Faithful & Gould

Postal Street
Ecological Assessment

Final report
October 2022

Faithful & Gould

Postal Street
Ecological Assessment

Project Number
11990

Version	Status	Prepared	Checked	Approved	Date
1.	Draft Report	E. Mayhead	S. Swindlehurst	S. Swindlehurst	20.04.2022
2.	Final Draft Report – including nocturnal bat survey	E. Mayhead	S. Swindlehurst	S. Swindlehurst	31.08.2022
3.	Final Report Issue	E. Mayhead	S. Swindlehurst	S. Swindlehurst	31.10.2022

Bristol
Cardiff
Edinburgh
Glasgow
London
Manchester

landuse.co.uk

Land Use Consultants Ltd
Registered in England
Registered number 2549296
Registered office:
250 Waterloo Road
London SE1 8RD

100% recycled paper

Landscape Design
Strategic Planning & Assessment
Development Planning
Urban Design & Masterplanning
Environmental Impact Assessment
Landscape Planning & Assessment
Landscape Management
Ecology
Historic Environment
GIS & Visualisation

FS566056
EMS566057
OHS627041

Contents

Chapter 1
Introduction 1

Site Description 1
Proposed Development 2
Policy and Legislation 2

Chapter 2
Ecological Assessment Methodology 3

Desk Study 3
Extended Phase 1 Habitat Survey 3
Preliminary Bat Roost Assessment 4
Nocturnal Bat Survey 5

Chapter 3
Results 7

Desk Study 7
Extended Phase 1 Habitat Survey 8
Preliminary Bat Roost Assessment 9
Nocturnal Bat Survey 10

Chapter 4
Conclusion and Recommendations 11

Designated Sites and Local Green Spaces 11
Habitats and Flora 12
Bats 13
Habitat Creation and Enhancement 13

Chapter 5
Preliminary Biodiversity Net Gain Assessment 14

Introduction 14
Method 15
Results 15
Summary 15

Appendix A
Phase 1 Habitats and Protected Species Survey Maps 17

Appendix B
Outline Biodiversity Net Gain Assessment B-1

Appendix C
Site Photographs C-2

Chapter 1
Introduction

1.1 In March 2022, LUC was commissioned by Faithful & Gould to undertake a Preliminary Ecological Appraisal (PEA) and Biodiversity Net Gain (BNG) assessment to inform the proposed residential and commercial development at Postal Street in the Northern Quarter, Manchester city centre.

1.2 In August 2022, LUC was also commissioned to undertake a nocturnal bat survey of the commercial units standing at the Site. Survey had been recommended in the PEA, following the daytime Preliminary Bat Roost Assessment (PBRA) undertaken in March, which assessed the building as having low Bat Roost Potential (BRP).

1.3 The report will inform the design and application stages for a planning application for the demolition of the existing commercial unit and car parking and the construction of a nine-storey building, outdoor public realm space and associated landscape planting.

1.4 The report structure is as follows:

- Chapters 2 and 3 present the methodology and the survey findings of the Extended Phase 1 Habitat Survey, Preliminary Bat Roost Assessment and Nocturnal Bat Survey.
- Chapter 4 concludes the potential impacts of proposed development on the ecological features present and provides appropriate recommendations for further species survey, mitigation and/or enhancement.
- Chapter 5 presents an outline Biodiversity Net Gain (BNG) Assessment, which is based on preliminary concept designs (Faithful & Gould, March, 2022). The recommendations for ecological enhancement are appropriate to the small scale, entirely built nature and urban context of this project.

Site Description

1.5 The Site is located on Postal Street, in the Northern Quarter. The national grid reference for the site is SJ 84727 98449 with the nearest post code of M1 1EE. The Site is bounded by Newton Street to the north-west, Postal Street to the north-east, Faraday Street to the south-west and Dean Street to the south-east.

1.6 The Site consists of commercial units along Newton Street and a car park along Dean Street. The Site has an area of approximately 0.16 ha and, beyond the roads around the

perimeter, it is surrounded by buildings to the north-east, north-west and south-west and a car park to the south-east.

Proposed Development

1.7 The design is currently at RIBA Stage 1[1] and includes 1-, 2- and 3-bedroom flats, ground floor commercial units and public realm space, a private residents planted roof terrace and green roofs. There is also potential for the inclusion of photovoltaic panels on the top roof.

Policy and Legislation

1.1 This report has been prepared in accordance with relevant legislation and planning policy. The following documents are of particular relevance:

- The Conservation of Habitats and Species Regulations 2017 (as amended) by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
- The Wildlife and Countryside (W&CA) Act 1981 (as amended);
- The Natural Environment and Rural Communities (NERC) Act 2000 (as amended);
- Protection of Badger Act 1992 (as amended);
- Environment Act 2021;
- The National Planning Policy Framework 2021;
- Manchester Local Plan[2];
- Greater Manchester Local Biodiversity Action Plan (LBAP) (2009)[3]; and
- Greater Manchester Local Nature Recovery Strategy (LNRS) Pilot (2021)[4].

[1] Postal Street Design Report RIBA Work Stage 1 Preparation and Briefing document dated 17th December 2021
[2] Local Plan | Local Plan | Manchester City Council Last accessed 05/04/2022
[3] GMLRC Projects - Greater Manchester Biodiversity Action Plan Last accessed 05/04/22
[4] FINAL-Report-of-the-GM-LNRS-Pilot.pdf (gmgreencity.com) Last accessed 05/04/22

Chapter 2
Ecological Assessment Methodology

2.1 The Ecological Assessment comprised of the following elements, summarised below:

- **Desk Study** – a review of existing ecological records from within 2km of the Site including designated sites and bat records[5];
- **Phase 1 Habitat Survey** of the Site, which was 'Extended' to include an assessment of the Site's potential to support protected species;
- daytime **Preliminary Bat Roost Assessment** of the building on Site; and
- subsequent **Nocturnal Bat Survey** of the building.

Desk Study

2.2 The desk study involved a search of Greater Manchester Ecological Unit (GMEU) post-2000 records of protected and notable species within 2km of the Site to inform the field surveys.

2.3 The desk study also included a search for statutory and non-statutory designated sites within 1km of the Site using MAGIC Map[6].

Extended Phase 1 Habitat Survey

2.4 The Extended Phase 1 Habitat Survey was conducted on 23rd March 2022. The survey was undertaken an experienced ecologist in accordance with the Joint Nature conservation Committee (JNCC)[7] methodology during dry, sunny and bright weather conditions. Weather in the days preceding the survey was dry with no rain, therefore reducing the possibility of any evidence such as bat droppings or feeding signs on the exterior from being washed away.

2.5 The Phase 1 Habitat Survey technique provides a rapid and standardised approach to documenting and classifying habitats. The 'Extended' part of the survey involves and assessment of the study area's potential to support legally protected and notable fauna. Informed by the desk study, these include, for example:

[5] Notable Species are species of conservation priority as listed under the NERC Act 2000 or LBAP species.
[6] DEFRA (2021) MAGIC Map. Weblink: https://magic.defra.gov.uk/MagicMap.aspx
[7] JNCC (2019) Handbook for Phase 1 habitat survey – a technique for environmental audit.

- Potential Roost Features (PRFs) for bats on structures and buildings and other evidence of bats including urine stains, bat droppings and feeding remains.
- Habitats suitable to support nesting birds including, woodland, hedgerows and built structures.
- Habitats suitable to support reptiles including log piles, deadwood, rubble, compost heaps and other suitable basking, egg-laying or hibernating habitat.
- Habitats suitable to support amphibians including standing water such as ponds and ditches with limited flow, wet grassland, log piles, deadwood and other suitable hibernating habitat.

Preliminary Bat Roost Assessment

A daytime Preliminary Roost Assessment (PRA) was undertaken of the building within the works area to identify evidence of bat occupancy and to assess features which may provide suitable roosting opportunities (referred to as Bat Roost Potential (BRP)). The criteria used to categorise BRP are summarised in

2.6 Table 2-1.

2.7 The results of the PRA inform the decision whether nocturnal survey is required to establish the species and status of any roost/s present, and if so the scope. Table 3-1 also summarises the nocturnal survey scope that can be anticipated following PRA categorisation. Note that if a confirmed roost is recorded at any point, the full requirement for three nocturnal surveys would apply.

2.8 The survey method takes into account the range of roosting conditions required by bats throughout the year and follows assessment criteria set out in standard guidance prepared by the Bat Conservation Trust (BCT)[8].

Table 2-1: Bat Roost Potential (BRP) and Habitat Suitability Assessment

BRP Category	Roosting Habitat Features	Commuting and Foraging Habitat Features	Nocturnal Survey Requirement for Buildings
Negligible	Negligible habitat features likely to support roosting, commuting or foraging bats.		No surveys required.
Low	Structures in this category offer one or more potential roost sites for individual, opportunistically roosting bats. These sites do not offer the space, shelter or appropriate conditions to support large numbers of bats or maternity roosts.	Habitat on and around the Site could be used by a small number of commuting bats. This category includes densely urbanised landscapes or linear vegetation features poorly connected to the wider landscape.	One dusk or dawn survey required for structures conducted between May and August. No further survey is required for trees of low suitability.
Moderate	Structures in this category offer one or more roost sites that, due to their space, shelter or conditions, offer roosting potential for a certain species. Roosts may be more permanent, rather than opportunistic. Small maternity roosts of common species may form in one of these roost sites.	Habitat on and around the Site is well-connected to wider continuous habitat and offers commuting and foraging habitat to a larger number of bats across a number of species (e.g. tree lines or linked gardens in the urban context, or continuous hedge/tree lines and watercourses in an agricultural setting).	One dusk and one dawn survey required for structures conducted between May and September, with at least one survey conducted between May and August. Surveys should be spaced at reasonable interval through the sample period.
High suitability	Structures in this category have one or more potential roost sites that are	Habitat on and around the Site is diverse, continuous and linked	Three surveys, including both dusk and dawn elements

[8] Collins ,J. Ed (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edn) The Bat Conservation Trust, London.

BRP Category	Roosting Habitat Features	Commuting and Foraging Habitat Features	Nocturnal Survey Requirement for Buildings
and Confirmed Roosts	suitable for large number of bats. Roosts are likely to be permanent and include maternity roosts. Potential roost sites exist for a wide range of species or species of particular conservation interest.	to extensive suitable habitat. This category includes well-vegetated rivers, streams, hedgerows and woodland edge.	conducted between May and September, with at least one survey conducted between May and August. Surveys should be spaced at reasonable interval through the sample period

Limitations

2.9 The ground-level PRA provided full access to the building exterior and interior, with the exception of an enclosed void above the south-west most units. Potential access and egress points were inspected externally and within the building from the adjacent unit, and taken into consideration with the building construction, condition and position in the landscape. Recommendations for nocturnal survey take a precautionary approach to this area and as such no significant limitation to the survey remains.

2.10 The survey was carried out at a time of year when daytime temperatures are warming, although still early in the active season for bats after hibernation so recent evidence of bat activity may not be apparent. It is recognised that evidence of species is not always discovered during a single survey. The timeframe in which the survey is undertaken provides a snapshot of activity at the Site and may not necessarily detect, for example, transitional use of a roost. Consideration of habitat suitability or BRP therefore addresses this risk.

Nocturnal Bat Survey

2.11 Following best practice guidelines (BCT, 2016; see Table 2-1)[9], buildings classified as Low BRP, must be subject to one survey between May and August, in appropriate weather conditions.

2.12 A dusk emergence survey was undertaken on 17th August 2022 by licensed bat surveyor, Sofie Swindlehurst BSc (Hons) MSc MCIEEM CEnv, and experienced surveyor, Ellie Mayhead BSc (Hons). Surveyors were positioned at the north-eastern and south-western corners of the building to provide full visual coverage of all BRP features previously identified. Figure 2-1 and Figure 2-2 present the view of the building from surveyor positions.



Figure 2-1: Building view of surveyor 1 positioned on north-eastern corner between Newton Street and Postal Street



Figure 2-2: Building view of surveyor 2 positioned on south-western corner between Dean Street and Faraday Street

[9] Collins ,J. Ed (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edn) The Bat Conservation Trust, London.

2.13 The dusk survey began at 20:18, 15 minutes before sunset at 20:33, and continued for 90 minutes after sunset until 22:03. The results of the survey are discussed in Para 4.19.

2.14 There was no rain during the survey and the temperature was 19ºC dropping to 18ºC at the end of the survey, with a light breeze and dense cloud cover throughout the survey. The survey occurred two nights after the high summer heatwave when temperatures had started to cool. There was good visibility during the survey.

2.15 During the survey, should a surveyor witness a bat exiting or entering the building, a note would be made of the time of emergence or re-entry, species, number of individuals and entrance or exit location. The entrance or exit location would then be noted on an aerial image, due to the ban on photography.

2.16 The survey was conducted using BatBox Duet/ Batscanner heterodyne frequency division detectors and Anabat Express full-spectrum recording devices to record any bat passes for subsequent sonogram analysis.

2.17 On this occasion, no subsequent sonogram analysis was completed, although a check of the recordings was made to confirm no passes were digitally recorded (none occurred).

Limitations

2.18 Whilst the timeframe in which a survey is undertaken provides a ‘snapshot’ of activity on the Site and may not necessarily detect all evidence of use by a species, the single survey was appropriate to the BRP of the building and was entirely in accordance with current best practice guidance. Survey conditions were optimal and, had bats been present in the local vicinity, it is reasonable to assume that activity would have been recorded.

Artificial Lighting

2.19 During the survey, the level and extent of lighting across the basin became apparent. There awere moderate light levels across entire car parking area to the rear of building to ensure safe use. Whilst bat flight would typically shift above street lighting level (except for bouts of foraging), there was combined light spill from within the surrounding residential blocks, leaving few pockets of darkness to canal.

Chapter 3
Results

Desk Study

3.1 There were no statutory designated sites within 1km of the Site.

3.2 Two canals are located to the south-east of the Site which are designated as Sites of Biological Importance (SBIs). These are the Rochdale Canal Stott's Lane (Ducie Street Basin) between Ancoats and Newton Heath located 150m from the Site and Ashton Canal (West) located 350m from the Site. New Islington Marina lies between these two canals

3.3 Other local watercourses included the River Medlock, which is located 1km south-east and River Irwell, which is located 0.9km north-west.

3.4 Within 1km of the Site there were several small areas of open green space and urban parks. These included:

- Cotton Fields Park at New Islington Marina with an urban beach and reedbeds located 400m south-east.
- New Islington Green, an amenity grassland area along Ashton Canal located 600m south-east.
- Ancoats Green located 700m to the north-east.
- Along the Rochdale Canal there is an extensive area of grassland and planted trees approximately 300m south-east of the Site.
- St Michael's Flags & Angel Meadow Park is located 700m north and supports mature parkland.
- Piccadilly Gardens is located 350m south-west and consists of urban open space with areas of amenity grassland and planted trees.

3.5 There were no bat records returned within the Site itself, however, there were a total of 58 records of bat roosts returned within 2km of the Site. Additionally, there were a total of 116 records of bats in-flight within 2km of the Site. At least four species have been recorded. The closest records for each species have been included within Table 3-1.

3.6 Records of other species associated with the urban landscape within 2km of the Site include black redstart *Phoenicurus ochruros*, peregrine *Falco perenigus*, house sparrow *Passer domesticus* and starling *Sturnus vulgaris*.

3.7 Records of other protected and notable species were returned within 2km of the Site, however these have not been

included as there were no suitable supporting or connecting habitats within or immediately adjacent to the Site.

Table 3-1: Bat Records within 2km of the Site

Species	Protection Status	Proximity to Site	Number of Records	Date of Records	Type of Record
Brown long-eared bat *Plecotus auritus*	European Protected Species (EPS); W&CA Sch. 5; NERC S. 41; Greater Manchester LBAP	1.5km west	1	2013	In-flight
Common pipistrelle *Pipistrellus pipistrellus*		0.3km north-east	1	2007	Roost
		0.4km north-east	1	2009	In-flight
Pipistrellus sp.		0.3km south-west	30	2008	Roost
		0.2km south-west	1	2008	In-flight
Soprano pipistrelle *Pipistrellus pygmaeus*		0.4km south-west	Several	2013	Roost
		0.3km north	1	2006	In-flight
Daubenton's bat *Myotis daubentonii*		1.8km south-west	1	2004	Roost
		0.9km north-west	1	2009	In-flight
Myotis sp.		0.7km south-east	1	2015	Roost

Extended Phase 1 Habitat Survey

3.8 The Phase 1 Habitat Map is provided in Figure A-1, Appendix A. The Site comprised a tarmac car park and single storey commercial building, with no vegetated habitats present on or immediately surrounding the Site (See Photograph 1a and 1b, Appendix C).

Nesting Birds

3.9 The site did not support vegetated foraging habitat. The building was not accessible to pigeons or corvids. No evidence of small passerines or other birds species nesting was recorded during the building inspection.

3.10 Bird records were returned within 2km of the Site including relatively widespread species such as house sparrow and starling, which may move across and around the Site. Whilst the site is not optimal for such species to nest, their presence in the locality does inform the locally-appropriate opportunities for enhancement of bird foraging and nesting habitat (see Chapter 4).

3.11 Records of black redstart were returned within 2km of the Site. This species typically nests within cliffs and screes on rocky substrate, but in the urban setting black redstart nest on old buildings, brownfield sites and other urban infrastructure. It has been found to breed within urban cities including Manchester[10]. The low, apex roofed building and small tarmac car park are not unsuitable for this species.

3.12 Peregrine records were also returned. This species is typically associated with cliffs and more upland landscapes[11] but do occur in urban locations, nesting on tall buildings or

[10] Black Redstart Bird Facts | Phoenicurus Ochruros - The RSPB Last accessed: 12th April 2022

[11] Peregrine Falcon Facts | Falco Peregrinus - The RSPB Last accessed 12th April 2022

spires, and within specially designed nest boxes or perches on buildings within cities[12].

Preliminary Bat Roost Assessment

Landscape Context

3.13 The Site is located within the urban centre of Manchester. Records returned by GMEU identify at least four species of bat within the local urban landscape – brown long-eared bat, common pipistrelle, soprano pipistrelle and Daubenton's (see Table 4-1).

3.14 Scattered green spaces in the local area may serve as stepping stone habitats in the area but there was no direct connection to favourable vegetated foraging habitat. Considering river and canal corridors that could provide a commuting and dispersal corridor for bats, the closest was the Rochdale Canal (150m). There were no trees within 50m of the Site; a feature recognised to be associated with elevated likelihood of presence of roosts in buildings.

Building Assessment

3.15 The single storey building contained commercial units. The building had an apex roof of corrugated metal and metal fascia along both apexes on Faraday Street and Postal Street which is entirely flush to the brick wall. The external structure consisted of a wall containing glazed windows and doors on the north-west aspect and brick walls on the north-east, south-east and south-west aspects. There were metal security shutters for the glazed windows which sat within a wooden box above the windows. This adjoined the wooden fascia along the north-west aspect, which was not entirely flush. Along the south-east aspect there was also wooden fascia adjoining the roof to the brick wall, which was not entirely flush.

3.16 Internally, the building was split into ten commercial units with varying fit-outs, some of which were in current use and others which were used occasionally. The entire roof space of all ten units was understood to be connected above the unit dividing walls (See Photographs 7 & 8, Appendix C).

3.17 At the south-western end of the building there were two units with plastered ceilings and walls, which were currently in use as a clothing store (See Photograph 3, Appendix C). As noted in Chapter 2, the void above could not be accessed but the apex of the roof had an internal height of 0.5m (estimated from exterior). Adjacent to this, the central units had suspended ceiling tiles and chipboard walls, and were used occasionally as warehouse storage (See Photograph 4, Appendix C). At the north-eastern end, there were two units with no internal structure which were also used for storage (See Photograph 5, Appendix C). These units were open to the external walls, roof joists and corrugated panel roof itself (See Photograph 6, Appendix C).

3.18 Regarding street lighting, which may influence nocturnal and crepuscular species present: at the north-western corner on Newton Street there was a street light located on the pavement approximately 3m from the building. On Dean Street at the north-eastern corner of the car park there was a street light located approximately 17m from the building, there was also a street light further south along the perimeter of the car park and at the south-eastern corner of the car park. Together, these were likely to cause some light spill onto the car park and building, however, there was no lighting within the Site itself. The adjacent buildings were in close proximity (within 5m) and were also likely to create some light spill onto the Site (See Photograph 2, Appendix C).

3.19 The survey did not record any evidence of bat roosting within the building.

3.20 The survey identified a potential bat access point into the building, located at the junction of the external wall on the south-east aspect and roof in the north-east corner of the building (See Photograph 9, Appendix C). In this location there was also an external PRF where the wooden fascia has lifted (See Photograph 10, Appendix C). Other external PRF are listed as follows:

- A gap between the wooden fascia and brick wall on the north-western aspect of the building, between the two units on the north-eastern end (See Photograph 11, Appendix C);
- Gap in the wooden fascia on the north-western corner of the building, this PRF is external (See Photograph 12, Appendix C);
- Two PRFs where there was a gap between the brick wall and fascia, located along the south-western aspect of the building (See Photographs 13 and 14, Appendix C).

Summary

3.21 The building was categorised as Low suitability for bats to roost. This reflected a precautionary approach, taking into account the landscape context, assessment of the building structure and condition, and the lack of survey access to the south-west roof void.

[12] BBC - Manchester - City's peregrines fly the nest Last accessed: 12th April 2022

Nocturnal Bat Survey

Results and Discussion

3.22 No bats were observed emerging from or re-entering the building during the bat activity survey. Additionally, no bats were recorded in the immediate vicinity, despite the favourable weather conditions.

3.23 The frequency of streetlights surrounding the building and car park and wider urbanscape creates continuously moderate level of light which reduces suitability for bats locally. Pockets of darkness between the Site and canal were infrequent, further reducing the likelihood of commuting and foraging bats at the Site and surrounding urban area.

Chapter 4
Conclusion and Recommendations

4.1 This section concludes the potential impacts of proposed development Figure 4-1 on the ecological features present.

4.2 Where appropriate, further survey recommendations are made to determine the presence, nature or extent (and so too value) of ecological features on site.

4.3 Opportunities for enhancement are recommended to inform the future detailed design, with reference to appropriate guidance. These are appropriate to both the local ecological resource and future residents of, and visitors to, the site.

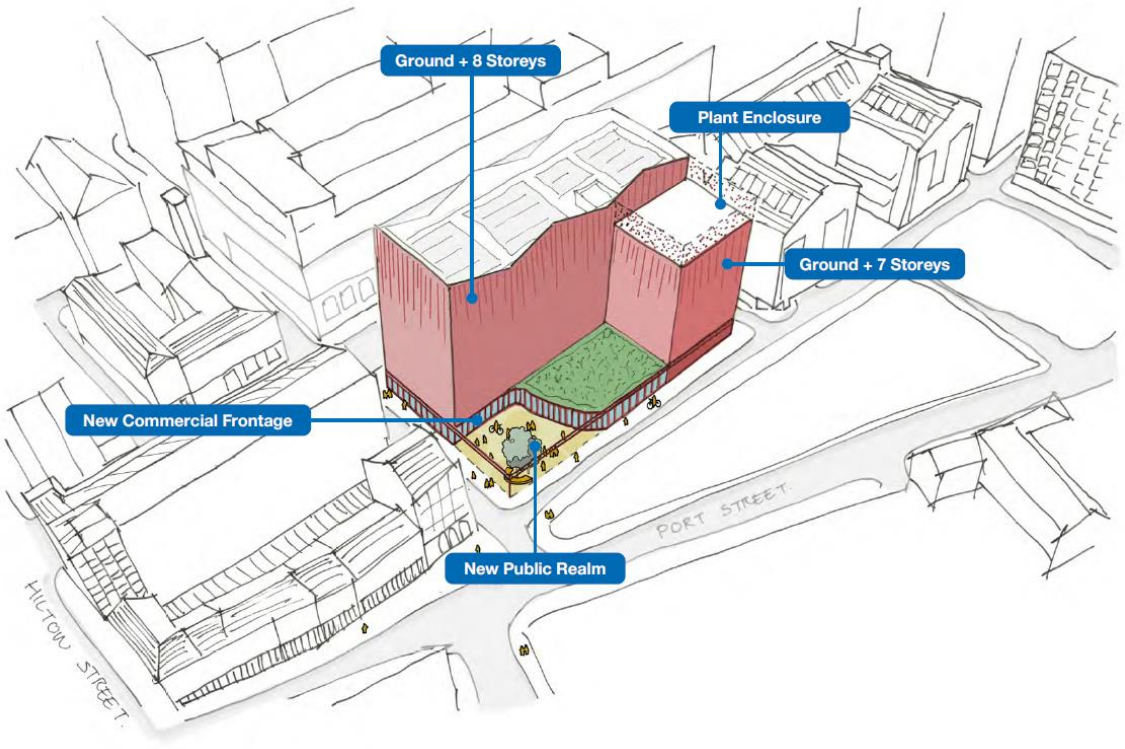


Figure 4-1: Concept design of proposed development[13]

Designated Sites and Local Green Spaces

4.4 There were two canals to the south-east of the Site which are designated as Sites of Biological Importance (SBIs). Due to the distance (over 150m) and intervening urban habitats, no impact on the SBI or other watercourses and green spaces are predicted as a result of construction. Given the high levels of existing recreational use, and management of these sites for this purpose, no significant operational impact is predicted.

[13] Postal Street Design Report RIBA Work Stage 1 Preparation and Briefing document dated 17th December 2021

4.5 Opportunities for biodiverse enhancement seek to optimise the value of landscape planting and its contribution to the local green space resource (see 'Biodiverse Landscape Planting' subheading below).

Habitats and Flora

Biodiverse Landscape Planting

4.6 In the absence of vegetated habitats currently present, biodiverse landscape planting offers opportunity for significant enhancement. The RIBA Stage 1 design proposals[14] include the following landscaping and Sustainable Urban Drainage (SuDS) design components as presented in Figure 4-1 concept design drawing above and habitat mapping Figure B-1, Appendix B:

1. A blue/ green roof with photovoltaic panels
2. Green or brown roof above the commercial units
3. Planted roof terrace
4. A single mature broadleaved tree planted within a rain garden or tree pit, where feasible
5. Permeable surfacing within external hard standing areas

4.7 These planting types, plus complementary opportunities for enhancement within the future detailed design, are described below.

Green and Brown Roofs

4.8 The green and brown roofs, planted roof terrace and public realm areas presented in the RIBA Stage 1 document should incorporate an appropriate planting scheme to create structurally diverse habitats which provide additional pockets of biodiversity across the urban landscape and provide foraging and nesting opportunities for invertebrates and birds.

4.9 For the purposes of this report and BNG assessment in Chapter 5, the brown roof is taken to be a combination of vegetated areas and exposed substrate, which can benefit both biodiversity and aesthetic design as described under 'Other Notable and Protected Species'.

Urban Green Infrastructure Technical Guide definitions (ANS Global, 2021)[15]

Green Roof: *Extensive green roofs are covered with low growing plants. Whilst extensive green roofs which resemble meadows or grasslands typically provide the greatest value to biodiversity, many extensive green roofs – typically include sedum (Sedum spp.), small, evergreen, stress and drought tolerant succulents. These, are species poor hence extensive green roofs receive a lower score on the SSM. If sedum is to be planted within the roof's planting specification, a large variety of wildflowers and meadow grasses should also be planted amongst the sedum*.

Brown roof: *Founded on an intensive substrate, a brown roof can be left to be naturally germinated with local seeds carried by the wind or can be pre-sown with wildflower seeds to encourage biodiversity. Features like log piles or small sand dunes can provide an alternative habitat for a variety of insects and even birds. Variation in substrates and aggregates is key for allowing a diverse plant and invertebrate community to establish.*

4.10 As with all vegetation, green roofs will undergo a period of dieback during autumn and winter seasons and re-bloom in spring and summer. To make the roof above the commercial units attractive to residents above year-round, the design may contain a mosaic of different substrates which in turn support contrasting floral assemblages. Incorporation of insect hotels and bird boxes can create interest and aesthetic appeal for residents as well benefitting biodiversity.

Roof Terrace and Ground Level Planting

4.11 As a general rule planting should seek to optimise structural diversity. Tall and at-height canopy vegetation can be particularly beneficial where this offers habitat away from immediate public access.

4.12 Selection of locally appropriate planting should maximise use of nectar-rich and berry-bearing plants across a wide flowering period to optimise foraging opportunities for these wildlife groups. Published plant lists such as the RHS Plants for Pollinators[16] offer a useful framework (led by seasonality and form) from which the planting palette may then be refined. Guidance on appropriate planting for birds and other wildlife is provided by the RSPB[17].

4.13 Within the public realm space, additional planting opportunities include planters integrated to seating areas, trellis screens positioned close to the building and climbers at key points on the permeant 'pergola' shade structure.

4.14 Planting of vertical habitats, such as trellis screens and other climbers, will need to take into account the available light at each planting location, with shade and wind tolerant species

[14] Postal Street Design Report RIBA Work Stage 1 Preparation and Briefing document dated 17th December 2021
[15] Available: https://www.ansgroupglobal.com/new-bng-requirements
[16] Available: https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/plants-for-pollinators
[17] Plants for Wildlife | Attract Birds & More - The RSPB Last accessed: 12th April 2022.

prioritised where appropriate or protection from winds to allow plants to thrive.

Tree Planting and Rain Garden

4.15 Successful tree planting can create substantial habitat at height and of structural complexity, that contribute to the stepping stones of tree canopy cover in the local area. Tree species will need to be resilient to urban growing conditions as well as the changing climate. Selection of locally appropriate tree species as well as specification of the size, stock and root should be informed by current guidance from the Manchester City Council Tree Officer.

4.16 Numerous successful examples of rain gardens are exemplified across the city. Rain gardens typically incorporate drought tolerant ground cover species to increase aesthetic appeal and biodiversity value year-round. Ground cover species for rain gardens and designed following appropriate urban design guidance[18] [19].

Bats

Nocturnal Survey

4.17 A single nocturnal survey was recommended in the first draft report (April, 2022), reflecting the Low BRP of the building for roosting bats.

4.18 The nocturnal survey found moderate levels of ambient light which reduced the suitability of the general surrounding area and the Site for bats. No evidence of bat activity was recorded despite the favourable weather conditions.

4.19 Due to the absence of roosting bats during the dusk survey, works can proceed without the need for a European Protected Species Licence. However, if any bats are found during works, then all works must stop, and a licenced bat ecologist should be contacted.

4.20 If works on the property have not commenced within eighteen months of the date of this report, the survey should be updated to ensure the results are still valid.

Habitat Creation and Enhancement

Bats

4.21 In the absence of bat activity at the Site it is not suitable to provide roost features as part of the enhancement measures for biodiversity.

4.22 However, enhancements for other notable and protected species are addressed under the subheading below.

Other Notable and Protected Species

4.23 Opportunities for optimising habitat for birds and invertebrates are most appropriate at the Postal Street site. In addition to the habitat creation outlined earlier, additional planting opportunities, roof substrate selection and provision of refugia, are described below.

4.24 The green or brown roof could be made ecologically diverse through the incorporation of varying substrates such as loose sandy substrate, areas of soil, large rocks and gravel, and sparse areas of vegetation including nectar rich plants and bare ground to provide habitat niches including basking, foraging and ground nesting opportunities for birds and invertebrates such as bees, wasps and ants. Relevant guidance for enhancing green roof design for wildlife, and in particular for invertebrates, include current publications from Buglife[20] [21].

4.25 The roof design could be enhanced to also include insect hotels and bird boxes to create interest and aesthetic appeal for residents as well as wildlife. Insect hotels could be situated on the brown roof area above the ground floor commercial units as indicated in Figure B-1. Bird boxes could also be positioned in this location or on trees (at appropriate height, aspect and away from high levels of artificial light spill). Boxes may be bespoke as a design feature but suitable standard dimensions would be as listed for:

- Schwegler 1B Nest Box, 32mm entrance – suitable for house sparrow and the larger widespread tit species;
- House sparrow terrace;
- Starling and robin boxes.

[18] UDL_Rain_Gardens_for_web_0vwx1Ls.pdf (urbandesignlondon.com) Last accessed: 05/04/22
[19] UKRainGarden-Guide.pdf (raingardens.info) Last accessed: 05/04/22
[20] Creating-Green-Roofs-for-Invertebrates_Best-practice-guidance.pdf (buglife.org.uk) Last accessed: 12th April 2022.
[21] Invertebrates and the Black Redstart ecology (blackredstarts.org.uk) Last accessed: 12th April 2022.

Chapter 5
Preliminary Biodiversity Net Gain Assessment

Introduction

5.1 The DEFRA BNG Metric[22] is the established method for calculating losses and gains resulting from development. Within this, the streamlined Small Sites Metric (SSM)[23] was used to calculate the outline BNG metric for the development, based on the biodiversity value of the landscaping recommendations in Chapter 4. At the time of completing the BNG assessment on 12th April 2022, DEFRA's BNG Metric 3.0 version was used as it was prior to the release of BNG Metric 3.1 on 21st April 2022.

5.2 Four landscaping components were assessed:

1. Extensive Green Roof with Solar PV Rays
2. Brown Roof
3. Planted roof terrace assuming 50% of total area is planted leaving space for paths and seating
4. Large mature broadleaved tree such as oak or beech planted within a rain garden.

5.3 The SSM assessment was completed in accordance with Biodiversity Net Gain: Good Practice Principles for Development guidance[24].

5.4 It is recognised that the BNG was developed to quantify change in vegetated habitats; hence, is limited in its application to sites that are not vegetated in their baseline state and/or in its recognition of proposed areas of vegetation that are relatively small. For urban sites such as at Postal Street therefore, wider consideration of biodiversity value or 'gain' which cannot be captured by the metric is appropriate. In the absence of an urban greening factor or other bespoke metric in Manchester, professional judgement is therefore additionally used.

[22] Current BNG Metric 3.0: The Biodiversity Metric 3.0 - JP039 (naturalengland.org.uk) Last accessed: 05/04/22
[23] The Small Sites Metric - JP040 (naturalengland.org.uk) Last accessed: 05/04/22

[24] Baker J., Hoskins R. and Butterworth T. (2019). *Biodiversity Net Gain. Good practice principles for development: A practical guide*. Ciria, London.

Method

Small Sites Metric (SSM)

5.5 This Site qualifies for use of the Small Sites Metric (SSM) rather than full Metric 3.0[25], as it meets the following criteria:

a. Site area less than 0.5ha (measures 0.16ha).

b. Due to the urban location of the Site, there are no priority habitats within the development area.

5.6 In accordance with the national approach to BNG, the SSM reinforces the application of the mitigation hierarchy which is an important principle of ecological good practice.

5.7 In contrast to the full BNG Metric, within the SSM, habitats are assigned a condition score automatically. 'Condition' is considered a measure of habitat quality and measures the 'working-order' against the optimal potential of habitat type. Habitats with a range of condition options between 'Poor' and 'Good' within Metric 3.0 are assumed to be in 'Moderate' condition for the purposes of the SSM. It should be noted that some habitats are assigned a condition below the 'moderate' classification within the Metric, as these habitats are assumed to not be able to achieve a 'moderate' condition by the SSM. Therefore, these habitat types may be ranked less (such as 'Poor').

5.8 To determine net gain, a baseline calculation of 'biodiversity units' pre-development is contrasted with a calculation post-development, based on the habitat types present and proposed. For the post-development score, where a new habitat is to be created (as opposed to retained), the time taken to establish and reach target condition (temporal multiplier) and the difficulty of habitat re-creation (difficulty multiplier) is accounted for. Both temporal and difficulty multipliers were taken from the SSM Guidance.

5.9 Assessment was conducted with regard to a set of key principles and rules. These are set out below:

- Principle 1: The metric does not change the protection afforded to biodiversity.
- Principle 2: Biodiversity Metric calculations can inform decision-making where application of the mitigation hierarchy and good practice principles conclude that compensation for habitat losses is justified[26].
- Principle 3: The metric's biodiversity units are only a proxy for biodiversity and should be treated as relative values.
- Principle 4: The metric focuses on typical habitats and widespread species; important or protected habitats and features should be given broader consideration.

Pre- and Post-development Calculations for Postal Street

5.10 To inform the pre-development baseline calculation, an extended Phase 1 Habitat survey was conducted of the Site to confirm the extent and distribution of any habitats within the Site. This was carried out by Ellie Mayhead BSc (Hons) and Qualifying member of CIEEM, on 23rd March 2022. The UK Habitat Map of the Site is presented in Figure B-2, Appendix B. There were no vegetated habitats present except developed land which was recorded using UK Habitat Classification System (UKHab)[27] for use within the SSM.

5.11 Some assumptions are made in the extent (complete coverage) of landscape planting as well as the composition and condition of each assumed habitat type. The final BNG metric 'score' derived will reflect the landscape planting refined during detailed design. Where detailed species list and/or layout is required for ground flora, shrubs, climbers or trees, LUC would happily advise.

Results

5.12 Given the built nature of the hard surface and commercial units that occupy the Site, no baseline biodiversity units are achieved. Therefore, the biodiversity units resulting from the new habitats created within the proposed development are presented as a total score, rather than a percentage change and broken down per landscaping component. The results of the BNG assessment carried out using the SSM are presented in Table B-1, Appendix B.

5.13 Inclusion of all four landscaping components results in a total of 0.62 biodiversity units. A breakdown is as follows:

1. Extensive Green Roof with Solar PV Rays = 0.41 Units
2. Brown Roof = 0.14 Units
3. Planted roof terrace assuming 50% of total area is planted leaving space for paths and seating = 0.02 Units
4. Large mature broadleaved tree such as oak or beech planted within a rain garden^2 = 0.05 Units.

Summary

5.14 The SSM calculation helps to quantify the proposed landscaping components would result in a measurable increase in biodiversity from the existing hard standing. Whilst BNG does not account for benefits to biodiversity such as bird

[25] http://publications.naturalengland.org.uk/file/5318830705606656 Last accessed: 05/04/22

[26] https://www.cieem.net/data/files/Publications/Biodiversity_Net_Gain_Principles.pdf Last accessed: 05/04/22

[27] https://ukhab.org/ Last accessed: 05/04/22

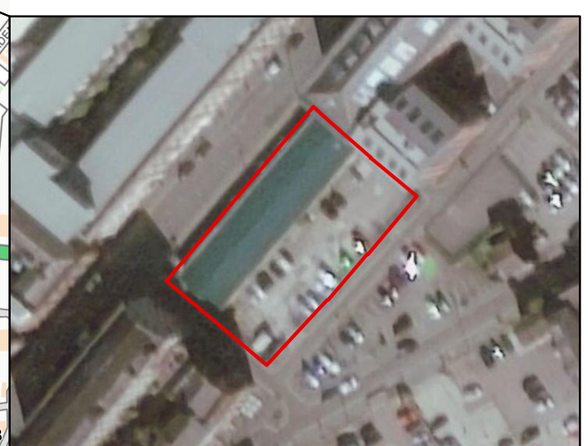
boxes or bug hotels, these remain relevant to the nature and extent of proposed development, and to the urban context. Such enhancement measures are recognised in any planning application as additional to the BNG SSM score.

Appendix A

Phase 1 Habitats and Protected Species Survey Maps

Figure 2-1: Postal Street Site Boundary

Site boundary 1km buffer
Site boundary



Map scale 1:1,400 @ A3

0 0.25 0.5 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community 2022
Contains Ordnance Survey data © Crown copyright and database right 2022

Postal Street PEA and Preliminary BNG Assessment
Faithful and Gould

LUC

Figure A-1: Phase 1 Habitats and Preliminary Bat Roost Assessment Results



Site boundary

Bat roost potential structure

Low

Phase 1 habitat

J3.6 Buildings

J4 Bare ground

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community 2022

CB:LW EB:Whyte_L LUC FIG2_11990_Phase1 13/04/2022
Source: LUC, OS

Appendix B

Outline Biodiversity Net Gain Assessment

Table B-1: Results of Small Sites Metric BNG Assessment

1a. Baseline habitats

Ref	Habitat		C. Strategic significance	Areas M sq			Baseline results			Comm
	A. Broad Habitat	B. Habitat type		D. Total Area	E. Area retained	F. Area enhance	Total habitat units onsite	Area Lost	Units lost	User comments
1	Urban	Developed land; sealed surface	Area not in local strategy	1591			0.0000	1591	0.0000	Total site area including existing building and car park
Trees	Urban	Urban Tree	Area not in local strategy	0	0	0	0.0000	0	0.0000	
			Totals (areas excl Trees)	1591	0	0	0.0000	1591	0.0000	
			Error Check 1	Areas Acceptable						
			Error Check 2	Areas Acceptable						
			Error Check 3	Areas Acceptable						

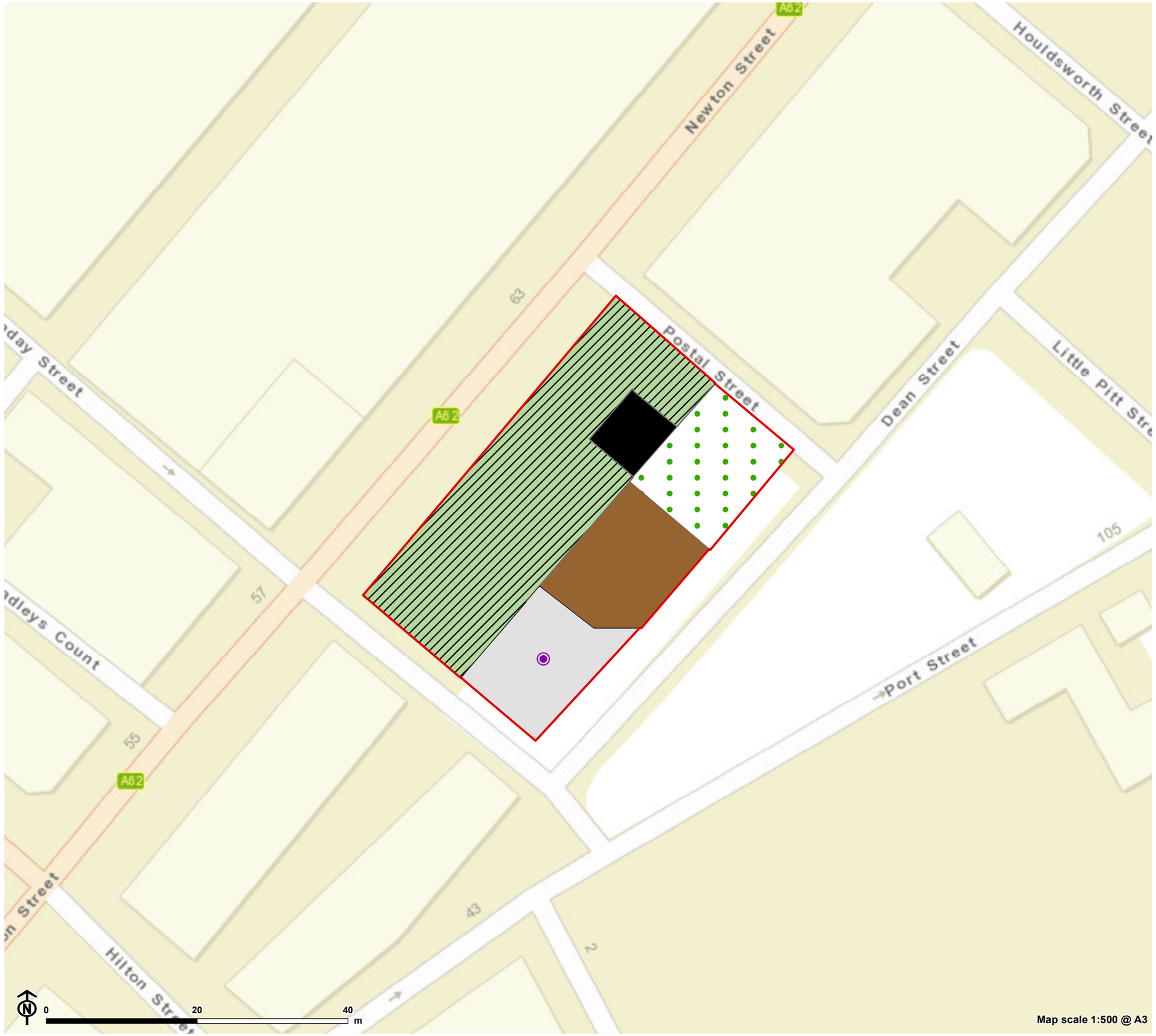
1b. Habitats to be created

Ref			Condition Assessment		D. Strategic significance	E. Total Area M sq.	Habitat units created onsite	Comm
	A. Broad Habitat	B. Habitat type	Acceptable condition options	C. Targeted condition				User comments
1	Urban	Extensive green roof	Moderate, Good	Good	Area not in local strategy	823	0.4132	Extensive Green Roof with PV Panels similar to the Bauders 'BioSOLAR' solution which has entire coverage green roof: https://www.bauder.co.uk/solar-pv/bauder-biosolar
2	Urban	Brown roof	Moderate, Good	Good	Area not in local strategy	239	0.1346	Brown Roof above comemrcial units
3	Urban	Ground level planters	Poor	Poor	Area not in local strategy	119	0.0230	Roof terrace planted at 50% of total area
4	Urban	Developed land; sealed surface	N/A - Other	N/A - Other	Area not in local strategy	119	0.0000	Remaining 50% of roof terrace area not planted for paths and seating etc
5	Urban	Rain garden	Moderate, Good	Moderate	Area not in local strategy	50	0.0180	Assuming rain garden of 50m2
6	Urban	Artificial unvegetated, unsealed surface	N/A - Other	N/A - Other	Area not in local strategy	174	0.0000	Permeable paved urban realm
7	Urban	Developed land; sealed surface	N/A - Other	N/A - Other	Area not in local strategy	67	0.0000	Non-habitat core
Trees	Urban	Urban Tree	Moderate	Moderate	Area not in local strategy	113	0.0346	
					Totals (areas excl Trees)	1591	0.6233	
					Error Check 4	Areas Acceptable		

Postal Street PEA and Preliminary BNG Assessment
Faithful and Gould

LUC

Figure B-1: Landscaping Options used for outline BNG calculations



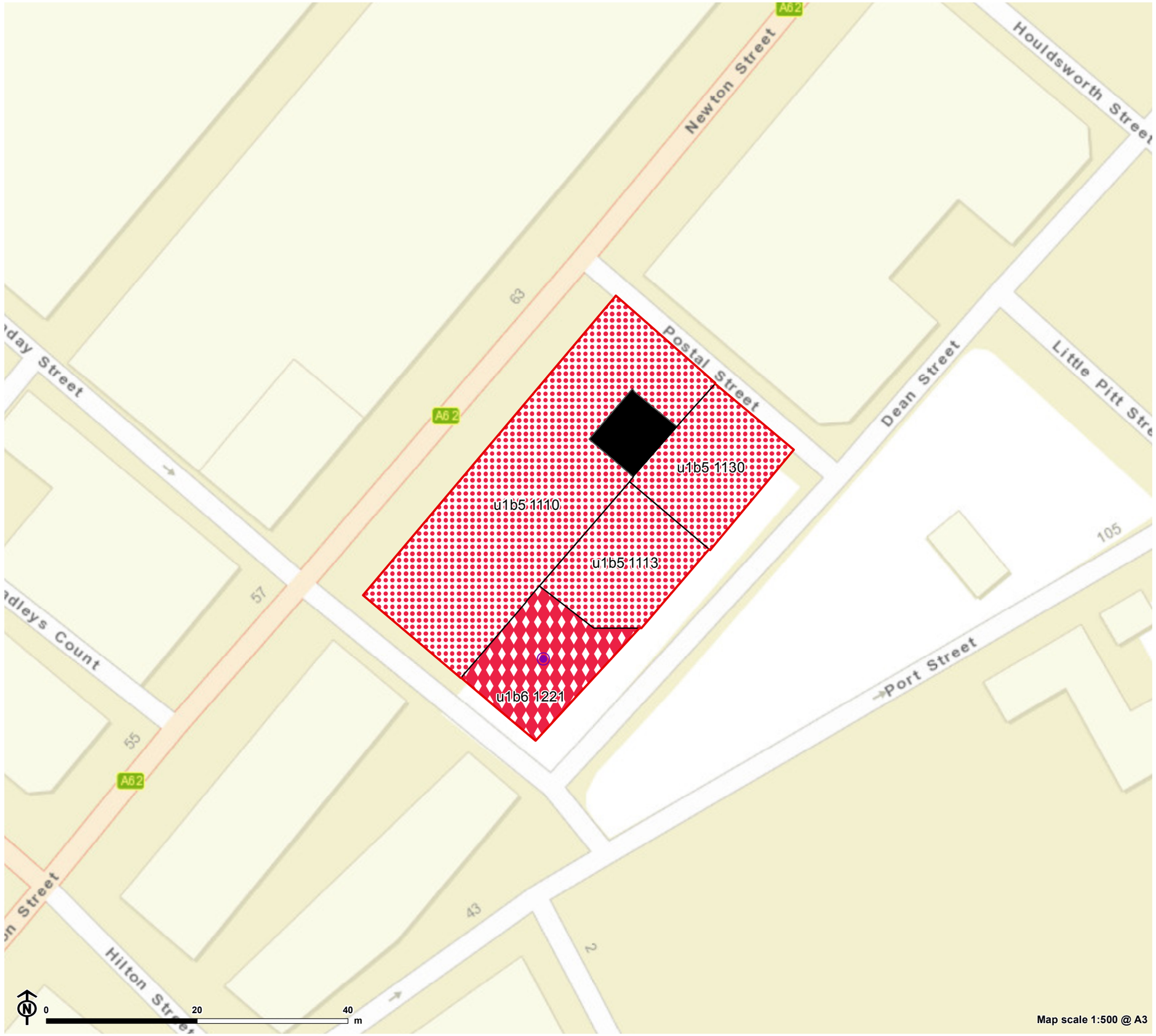
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community 2022

CB:LW EB:Whyte_L LUC FIGB1_11990_LandscapeOptions 13/04/2022
Source: LUC, MCC, OS

Postal Street PEA and Preliminary BNG Assessment
Faithful and Gould

LUC

Figure B-2: UK Habitat Map of Landscaping Options



Site boundary

Broadleaved tree planted within rain garden

UK Habitat Category

Brown roof - u1b5 1113

Green roof with PV panel - u1b5 1110

Non-habitat core

Permeable paving - u1b6 1221

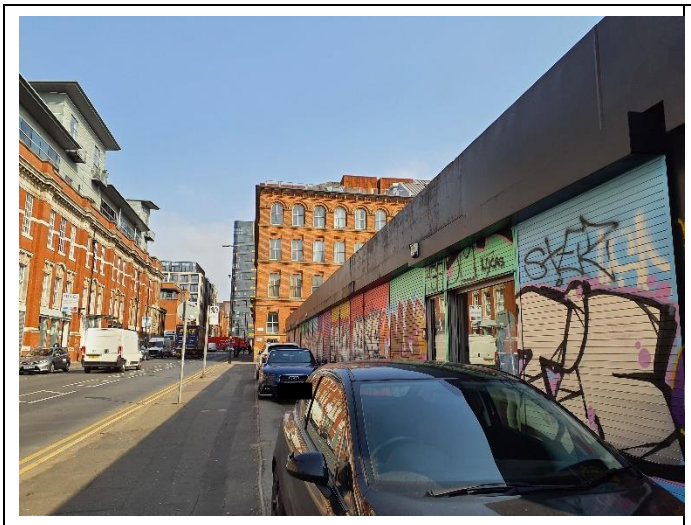
Rooftop plant enclosure - u1b5 1130

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community 2022

CB:LW EB:Whyte_L LUC FIGB_11990_LandscapeOptions_wUKHAB_13/04/2022
Source: LUC, MCC, OS

Appendix C

Site Photographs



Photograph 1a: The north-west aspect of the commercial units along Newton Street.



Photograph 2: Adjacent building to the north on Faraday Street.



Photograph 1b: View across car park from Faraday Street looking north-east towards Postal Street.



Photograph 3: Commercial unit with plastered walls and ceilings.



Photograph 4: Commercial unit with suspended ceilings and roof tiles.



Photograph 5: Commercial unit with no internal fit-out.



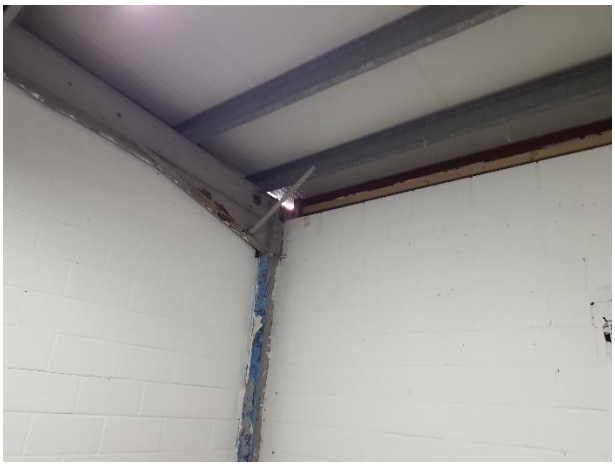
Photograph 6: Exposed steel joists along ceiling.



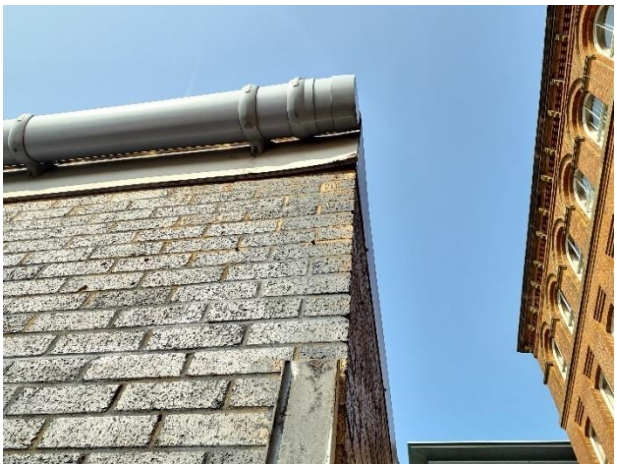
Photograph 7: Gaps between internal dividing wall and ceiling.



Photograph 8: Gap between internal dividing wall and ceiling.



Photograph 9: Potential internal bat roost access point between the external wall and ceiling at south-eastern corner of building on Postal Street.



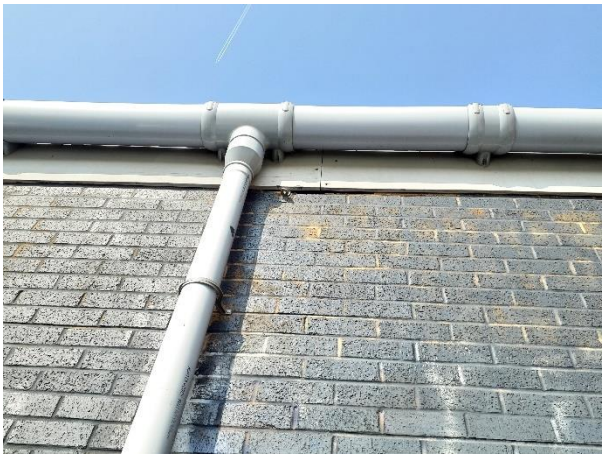
Photograph 10: External potential roost feature (PRF) on north-west aspect along Newton Street between the wooden fascia and brick wall.



Photograph 11: External PRF on north-western aspect along Newton Street.



Photograph 12: External PRF on north-eastern corner of building between Newton Street and Postal Street.



Photograph 13: External PRF along south-eastern aspect of building.



Photograph 14: External PRF along south-eastern aspect of building.