

LINKSIDE, MIDDLETON

Preliminary Ecological Appraisal Report

July 2022



Report Control Sheet

Project Name: Linkside, Middleton
Project Reference: CW20-463
Report Title: Preliminary Ecological Appraisal Report
Report Reference: CW20-463 RPT 001
Printing Instructions: Print at A4 Portrait, Double Sided.

<i>Rev</i>	<i>Date</i>	<i>Description</i>	<i>Prepared</i>	<i>Reviewed</i>	<i>Approved</i>
/	29/07/2022	Draft report sent to Client for comment.	SPL	OC	OC

Collington Winter Environmental Ltd disclaims any responsibility to Mr Michael Leary and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence within the terms of the Contract with Mr Michael Leary and according to the proposed plans supplied by the client or the client's agent upon commencement of the project.

The contents of this report are valid at the time of writing. As the ecological value of a site is constantly evolving and changing, if more than twelve months have elapsed since the date of this report, further advice must be taken before reliance upon on the contents. Notwithstanding any provision of the Collington Winter Environmental Ltd Terms & Conditions, Collington Winter Environmental Ltd shall not be liable for any losses (howsoever incurred) arising as a result of reliance by the client or any third party on this report more than twelve months after the report date.

This report is confidential to Mr Michael Leary and Collington Winter Environmental Ltd accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

© Collington Winter Environmental Ltd 2022

EXECUTIVE SUMMARY

Site Address	Linkside, Sunny Brow Road, Middleton M24 4BG
Grid Reference	SD 86228 05917
Approximate Site Area	3,100m ²
Current Site Use	Currently the site comprises a residential house with three outbuildings including a garage, surrounded by hardstanding, amenity grassland, ornamental planting and scattered trees. The borders of the site comprise hedgerows and treelines.
Designated Sites within Zone of Influence	The site partially falls within the impact risk zone for the Rochdale Canal SAC and SSSI. It is designated due to comprising a variety of wetland habitats, supporting important numbers of bird species.
Notable Habitat Features	No notable habitats are present.
Notable Species Applicable to the Assessment	• Bats (Potential roosting, foraging and commuting) • Breeding birds • Common amphibians • Hedgehog • Invertebrates
Mitigation Recommendations	Recommendations relating to long-term management of habitats have been outlined. Other recommendations relating to fauna have also been outlined with the aim to retain habitats/features to be of greater value for ecology.
Recommended Further Surveys and Assessment	Emergence/Re-Entry Bat Surveys on B1 and B2.
Recommended Ecological Enhancements	The National Planning Policy Framework (2021) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment. The proposed development provides the opportunity to enhance the site and ecological enhancements have been recommended

CONTENTS

1	INTRODUCTION	4
1.1.	SCOPE & PURPOSE	4
1.2.	LOCATION	4
1.3.	OBJECTIVES	4
2	METHODOLOGY	5
2.1.	DESK STUDY	5
2.2.	VEGETATION AND HABITAT ASSESSMENT	5
2.3.	FAUNA ASSESSMENT	5
2.4.	PRELIMINARY ROOST ASSESSMENT	5
2.5.	BAT ACTIVITY ASSESSMENT	6
2.6.	POND ASSESSMENT	6
2.7.	SURVEY LIMITATIONS	6
3	SURVEY RESULTS	8
3.1.	SITE CONTEXT	8
3.2.	DESIGNATED SITES	8
3.3.	HABITATS	8
3.4.	SPECIES	9
4	MITIGATION RECOMMENDATIONS	15
4.1.	DESIGNATED SITES	15
4.2.	HABITATS	15
4.3.	SPECIES	15
5	FURTHER SURVEYS AND CONCLUSION	18
5.1.	NOCTURNAL BAT SURVEY	18
5.2.	SUMMARY	18
5.3.	CONCLUSION	18
6	BIBLIOGRAPHY	19

1 INTRODUCTION

1.1. SCOPE & PURPOSE

1.1.1. Collington Winter Environmental Ltd was commissioned by Mr Michael Leary to undertake a Preliminary Ecological Appraisal (PEA) at Linkside, Middleton. This report has been prepared in conjunction with a proposed development at the site.

1.1.2. The author of this report is Samuel Penrhyn-Lowe MZool, Assistant Ecologist at Collington Winter Environmental Ltd. The project has been supervised by Olivia Collington BSc (Hons), MEnvSc, CEnv, Director at Collington Winter Environmental Ltd.

1.2. LOCATION

1.2.1. Please refer to Figure 1.1 for the site location. The site is located towards the east of the town of Middleton, a metropolitan borough of Manchester. The site is located within an urbanised, residential district with houses surrounding the site to the east and south and a golf course bordering the site to the north and west.

Figure 1.1 Site Location



1.3. OBJECTIVES

1.3.1. The objectives of the Preliminary Ecological Appraisal are as follows:

- Identify the major habitats present
- Ascertain the presence or potential presence of any legally protected or notable species or habitats
- Identify any mitigation or further survey required and opportunities for strategic wildlife enhancements and long-term management.

2 METHODOLOGY

2.1. DESK STUDY

2.1.1. An initial desk-based assessment of the site was undertaken to collate baseline data. The desk study included:

- Review of Magic.gov.uk website for details of any designated sites, notable habitats and presence of European Protected Species Licences.
- Review of aerial and OS maps for habitat information, as well as determining locations of potential waterbodies to be considered in the assessment.
- Review of potential habitat links on and off site, to determine the potential zone of influence of the proposed development.
- On site consultation with the landowner which provided valuable information regarding historic land use and known species and habitats present within the site.

2.2. VEGETATION AND HABITAT ASSESSMENT

2.2.1. An Ecological Appraisal of the site was undertaken by Samuel Penrhyn-Lowe. The survey was undertaken on the 21st July 2022. The weather was clear (8/8 oktas), with some occasional light rain, no wind speed and 21°C.

2.2.2. The walkover survey was undertaken broadly in line with standard methodology as detailed in “JNCC Handbook for Phase 1 Habitat Survey” (2010). The assessment is undertaken with consideration of methodology as per “Preliminary Ecological Appraisal” (CIEEM, 2018).

2.2.3. A Phase 1 Habitat Plan has been produced and is presented in the Appendix of this report. The mapping is based on the “JNCC Handbook for Phase 1 Habitat Survey” (2010), though adjustments have been made based on judgement to demonstrate habitats in a clearer manner, or where standard guidance does not fit the conditions found on site.

2.3. FAUNA ASSESSMENT

2.3.1. A search for signs of protected and notable species of fauna was undertaken during the site walkover. This included both field signs of species, as well as potential for species to be present based on habitat availability.

2.3.2. The searches broadly included the following:

- Assessment of waterbodies on site and within 250m of the site boundary, and terrestrial habitats for suitability to support notable amphibians.
- Searches for field signs of, and habitat suitability for bats.
- Suitability of habitats to support reptiles, and searches for incidental field signs.
- Searches for field signs of badger (*Meles meles*), including setts, mammal paths, snuffle holes, badger hair and latrines to indicate activity.
- Searches of watercourses for signs of water vole (*Arvicola amphibius*), white-clawed crayfish (*Austropotamobius pallipes*) and otter (*Lutra lutra*), and assessment of habitat availability for the species.
- Assessment of the suitability of habitats to support notable birds and recording any field sightings of birds during the walkover.
- Assessment of the sites ability to support notable invertebrates and flora.
- Searches for non-native invasive species.

2.4. PRELIMINARY ROOST ASSESSMENT

2.4.1. A Preliminary Roost Assessment (PRA) of the site was undertaken by Samuel whilst he was on the site.

2.4.2. The survey was undertaken following guidance set out in Collins (2016). This includes undertaking a detailed internal and external inspection of any features to compile information on potential and actual bat entry/ exit points, roosting locations and evidence of bats.

2.4.3. The buildings were assessed as per categories listed in Table 4.1 Collins (2016) and reproduced in Table 2.1.

Table 2.1 Assessment Criteria for Bat Roosting Potential

Bat Roosting Potential	Description
Negligible	Negligible features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/ or suitable surrounding habitats to be used on a regular basis by larger numbers of bats.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats, but unlikely to support a roost of high conservation status.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and for longer periods of time.

2.5. BAT ACTIVITY ASSESSMENT

2.5.1. The commuting and foraging assessment methodology is based on information contained within the Bat Conservation Trust guidelines 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 5, which is used as a basis for determining the requirement for further surveys and/or mitigation.

Table 2.2 Assessment Criteria for Bat Activity Value

Suitability	Description
Negligible	No features on site suitable for use by commuting and foraging bats.
Low	Habitat that could be used by small number of commuting bats such as; defunct hedgerow, isolated features not well connected to surrounding habitat or Isolated habitat that could be used by a small number 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 commuting bats such as lines of trees, scrub or linked back gardens. Habitat connected to wider landscape that could be used for bats for foraging such as; trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting or foraging bats such as; river valleys, streams, hedgerows, lines of trees or woodland edge. Site is close to or connected to known roosts.

2.6. POND ASSESSMENT

2.6.1. No ponds were present on site; however, one pond was identified within 250m of the site boundary. As great crested newts' upper dispersal limit is generally considered to be up to 250m from a waterbody (though occurrence of greater distances does exist), ponds beyond this distance were not assessed due to limited connectivity (English Nature, 2001).

2.6.2. The pond was unable to be access for a Habitat Suitability Index (HSI) assessment following the methodology set out in ARG UK Advice Notice 5 (Oldham et al., 2010).

2.7. SURVEY LIMITATIONS

2.7.1. This survey does not constitute a full botanical survey. Key species for each habitat type have been identified to give a broad representation of habitats present within the site.

2.7.2. It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the natural environment. This survey does not constitute a full botanical survey. Plant species may have been under-recorded, unidentifiable or not visible due to a number of factors including the time of year the survey was carried out.

- 2.7.3. The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. This is based on the suitability of the habitat, known distribution of the species in the local area (provided by data searches) and any direct evidence within the survey area.
- 2.7.4. None of the roof could be observed due to the stylistic nature of the house. This should have minimal impact on the PRA as the roof appeared to be flat and therefore likely had significantly reduced potential roosting features in relation to tiled/pitched roofs.
- 2.7.5. The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited within this document.

3 SURVEY RESULTS

3.1. SITE CONTEXT

3.1.1. The site is located within a predominately urbanised area, to the east of the town of Middleton. Residential housing is located to the east and south, and a golf course with an extensive area of woodland an open field is located adjacent, on the northwestern aspect.

3.2. DESIGNATED SITES

3.2.1. The site lies in proximity to Alkington Woods Local Nature Reserve (LNR), which lies approximately 400m to the south of the site, whose habitats included woodland and marsh. There are an additional four other LNRs that located within 5km of the site boundary.

3.2.2. The site also falls within the Impact Risk Zone of the following Statutory Site, based on consultation with MAGIC:

- Rochdale Canal Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). This site is located approximately 7.4km east of the site. This site is designated for the significant populations of floating water-plantain (*Luronium natans*) and diversity of pondweed species (*Potamogeton* sp.) supported within the predominantly mesotrophic waters.

3.2.3. No other statutory sites are located within 5 km of the site boundary.

3.3. HABITATS

3.3.1. Please refer to Drawing 20-463-001 for the Phase 1 Habitat Map for the site. Photographs of the site are presented in the Appendix.

AMENITY GRASSLAND

3.3.2. Amenity grassland was located within the site and was maintained to a short sward height. It was dominated by perennial ryegrass (*Lolium perenne*) with occasional white clover (*Trifolium repens*), cock's foot (*Dactylis glomerata*) and common dandelion (*Taraxacum officinale*).

ORNAMENTAL PLANTING

3.3.3. Multiple areas of ornamental foliage were scattered throughout the habitat, in particular around the edges of the grassland habitats and around the edges of the site itself. It was largely unmanaged, comprising a mix of various non-native ornamental plant species, interspersed with a mix of common scrub species such as creeping thistle (*Cirsium arvense*), willowherb species (*Chamaenerion* sp.), broadleaved dock (*Rumex obtusifolius*), and common nettle (*Urtica dioica*).

HEDGEROWS

3.3.6. A managed hedgerow was present alongside the eastern side of the driveway on the south of the site along the southern border, this hedgerow was comprised almost entirely of conifer. There was also a larger hedgerow present along the eastern aspect of the site. This hedgerow was dominated by hawthorn (*Crataegus monogyna*) with occasional elder (*Sambucus nigra*), sycamore trees (*Acer pseudoplatanus*) and other ornamental species of tree. The ground flora comprised common nettle, common cleavers (*Galium aparine*), and common ivy (*Hedera helix*).

SCRUB

3.3.7. Bands of dense scrub were located around the eastern aspect of the garage as well as the western aspect of the building in the northwest of the site. It was dominated by bramble (*Rubus plicatus*) with hawthorn, and holly (*Ilex aquifolium*). The ground flora was dominated by common nettle and common ivy.

SCATTERED TREES

3.3.8. Scattered broadleaved trees were present across the majority of the site. Species included sycamore, hawthorn, holly, willow (*Salix sp.*), as well as unidentified fir and pine tree species. The ages of these trees ranged from saplings to mature trees.

BUILDINGS

3.3.9. Four buildings were present within the site. Please refer to Section 3.4 for details of the buildings.

HARDSTANDING

3.3.10. A driveway was present from the south of the site up to the main parking area that connected the house to the garage. Hardstanding also looped around the north of the main house as well as having two separate pathways leading to the two outbuildings to the north and north west of the house.

3.4. SPECIES

FLORA

3.4.1. The majority of the site comprised a mix of ornamental plant and tree species with limited floristic diversity. It is anticipated that the managed nature of the habitats is unlikely to support any notable plant species.

INVERTEBRATES

3.4.2. The ornamental planting, scattered trees and scrub are anticipated to be of value, providing a variation of habitats for invertebrate lifecycles. Plants such as creeping thistle and clover species will provide suitable food resources. Additional flowering species may also be present to attract particularly species to the site.

3.4.3. However, limited flowering species were observed across the site.

3.4.4. Overall, notable invertebrates may utilise the site for foraging but are not thought to utilise the site in significant numbers.

AMPHIBIANS

3.4.5. A single waterbody (WB1) was located within 250 m of the site, approximately 160 m southwest of the site. This waterbody was not accessible during the survey due to being cited on private lane associated with a childcare nursery.

3.4.6. No granted Great Crested Newt Natural England Licences were identified on Magic.gov.uk within 2 km of the site.

3.4.7. Further waterbodies are located to the west and northwest of WB1. To the east of WB1, habitats comprised mainly residential housing. It is considered that negligible motivation would be present for amphibians to commute eastwards towards the residential area. Suitable woodland habitats as well as other waterbodies are present surrounding WB1 and to the west.

3.4.8. The site lacks standing water habitat, and therefore is not suitable for supporting amphibians in their breeding phase. The site includes scrub and hedgerow habitats which may provide suitable foraging resources and cover for common amphibians such as common toads (*Bufo bufo*). Ornamental water bodies may be located within nearby residential gardens which may provide suitable conditions for breeding common amphibians.

3.4.9. The presence of great crested newts within the site is reasonably discounted, though common amphibians may occur on site.

REPTILES

3.4.10. The site provides limited value for reptiles, given the majority of the site comprised amenity grassland and hedgerows comprising tree species, which lack the structure and habitat quality to support the species group.

3.4.11. Reptiles are not anticipated to be on site and are not considered further.

BIRDS

3.4.12. The site provides a range of potential breeding habitats for a variety of birds in association with the hedgerows, scattered trees and scrub habitats. These include the extent of the habitats recorded on site, providing a mosaic of dense scrub, scattered trees and hedgerows.

3.4.13. Ground nesting birds are not anticipated to be on site due to the site's lack of space and use as a garden.

BATS

3.4.14. The four buildings on site were subject to a PRA and are detailed in Table 3.1

Table 3.1 PRA Summary

Building Ref	Description	Photograph
Overhead Map	The site has four buildings; Building 1 (main house) Building 2 (gym outbuilding) Building 3 (recreational room) Building 4 (garage)	
Building 1 (main house)	The building has a central two-story structure with five outcrops. All observed PRFs were observed on the outcrop on the southwest corner of the building. PRFs were observed on the window arches in and around the tiling and the mortar between. The thick ivy above the windows on the southern aspect could also be concealing PRFs. Some lead flashing was lifted above the main doorway on	

the southern facing aspect of the main building.

On the northern aspect of the southwest outcrop some crevices could be observed around the fascias and wooden edging around the pitched roof.



Building 2 (gym outbuilding)	Building 2 comprises two sections, one with a second floor, with exposed brickwork, and what seems to be a flat roof on each section. A section of the wooden under-facia can be seen to have fallen away providing access to the internal structure of the roofing on the southern aspect. Additionally, a similar occurrence has been observed on the fascia of the second-floor section of the building on both the western and the eastern side.	  
-------------------------------------	---	---



Building 3
(recreational
outbuilding)

Building 3 comprised a single-story long wooden recreational hut-type building. The entire outside of the building comprised wooden panels and corrugated plastic in some parts as well as a pitched, tiled roof.

All woodwork around the building was tight and no PFRs were observed on this building.



Building 4 (garage)	Building 4 comprised a single-story bare brick garage with a flat roof. All brickwork around the garage was in good condition as was all guttering and wooden fascias. The roof of the garage was unable to be observed. No PRFs were observed on this building.	
----------------------------	---	--

3.4.15. The habitats on site are anticipated to provide value for foraging bats due to the mature scattered trees and hedgerow habitats which will attract invertebrate prey. The scattered trees that form treelines across the northern and eastern borders of the site could provide value for any commuting bats also. The adjacent golf course with its areas of broadleaved woodland and water bodies are expected to provide value and for local bat populations.

3.4.16. Buildings 1 and 2 were assessed as providing **moderate bat roosting potential**. Buildings 3 and 4 were assessed as providing negligible bat roosting potential.

OTHER TERRESTRIAL MAMMALS

3.4.17. Given the habitats present within the site including hedgerows and scrub, it is anticipated that hedgehog could be present within the site.

NON-NATIVE INVASIVE SPECIES

3.4.18. A number of non-native invasive species plant species were observed during the survey. However, these species are present within ornamental planting and are not anticipated to be of any concern.

4 MITIGATION RECOMMENDATIONS

4.1. DESIGNATED SITES

- 4.1.1. The site is located within the impact risk zone for the Rochdale Canal SAC and SSSI. It is anticipated that the designated sites are a sufficient distance away, such that no impacts as a result of development are anticipated. The small scale of the proposals are not anticipated to create any negative impacts on the designated site.

4.2. HABITATS

SCATTERED TREES AND HEDGEROWS

- 4.2.1. It is recommended that working measures are carried out during the construction phase, to minimise risk of impacting retained habitats. Measures will aim to avoid pollution incidents, which may indirectly affect terrestrial, or aquatic habitats and associated protected/notable fauna. Pollution prevention and control strategies will be adhered to at all times. Net fencing and/or silt control devices may be required, depending on the extent of the proposed works to minimise debris and dust from entering the stream within the site.
- 4.2.2. Retained habitats are to be appropriately fenced as 'Biodiversity Protection Zones' and all staff personal should undertake a site induction on their working limits in regard to protected species and habitats within the vicinity of the site. The fencing will be in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations.
- 4.2.3. At the time of writing, development proposals were unknown, however the following recommendations should be considered during site design:
- The boundary hedgerows/treeline on the eastern aspect, northern border and southern driveway, as well as broadleaved trees within the site were found to be of value and these are recommended to be retained and protected throughout the works to retain these linear features on site. These borders have been subject to an Arboricultural report (James Royston Arboricultural Report 2022) and there are Tree Protection Orders (TPOs) on four of the trees, two of which have been permitted to be removed.
 - Post development, native fruiting and flowering species should be incorporated into any landscaped areas to increase biodiversity within the site. It is recommended that the development, where possible, include landscaping with native fruiting and flowering species to provide opportunities for wildlife. If possible, habitats such as scrub could be allowed to develop to create valuable shelter opportunities.
- 4.2.4. It is recommended that replacement tree planting at a 1:2 ratio is required to compensate for loss of any trees. It is recommended that the planting comprises native species and species known to be of value for the attraction of wildlife. This will include fruiting and flowering species.

4.3. SPECIES

AMPHIBIANS

- 4.3.1. Great crested newts were deemed unlikely to be present on site. As a precautionary measure, a Rapid Risk Assessment (RRA) was undertaken following advice from Natural England assessing whether a Mitigation License would be needed.

Table 4.1 GCN Rapid Risk Assessment

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0

	Maximum:	0.1
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

- 4.3.2. In accordance with the RRA, approximately 0.3 ha of land would be “lost or damaged” within 100 m – 250 m from WB1. The RRA indicates “Green- Offence Highly Unlikely” meaning that the proposed works are unlikely to have any impact on great crested newts, if they are present within WB1.
- 4.3.3. Therefore, no further mitigation is required in respect of great crested newts.
- 4.3.4. It is recommended that consideration of amphibian presence during habitat management is considered. Any debris is to be cleared by hand, and any common amphibians located moved carefully, by hand, to outside of the impacted area.

BREEDING BIRDS

- 4.3.5. Nesting birds are anticipated to utilise the scattered trees and hedgerows. It is recommended that further breeding bird surveys are completed (see Section 5) to assess the site importance to the local bird population to inform long-term management and habitat creation.
- 4.3.6. Notably buildings and trees within the site may provide opportunities for nesting birds notably swift, swallows, owls, peregrine and corvid. As such building and vegetation management should be undertaken with consideration to nesting birds. A general recommendation for nesting birds is to provide more sheltered areas of dense vegetation with access by the public and dogs restricted.
- 4.3.7. Any vegetation management should be undertaken outside of the breeding bird season (March to September, inclusive). If this is not possible, a suitably qualified ecologist should undertake a nesting bird check no more than 48 hours prior to removal. If nesting activity is observed, the nest(s) should be left in situ until the young have fledged. A suitable buffer will be maintained and determined by the ecologist.
- 4.3.8. It should be noted that not undertaking necessary vegetation clearance outside of the bird nesting season and subsequently relying on a nesting bird check during the bird nesting season frequently leads to delays in schedule. It is therefore strongly recommended to undertake vegetation clearance outside of bird nesting season to avoid such delays.

BATS

- 4.3.9. Two of the buildings were assessed as having bat roosting potential. It is understood that no bat surveys have been completed at the site to determine presence or absence of the species. It is recommended that further surveys in the form of nocturnal emergence/re-entry surveys are completed to understand the sites usage for roosting bats within the buildings and the sites value (see Section 5).
- 4.3.10. The habitats of highest potential value on site for commuting and foraging bats include the hedgerows and treelines/scattered trees which are anticipated to attach a range of invertebrate prey. The habitat management should aim to minimise use of insecticides and increase the invertebrate population which in turn will benefit bats.
- 4.3.11. Slow-flying species such as brown long-eared, which are known to be in the local area, are sensitive to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.
- 4.3.12. Any proposed lighting/existing lighting should follow the guidance outlined in the Institute for Lighting Engineers document “Guidance for the Reduction of Obtrusive Lighting” (2005) and BCT’s “Bats and Artificial Lighting in the UK” (2018).
- 4.3.13. An External Lighting Scheme had not been produced on the writing of this report. As such, the following recommendations are to be considered within the scheme during its condition, to minimise impacts of lighting. The recommendations are as follows:
- Keep site lighting to minimum levels.

- Luminaries should lack UV elements and preferably LED lighting with a warm white light should be used over cool white light (ideally <2700Kelvin).
- Lighting should feature peak wavelengths greater than 550nm.
- Light placement should be downward facing to prevent excess horizontal or vertical light spill.
- The use of integrated fittings such as cowls, shields, louvres and hoods, that effectively contain light spill from unintended areas.
- The use of hard landscaping features to block light and create dark corridors.
- Avoid illuminating habitats of value.
- Use of timed security lights should be set on motion-sensors and using short, 1-minute timers, to minimise light use.
- Column heights of lighting can be considered to minimise light spill.

TERRESTRIAL MAMMALS

- 4.3.14. European Hedgehog are anticipated to be present within the site and are a Species of Principal Importance. During habitat management, any areas of dense vegetation should first be carefully hand searched to check for the species. If identified during management, should be relocated carefully by hand to a location away from the working area. If any injured either species are located, they should be taken to a local vet.

5 FURTHER SURVEYS AND CONCLUSION

5.1. NOCTURNAL BAT SURVEY

- 5.1.1. Buildings 1 and 2 were found to provide moderate bat roosting potential, and therefore, in accordance with Best Practice guidance (Collins, 2016) two further nocturnal emergence/ re-entry surveys on each building should be undertaken between May-September (inclusive) to determine usage by roosting bats.
- 5.1.2. The results of the further surveys will determine if any mitigation is required for roosting bats. If roosting bats are located within any of the buildings, a Natural England Mitigation Licence may be required for development to proceed. The Licence can only be obtained once planning permission has been granted and all wildlife conditions discharged. However, the bat emergence surveys must be undertaken prior to planning permission being applied for as they are a material consideration.

5.2. SUMMARY

- 5.2.1. Table 5.1 summarises the surveys recommended to inform relevant mitigation and to inform relevant planning applications

Table 5.1 Further survey summary

Survey	Survey Timeframes
Nocturnal Bat Surveys	May to September (inclusive)

5.3. CONCLUSION

- 5.3.1. The site was found to predominantly comprise four buildings surrounded by amenity grassland bound by hedgerows and treelines with scattered trees and ornamental planting. The site was found to have value or potential value for bats, birds, amphibians and terrestrial mammals.
- 5.3.2. Specific enhancement recommendations for the site include the following:
- Bat and bird boxes could be placed on the new buildings / retained trees. A plan to show the locations of these boxes and the specifications should be produced by a suitably qualified ecologist once the layout is finalised.
 - Planting of linear features such as hedgerows and trees between garden plots where possible, to add commuting features withing the site.

6 BIBLIOGRAPHY

- Aire Rivers Trust. (2020). Wonderful Wildlife. Available from: <https://aireriverstrust.org.uk/wonderful-wildlife/#:~:text=The%20White%2Dclawed%20crayfish%20is,White%2Dclawed%20in%20our%20catchment>. Last accessed 20/11/2020.
- Bat Conservation Trust and Institute of Lighting Professionals (2018). Bats and artificial lighting in the UK – Bats and the Built Environment Series.
- British Hedgehog Preservation Society / People's Trust for Endangered Species (2019). Hedgehogs and Development. BHPS / PTES.
- Chanin P (2003). Ecology of the European Otter. Conserving Natura 2000
- CIEEM (2019). Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM.
- CIEEM (2019). Guidelines for Preliminary Ecological Appraisal. CIEEM.
- Rivers Ecology Series No. 10. English Nature, Peterborough.
- Collins (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (Third Edition). The Bat Conservation Trust, London.
- Dean M., Strachan R., Gow D., Andrews R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746. Available online at britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf IEA (1995). Guidelines for Baseline Ecological Assessment. E & F Spon.
- English Nature (2004). Bat Mitigation Guidelines. English Nature, Peterborough.
- Environment Agency. (2020). Catchment Data Explorer. Available: <https://environment.data.gov.uk/catchment-planning/WaterBody/GB104027062880>.
- Froglife (1999) Reptile Survey: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation. Froglife Advice Sheet 10. Froglife, Halesworth.
- Gent, A.H & Gibson, S.D. (2003) Herpetofauna Workers' Manual. Joint Nature Conservation Committee, Peterborough.
- Gov.uk (2020). Guidance Otters: surveys and mitigation for development projects. Available: <https://www.gov.uk/guidance/otters-protection-surveys-and-licences>.
- Harris S., Cresswell P., Jefferies D. (1989). Surveying Badgers. The Mammal Society.
- IEA (1995). Guidelines for Baseline Ecological Assessment. E & F Spon.
- James Royston Arboricultural Report (2022). Sunny Brow Road Manchester. Ref 220721.
- JNCC (2004). Bat Workers Manual. JNCC, Peterborough.
- JNCC (2010). Handbook for Phase One Habitat Survey – 2010 Edition. England Field Unit, Nature Conservancy Council. Reprinted JNCC.
- Liles, G. (2003). Otter Breeding Sites. Conservation and Management. Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough.
- Maddock, A. (2008). UK biodiversity action plan; priority habitat descriptions. UK Biodiversity Action Plan.
- Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C.A., McDonald, R.A., and Shore, R.F. (2018). A review of

the population and conservation status of British mammals.

- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great crested newt conservation handbook, Froglife, Halesworth.
- Oldham, R.S., Keeble, J., Swan, M.J.S., and Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetology Journal* 10 (4), 143-155.
- Peay, S. (2002). Guidance on Habitat for White-clawed Crayfish and its Restoration. Environment Agency.
- Shuttleworth, C., RSST (n.d.). Red and grey squirrels distribution in the British Isles in 1945 and 2010.
- The Mammal Society (2020). Species Factsheet: Red Squirrel. Available: <https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/species-red-squirrel/>.
- Wembridge, D., Al-Fulaij, N. and Langton, S. (2016). The State of Britain's Dormice 2016. Population index, p.100.

Feature	Photograph
The view from the southern aspect of the site heading north through the driveway.	
The western aspect of the garden displaying hardstanding, amenity grassland and ornamental planting.	

The northern aspect of the garden displaying the scattered trees as well as building 1 (on the left side of the picture) and building 2 on the right.



Some of the mature scattered pine trees in proximity to building 2.



The treeline on the northern border of the site in proximity to building 3.



The mature willow and sycamore trees in the north eastern corner of the site as well as the hedgerow beginning along the eastern border of the site.



The treeline/hedgerow along the eastern border of the site.



The scattered trees and ornamental planting along the northern aspect of building 1.



The south eastern corner of the site in relation to building 4.



An area of scrubland behind building 4 in the south eastern corner of the site.



THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

