

2 Gloucester Road, Luton, LU1 3HX.

Preliminary Ecological Assessment & Biodiversity Net Gain



2 Gloucester Rd PEA/BNG
Report
EHM Ltd

james@ehmltd.com

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Executive Summary

EHM Ltd has been commissioned to carry out a Preliminary Ecological Assessment of former religious building in Luton, Bedfordshire. This report will provide an assessment of the site reporting on the current conditions of the habitats present and their potential to support protected and notable species. This report will provide a baseline assessment of the site reporting on the current conditions of the habitats present within the Biodiversity Net Gain Metric.



The site is part of an industrial area southeast of Luton town. The site itself is a former religious building. The front (northeast face) is a two level flat roofed mixed brick building and the back (southwest face) is a single level flat roofed mixed brick building - these are attached to each other. The site is bordered by other industrial units and is located close to the A505 which is to the north of the site.

The wider landscape is predominately urban in nature. However Manor Road Park is located within a few hundred meters to the south east of the site River Lea is located within 200m to the east of the site.

The site (as shown on figure 1) is located on Gloucester Road, Luton, TL 09669 21003.

Protected and notable species summary

Following a site visit and desktop study the site is considered as having the following potential to support protected species.

Species	Sites potential to support
Bat roosts- buildings.	Negligible
Bat foraging/ commuting areas	Negligible
Badgers	Negligible
Dormice	Negligible
Small Mammals	Negligible
Reptiles & amphibians	Negligible
Breeding birds	Low
Plants	Negligible
Invertebrates	Negligible
Invasive Species	Adjacent site

BNG Assessment

The extract below is taken from the biodiversity metric (further details are in the appendix). As can be seen the proposed project will achieve a net gain of over 100% for habitat units. This would meet the aim of achieving a 10% net gain.

The net gain is largely achieved by including an area of green roof in the proposed development and the low baseline score of the existing habitats on site.

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.01
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	100.00%
	<i>Hedgerow units</i>	0.00%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

Table 7: Summary of BNG calculations.

Recommendations

A Biodiversity Net Gain assessment has been conducted by a competent ecologist and recommendations have been made to ensure the projects achieves a net gain. This is inline with local and national planning policies. Recommendations have also been made in relation to protected and notable species.

The table below summarises the recommendations.

Recommendation	Action	Justification
Protection of breeding birds*	Carry out vegetation clearance (if required)/ building demolition outside of breeding bird season or under supervision of ecologist following a breeding bird survey	The buildings are likely providing several opportunities for breeding birds.
Appropriate lighting for bats*	Avoid illuminating bat foraging and commuting habitat- woodland/ scattered trees. During and post development.	This will help limit disturbance to bat species in the longer term.
Japanese Management Plan	Develop a Japanese management plan to restrict spread of this invasive species.	This will help ensure invasive species are not spread on to site.
Adequate pollution control	Habitats on site should be adequately protected to ensure no polluted runoff in on site or adjacent land. All oils, fuels and chemicals should be adequately stored on site in bunded contains with appropriate spill kits and emergency procedures in place.	This will protect habitats on site and those in the nearby landscape.
Inclusion of bird and bat boxes in the development/ landscaping	Place boxes in suitable locations within the landscaping.	This would benefit local bird and bat populations on the site and within the local area.
Use of native plant species during any future planting and landscaping.	Where possible select native species to be included in the proposed green roof.	This will provide a greater longer-term benefit for wildlife.

1. Introduction

EHM Ltd has been commissioned to carry out a Preliminary Ecological Assessment of former religious building in Luton, Bedfordshire. This report will provide an assessment of the site reporting on the current conditions of the habitats present and their potential to support protected and notable species. This report will provide a baseline assessment of the site reporting on the current conditions of the habitats present within the Biodiversity Net Gain Metric.

1.1. Development outline

EHM Ltd understands that the development comprises of converting the site for mixed used commercial and residential units.

1.2 Site Description

The site is part of an industrial area southeast of Luton town. The site itself is a former religious building. The front (northeast face) is a two level flat roofed mixed brick building and the back (southwest face) is a single level flat roofed mixed brick building - these are attached to each other. The site is bordered by other industrial units and is located close to the A505 which is to the north of the site.

The wider landscape is predominately urban in nature. However Manor Road Park is located within a few hundred meters to the south east of the site River Lea is located within 200m to the east of the site.

The site (as shown on figure 1) is located on Gloucester Road, Luton, TL 09669 21003.

1.3 Aims of PEA

The aim of the PEA is to;

- Identify the likely ecological constraints associated with a project;
- Identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy'
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment (EIA); and
- Identify the opportunities offered by a project to deliver ecological enhancement.

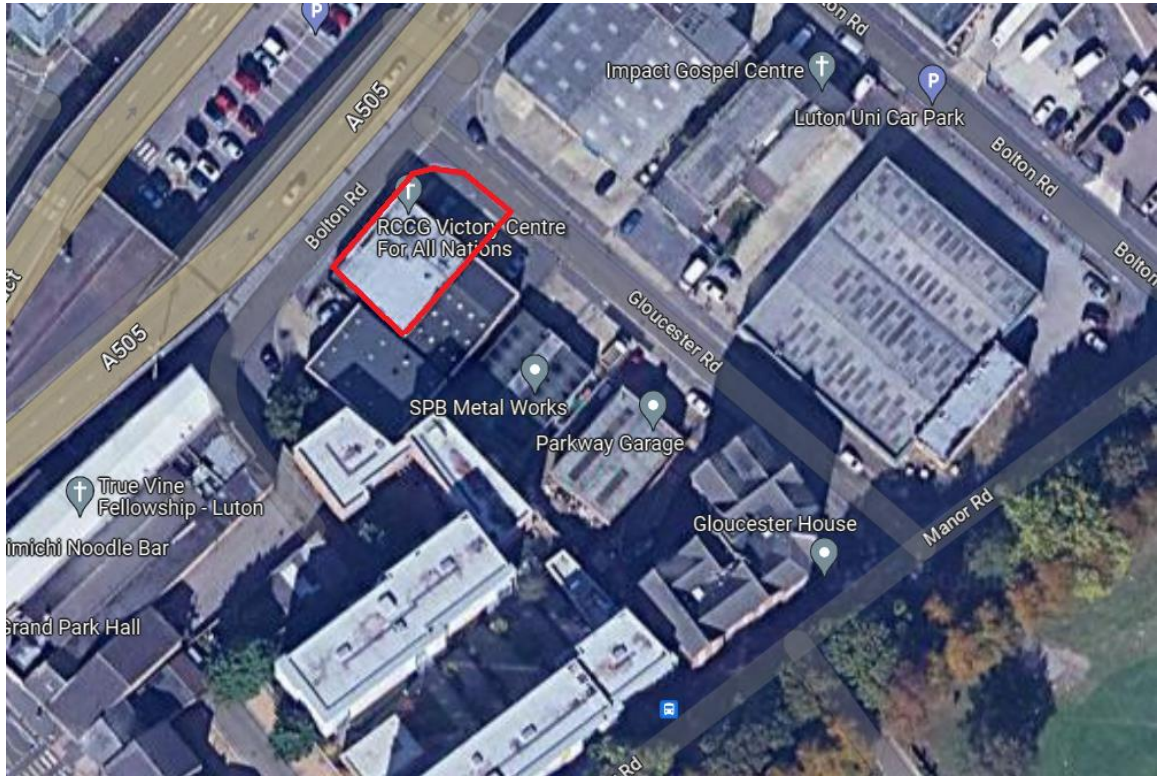


Figure 1: Approximate boundary of the site (red line) (image from google).

2. Methods

2.1. Site Visit

EHM undertook a site visit on the 17th of May 2023. This was to carry out a walk over of the site, determining the basic habitats present and their current condition. The site visit was carried out by an experienced ecologist who is able to appropriately identify habitats and assess their quality and suitability to support species.

Weather conditions were; 13 degrees C, Cloud 4/8, wind 1/12, dry.

The methodology followed that of an Extended Phase 1 Habitat Survey following the methodology of JNCC (1993) as modified by IEA (1995). The Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are likely to be ecologically important.

2.2 Protected Species

The following evidence of protected species or habitats to support them was assessed;

Badgers

Evidence of badger activity on site was assessed by searching for:

- Presence of setts, indicated by suitably sized holes or burrows with evidence of badgers such as badger hair and footprints
- Evidence of well runs supported by secondary evidence such as foraging signs or footprints; and
- Presence of badger latrines

Bats

The site was assessed for its potential to support:

- Roosting bats; and
- Foraging and commuting bats.

Features which could indicate a potential bat roost include:

- Holes and fissures in trees; and
- Gaps in buildings that could allow access to areas such as roof voids, e.g. holes in soffits, broken, loose or missing tiles, damaged lead flashing, etc.

The methodology for assessing bat roost potential followed that recommended by the Bat Conservation Trust¹.

Breeding birds

¹ Collins, J. (ed) (2016). Bat Surveys for professional Ecologists; Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

The site was assessed for its potential to support nesting and breeding birds, considering factors including sufficient habitat cover and food sources.

Dormice

The site was surveyed for suitable dormouse habitat, such as the presence of a well-connected understorey broadleaf habitat, and suitable food sources such as hazel, oak and other nut-bearing trees, fruiting trees and shrubs, flowers and invertebrates. Where hazel nut shells were found, these were inspected for evidence of dormouse feeding.

Aquatic mammals

Aquatic habitats were assessed for their potential to support aquatic mammals such as Otter or water vole. Signs including; foot prints, droppings and evidence of feeding were searched for.

Reptiles

The site was assessed for its potential to support reptile populations. Suitable habitat for reptiles includes long grass, scrub, woodland and hedgerow borders and wood/rubble piles that act as hibernacula.

Amphibians

Any aquatic habitat was assessed for its potential to support amphibian species, including Great Crested Newts. Any ponds on site were assessed, using the Habitat Suitability Index, for its potential to support Great Crested Newts. Terrestrial habitat was also assessed for its ability to support amphibians.

Other species

The site was assessed for its potential to support other notable species.

2.3 Desktop Study

In conjunction with the site visit a report was compiled of relevant ecological records within 1 km of the site. This provided details of protected and notable species in the area which will help inform the potential of the site to support such species. The report from the Bedfordshire & Luton Biodiversity Recording & Monitoring Centre (BLBRMC) also provides details of protected sites within a 1 km radius of the site. Magic.gov.uk was also reviewed for additional relevant protected species and habitat information.

2.4 Biodiversity Net Gain Assessment

A Biodiversity Net Gain Assessment has been conducted using the Natural England metric 4.0². This was conducted by a competent and qualified ecologist.

2.5 limitations

The contents of this report are based on a single site visit and a search of the local records bureau. Though the survey and interpretations of the data were carried out by a competent ecologist there may be things that have been overlooked or missed.

2.6 Relevant Legislation and Planning Policies

A full list of UK wildlife legislation and designations can be seen in the appendix. Relevant legislation implications for this site include;

- The Conservation of Habitats and Species Regulations 2010 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way Act 2000;
- The Natural Environment and Rural Communities Act (NERC Act) 2006;

Planning policies, both local and national, may affect any proposed development. Relevant planning policies to this development include;

- National Planning Policy Framework (NPPF)
- Local planning policies

² The Biodiversity Metric 4.0. User Guide. Published March 2023. Natural England Joint Publication JP039.

3. Results

3.1 Habitats

The location and extent of the habitats are shown in figure 1. TN refers to a target note. The habitats are classified using the UKHAB classification, which used in the BNG assessment. CIEEM guidance recommends that the value or potential value of an ecological resource or feature should be determined within a defined geographical context³. It recommends the following frame of reference:

- International;
- UK;
- National (i.e. England/Northern Ireland/Scotland/Wales);
- Regional;
- County (or Metropolitan - e.g. in London);
- District (or Unitary Authority, City, or Borough);
- Local or Parish; and
- Site
- Within zone of influence only (of habitat).

The habitats will be assessed based on these criteria.

Buildings (J3.6)

The site contained a single building. This was of brick construction with a flat roof. The building was two storey to the front and one storey to the rear.

As will be discussed later-on, the buildings were assessed for their potential to support protected or notable species, particularly bats. The buildings have a potential to support protected species and are considered as having a value at a site level.

Hardstanding (J3.5)

Hardstanding was located to the northeast in the form of a car park and to rear of the building. Some minor patches of ephemeral vegetation was noted. The hardstanding provides little opportunity for wildlife and is considered as having a benefit at a zone of influence level.

Summary

The table below summaries the habitats on site and their value within a geographical context.

Habitat	Value	Comments
Buildings	Site	The buildings provide some potential to support protected and notable species
Hard standing / paving	Zone of Influence	The areas of hard standing and paving provide very little opportunity for wildlife.

Table 1: Summary of value of habitats present on site.

³ GUIDELINES FOR ECOLOGICAL IMPACT ASSESSMENT IN THE UNITED KINGDOM. IEEM. June 2006.

3.2 Species Desktop Results

Desktop Records

The Natural England resource; Magic map⁴, was consulted for any granted protected species licences that may be in the area. This map also provides details of Statutory protected Areas and priority habitats within proximity of the site. Data from the BLBRMC produced records of protected and notable species within 1 km of the site as well as information on protected areas.

Protected species are those listed on EC Habitats Directive- Annexes II and IV, EC Bird Directive- Annex I, Conservation (Natural Habitats) Regulations 1994- Schedules 2 & 5, NERC 2006 Section 41, Wildlife and Countryside Act 1981 (as amended)-Schedules 1, 5 & 8, Protection of Badgers Act 1992. Notable species are categorised as being a: BAP priority National, Red list species (not least concern) and or Red Status bird species, Red Data Book Species, NERC species. Legislation and BAP designation are explained in the appendix.

The table below summarises the results of the desktop search.

Sites and Habitats	Present/Absent	Details		
Statutory sites	Absent	There are no statutory sites present within 1 km of the site.		
Non-Statutory sites or Local Wildlife Sites	Present	There are local wildlife sites present within 1 km of the site.		
Ancient Woodland	Present	There are no pockets of ancient woodland within 1 km of the site.		
Priority Habitats	Present	Priority habitats are present within 1 km of the site.		
Protected and Notable Species	Number of species	Number of records	Date of earliest record	Date of recent record
Amphibian Species	3	10	1978	1997
Reptile Species	1	1	1982	1982
Invertebrate species	40	59	1904	2018
Terrestrial Mammal Species (excl. Bats)	3	14	1992	2019
Bat Species	2	24	1989	2012
Bird Species	48	1687	2003	2021
Plant Species	15	44	1982	2017

Table 2: Summary of protected areas and species information

⁴ www.magic.gov.uk

3.3 Species Site Assessment

The following assessment considers the information from the desktop study as well an assessment of the habitats on site and their potential to support protected and notable species. The likelihood of species being found on site is defined as follows.

- High- Definite signs of species identified on site and habitat considered suitable.
- Medium/ moderate- habitat considered suitable but obvious signs not necessarily detected.
- Low- no obvious signs and habitat considered sub-optimal. Though species may be present
- Negligible- highly unlikely that species is present

Bat Commuting/ Foraging Habitat Assessment

The local records data contains records of species of bat including Brown long eared bat (*Plecotus auratus*), and common pipistrelle (*Pipistrellus pipistrellus*). There are also records of unidentified bats and pipistrelle bat (*Pipistrellus sp.*). The majority of these records are over ten years old. The most recent record, from 2012, is of an unidentified bat located approximately 860m to the southwest. There are several other records, including records of roosts, within the Luton area. The magic map shows no protected species licences relating to bats within 1km of the site. The closest licence is over 5km to the south of the site.

All bat species in the UK eat insects and forage along habitats such as hedgerows, woodlands, grasslands and waterways⁵. Bats use woodland edges, hedgerows, rivers and other linear features like tree-lined footpaths as corridors to commute from one area of countryside to another⁶. The site contains little to no vegetation and is relatively isolated in an urban environment. The likelihood of foraging and commuting bats being seen on site is considered to be **negligible**.

Building Bat Roosts Assessment

As discussed, bats are predicted to be within the vicinity of the site and may use habitats on site for foraging.

Buildings are known to provide suitable roosting opportunities for several bat species⁷. An external and internal inspection of the buildings on site was carried out to assess their potential to support bat roosts, following Bat conservation trust guidelines⁸. An external inspection of the buildings was undertaken looking for potential ingress points through soffits, eaves, missing roof tiles/slates and brickwork and windows, etc. Table 3 below summarises the criteria for assessing a bat roost potential within a building or tree.

⁵ <https://www.bats.org.uk/about-bats/where-do-bats-live/bat-habitats/foraging-habitats>

⁶ <https://www.bats.org.uk/about-bats/where-do-bats-live/bat-habitats/commuting-habitats>

⁷ Bats and Buildings. Bats and the Build Environment Series. Bat Conservation Trust. January 2012.

⁸ Collins, J. (ed) (2016). Bat Surveys for professional Ecologists/; Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging 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 ^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	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 (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	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 connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
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 potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.
^c This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI, 2015).

Table 3: Summary of guidelines for assessing bat potential.

The building on site was a modern mixed brick-built structure with flat roofs, two levels at the front and a single level at the back. Externally the building appeared to be in good condition with no obvious gaps in the brickwork.

Internally there was no accessible roof space other than a false ceiling which was partially inspected through gaps in the ceiling. No potential egress points were noted. No evidence of bats were seen during the internal inspection.

The building did not contain any evidence of bats or potential roost features. This building is considered as having a **negligible** potential to support a bat roost.

Badger Assessment

The site was investigated for evidence of Badger (*Meles meles*) such as, setts or signs such as tracks, hair, or latrines. The site consisted of built areas and provided no opportunities for badgers. The likelihood of badgers being on site is considered to be **negligible**.

Dormouse Assessment

No evidence of dormice (*Muscardinus avellanarius*) activity, such as feeding remains or nests was observed on site. Across its range dormice prefer the successional stage of woody vegetation; this is the new growth that arises after woodland management such as coppicing, ride widening, thinning or glade creation, they may also occur in scrubby habitat⁹. The habitats on site provide no opportunities for this species. The likelihood of dormouse being present is considered **negligible**.

Small mammal Assessment

Hedgehogs (*Erinaceus europaeus*) prefer habitats such as woodland edges and hedges as well as suburban areas¹⁰. There are local records of hedgehog and European rabbit (*Erinaceus europaeus*) within the BLBRMC data. However the habitats on site are unlikely to support these species. Therefore the likelihood of small mammals being on site is considered **negligible**.

Reptile & Amphibian Assessment

Reptiles prefer sites with a diversity of habitats containing several micro habitats that provide suitable foraging and refuge sites¹¹. Amphibians require both suitable aquatic habitats for breeding and terrestrial habitats to forage and shelter during the active season and hibernate over winter¹².

The habitats on site are unlikely to support reptiles and amphibians and the site is isolated in an urban environment. The presence of reptiles and amphibians being on site is considered to be **negligible**.

Bird Assessment

The building has some minor potential to support nesting birds though no evidence was seen during the site visit. A number of notable bird species are included in the local records however the nature of the habitats on site mean they are unlikely to be present on site. . The site's potential to support breeding birds is considered **low**.

Plant Assessment

The local records data contains records of notable plant species. The developed habitats on site are unlikely to support notable plants. The likelihood of notable species being present is considered **negligible**.

Invertebrate Assessment

The site does not contain any habitats likely to attract notable invertebrate species. Therefore, the likelihood of notable invertebrates being on site is considered to be **negligible**.

⁹ <https://ptes.org/get-informed/facts-figures/hazel-common-dormouse-muscardinus-avellanarius/>

¹⁰ http://www.mammal.org.uk/sites/default/files/factsheets/hedgehog_complete_0.pdf

¹¹ Edgar, P., Foster, J. and Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and reptile Conservation, Bournemouth

¹² Great crested newt mitigation guidelines. August 2001. English Nature.

Invasive species Assessment

No invasive species were noted on site however a small stand of Japanese knotweed (*Fallopia japonica*) was noted to the southwest of the site on an adjoining property (TN1). Though this is not currently on the property there is potential for it to extend on to the property or be impacted during development.

3.3 Summary

Table 3 below summarises the sites potential for protected and notable species. Designations for potential are as follows.

- High- Definite signs of species identified on site and habitat considered suitable
- Medium/ moderate- habitat considered suitable but obvious signs not necessarily detected
- Low- no obvious signs and habitat considered sub-optimal. Though species may be present
- Negligible- highly unlikely that species is present

Species	Sites potential to support	Justification
Bat roosts-buildings.	Negligible	The building does not contain any potential to support bat roosts.
Bat foraging/ commuting areas	Negligible	The site does not contain any suitable bat commuting and foraging habitats and is isolated in an urban environment.
Badgers	Negligible	Site not considered likely to support badgers.
Dormice	Negligible	No suitable habitats present on site.
Small Mammals	Negligible	Habitats on site not considered likely to support small mammals.
Reptiles & amphibians	Negligible	The site is considered unlikely to support reptiles and amphibians.
Breeding birds	Low	Site has some minor potential to support nesting birds.
Plants	Negligible	There is no potential for notable plants to be present on site.
Invertebrates	Negligible	Habitats on site unlikely to attract invertebrates.
Invasive Species	Adjacent site	Japanese knotweed was located adjacent to the site.

Table 4: Summary of sites potential to support certain protected and notable species.

3.4 Protected Areas

Statutory protected Areas

There are no statutory protected areas within 1 km of the site.

Non statutory protected areas

There are four non statutory protected areas within 1 km of the site. Two County Wildlife Sites (CWS) and two District Wildlife Sites (DWS). The closest of these is the River Lea CWS (figure 2). This CWS is recognised for its river habitats and supporting a population of water voles (*Arvicola amphibius*).

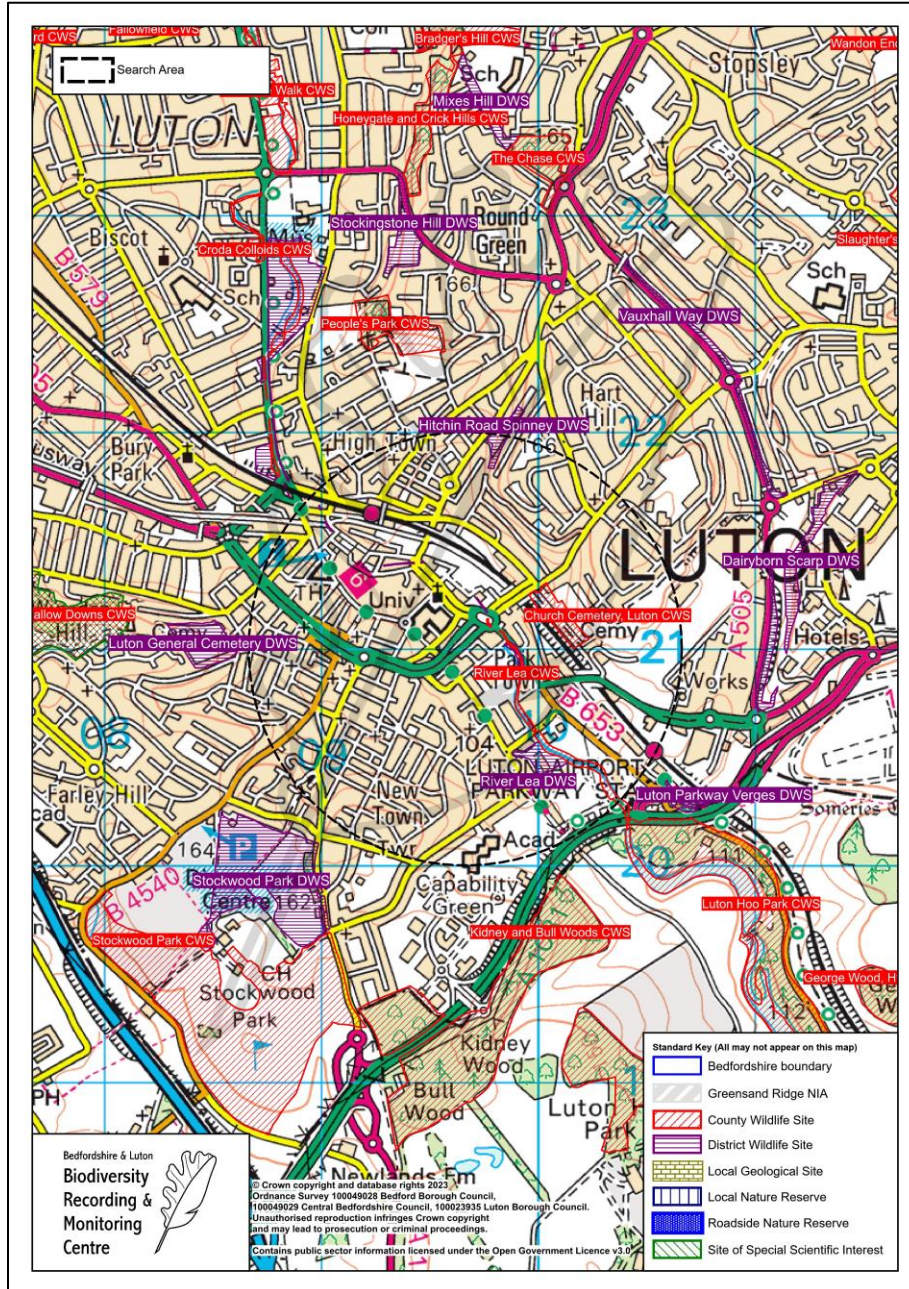
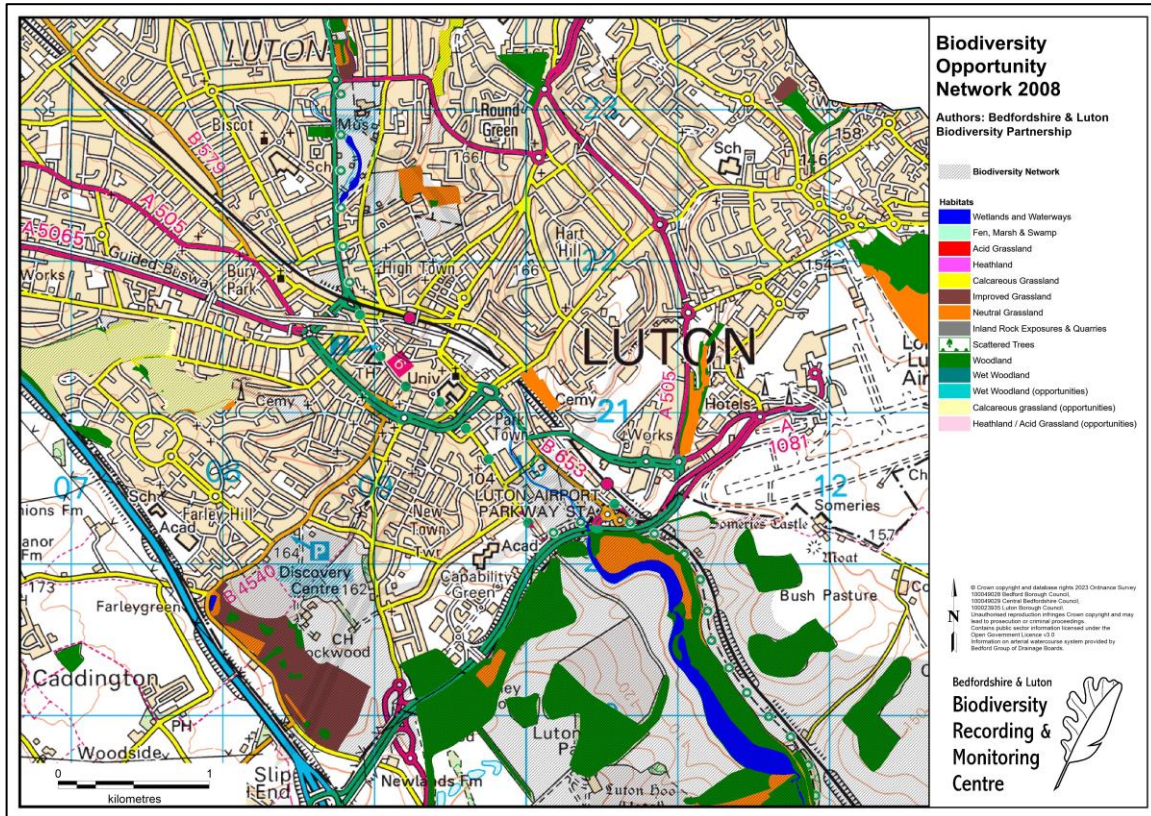


Figure 2: Non statutory protected areas within 1 km of the site.

Priority Habitats

There are habitats listed on the Priority Habitat Inventory (HPI) within 1 km of the site (figure 3). Non of these habitats are located on the site or directly boarding the site. The closest is an area of neutral grassland located within 50mm to the east of the site.



4 Discussion

The following sections consider the effects on protected areas, priority habitats, protected species, notable species and habitats on site. Recommendations for additional surveys and or enhancements are made as necessary.

4.1 Effects of Designated Sites

As can be seen in figure 2 the site is not within direct proximity of the protected areas. It is unlikely that there will be any direct impacts to these protected areas. The general protection measures set out below should be followed to help ensure there are no indirect impacts.

4.2 Effects on Priority Habitats

Areas of ancient woodland are located within the local landscape. The National Planning Policy Framework (NPPF) (2021) paragraph 180 states “development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists”. Natural England’s standing advice for Ancient Woodland¹³ currently recommends that at least a 15m buffer is created between any development and ancient woodland. There are no areas of ancient woodland within 15m of the site therefore the potential impact to ancient woodland is considered to be negligible.

The proposed development will not occur within direct proximity of priority habitats. The pollution control measures below will help ensure there are no indirect impacts to these areas.

4.3 Effects on Habitats on Site

As can be seen in appendix 2 the development will occur on areas of developed land and will not impact any habitats of value.

4.4 Effects on Protected and Notable Species

Bats

The building on site is not considered as having potential to support roosting bats therefore additional surveys are not recommended at this stage.

It should be noted that bat absence is very difficult to prove definitively due to their mobility and size, and single or small numbers of bats are able to roost in extremely small spaces, such as in gaps between panels. The development work should be undertaken with care, for example with roof tiles lifted rather than dragged. If during development works a bat (or an accumulation of bat droppings) is discovered at any time, work is to temporarily cease whilst an experienced bat ecologist is contacted for guidance and assistance. This can be the Bat Conservation Trust (BCT) helpline (0845 1300 228).

¹³ <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

The site is not considered as having any potential to support commuting and foraging bats. There is potential to create suitable habitats as part of the development.

A sensitive lighting scheme should be incorporated into the final design to protect any newly created habitats on the site. To protect potential roost or bat foraging/ commuting habitat in the area it will be important to;

- Avoid illuminating the wider habitats on site and retained building at dusk or night-time- Guidelines provided by the Bat Conservation trust and ILP should be followed¹⁴
- Limit work to daylight hours
- Limit noise disturbance and other forms of pollution such as dust
- Maintain the wider habitats on site
- Lighting should also be considered post-development with any external lighting positioned so as not to illuminate potential foraging or commuting habitats.

Badgers

Badgers are not considered as being likely to be on site. Therefore badgers are not considered to be a constraint for this project.

Small Mammals

Small mammals are not considered as being a constraint for this project.

Dormouse

Dormice are not considered as being likely to be present on site. Hazel Dormice are not considered as being a constraint for this project.

Reptiles/ Amphibians

The site is considered as being unlikely to support reptiel and amphibians. Therefore they are not considered a constraint for this project.

Birds

To ensure breeding birds are not impacted any trees or buildings that may require removal should be removed outside of the breeding bird season, this typically runs from March to September. If vegetation/ buildings require removal during the nesting bird season the area should be subjected to a survey by an experienced ecologist. If there are any nest sites located within the work area a suitable exclusion zone will have to be established until the chicks have fledged. All bird nests are protected in the Wildlife and Countryside Act (see appendix).

Additional planting and inclusion of nest boxes would help replace any potential loss in nesting habitat.

¹⁴ <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

Invertebrates

Habitats on site are unlikely to support invertebrates. Additional planting post development will help create habitats for invertebrates.

Invasive species

Japanese Knotweed (*Fallopia japonica*) is located on the boundary of the site. Measures will need to be in place to ensure this does not spread during construction, this will likely require a suitable exclusion zone and management plan. As the plant appears to be growing on the neighbouring property this may be the responsibility of the adjoining landowner. For more information see government guidance¹⁵.

4.5 General Ecological Protection Measures

The following measures are suggested to help minimise the impact to the wider environment;

- Establish Japanese Knotweed exclusion- follow management plan.
- Suppression and monitoring of dust where relevant.
- Control sources of aquatic pollution, particularly from entering local water courses or ground water.
- All proposed work must strictly be in accordance with all relevant Pollution Prevention Guidelines (PPG) published by the Environment Agency which may include but is not limited to PPG1 (general), PPG5 (works in, near, or liable to affect watercourses) and PPG6 (work at construction & demolition sites). Contingency plans should be drawn up to address chemical spillage, collision, etc.

4.5 Ecological Enhancements

As part of the development a green roof will be included on the upper storey of the proposed building. This should contain a diverse mixture of species and include native species and those known to have an ecological benefit.

Additional Features

To enhance the local bat population and provide roosting opportunities within the site artificial roost sites could be incorporated into the development. Bat boxes could be incorporated into the fabric of the building; the Istock Enclosed Bat Box (B and C) ¹⁶ can be easily incorporated into the exterior of a building.

The inclusion of bird boxes into the proposed development would provide a benefit for local bird population. A range of different boxes is recommending including nest features that can be incorporated into the buildings such as Swift nest boxes¹⁷ or house martin nest cups¹⁸.

¹⁵ <https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading#how-to-stop-knotweed-spreading>

¹⁶ <https://www.istockbrick.co.uk/kevington/eco-products/>

¹⁷ <https://www.istockbrick.co.uk/kevington/eco-products/>

¹⁸ https://shopping.rspb.org.uk/INTERSHOP/web/WFS/RSPB-rspbUK-Site/en_GB/-/GBP/ViewProduct-Start?SKU=house-martin-terracotta-nest-box

5. Biodiversity Net Gain (BNG) Assessment

5.1 Net Gain Target

Mandatory Biodiversity Net Gain, as part of the Environment Act (2022), is likely to come into place in late 2023. Paragraph 170(d) of the NPPF states planning decisions should minimise impacts on and provide net gains for biodiversity. It is assumed that the mandatory net gain target will be 10%. The target for this assessment will be to aim for a 10% net gain ensuring that the project achieves a net gain.

5.2 Net Gain Assessment

The measurement for assessing biodiversity net gain will be the Natural England Biodiversity Metric 4.0¹⁹. This will be used to provide a baseline assessment of habitats on the wider site and a projected value of habitats post development following the proposed enhancements.

The Biodiversity Metric 4.0 includes a rule that requires that lost habitats must be compensated for like for like” or “like for better” basis. New or restored habitats should aim to achieve a higher distinctiveness and/or condition than those lost.

5.2 Baseline Assessment

The baseline assessment is calculated by categorising the broad habitat and habitat type, the Phase I habitat category is converted into the corresponding UK Habitat Classification. This is based on the assessment carried out in section 3.1. The metric then assigns the habitat distinctiveness, the distinctiveness of a habitat is considered as a component of the quality of a habitat parcel. The distinctiveness band of each habitat has been preassigned in biodiversity metric 4.0.

A strategic significance is also assigned to each habitat type. Strategic significance relates to the spatial location of a habitat parcel and works at a landscape scale. It gives additional biodiversity unit value to habitats that have been identified as habitats of strategic importance to that local area. For this assessment the Luton Biodiversity Action Plan was used which lists priority habitats²⁰.

Biodiversity metric 4.0 uses habitat condition as one of the measures of habitat quality. The condition assessment approach used in biodiversity metric 4.0 measures a habitat parcel against the ecological optimum state for that particular habitat. The biodiversity metric provides a list of assessment criteria for each habitat type. The condition of the habitat is then assessed against these criteria; the more criteria present within the habitat the higher the assessed condition.

¹⁹ The Biodiversity Metric 4.0. User Guide. Published March 2023. Natural England Joint Publication JP039.

²⁰ https://www.bedscape.org.uk/BRMC/newsite/index.php?c=bedslife_bap

Baseline assessment scores

The table below summarises the baseline habitat assessment. Full details can be seen in the appendix.

Broad habitat	Habitat type	Area (m ²)	Distinctiveness	Strategic Significance
Onsite Area Habitats				
Urban	Developed land; sealed surface	0.04	Very low	Low Strategic Significance
On-site Baseline				0.00 Habitat Units

Table 5: Summary of BNG baseline assessment.

5.3 Post development assessment

The development (appendix 2) will largely impact areas of developed land. The creation of a green roof on part of the upper floor will provide an increase in habitats on site.

Habitats Created/ Retained

The table below summarises the habitats that will be in place post development. Broad details of the required ecological enhancements for each habitat are provided.

The proposed site will largely consist of developed land as well as an area of green roof.

A layout of the habitats is shown in appendix 4.

Retained/ Newly Created Habitat	Area (Ha)	Distinctiveness	Desired condition	Strategic Significance	Required Enhancements
On site					
Developed land; sealed surface (New and retained)	0.034	Very Low	N/A	Low	<ul style="list-style-type: none"> Follow ecological protection measures during construction. Include bat and bird boxes post development.
Intensive green roof	0.006	Low	Poor	Medium	<ul style="list-style-type: none"> Plant A variety plants Include native species Include additional features such as earth mounds and log piles

Table 6: Summary of enhancement of new habitats.

5.4 Biodiversity net gain

The extract below is taken from the biodiversity metric (further details are in the appendix). As can be seen the proposed project will achieve a net gain of over 100% for habitat units. This would meet the aim of achieving a 10% net gain.

The net gain is largely achieved by including an area of green roof in the proposed development and the low baseline score of the existing habitats on site.

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.01
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	100.00%
	<i>Hedgerow units</i>	0.00%
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	Yes ✓	

Table 7: Summary of BNG calculations.

BNG Trading Rules summary

Rule 3 of the BNG requires that trading down be avoided to ensure losses of habitat are to be compensated for on a “like for like” or “like for better” basis. The option above is able to meet the trading rules.

Planting Detail

Once the proposed enhancements have been agreed a more detailed planting plan and methodology may be required. This should include full details of all enhancements and can be a condition of the proposed development.

6. Conclusion

A Biodiversity Net Gain assessment has been conducted by a competent ecologist and recommendations have been made to ensure the projects achieves a net gain. This is inline with local and national planning policies. Recommendations have also been made in relation to protected and notable species.

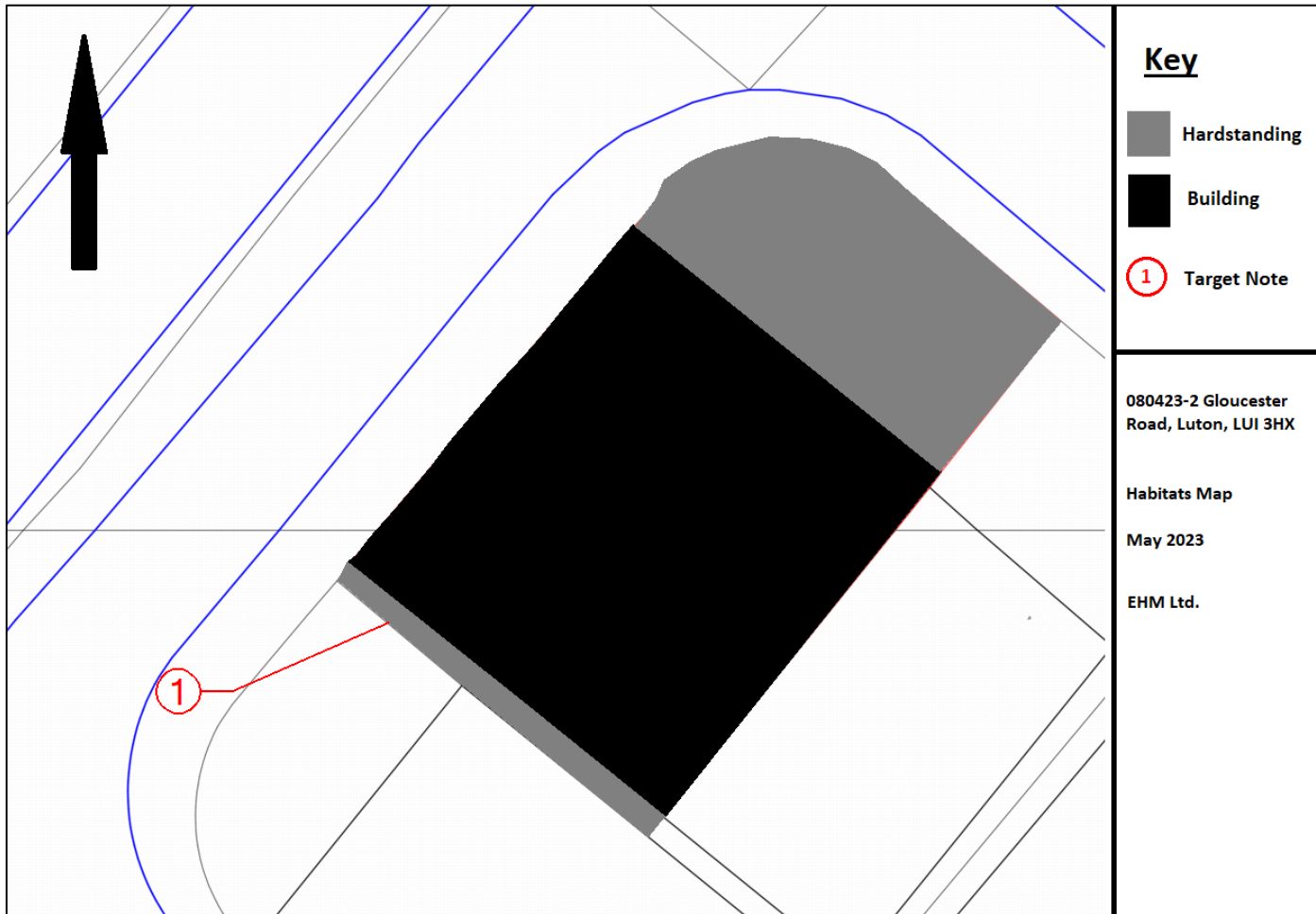
The table below summarises the recommendations.

Recommendation	Action	Justification
Protection of breeding birds*	Carry out vegetation clearance (if required)/ building demolition outside of breeding bird season or under supervision of ecologist following a breeding bird survey	The buildings are likely providing several opportunities for breeding birds.
Appropriate lighting for bats*	Avoid illuminating bat foraging and commuting habitat- woodland/ scattered trees. During and post development.	This will help limit disturbance to bat species in the longer term.
Japanese Knotweed Management Plan	Develop a Japanese management plan to restrict spread of this invasive species.	This will help ensure invasive species are not spread on to site.
Adequate pollution control	Habitats on site should be adequately protected to ensure no polluted runoff in on site or adjacent land. All oils, fuels and chemicals should be adequately stored on site in bunded contains with appropriate spill kits and emergency procedures in place.	This will protect habitats on site and those in the nearby landscape.
Inclusion of bird and bat boxes in the development/ landscaping	Place boxes in suitable locations within the landscaping.	This would benefit local bird and bat populations on the site and within the local area.
Use of native plant species during any future planting and landscaping.	Where possible select native species to be included in the proposed green roof.	This will provide a greater longer-term benefit for wildlife.

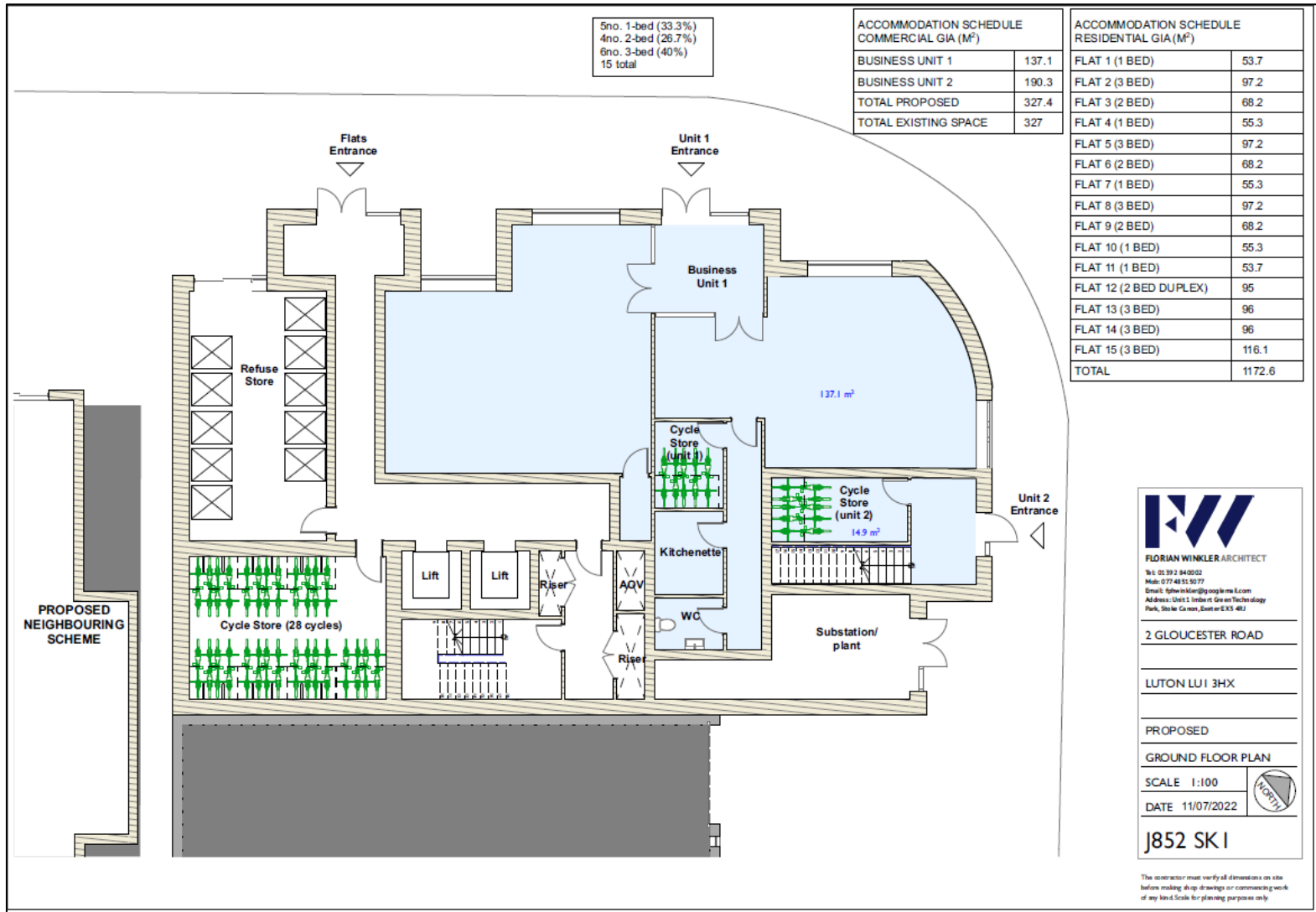
Table 8: Summary of recommendations.

7. APPENDIX

7.1 Appendix 1: Habitat Map



7.2 Appendix 2: Proposed Development Outline



7. 3 Appendix 3: Photos



Photo 1: Showing exterior of the front (north) side of building.



Photo 2: Showing exterior of rear (south) side of building)



Photo 3: Japanese Knotweed on boundary of the site.

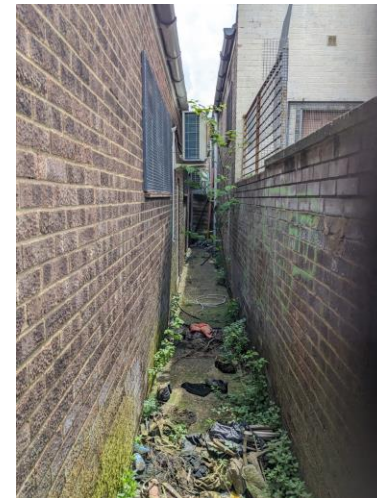


Photo 4: Showing hardstanding at rear of building, Japanese knotweed also present.



7.4 Appendix 4: Biodiversity Net Gain information

BNG Calculations- Baseline Area Habitats On site

Existing area habitats			Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Ecological baseline
Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
Urban	Developed land; sealed surface	0.04	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
Total habitat area		0.04					0.00

BNG Calculations- Area Habitat creation on site

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier			Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition (years)	Final difficulty of creation	
Urban	Developed land; sealed surface	0.034	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	0	Medium	0.00
Urban	Intensive green roof	0.006	Low	Poor	Location ecologically desirable but not in local strategy	Standard time to target condition applied	1	Low	0.01
Total habitat area		0.04							0.01



BNG Detail Maps



7.5 Appendix 5: Legislation

Protected species have protection under national legislation such as the Wildlife and Countryside Act 1981 and European legislation such as the Habitats Directive.

Please note the following:

(1) If there is no record of a particular protected species, this does not signify that the species is absent from the site in question. It may mean that it has not been recorded, that the site has not been surveyed for this species, or that data relating to its presence has not been made available to us.

(2) The presence of a protected species record does not mean that the species is still present. It means that the species was recorded at that time and place. The implications of the record should be further evaluated, and a survey to establish the current status may be required.

(3) The following summary of legislation is designed purely as a basic guide, if any action is to be taken regarding any of the protected species listed, then it is imperative that the full relevant legislation be consulted.

WILDLIFE PROTECTION LEGISLATION IN ENGLAND

Legislation that protects wildlife in England exists at the European and national level.

European Law

The Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) was aimed at ensuring conservation and protection of all wild plants and animals, increasing cooperation between states, and affording special protection to the most vulnerable or threatened species. It was implemented by the EC Birds Directive (Council Directive 79/409/EEC) and the EC Habitats Directive (Council Directive 92/43/EEC).

The Bonn Convention on Migratory Species of Wild Animals (1979 & 1994) requires the protection of migratory animals. It was implemented by the EC Birds Directive (Council Directive 79/409/EEC) and the EC Habitats Directive (Council Directive 92/43/EEC).

The EC Habitats Directive aims to establish a network of protected areas in order to maintain the distribution and the abundance of threatened species and habitats. A number of species are listed in the annexes.

Annex II lists animals and plants whose conservation requires the designation of Special Areas of Conservation (SACs).

Annex IV lists animals and plants in need of strict protection. For the animals, this prohibits deliberate capture, killing, disturbance (especially during breeding period), destruction or taking of eggs from wild, and destruction or deterioration of breeding sites or resting places. For the plants, this prohibits deliberate picking, collecting, uprooting, cutting, destruction, and trade in entire plants or parts, at all stages of life.

Annex V lists animals and plants for which taking in the wild may be subject to management measures

National Law

Wildlife and Countryside Act The Wildlife and Countryside Act 1981 (as amended) is the main source of legal protection for wildlife in England and was strengthened by the Countryside and Rights of Way Act 2000. A statutory five-yearly review of Schedules 5 and 8 (protected wild animals and plants) is undertaken by the relevant authorities. Species protection is provided under Schedules 1, 5, 6 and 8:

Schedule 1 lists bird species that are rare, endangered, declining or vulnerable. The Schedule is divided into two parts. Part I lists birds which receive special protection; these birds receive additional protection from disturbance at the nest. Part II lists birds that receive the same level of special protection, but only during the breeding season.

Schedule 5 protects animal (other than bird) species from certain actions, according to the sections of the Act under which they are listed:

S9 (1) prohibits the intentional killing, injury or taking. S9 (2) protection is limited to possessing and controlling. S9 (4a) prohibits the damaging, destroying or obstructing access to any place used by the animal for shelter or protection. S9 (4b) prohibits disturbing the animal while it is occupying any structure or place which it uses for shelter or protection. S9(5) prohibits the selling, offering for sale, possessing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from such an animal. Species on this Schedule do not appear on the PSI.

Schedule 6 lists animals that may not be killed by certain methods. Even humane trapping for research requires a licence.

Schedule 8 lists plant species for which it is prohibited to intentionally pick, uproot, destroy, trade in, or possess (for the purposes of trade).

Under the Wildlife and Countryside Act, all wild plants in Britain are protected from intentional uprooting by an unauthorised person. Landowners, land occupiers, persons authorised by either of these, or persons authorised in writing by the Local Authority for the area are exempt from this, except for Schedule 8 species.

Conservation Regulations the Conservation of Habitats and Species Regulations 2010 (as amended) transpose the EC Habitats Directive into national law. In addition to enabling the designation of SACs, the regulations also provide species protection:

Schedule 2 protects the listed animals from deliberate capture, killing, disturbance or trading in.

Schedule 4 protects the listed plants from picking, collecting, uprooting, destroying or trading in.

These actions can be made lawful through the granting of licences by the appropriate authorities. Licences may be granted for a number of purposes, but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild the population of the species concerned.

Protection of Badgers Act the Protection of the Badgers Act prohibits the killing, injuring or taking of badgers and damage or interference with a badger sett, unless licensed to do so by a statutory authority.

International and European Obligations

In the UK, species receiving protection under international legislation and agreements are protected through the Wildlife and Countryside Act, so are not shown separately in the BMERC notable species lists. For reference, the relevant categories are shown below.

Bern Convention on the Conservation of European Wildlife and Natural Habitats the Bern Convention aims to ensure the conservation of wild flora and fauna species and their habitats.

- Appendix 1 (strictly protected flora) - Plants for which contracting parties will prohibit deliberate picking, collecting, cutting or uprooting.
- Appendix 2 (strictly protected fauna) - Animals for which contracting parties will prohibit deliberate capture, possession, killing, damage to or destruction of breeding or resting sites, disturbance or destruction or taking of eggs. Appendix 3 (protected fauna) - Animals for which contracting parties will include closed seasons and regulate their sale, keeping for sale, and transport for sale or offering for sale of live and dead wild animals. (Not included in Notable Species List).

Bonn Convention on Migratory Species the Bonn Convention aims to conserve terrestrial, marine and avian migratory species throughout their range.

- Appendix 1 (migratory species threatened with extinction) - Species for which contracting parties will strictly protect and endeavour to conserve or restore the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them.
- Appendix 2 (migratory species that need or would benefit from international co-operation) - Species for which contracting parties will be encouraged to conclude global or regional agreements for the conservation and management of individual species or, more often, of a group of species. (Not included in Notable Species List).

The EC Council Directive on the Conservation of Wild Birds the Birds Directive provides a framework for the conservation and management of all wild birds in Europe. As well as designating important sites for birds as Special Protection Areas, birds are generally protected from deliberate killing or capture and destruction of or damage to their nests or eggs, and deliberate disturbance. Allowances are made for game birds.

UK BAP & notable species

UK Biodiversity Action Plan and Section 41 Species

Biodiversity, or biological diversity, is the whole variety of life on Earth. The Convention on Biological Diversity (CBD) came about as a result of the 1992 Earth Summit. As one of 168 countries to sign up to the CBD, the UK was required to develop a national strategy for the conservation of biodiversity; the UK Biodiversity Action Plan (UKBAP) was born.

The UKBAP is the result of contributions involving a wide range of people and organisations, enabling the identification of species and habitats that are listed as priorities for conservation action. A 2007 review of the UKBAP has resulted in 1149 species and 65 habitats being listed as conservation priorities. For more information see www.ukbap.org.uk.

In addition to the national priorities and targets, action is also being taken at local level. The Essex Biodiversity Project is responsible for implementing the Essex Biodiversity Action Plan, which has 28 priority species and 15 priority habitats currently listed. For more information see www.essexbiodiversity.org.uk.

The UK BAP

(From Explanatory Note by Defra and Natural England on Section 41 of the Natural Environment and Rural Communities

(NERC) Act 2006 - Habitats and Species of Principal Importance in England)

The England Biodiversity List has been developed to meet the requirements of Section 41 of the Natural Environment and Rural Communities Act (2006). This legislation requires the Secretary of State to publish a list of species of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity.

The S41 list will be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions. In particular:

- Regional Planning Bodies and Local Planning Authorities will use it to identify the species and habitats that should be afforded priority when applying the requirements of National Planning Policy framework (NPPF) and PPS9 Circular to maintain, restore and enhance species and habitats.
- Local Planning Authorities will use it to identify the species and habitats that require specific consideration in dealing with planning and development control, recognising that under NPPF and PPS9 Circular the aim of planning decisions should be to avoid harm to all biodiversity.
- All Public Bodies will use it to identify species or habitats that should be given priority when implementing the NERC Section 40 duty.

Habitats of Principal Importance Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that have been identified as requiring action in the UK Biodiversity Action Plan (UK BAP). They range from habitats such as upland hay meadows to lowland mixed deciduous woodland and from freshwater habitats such as ponds to marine habitats such as subtidal sands and gravels.

Species of Principal Importance There are 943 species of principal importance included on the S41 list. These are the species founding England which have been identified as requiring action under the UK BAP. In addition, the Hen Harrier has also been included on the List because without continued conservation action it is unlikely that the Hen Harrier population will increase from its current very low levels in England.

Relationship with the UK Biodiversity List of Species and Habitats the UK BAP list of priority species and habitats is an important reference source and will be the focus for conservation action across the UK over the next decade. It has been used to draw up the species and habitats of principal importance in England under S41 of the NERC Act.

The revised UK BAP list of priority species and habitats can be downloaded from the UK Biodiversity Website: <http://www.ukbap.org.uk/NewPriorityList.aspx>

Relationship with the biodiversity duty under Section 40 of the NERC Act There is a general biodiversity duty in the NERC Act (Section 40) which requires every public body in the exercising of its functions to 'have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'.

There is no direct relationship between the Section 41 duty on the Secretary of State to publish the list and promote the taking of steps to conserve the habitats and species on it, and the Section 40 duty on public bodies to have regard to the purpose of conserving biodiversity. Importantly:

(a) Biodiversity, as covered by the Section 40 duty includes all biodiversity and not just the habitats and species of principal importance. However, there is an expectation that public bodies would refer to the S41 list when complying with the section 40 duty.

(b) The duty on the Secretary of State to promote the taking of steps by others is not restricted to public bodies.

Defra guidance for local authorities and public bodies on implementing the biodiversity duty in the NERC Act draws attention to the S41 list, emphasising that local authorities and public bodies have a role to play in ensuring the protection of these species and habitats. Copies of the guidance can be downloaded from:

<http://archive.defra.gov.uk/environment/biodiversity/documents/pa-guid-english.pdf>