

Sparkle Street, Manchester M1 2NJ

ECOLOGICAL SURVEY AND ASSESSMENT (Including a Licensed Bat Survey)

April 2024

ERAP (Consultant Ecologists) Ltd Reference: 2023-064

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Document Control

Survey Type:	Surveyors ¹	Survey Date(s)
Phase 1 Habitat and Daylight bat survey	Brian Robinson B.Sc. (Hons) MCIEEM	6 th June 2023
Reporting	Personnel	Date
Author	Brian Robinson B.Sc. (Hons) MCIEEM Senior Ecologist	24 th July 2023
Signature(s)		
Checked	Rachel Brown B.Sc. (Hons)	26 th July 2023
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¹ Licence reference number		
Bats		
Brian Robinson Natural England Class Survey Licence (bats, Level 2) Registration Number 2015-13161-CLS-CLS		

SUMMARY

Introduction and Scope

- i. This ecological survey and assessment presents the ecological, biodiversity and nature conservation status of Sparkle Street. The assessment was requested in connection with a planning application at the site; a description of the proposals is provided below:

'Full Planning Permission for demolition of existing low rise commercial units and erection of ground + 27 storey residential development with supporting residential amenity, private terraces and private shared garden.'

- ii. This report presents the results of a desktop study, data search, extended Phase 1 Habitat Survey and a licensed bat survey carried out in June 2023. The scope of survey undertaken is appropriate to identify potential ecological constraints, the remit of mitigation required and opportunities for biodiversity associated with the development proposals.
- iii. The comprises buildings and hard standing, ornamental trees and shrubs at the northern and eastern site boundaries, and an area of unmanaged scrub and grassland at the rear (southern end) of the site.

Results of Survey and Assessment

- iv. The proposals will have no adverse direct or indirect effect on statutory or non-statutory designated sites for nature conservation.
- v. Only common and widespread plant species were found. None of the habitats present are representative of semi-natural habitat. In terms of each habitat's importance in a geographical context, the trees, ornamental shrubs and scrub are considered to be of 'site' importance. The buildings and hard standing are not considered to hold any importance on a geographical scale. Recommendations for suitable species to include in any landscape design of the proposed development at the site are presented at **Section 5.5**.
- vi. The presence of Japanese Rose and Hollyberry Cotoneaster, both invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), have been detected within the site. It is considered that the proposals present an opportunity for the eradication of these species as part of the proposed development. Further guidance is presented at **Section 5.3** of this report.
- vii. The site supports habitats of low suitability for use by foraging bats, nesting birds and foraging and sheltering hedgehog, a Priority Species. Measures for the protection of these species during the construction phase of the proposed development are presented at **Section 5.2**. Enhancements to include within the site design for roosting bats and nesting birds are presented at **Section 5.4**. No other protected species have been detected.

Recommendations

- viii. The recommendations in **Section 5.0** outline all the mandatory measures and additional actions to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.
- ix. The proposals will secure an opportunity to implement beneficial measures such as habitat creation that will safeguard habitats for wildlife such as birds and bats, with the aim of providing a net gain in biodiversity in accordance with the principles of the NPPF.

Conclusion

- x. It is concluded that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy. Redevelopment at the site will provide an opportunity to secure ecological enhancement for wildlife associated with urban areas.

1.0 INTRODUCTION

1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Foras (Sparkle Street) Limited to carry out an ecological assessment of Sparkle Street (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SJ 84942 98045. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).

1.1.2 The assessment was requested in connection with a planning application at the site; a description of the proposals is provided below:

'Full Planning Permission for demolition of existing low rise commercial units and erection of ground + 27 storey residential development with supporting residential amenity, private terraces and private shared garden.'

1.2 Scope of Works

1.2.1 The scope of ecological works undertaken in June 2023 comprised:

- a. A desktop study and data search for known ecological information at the site and the local area;
- b. An Extended Phase 1 Habitat Survey and assessment;
- c. Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
- d. Survey and assessment of all habitats for relevant statutorily protected species¹ and other wildlife including badger (*Meles meles*), barn owl (*Tyto alba*), bird species and reptiles;
- e. A licensed daylight bat survey of the buildings and trees;
- f. The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and
- g. The identification of any further surveys or precautionary actions that may be required to inform the progression of the site through the planning process or prior to the commencement of any construction activities.

¹ In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development. In this instance (for example) there are no ponds within an unobstructed 500 metre radius of the site, and no water bodies or water courses within or adjacent to the site; there has been no requirement to consider great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*) or otter (*Lutra lutra*) as part of this assessment.

2.0 METHOD OF SURVEY

2.1 Desktop Study and Data Search

2.1.1 The following sources of information and ecological records were consulted:

- a. MAGiC Maps: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;
- b. Greater Manchester Local Record Centre (GMLRC); and
- c. Greater Manchester Biodiversity Action Plan (BAP).

2.2 Vegetation and Habitats

2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Brian Robinson on 6th June 2023. The weather was dry and cloudy, with a light air (Beaufort scale 1) and an air temperature of 14°C.

2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area at a scale of 1:750 and is appended at **Figure 2**. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.2.3 On site habitat mapping was assisted via use of GPS technology using *Sparkle Street, Manchester M1 2NA: Topographical Survey Drawing No. 60159/1 Revision A* (Malcolm Hughes, 2023) and ESRI World Imagery as base plans.

2.2.4 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.2.5 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.2.6 Habitats within the site were assessed in accordance with the UK Habitats Classification / UKHab (Butcher, et al., 2020). The UKHab has been designed to function at two scales: fine scale (25m² or 5 metres length) and large scale (400m² or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m² or 5 metres length is appropriate.

2.2.7 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).

2.2.8 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Animal Life

Badger

- 2.3.1 The survey area for badger covered the site (as annotated on **Figures 1 and 2**) and extended to accessible land within a radius of 50 metres from the site boundary. Private gardens / land were excluded from the survey.
- 2.3.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: advice for making planning decisions* (Natural England, 2022).
- 2.3.3 The following signs of badger activity were searched for:
- Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
 - Large spoil heaps outside sett entrances;
 - Bedding outside sett entrances;
 - Badger footprints;
 - Badger paths;
 - Latrines;
 - Badger hairs on fences or bushes;
 - Scratching posts; and
 - Signs of digging for food.
- 2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat Species

Daylight Survey

Survey Personnel

- 2.3.5 The site was assessed for its suitability to support roosting bats by Brian Robinson, Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-13161-CLS-CLS. The surveyor's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

Buildings

- 2.3.6 The surveys were carried out in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).
- 2.3.7 An inspection of the external surfaces, walls and roofs of the buildings was carried out to find potential bat roosting habitat or accesses into internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were also carried out.
- 2.3.8 The internal survey involved an examination of the accessible internal areas (including roof voids) to find roosting bats or evidence of past use of the buildings by bats such as droppings and prey remains.
- 2.3.9 A list of equipment used is detailed at **Table 2.1**.

Table 2.1: Survey Equipment used during Daylight Bat Survey

Ladders
LED Lenser P14 torch
Panasonic DMC- FT1 digital camera
8x20 binoculars
Ridgid Micro Inspection Camera Borescope CA-100

- 2.3.10 The suitability of each building has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats within the building (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats.

Trees

- 2.3.11 A preliminary assessment of the trees within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.
- 2.3.12 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

- 2.3.13 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

Habitat Assessment for Commuting / Foraging Bats

- 2.3.14 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented at **Table 2.2**.

Table 2.2: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Bird Species

- 2.3.15 Bird species observed and heard during the survey were recorded.
- 2.3.16 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.
- 2.3.17 During the internal inspection on 6th June 2023 both buildings were searched for pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl in accordance with *The Barn Owl Conservation Handbook* (Barn Owl Trust, 2012) and *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Developing Best Practice in Survey and Reporting* (Shawyer, 2011).

Reptile Species

- 2.3.18 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined in **Table 2.3**.

Table 2.3: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

Other Wildlife

- 2.3.19 Evidence of other wildlife (including Priority Species) observed whilst on site (but for which specific surveys were not made) was recorded and has been included in this report where it is considered of relevance to the planning application. Habitats have been assessed for their suitability for Priority Species identified in the data search results where this is considered relevant to the application.

2.4 Survey and Reporting Limitations

- 2.4.1 The surveys were completed under suitable conditions and at a suitable time of year. The dense scrub at the rear of the site could not be fully accessed, however it is considered that a sufficient area of scrub could be accessed and / or viewed from its exterior that a reliable assessment of the scrub was possible during the survey. No significant survey limitations were experienced.
- 2.4.2 All measurements within this report are approximate only, and have been either measured or estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

2.5 Evaluation Methods

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977) and *Guidelines for the Selection of Biological SSSIs* (Bainbridge, et al., 2013). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory

lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

- 2.5.3 Government advice on wildlife, as set out in the NPPF and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and / or species listed by the Greater Manchester Biodiversity Action Plans has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study and Data Search

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

- 3.1.1 The site is not and does not form part of any statutory designated site for nature conservation.
- 3.1.2 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for Rochdale Canal Special Area of Conservation (SAC), located 4.97 kilometres to the north-east of the site, and Hollinwood Branch Canal SSSI, located 6.21 kilometres to the east. Both sites are designated for their assemblages of aquatic plants.
- 3.1.3 The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2023):
 - a. Airports, helipads and other aviation proposals.
 - b. Any industrial / agricultural development that could cause air pollution, including industrial processes, livestock and poultry units with a floorspace greater than 500m², slurry lagoons and digestate stores greater than 750m² and manure stores greater than 3500 tonnes.
 - c. General combustion processes greater than 50 megawatts energy input. Includes energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works and other incineration / combustion.
- 3.1.4 The proposals do not match any of the criteria which would require the Local Planning Authority to consult with Natural England in respect of likely risks to the statutory designated sites.

Non-statutory Designated Sites for Nature Conservation

- 3.1.5 The site is not and does not form part of any non-statutory designated site for nature conservation, called 'Sites of Biological Interest' or 'SBIs' in Greater Manchester.
- 3.1.6 Two SBIs are located within a 2 kilometre radius from the centre of the site, and are summarised at **Table 3.1**.

Table 3.1: SBIs Within a 2 Kilometre Radius from the Centre of the Site

SBI Name	Distance and Direction from the Site	Reasons for Designation
Ashton Canal (West)	0.04 kilometres to the east	Standing Water (Fw3)
Rochdale Canal Stott's Lane - Ducie Street Basin	0.16 kilometres to the north-east	Standing Water (Fw3)

3.1.7 The presence of the SBIs is considered further at **Section 4.2**.

Priority Habitats Inventory

3.1.8 The Priority Habitats Inventory² was checked via MAGiC Maps. No Priority Habitats are identified at the site by the inventory.

Protected and Notable Species

3.1.9 GMLRC hold no records of protected and notable species for the site.

3.1.10 Records of protected and notable species for a 2 kilometres radius from the centre of the site are summarised at **Table 3.2**.

Table 3.2: Records of Protected Species Within a 2 Kilometres Radius from the Centre of the Site

Taxon Group	Species Name and Designations ¹ and Notes
Birds – WCAs1 Species	Black redstart (<i>Phoenicurus ochruros</i>): WCAs1 and GMBAP. 157 records, dated between 1997 and 2022. The closest record is 30 metres to the south-west of the site, and from 2009.
	Hobby (<i>Falco subbuteo</i>): WCAs1. 1 record from 2008, located 1380 metres to the north-west of the site.
	Kingfisher (<i>Alcedo atthis</i>): WCAs1. 28 records, dated between 2004 and 2022. The closest record is 665 metres to the south-west of the site, and from 2010.
	Little ringed plover (<i>Charadrius dubius</i>): WCAs1. 7 records, dated between 2006 and 2014. The closest record is 345 metres to the east of the site, and from 2008.
Birds – PS and GMBAP Species	PS Only: Bullfinch (<i>Pyrrhula pyrrhula</i>), cuckoo (<i>Cuculus canorus</i>), curlew (<i>Numenius arquata</i>), dunnoek (<i>Prunella modularis</i>), herring gull (<i>Larus argentatus</i>), house sparrow (<i>Passer domesticus</i>), lapwing (<i>Vanellus vanellus</i>), lesser redpoll (<i>Carduelis cabaret</i>), linnet (<i>Linaria cannabina</i>), song thrush (<i>Turdus philomelos</i>), spotted flycatcher (<i>Muscicapa striata</i>), starling (<i>Sturnus vulgaris</i>) and yellow wagtail (<i>Motacilla flava</i>).
Terrestrial Invertebrates	Cinnabar (<i>Tyria jacobaeae</i>): PS. 16 records, dated between 2012 and 2022. The closest record is 260 metres to the north-west of the site, and from 2017.
	White-letter hairstreak (<i>Satyrion w-album</i>): PS. 1 record from 2019, located 1125 metres to the east of the site.
Terrestrial Mammals	Brown long-eared bat (<i>Plecotus auritus</i>): EPS, WCAs5, PS and GMBAP. 1 record from 2013, located 1715 metres to the west of the site.
	Noctule bat (<i>Nyctalus noctula</i>): EPS, WCAs5, PS and GMBAP. 2 records, dated 2019 and 2020. The closest record is 180 metres to the north of the site, and from 2020.
	Otter (<i>Lutra lutra</i>): EPS, WCAs5 and PS. 3 records, dated between 2013 and 2022. The closest record is 1605 metres to the north-west of the site, and from 2018.
	Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>): EPS, WCAs5, PS and GMBAP. 3 records, dated between 2006 and 2019. The closest record is 330 metres to the west of the site, and from 2013.
	Bat sp (Order <i>Chiroptera</i>): EPS, WCAs5 and GMBAP. 1 record from 2014, located 1115 metres to the west of the site.
	Common pipistrelle (<i>Pipistrellus pipistrellus</i>): EPS, WCAs5 and GMBAP. 119 records, dated between 1994 and 2020. The closest record is 110 metres to the east of the site, and from 2016.
	Daubenton's bat (<i>Myotis daubentonii</i>): EPS, WCAs5 and GMBAP. 1 record from 2009, located 1300 metres to the north-west of the site.

² A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

Taxon Group	Species Name and Designations ¹ and Notes
	Myotis species (<i>Myotis</i> sp.): EPS, WCAs5 and GMBAP. 1 record from 2015, located 260 metres to the south of the site.
	Pipistrelle species (<i>Pipistrellus</i> sp.): EPS, WCAs5 and GMBAP. 39 records, dated between 1994 and 2018. The closest record is 40 metres to the south-east of the site, and from 2004.
	Badger (<i>Meles meles</i>): PBA. 17 records, dated between 2011 and 2014. The closest record is over 700 metres from the site, and from 2011.
Vascular plants	Floating Water-plantain (<i>Luronium natans</i>): EPS, WCAs8 and PS. 2 records, both from 2001. The closest record is 715 metres to the north-east of the site.
	Yellow Bird's-nest (<i>Monotropa hypopitys</i>): PS. 2 records, both from 2017. The closest record is 1625 metres to the north of the site.
¹ Key to Designation Codes: EPS = European Protected Species under <i>The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019</i> . WCAs1 = Species receives full protection under Schedule 1 of the <i>Wildlife and Countryside Act 1981</i> (as amended). WCAs5 = Species receives full protection under Schedule 5 of the <i>Wildlife and Countryside Act 1981</i> (as amended). PBA = Protection of Badger Act 1992. PS = Priority Species listed under Section 41 of the NERC Act 2006. GMBAP = Species listed on the Greater Manchester Biodiversity Action Plans	

- 3.1.11 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

3.2 Vegetation and Habitats

General Description

- 3.2.1 The approximately 0.39 hectares site is located adjacent to Sparkle Street and Store Street and is approximately 100 metres north of Piccadilly Railway Station in Manchester City Centre.
- 3.2.2 The site is largely unoccupied, with its former use being a telephone exchange along with surface car parking and two buildings that are partly used for storage and distribution. The site supports buildings and hard standing, ornamental trees and shrubs at the northern and eastern site boundaries, and an area of unmanaged scrub and grassland at the rear (southern end) of the site.
- 3.2.3 The site boundaries are defined by fencing. The site is bounded by Store Street to the north, Sparkle Street to the west, residential apartments to the south and vacant land to the east.
- 3.2.4 A Phase 1 Habitat Survey map is appended at **Figure 2**, and can be referred to for all habitat descriptions. Photographs are appended at **Section 8.2**.

Buildings and Hard Standing

- 3.2.5 No significant assemblage of vegetation is associated with the two buildings, which are described in detail in relation to their suitability for use by roosting bats at **Section 3.3**.
- 3.2.6 Refer to **Photo 1**. The asphalt hard standing within the site supports a sparse assemblage of colonising ruderal herbs, which are characterised by very locally frequent Butterfly-bush (*Buddleja davidii*) and rare Annual Meadow-grass (*Poa annua*), Bramble (*Rubus fruticosus* agg.), Creeping Yellow-ress (*Rorippa sylvestris*), Dandelion (*Taraxacum officinale* agg.), Herb-Robert (*Geranium robertianum*), Oxford Ragwort (*Senecio squalidus*), Purple Toadflax (*Linaria purpurea*), Rosebay Willowherb (*Chamerion angustifolium*) and Smooth Hawk's-beard (*Crepis capillaris*).
- 3.2.7 The habitat is not typical of any NVC community and is described by the UKHab as u1b6 other developed land with the secondary code 17 ruderal / ephemeral. The buildings are described by the UKHab as u1b5 buildings.

Ornamental Shrubs and Trees

- 3.2.8 Refer to **Photos 2 and 3**. The northern and western site boundaries support margins of ornamental shrubs and trees, which are characterised by occasional Norway Maple (*Acer platanoides*), Bramble, Butterfly-bush, Oxford Ragwort and Purple Toadflax, locally abundant Dogwood (*Cornus sanguinea*), Chinese Barberry (*Berberis julianae*), Hollyberry Cotoneaster (*Cotoneaster bullatus*), Wilson's Honeysuckle (*Lonicera nitida*), Hazel (*Corylus avellana*) and Garden exotics, and locally frequent Firethorn (*Pyracantha coccinea*), Cleavers (*Galium aparine*), Dog-rose (*Rosa canina*), Ivy (*Hedera helix*), Persian Ivy (*Hedera colchica*) and Wild Cherry (*Prunus avium*). A plant species list is appended at **Table 8.1**.
- 3.2.9 The habitat is not typical of any NVC community and is described by the UKHab as h3h mixed scrub with the secondary codes 11 scattered trees and 48 non-native.

Scrub at the Rear

- 3.2.10 Refer to **Photo 4**. The dense scrub at the southern end (rear) of the site is characterised by constant and abundant Bramble occasional Field Horsetail (*Equisetum arvense*) and Herb-Robert (*Geranium robertianum*), locally abundant Elder (*Sambucus nigra*), locally frequent Hazel, Cherry species (*Prunus* sp.), Blackthorn (*Prunus spinosa*) and Cleavers and very locally frequent Dog-rose (*Rosa canina*), Common Nettle (*Urtica dioica*) and Rowan (*Sorbus aucuparia*). A plant species list is appended at **Table 8.2**.
- 3.2.11 The habitat is most typical of a *W24 Bramble – Yorkshire-fog underscrub* (Rodwell, 1991) of the NVC and is described by the UKHab as h3h mixed scrub with the secondary code 77 neglected (unmanaged for 3 to 10 years).

Grassland at the Rear of the Site

- 3.2.12 Refer to **Photo 5**. The grassland at the rear of the site is characterised by frequent Red Fescue (*Festuca rubra*), occasional and locally frequent Field Horsetail, Smooth Meadow-grass (*Poa pratensis*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Yorkshire-fog (*Holcus lanatus*) and Meadow Buttercup (*Ranunculus acris*) and occasional Cock's-foot (*Dactylis glomerata*), Dandelion, Ribwort Plantain (*Plantago lanceolata*) and Creeping Buttercup (*Ranunculus repens*). A plant species list is appended at **Table 8.3**.
- 3.2.13 The grassland is not typical of an NVC community and is described by the UKHab as g3c other neutral grassland with the secondary codes 10 scattered scrub and 77 neglected (unmanaged for 3 to 10 years).

Invasive Plant Species

- 3.2.14 As illustrated on **Figure 2**, stands of Japanese Rose (*Rosa rugosa*) and Hollyberry Cotoneaster are present within the ornamental planting at the northern end of the site; this species is listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended); it is an offence to spread or cause their/its spread in the wild. This is considered further at **Section 4.3**.

3.3 Animal Life

Badger

- 3.3.1 No badger or signs of badger were detected within the site or within the access 50 metres around the site. The presence of badger is reasonably discounted.

Bat Species

Daylight Survey: Buildings

Building 1

- 3.3.2 Refer to **Photos 6 to 11**. Building 1 is a detached and largely single storey unoccupied former warehouse building constructed from walls of corrugated metal sheeting on a mortared brick plinth. It supports a single-

pitch roof of corrugated metal sheeting. The building is well sealed externally; no gaps suitable for access by bats were noted.

- 3.3.3 Internally the building supports sections with a suspended ceiling and sections which are open to the roof. The corrugated metal sheeting roofing supports a plastic lining and is supported on metal beams and trusses. The two-storey section of the building was previously used as office space and supports a suspended ceiling.
- 3.3.4 No features suitable for access by bats were noted externally, and no features suitable for use by roosting bats were noted internally; the building does not support any features suitable for use by species which are known to roost in crevices, such as common pipistrelle (*Pipistrellus pipistrellus*), or species which are known to roost in the open in voids, such as brown long-eared bats (*Plecotus auritus*).
- 3.3.5 The building is considered to be of 'negligible' suitability for use by roosting bats. No further surveys are required at the building to inform this assessment.

Building 2

- 3.3.6 Refer to **Photos 12 to 16**. Building 2 is constructed in a similar fashion to Building 1 but is occupied and supports a pitched roof of corrugated metal sheeting.
- 3.3.7 No features suitable for access by bats were noted externally, and no features suitable for use by roosting bats were noted internally; the building does not support any features suitable for use by species which are known to roost in crevices or species which are known to roost in the open in voids.
- 3.3.8 The building is considered to be of 'negligible' suitability for use by roosting bats. No further surveys are required at the building to inform this assessment.

Trees

- 3.3.9 No trees support any features suitable for use by roosting bats. The presence of roosting bats at the trees within the site is reasonably discounted.

Habitat Assessment for Commuting and Foraging Bats

- 3.3.10 The scrub habitat at the rear of the site will provide suitable habitat for foraging bats associated with urban areas such as common pipistrelle, although it is limited in its extent and does provide linking habitat between areas of favourable foraging or roosting habitat; it is considered unlikely that the site provides suitable habitat for commuting bats.
- 3.3.11 The buildings and hard standing are considered to provide habitat of 'negligible' suitability for use by foraging bats. Overall the site is assessed to be of 'low' suitability for use by foraging bats, and is of negligible suitability for foraging bats.

Summary of Results

- 3.3.12 A summary of the survey results presented above is provided at **Table 3.3**. The results are evaluated at **Section 4.4** below.

Table 3.3: Summary of Bat Survey Results

Building/Tree Ref	Suitability for Use by Roosting Bats	Requirement for Further Survey / Results of Activity Surveys
Buildings 1 and 2	Negligible	No requirement for further survey
Trees	Negligible	No requirement for further survey

Bird Species

- 3.3.13 Birds detected in the site in June 2023 are listed at **Table 3.4**.

Table 3.4: Bird species Detected on 6th June 2023

Scientific Name	Common Name	BOCC Status ¹
<i>Columba palumbus</i>	Wood pigeon	Amber
<i>Erithacus rubecula</i>	Robin	Green
<i>Fringilla coelebs</i>	Chaffinch	Green
<i>Pica pica</i>	Magpie	Green
<i>Turdus merula</i>	Blackbird	Green
¹ BOCC: Birds of Conservation Concern (Stanbury, et al., 2021). No Priority Species were present.		

- 3.3.14 The trees, ornamental shrubs and scrub are all suitable for use by nesting passerine (i.e. perching) species, including those detected within the site during the survey. This is considered further at **Section 4.4**.
- 3.3.15 No sign of nesting barn owl was detected during the internal inspection of the buildings, and it is considered the site is located within unsuitable habitat for foraging barn owl. The presence of barn owl is reasonably discounted.

Reptiles

- 3.3.16 Debris suitable for sheltering and basking reptiles was examined during the survey; no reptile species were detected.
- 3.3.17 The habitats within the site provide poor quality habitat for sheltering, basking and hibernating reptiles. The species-poor habitats within the site are reasonably unlikely to support a large population or a variety of invertebrate prey.
- 3.3.18 The site is not adjacent or linked to any areas of favourable habitat for reptile species, and there are no records of reptile for the site or the wider area. The presence of reptiles within the site is reasonably discounted.

Other Wildlife

- 3.3.19 The dense scrub at the rear of the site may provide suitable shelter for hedgehog (*Erinaceus europaeus*), a Priority Species, and may also form part of a larger foraging area for this species. It is unlikely, given the size of the site, that the site would form core or important habitat for this species however. The suitability of the site for hedgehog is considered further at **Section 4.4**.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

- 4.1.1 The assessment was requested in connection with a planning application at the site; a description of the proposals is provided below:

'Full Planning Permission for demolition of existing low rise commercial units and erection of ground + 27 storey residential development with supporting residential amenity, private terraces and private shared garden.'

- 4.1.2 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

4.2 Designated Sites for Nature Conservation

- 4.2.1 It is considered that the site is sufficiently small and distant from all designated sites for nature conservation that the proposed development will have no adverse direct or indirect effect upon them.

4.3 Vegetation and Habitats

- 4.3.1 Only common and widespread plant species were found. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present. In terms of each habitat's importance in a geographical context³, the trees, ornamental shrubs and scrub are considered to be of 'site' importance as they represent habitats of some value to nesting birds and foraging birds and bats, but which are unlikely to contribute significantly to the ecological value of the wider area. The buildings and hard standing are not considered to hold any importance on a geographical scale.
- 4.3.2 Recommendations for suitable species to include in any landscape design of the proposed development at the site are presented at **Section 5.5**.
- 4.3.3 The presence of Japanese Rose and Hollyberry Cotoneaster, both invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), have been detected within the site. It is considered that the proposals present an opportunity for the eradication of these species as part of the proposed development. Further guidance is presented at **Section 5.3** of this report.

4.4 Protected Species and Other Wildlife

- 4.4.1 The buildings and trees are considered to be of negligible suitability for use by roosting bats; no further surveys are required to determine the presence or absence of roosting bats at the site. Habitats within and adjacent to the site are considered to be of low suitability for foraging bats. Recommendations to ensure foraging bats (and other wildlife) are not disturbed by inappropriate artificial lighting during the construction phase of the proposed development are presented at **Section 5.2**. Measures outlined at **Section 5.4** will ensure that the proposed lighting regime at the developed site will not deter foraging bats, and will ensure that the proposals create new habitat suitable for roosting bats. The measures outlined at **Section 5.4** will ensure that habitats remain suitable for foraging bats following the completion of the proposed development.
- 4.4.2 The trees, ornamental shrubs and scrub are suitable for use by nesting passerine birds; all wild birds are protected while they are nesting under the *Wildlife and Countryside Act 1981* (as amended). Measures for the protection of nesting birds during the construction phase of the proposed development are presented at **Section 5.2**. The proposals present an opportunity to create new habitat for nesting bird species associated with urban areas; measures to create new habitat for nesting birds as part of the proposed development are presented at **Section 5.4**.
- 4.4.3 The site supports habitats suitable for use by foraging and sheltering hedgehog, but are considered to be too small to provide core or important habitat for this species. The proposals have the potential to kill or injure hedgehog during the construction phase of the proposed development. Measures for the protection of hedgehog (and other wildlife) during the construction phase of the proposed development are presented at **Section 5.2**.
- 4.4.4 The presence of protected or notable species at the site is otherwise reasonably discounted.

³ Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 These recommendations aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.
- 5.1.2 In accordance with Chapter 15, paragraph 186(d) of the NPPF:
- 'opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.*
- 5.1.3 Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified.
- 5.1.4 All recommendations are appropriate to the geographical area, the habitats in the wider area, the wildlife present in the local area (and likely to use the site post-construction) and take into consideration the end use of the site as a residential development.

5.2 Protection of Vegetation and Wildlife During the Construction Phase of the Proposed Development

Protection of Trees and Shrubs

- 5.2.1 If trees will be retained by the proposed development then, during the construction phase, temporary protective demarcation fencing will be used to protect the trees to be retained. The fencing must extend outside the canopy of the retained trees and must remain in position until all areas have been developed to ensure protection is provided throughout the construction phase.
- 5.2.2 The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Consideration of Lighting During Works

- 5.2.3 Paragraph 191(c) in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:
- 'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'*
- 5.2.4 Any lighting to be used at the site during construction should be directional and screened where possible, this specification should be included within a Construction Environment Management Plan (CEMP), or similar.

Protection of Nesting Birds

- 5.2.5 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.
- 5.2.6 If breeding birds are detected the ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

Protection of Hedgehog (and Other Wildlife) During Works

- 5.2.7 It is recommended that the following Reasonable Avoidance Measures (RAMs) are adopted during the construction phase of the proposed development. A copy should be printed out and be made accessible in the site office (i.e. pinned to a site information board or similar within the site office):
- All site personnel must be made aware of this RAMs, and the RAMs should be made part of the site induction for all personnel involved in soil strip, ground clearance, or other relevant activities;
 - Prior to any soil strip, vegetation will be strimmed to a height of no less than 0.15 metre and all arisings removed;
 - During construction, any holes, trenches or other pits which wildlife species could fall into will be covered overnight, or have sloped banks or ramps top allow escape;
 - In the unlikely event of the discovery of a hedgehog or other wildlife species whilst any site clearance or construction operations are in progress then all works in the area must cease and it must be carefully picked up, placed in a clean bucket and moved to an area of suitable habitat beyond the development area.

5.3 Invasive Plant Species

- 5.3.1 It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause the spread of Japanese Rose and Hollyberry Cotoneaster in the wild. It is concluded that the preparation of an Invasive Species Management Plan is not necessary in this case and these species can be grubbed out by the roots during site clearance and disposed of either by burying on site or removal to a suitable tip.

5.4 Enhancements for Wildlife Species

Bats

Development Lighting Design

- 5.4.1 Paragraph 191(c) in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:

'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

- 5.4.2 The lighting scheme to be implemented at the developed site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over areas of ecological enhancement and any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.
- 5.4.3 The lighting scheme will be designed with reference to current guidance, namely:
- Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
 - Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

Enhancing Habitats for Roosting Bats

- 5.4.4 Whilst the site is not currently suitable for use by roosting bats, evidence shows that common pipistrelle can hibernate within large buildings such as apartment blocks within urban areas (Korsten, et al., 2016). Due to the type of building proposed, it is considered that bat access panels installed at the upper floors of the proposed buildings may provide suitable features for use by roosting bats (including hibernating common pipistrelle).

- 5.4.5 The bat access panels, which can be faced to match the external render or cladding of the proposed building, should not be positioned over windows or doorways where bat droppings may become a nuisance. Once the development layout has been finalised, an Ecologist should advise on appropriate positions for the bat access panels. Suitable bat access panels are available from NHBS Ecology (www.nhbs.com) or Habibat (<http://www.habibat.co.uk/>) and are presented at **Insert 1**, below:



Insert 1: Example of commercially available bat access panels (Schwegler 2FR and Habibat). Note that both types can be faced to match external render or cladding.

Enhancing Habitats for Nesting Birds

- 5.4.6 The swift (*Apus apus*) has recently been added to The Birds of Conservation Concern Red list (Stanbury, et al., 2021) owing to the recorded recent declines and its identified status as a high conservation priority.
- 5.4.7 The construction of the residential properties provides an opportunity for the installation of additional nesting opportunities for swift to assist their conservation. Suitable swift nest boxes are illustrated at **Insert 2** below.



Insert 2: Examples of swift nest boxes⁴

5.5 Landscape Planting

- 5.5.1 It is recommended that the landscape planting within the site is composed from native species and species known to be of value for the attraction of wildlife.
- 5.5.2 It is recommended that trees which support blossom and fruit which will attract insects are incorporated into the landscape planting. Suitable species are presented at **Table 5.1**.

⁴ From left to right No. 17A Schwegler Swift Nest Box (Triple Cavity) as installation (centre), Manthorpe Swift Nesting Box (right) and Ibstock Eco-habitat for Swift (right), all available from www.NHBS.com and / or Wild Care (www.wildcare.co.uk).

Table 5.1: Suitable Native Species for Tree and Shrub Planting

Scientific Name	Common Name	Scientific Name	Common Name
<i>Acer campestre</i>	Field Maple	<i>Prunus spinosa</i>	Blackthorn
<i>Corylus avellana</i>	Hazel	<i>Rosa arvensis</i>	Field Rose
<i>Crataegus monogyna</i>	Hawthorn	<i>Rosa canina</i>	Dog-rose
<i>Ilex aquifolium</i>	Holly	<i>Sambucus nigra</i>	Elder
<i>Malus sylvestris</i>	Crab Apple	<i>Sorbus aucuparia</i>	Rowan
<i>Prunus avium</i>	Wild Cherry	<i>Ulmus glabra</i>	Wych Elm
<i>Prunus padus</i>	Bird Cherry	<i>Viburnum opulus</i>	Guelder Rose

- 5.5.3 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species known to be attractive to invertebrates should be used.
- 5.5.4 Planting schemes that include flowering species such as *Viburnum*, *Ceanothus*, *Hebe*, *Lavandula*, *Lonicera*, *Potentilla*, *Rosmarinus* and *Vinca* can maximise opportunities for feeding invertebrates and for the attraction of foraging bats and birds.
- 5.5.5 For further plants suitable for the attraction of pollinators please refer to the *Perfect for Pollinators Plant List* (Royal Horticultural Society, 2012). It is recommended that the selection of plant species at the site ensures that a variety of flowering species are available throughout the year.

6.0 CONCLUSION

- 6.1 This ecological assessment has demonstrated that the proposed development at the site is feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.
- 6.2 It is possible to implement reasonable actions for the protection and long-term conservation of fauna such as nesting birds and foraging bats associated with the site.
- 6.3 Redevelopment at the site will provide an opportunity to secure ecological enhancement for fauna typically associated with urban areas such as breeding birds and roosting bats.

7.0 REFERENCES

- Andrews, H (ed), 2013. *Bat Tree Habitat Key, 3rd Edition*. Bridgewater: AEcol Ltd.
- Bainbridge, I. et al., 2013. *Guidelines for the Selection of Biological SSSIs*. Peterborough: Joint Nature Conservancy Council.
- Barn Owl Trust, 2012. *Barn Owl Conservation Handbook*. Exeter: Pelagic Publishing.
- BSI, 2012. *Trees in relation to design, demolition and construction. Recommendations*. London: BSI Standards Limited.
- BTHK, 2018. *Bat Roosts in Trees - A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*, Exeter: Pelagic Publishing.
- Butcher, B. et al., 2020. *UK Habitats Classification User Manual Version 1.1*, Stockport: UKHab Ltd.
- CIEEM, 2013. *Technical Guidance Series Competencies for Species: Bats*. Winchester: Chartered Institute of Ecology and Environmental Management.
- CIEEM, 2018. *Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*, Winchester: Chartered Institute of Ecology and Environmental Management.
- Collins, J. (ed), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. London: The Bat Conservation Trust.
- Department for Levelling Up, Housing and Communities, 2023. *National Planning Policy Framework*. London: H.M.S.O.
- Edgar, P., Foster, P & Baker, J., 2010. *Reptile Habitat Management Handbook*. Bournemouth: Amphibian and Reptile Conservation.
- Great Britain, 1981. *Wildlife and Countryside Act*. London: H.M.S.O.
- Great Britain, 2006. *Natural Environment and Rural Communities Act*. London: H.M.S.O.
- Great Britain, 2019. *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations*. London: H.M.S.O.
- Institution of Lighting Professionals & Bat Conservation Trust, 2018. *Guidance Note 8: Bats and Artificial Lighting in the UK*. [Online]
Available at: <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>
[Accessed 03 July 2023].
- JNCC, 1995. *The UK Biodiversity Steering Group Report, Volume 2, Action Plans*. London: H.M.S.O.
- JNCC, 2010. *Handbook for Phase 1 Habitat Survey: A technique for Environmental Audit*. Peterborough: NCC.
- Korsten, E. et al., 2016. Swarm and switch: on the trail of the hibernating common pipistrelle. *Bat News*, No. 110 (Summer 2016), pp. 80-10.
- Maddock, A (ed), 2008. *UK Biodiversity Action Plan: Priority Habitat Descriptions*. [Online]
Available at: <http://jncc.defra.gov.uk/page-5718>
- Malcolm Hughes, 2023. *Sparkle Street, Manchester M1 2NA: Topographical Survey Drawing No. 60159/1 Revision A*, Manchester: Malcolm Hughes.
- Ministry of Housing, Communities & Local Government, 2005. *Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within The Planning System*, London: Office of the Deputy Prime Minister.
- Mitchell-Jones, A., 2004. *Bat Mitigation Guidelines*. Peterborough: English Nature.
- Mitchell-Jones, A. J. & Mcleish, A. P., 2004. *Bat Workers' Manual, 3rd Edition*. Peterborough: Joint Nature Conservation Committee.
- Natural England, 2007. *Badgers and Development*, Peterborough: Natural England.
- Natural England, 2011. *The Reptile Mitigation Guidelines*. Peterborough: Natural England.
- Natural England, 2022. *Badgers: advice for making planning decisions*. [Online]
Available at: <https://www.gov.uk/guidance/badgers-advice-for-making-planning-decisions>
[Accessed 29 June 2023].

- Ordnance Survey, 2023. *Site Check Report Centroid Grid Ref: SJ84969806*. [Online]
Available at: <http://magic.defra.gov.uk/magicmap.aspx>
[Accessed 29 June 2023].
- Ratcliffe, D. A., 1977. *A Nature Conservation Review*. Cambridge: Cambridge University Press.
- Rodwell, J. S., 1991. *British Plant Communities: Volume 1, Woodlands and Scrub*. Cambridge: Cambridge University Press.
- Rodwell, J. S., 1992. *British Plant Communities: Volume 3, Grasslands and Montane Communities*. Cambridge: Cambridge University Press.
- Roper, T., 2010. *Badger (Collins New Naturalist Library, Book 114)*. Glasgow: Harper Collins.
- Royal Horticultural Society, 2012. *Perfect for Pollinators, Garden Plants*. [Online]
Available at: <https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators>
- Shawyer, C., 2011. *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Developing Best Practice in Survey and Reporting*, Winchester: IEEM.
- Stace, C. A., 2010. *New Flora of the British Isles 3rd Edition*. Cambridge: Cambridge University Press.
- Stanbury, A. et al., 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, Issue 108, pp. 723-747.
- Stone, E. L., 2014. *Bats and Lighting: Overview of current evidence and mitigation guidance*. Bristol: University of Bristol.

8.0 APPENDIX: TABLES, PHOTOGRAPHS AND FIGURES

8.1 Plant Species Lists

Table 8.1: Plant Species List for the Ornamental Shrubs and Trees

Scientific Name	Common Name	DAFOR	% Cover
Woody Species			
	Garden exotics	LA	20%
<i>Acer platanoides</i>	Norway Maple	O	5%
<i>Alnus cordata</i>	Italian Alder	R	<1%
<i>Berberis julianae</i>	Chinese Barberry	LA	5%
<i>Buddleja davidii</i>	Butterfly-bush	O	<1%
<i>Cornus sanguinea</i>	Dogwood	LA	1%
<i>Corylus avellana</i>	Hazel	LA	10%
<i>Cotoneaster bullatus</i>	Hollyberry Cotoneaster	LA	5%
<i>Cotoneaster sp.</i>	Cotoneaster species	LA	5%
<i>Lonicera nitida</i>	Wilson's Honeysuckle	LA	5%
<i>Lonicera periclymenum</i>	Honeysuckle	R	<1%
<i>Prunus avium</i>	Wild Cherry	LF	<1%
<i>Pyracantha coccinea</i>	Firethorn	LF	5%
<i>Rosa canina</i>	Dog-rose	LF	<1%
<i>Rosa rugosa</i>	Japanese Rose	R	<1%
Herb Species			
<i>Cirsium arvense</i>	Creeping Thistle	VLF	<1%
<i>Galium aparine</i>	Cleavers	LF	<1%
<i>Geranium robertianum</i>	Herb-Robert	R	<1%
<i>Hedera colchica</i>	Persian Ivy	LF	<1%
<i>Hedera helix</i>	Ivy	LF	<1%
<i>Hypericum androsaemum</i>	Tutsan	R	<1%
<i>Lapsana communis</i>	Nipplewort	R	<1%
<i>Linaria purpurea</i>	Purple Toadflax	O	<1%
<i>Poa annua</i>	Annual Meadow-grass	R	<1%
<i>Poa trivialis</i>	Rough Meadow-grass	VLF	<1%
<i>Rubus fruticosus</i> agg.	Bramble	O	<1%
<i>Senecio squalidus</i>	Oxford Ragwort	O	<1%
<i>Solanum dulcamara</i>	Bittersweet	R	<1%
<i>Solidago gigantea</i>	Early Goldenrod	VLF	<1%
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	R	<1%
<i>Urtica dioica</i>	Common Nettle	VLF	<1%
<i>Vicia cracca</i>	Tufted Vetch	VLF	<1%
¹ Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 8.2: Plant Species List for the Scrub at the Rear of the Site

Scientific Name	Common Name	DAFOR	% Cover
Woody Species			
<i>Corylus avellana</i>	Hazel	LF	5%
<i>Prunus</i> sp.	Cherry species	LF	10%
<i>Prunus spinosa</i>	Blackthorn	LF	<1%
<i>Rosa canina</i>	Dog-rose	VLF	5%
<i>Sambucus nigra</i>	Elder	LA	30%
<i>Sorbus aucuparia</i>	Rowan	VLF	<1%
Herb Species			
<i>Calystegia sepium</i>	Hedge Bindweed	R	<1%
<i>Epipactis helleborine</i>	broad-leaved helleborine	R	<1%
<i>Equisetum arvense</i>	Field Horsetail	O	<1%
<i>Galium aparine</i>	Cleavers	LF	<1%
<i>Geranium robertianum</i>	Herb-Robert	O	<1%
<i>Rubus fruticosus</i> agg.	Bramble	A*	60%
<i>Urtica dioica</i>	Common Nettle	VLF	<1%

¹**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.3: Plant Species List for the Grassland at the Rear of the Site

Scientific Name	Common Name	DAFOR	% Cover
Woody Species			
<i>Rosa canina</i>	Dog-rose	R	<1%
Herb Species			
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	O/LF	10%
<i>Arrhenatherum elatius</i>	False Oat-grass	LF	5%
<i>Dactylis glomerata</i>	Cock's-foot	O	5%
<i>Equisetum arvense</i>	Field Horsetail	O/LF	10%
<i>Festuca rubra</i>	Red Fescue	F	30%
<i>Geranium robertianum</i>	Herb-Robert	R	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	O/LF	15%
<i>Plantago lanceolata</i>	Ribwort Plantain	O	5%
<i>Poa pratensis</i>	Smooth Meadow-grass	O/LF	10%
<i>Ranunculus acris</i>	Meadow Buttercup	O/LF	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	O	<1%
<i>Rubus fruticosus</i> agg.	Bramble	LF	5%
<i>Solidago gigantea</i>	Early Goldenrod	VLA	1%
<i>Taraxacum officinale</i> agg.	Dandelion	O	5%

¹**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

8.2 Photographs



Photo 1: Hard standing within the site



Photo 2: Ornamental shrubs and trees, and northern elevation of Building 1



Photo 3: Ornamental shrubs and trees



Photo 4: Scrub at the rear of the site



Photo 5: Scrub and grassland at the rear of the site



Photo 6: Building 1, eastern elevation, southern end



Photo 7: Building 1, eastern elevation, northern end



Photo 8: Building 1, western elevation



Photo 9: Building 1, southern elevation



Photo 10: Building 1, internal area



Photo 11: Building 1, internal area, showing underside of roof

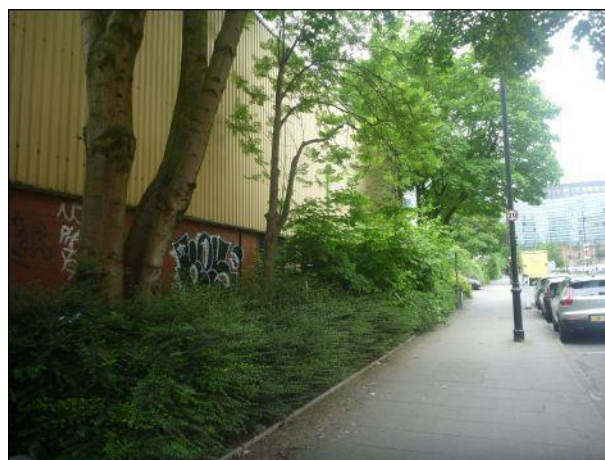


Photo 12: Building 2, northern elevation



Photo 13: Building 2, western elevation



Photo 14: Building 2, eastern elevation



Photo 15: Building 2, internal area



Photo 16: Building 2, upper floor of two-storey section, showing suspending ceiling

8.3 Figures

Figure 1: Aerial Image of the Site and its Surroundings

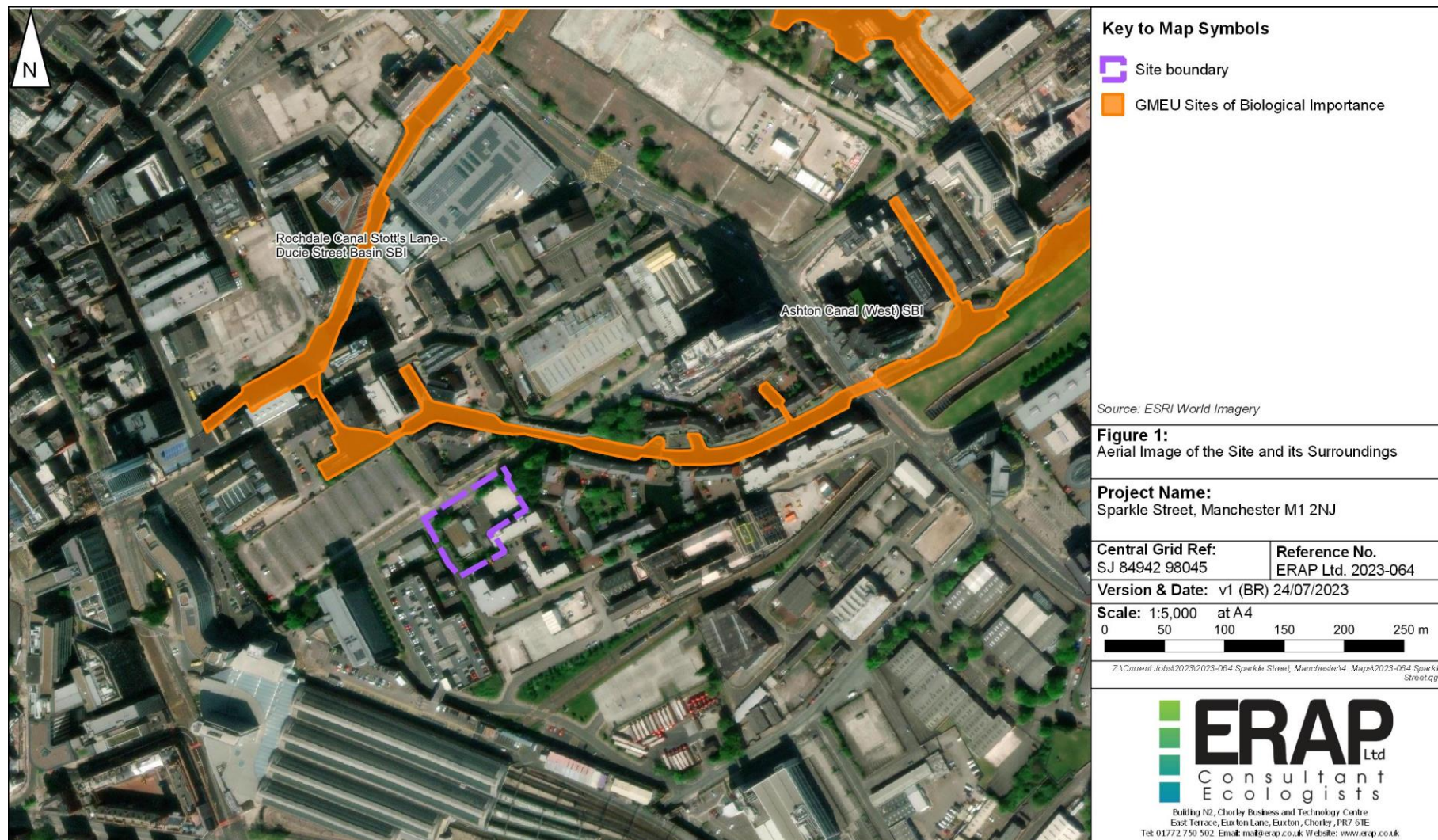


Figure 2: Phase 1 Habitat and Vegetation Map

