoping to further develop her ecological surveying and report writing skills at JCA.

Amy Donaldson, Graduate Ecologist

Bsc (Hons) Zoology (International)

Amy joined JCA in 2022 after graduating with a First Class Honours from the University of Leeds. Amy volunteered for numerous years with the Northumberland wildlife trust to develop a variety of field surveying skills. In 2020 Amy began bat surveying, where she gained practical knowledge and experience in the field. Amy is looking forward to developing her report writing and data analysis skills with JCA, and is working towards her Level 1 bat survey class licence.

Eve Goodwin, Graduate Ecologist

BSc (Hons) Plant Biology

Eve gained her Royal Society of Biology accredited undergraduate degree in 2019 from Aberystwyth University in Plant Biology. She has good plant identification skills which were developed through her academic studies and field work. She has since worked as a CAD technician and has joined JCA in 2022 where she hopes to develop her field skills further.

The information and advice which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed

.....

Amy Donaldson *QCIEEM*

04/02/23

Reviewed by

.....

Audrey Bourdais Paull

07/02/23

Reviewed and authorised by

.....

Adam West *ACIEEM*

08/02/2023

For and on behalf of ***JCA Ltd***

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ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

ARBORICULTURAL SERVICES

Guidance for Architects & Developers

- British Standard 5837 Surveys
- Arboricultural Implications Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

JCA Limited

Arboricultural & Ecological Consultants

HEAD QUARTERS

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