



Preliminary Ecological Appraisal,
Preliminary Roost Assessment
and Biodiversity Net Gain
Assessment

Spurr House

For

Gardiner and Theobald LLP

Project No.: GAR001-001-
003/001/001

January 2023

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GAR001-001-003	002

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1. Summary and Main Recommendations

1.1 Summary

- 1.1.1 Gardiner and Theobald LLP, on behalf of Bury Council, commissioned Thomson Environmental Consultants to complete a Preliminary Ecological Appraisal (PEA) of the site surrounding Spurr House and a Preliminary Roost Assessments (PRA) for bats of Spurr House and other suitable trees and buildings within the site (Grid Reference: SD 82103 06996),
- 1.1.2 Proposed plans are to refurbish Spurr House and create a school, including a multi-use sports pitch to the south of the site.
- 1.1.3 No previous ecological surveys are known to have taken place on the site.
- 1.1.4 The PEA methods consisted of an ecological desk study to return data on protected and priority species and designated sites within the study area; and a botanical survey of habitats on the site using the UK habitat classification system (UKHab).
- 1.1.5 Eighteen records of priority or protected species were returned during the desk study, including great crested newt (*Triturus cristatus*) (GCN) and bat species. One statutory and five non-statutory designated sites were also identified during the desk study. Six priority habitat types were found within the study area during the desk study, including deciduous woodland and five priority grassland habitats. Eight waterbodies were also identified during the desk study (see Figure 9).
- 1.1.6 During the UKHab survey of the site, eight habitats were recorded, including woodland, scrub and managed grassland habitat types (see Figure 2). Himalayan balsam (*Impatiens glandulifera*), an invasive species, was found on site (see Figure 3).
- 1.1.7 The proposed works are unlikely to affect any of the designated sites due to the distance between these designated sites and the site of the proposed works and due to barriers of residential buildings between the designated sites and the development.
- 1.1.8 Birds and small mammals were observed to be using the site. All wild birds, their nests and their eggs are protected under the Wildlife and Countryside Act 1981. All UK mammals are protected under the Wild Mammals (Protection) Act 1996.
- 1.1.9 Himalayan balsam is an invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 and under Regulation (EU) No. 1143/2014 of The Invasive Alien Species (Enforcement and Permitting) Order 2019.
- 1.1.10 Suitable terrestrial habitat for GCN, common reptiles and amphibians is present on site within the woodland and scrub habitats.
- 1.1.11 The PRA methods are based on Bat Conservation Trust Guidelines (BCT, 2016). Two building and two trees were assessed for their potential to support roosting bats. Building B1 and both trees (T1 and T2) were found to have moderate potential for roosting bats, with building B2 having low potential (See Figures 4, 5, 6, and 7). Therefore, further surveys to determine presence or absence of roosts are required.
- 1.1.12 All bat species and their roosts are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and also partially protected in England under the Wildlife and

Countryside Act 1981 (as amended). Some species of bats are Species of Principal Importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act.

- 1.1.13** As a baseline the site contains 2.41 habitat units. There are areas of mixed scrub, hawthorn scrub, modified grassland, and other woodland; broadleaved woodland will be lost to the development. These habitat types will need to be created, or similar habitat enhanced, to achieve at least 10% Biodiversity Net Gain (BNG) on site.

1.2 Main Recommendations

- 1.2.1** The following measures are recommended for the development to comply with relevant biodiversity legislation and policy:

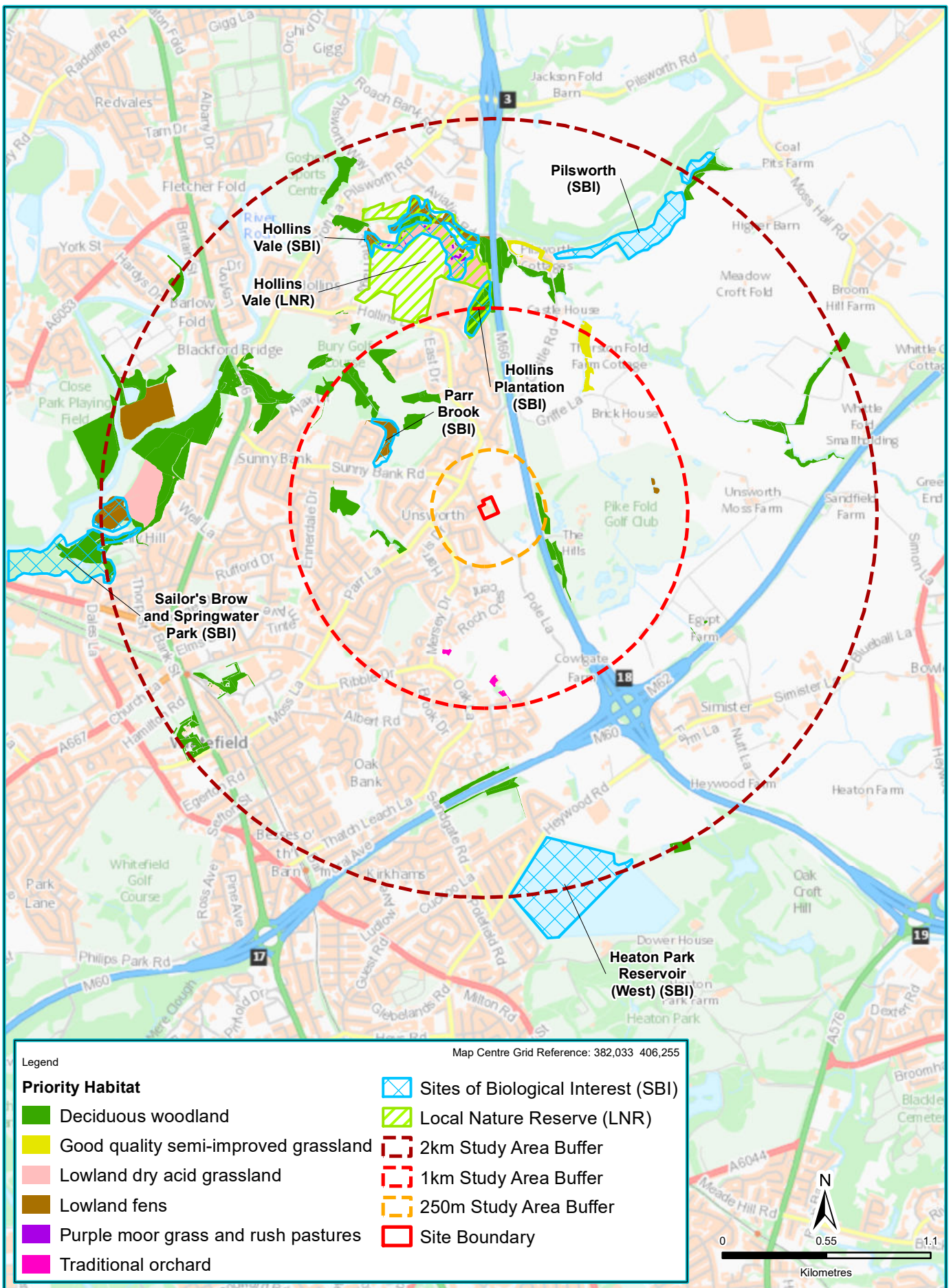
- Vegetation clearance in habitats suitable for birds, scrub h3-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1 should be carried out outside of the bird breeding season.
- Any vegetation clearance required in habitats suitable for western European hedgehog (*Erinaceus europaeus*), comprising mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, it should be undertaken in the active period for hedgehogs (i.e. between the months of September and October when also taking the bird breeding season into account).
- Any vegetation clearance required in habitats suitable for small mammals, comprising h3-1, h3f-1, and w1f7-1, should be performed under the above Precautionary Method of Works.
- Any vegetation clearance required in habitats suitable for common amphibians, comprising mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, should be fingertip searched by an ecologist to determine if any common amphibians, such as toads, are present, and move them to a safe suitable habitat, before the habitats are cleared.
- The invasive species found on site, Himalayan balsam and grey squirrel, should be controlled on site following Environment Agency Guidelines (Natural England *et al.*, 2014).
- Offsite emissions of drainage and dust will be controlled by following pollution prevention guidelines.
- To achieve BNG on site, mixed scrub, hawthorn scrub, modified grassland, and a small area of broadleaved woodland should be created to replace areas of lost habitat. In addition, the condition of an area of existing woodland (0.085ha) should be enhanced from moderate to good. These measures will achieve 2.69 habitat units, equating to 11.32% BNG.
- It is recommended that a Landscape and Ecological Management Plan (LEMP) is created. This will cover 30 years of maintenance, including detailed information on how to create the above habitats, the key objectives and targets for each habitat type, and the management, maintenance and monitoring required to achieve the target conditions.

- 1.2.2** The following further surveys are recommended for the development to comply with relevant biodiversity legislation and policy:

- Complete further bat roost assessment surveys of buildings B1 and B2 and Trees T1 and T2.

- If vegetation clearance is required then Habitat Suitability Index surveys for GCN should be carried out for each of the eight waterbodies found during the desk study.
- If vegetation clearance is required in habitats suitable for reptiles comprising mixed scrub h3h-1, hawthorn scrub h3f-1, modified grassland g4-(1-3) and other lowland mixed deciduous woodland w1f7-1, then further reptile surveys are recommended.

1.2.3 The outcomes of these surveys may result in the requirement for further surveys and/or additional mitigation measures to be completed.

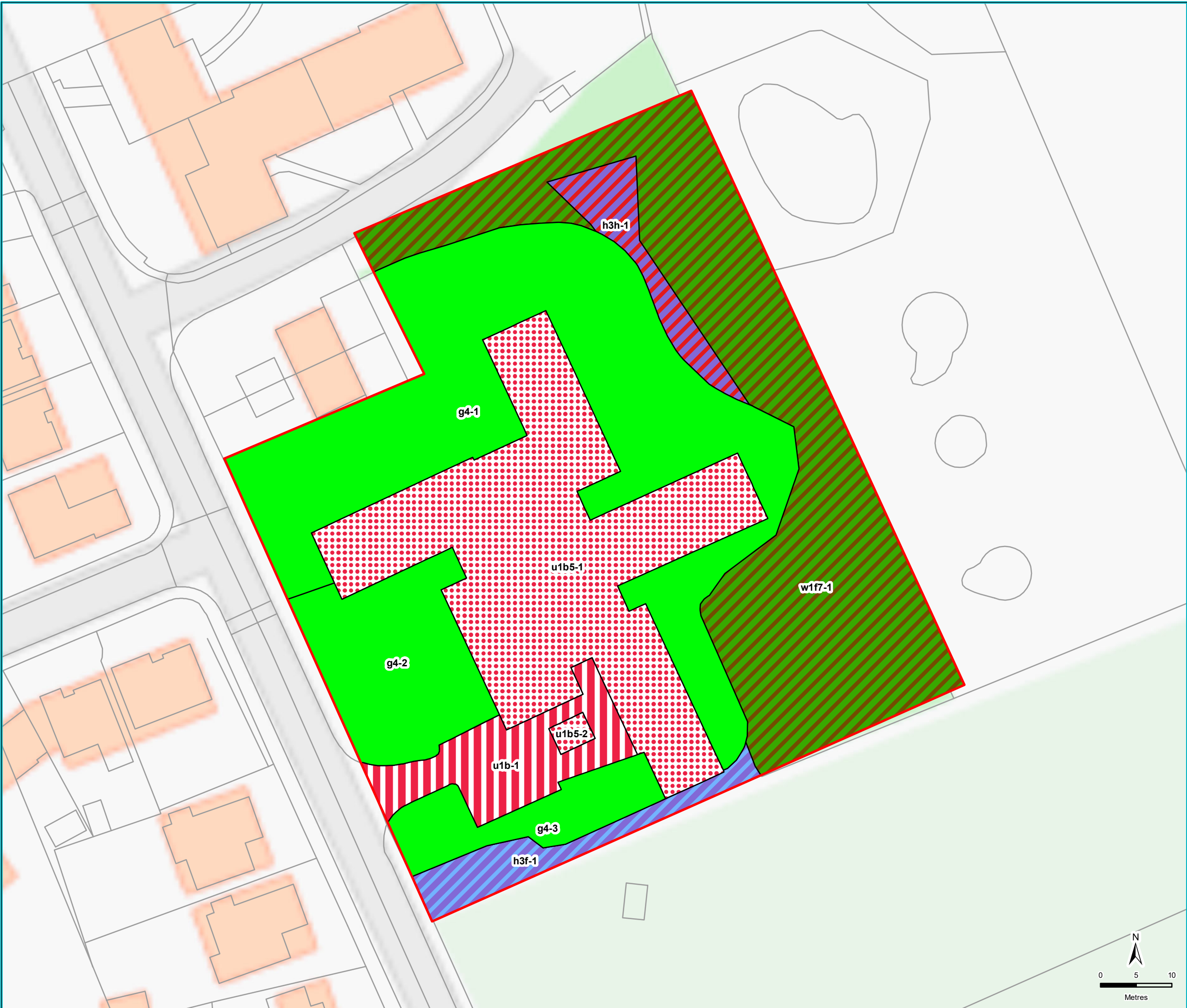


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Figure Number	1	Scale at A4	1:27,500		
Figure Title	Site Location, Study Area and Desk Study Results	Drawn	SC	Checked AS	
		Date	16/09/2022	Date 16/09/2022	

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Legend

-  g4 - Modified Grassland
-  h3h - Mixed Scrub
-  h3f - Hawthorn Scrub
-  u1b - Developed Land, Sealed Surface
-  u1b5 - Buildings
-  w1f7 - Other Lowland Mixed Deciduous Woodland
-  Site Boundary

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Date 12/01/2023	Date 12/01/2023
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Client
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Figure Number
2

Figure Title
UK Habitat
Classification
Survey Results



Photograph 1:
Parcel of g4-1, modified grassland



Photograph 2:
Parcel of g4-2, modified grassland



Photograph 3:
Parcel of g4-3, modified grassland



Photograph 4:
Parcel of h3h-1, mixed scrub



Photograph 5:
Parcel of h3f-1, hawthorn scrub



Photograph 6: Parcel of u1b-1, developed land, sealed surface



Photograph 7: Western view of u1b5-1, buildings



Photograph 8: Eastern side of u1b5-1, buildings

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Figure Number	Figure 3	Drawn	WD	Checked FA	
Figure Title	Photographs of the Site and Target Notes	Date	10/08/2022		



Photograph 9: Picture of u1b5-12, building



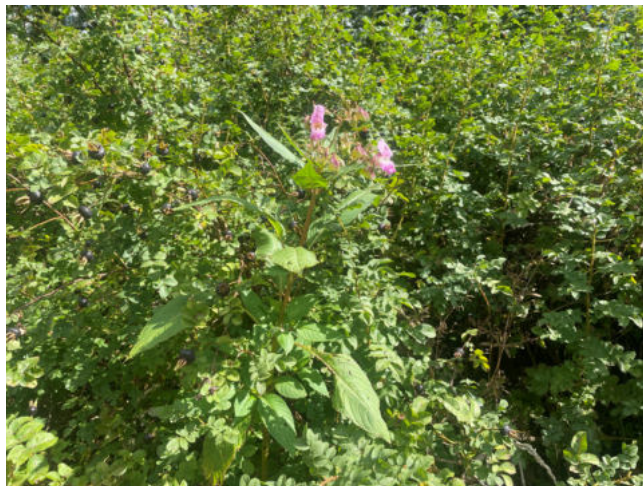
Photograph 10: Parcel of w1f7-1 other lowland mixed deciduous woodland (photo 1)



Photograph 11: Parcel of w1f7-1 other lowland mixed deciduous woodland (photo 2)



Photograph 12:
Target note 1; Mammal track in habitat h3h-1



Photograph 13:
Target note 2; Himalayan balsam in habitat h3h-1



Photograph 14:
Target note 3; Himalayan balsam in habitat w1f7-1

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Figure Number	Figure 3	Drawn WD	Checked FA	
Figure Title	Photographs of the Site	Date 10/08/2022		

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Legend

Potential Roost Feature

- Hole in fascia
- Lifted/raised felt
- Broken ridge tile
- Broken cladding
- Damaged ventilation feature

Overall Potential (of Tree) to Support Roosting Bats

- Moderate

Overall Potential (whole building) to Support Roosting Bats

- Moderate
- Low
- Site Boundary

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Date 16/09/2022	Date 16/09/2022

Client
Gardiner and Theobald LLP

Figure Number
4

Figure Title
Bat Preliminary Roost
Assessment Results



Photograph 1:
PRF 1;



Photograph 2:
PRF 2;



Photograph 3:
PRF 3;



Photograph 4:
PRF 4;



Photograph 5:
PRF 5;



Photograph 6:
PRF 6;

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Figure Number	Figure 5	Drawn	WD	Checked FA	
Figure Title	External Potential Roost Features (PRFs) on Building 1.	Date	10/08/2022		



Photograph 7:
PRF 7:



Photograph 8:
PRF 8:



Photograph 9:
PRF 9;



Photograph 10:
PRF 10;



Photograph 11:
PRF 11;



Photograph 12:
PRF 12;

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Figure Number	Figure 5	Drawn	WD	Checked	FA	
Figure Title	Photographs of external Potential Roost Features (PRFs) on Building 1.		Date	10/08/2022		

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Photograph 13:
PRF 13;



Photograph 14:
PRF 14;



Photograph 15:
PRF 15;



Photograph 16:
PRF 16;



Photograph 17:
PRF 17;

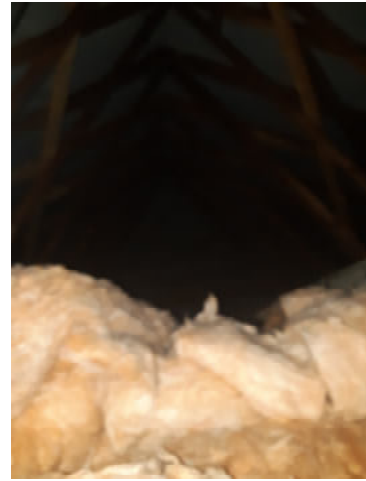


Photograph 18:
PRF 18;

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Figure Number	Figure 5	Drawn	WD	Checked	FA	
Figure Title	Photographs of external Potential Roost Features (PRFs) on Building 1.		Date			
			10/08/2022			



Photograph 1:
Loft void in the Northern wing of building 1.



Photograph 2:
Loft void in the Northern wing of building 1.



Photograph 3:
Loft void in the Northern wing of building 1.



Photograph 4:
Loft void in the Eastern wing of building 1.



Photograph 5:
Loft void in the Eastern wing of building 1.



Photograph 6:
Loft void in the Eastern wing of building 1.

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Figure Number	Figure 6	Drawn WD	Checked FA	
Figure Title	Internal Photographs of Building 1	Date 10/08/2022		



Photograph 7:
Loft void in the Southern wing of building 1.



Photograph 8:
Loft void in the Southern wing of building 1.



Photograph 9:
Loft void in the Southern wing of building 1.



Photograph 10:
Loft void in the Western wing of building 1.



Photograph 11:
Loft void in the Western wing of building 1.



Photograph 12:
Central courtyard of building 1 (only visible from the interior of building).

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Figure Number	Figure 6	Drawn WD	Checked FA	
Figure Title	Photographs of the loft voids and interior of building 1, taken during the internal Preliminary Roost Assessment.	Date 10/08/2022		



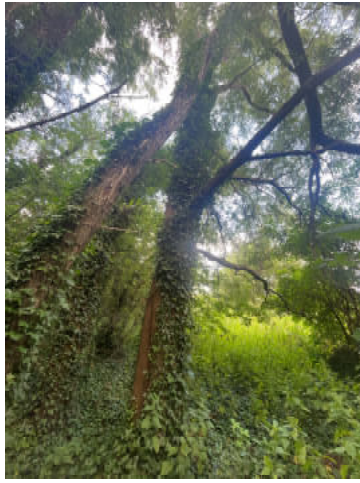
Photograph 1:
Building 2; small garage adjacent to main building (building 1).



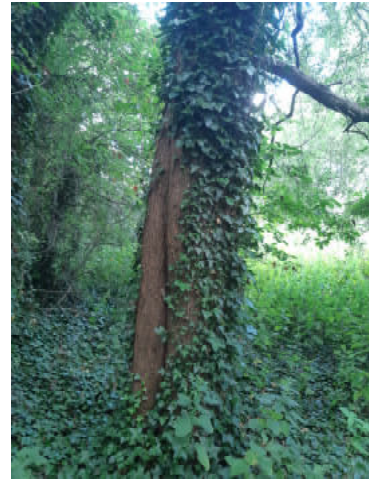
Photograph 2:
PRF 1;

Client	Gardiner and Theobald LLP		Drawing Ref	GAR001/001/001/1	
Figure Number	Figure 7		Drawn	WD	Checked FA
Figure Title	External Potential Roost Features (PRFs) on Building 2.		Date	10/08/2022	

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Photograph 1:
Tree 1; a crack-willow (*Salix fragilis*) within habitat w1f7.



Photograph 2:
PRF 1 of tree 1; a large split running vertically up the length of the trunk.



Photograph 3:
A closer view of PRF 1 on tree 1.



Photograph 4:
Tree 2, a crack-willow (*Salix fragilis*) within habitat w1f7.



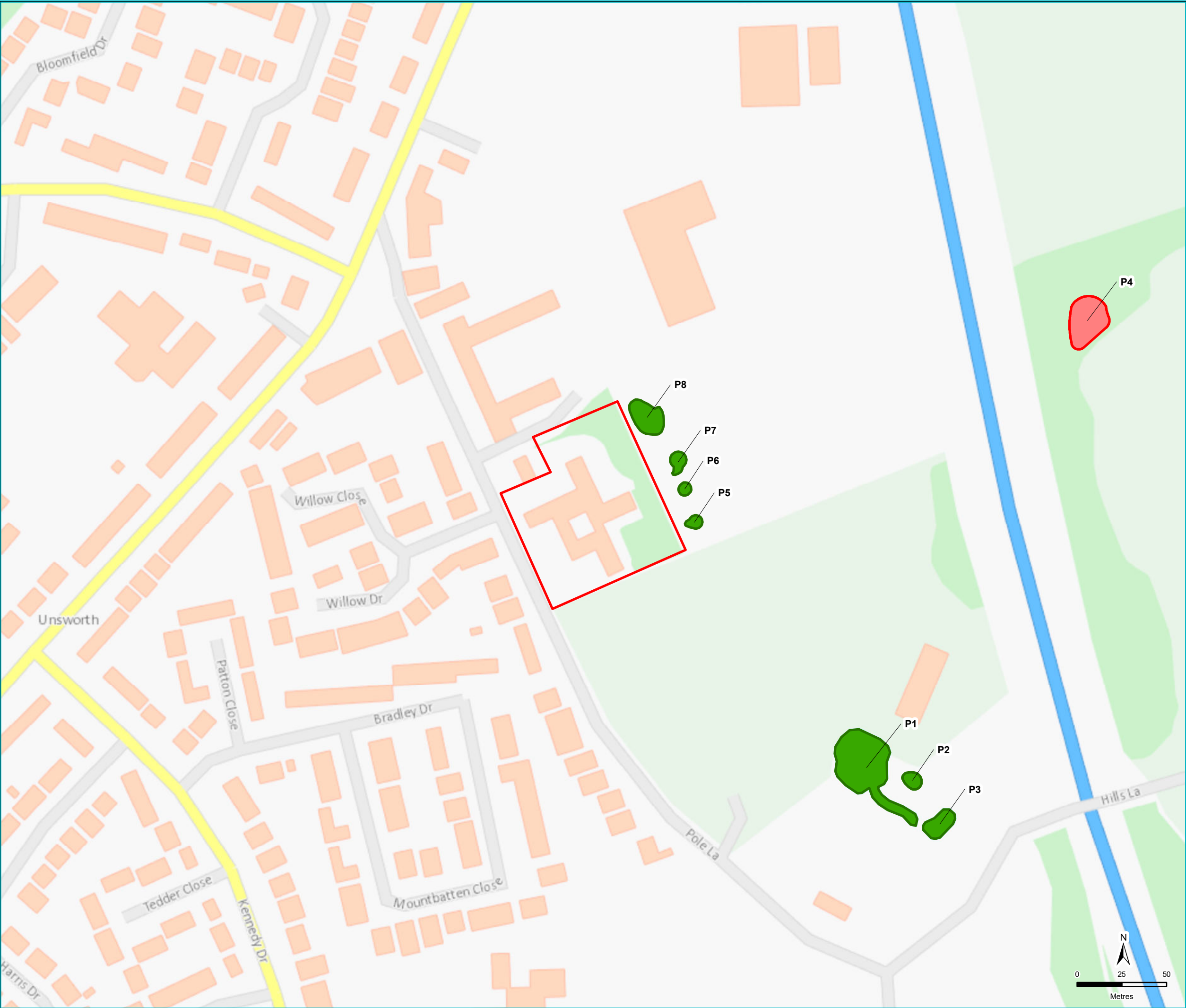
Photograph 5:
PRF 1 of tree 2; a large split running vertically up one of the stems; may lead to cavity.



Photograph 6:
PRF 2 of tree 2; a relatively small split at the top of the trunk; may lead to cavity.

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Figure Number	Figure 8	Drawn	WD	Checked	FA	
Figure Title	Trees with Bat Roost Potential	Date				

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- Legend
- Pond Location**
- Scoped in - further survey required
 - Scoped out - Motorway is a major barrier
 - Site Boundary

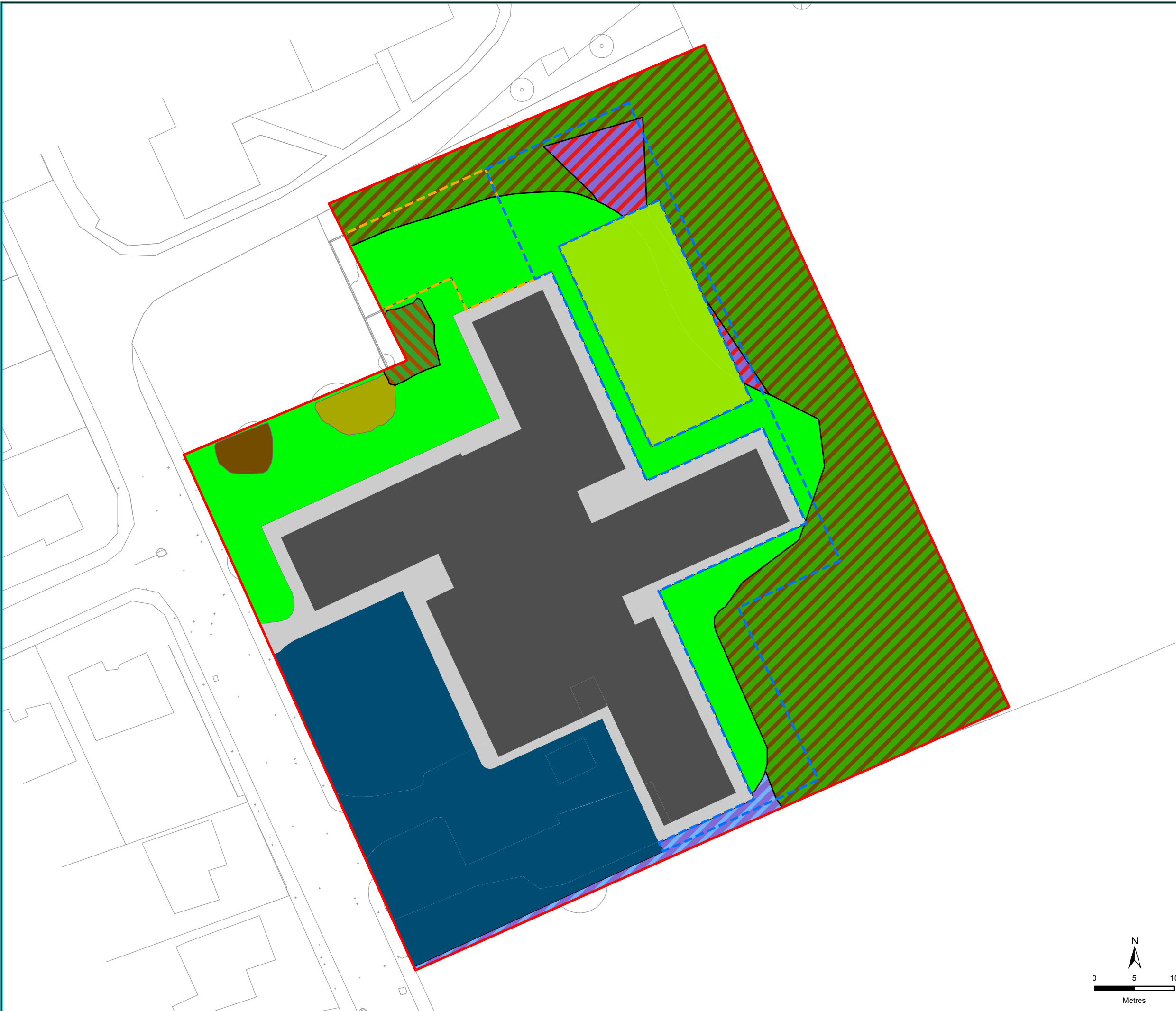
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Gardiner and Theobald LLP			
Figure Number		9	
Figure Title			

GCN Waterbodies

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- Legend
- Fenced Area (Modified Grassland)
 - Fenced Area 1 (Modified Grassland)
 - w1g – Other Broadleaved Woodland - Created
 - h3f – Hawthorn Scrub - Created
 - h3a – Blackthorn Scrub - Created
 - g4 – Modified Grassland
 - Building (Developed Land, Sealed Surface)
 - Pavement (Developed Land, Sealed Surface)
 - Car Park (Developed Land, Sealed Surface)
 - MUGA Pitch (Developed Land, Sealed Surface)
 - h3h - Mixed Scrub
 - h3f - Hawthorn Scrub
 - w1f7 - Other Lowland Mixed Deciduous Woodland
 - Site Boundary

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Client	
Gardiner and Teobald LLP	
Figure Number	
10	
Figure Title	

Post Development Plan

2. Introduction

2.1 Development Background

- 2.1.1** Gardiner and Theobald LLP, on behalf of Bury Council, proposes the refurbishment and minor redevelopment of Spurr House, a large former care home near Bury, Greater Manchester. The proposed development will create a school within the existing building, with a newly created multi-use sports pitch in the south of the site.
- 2.1.2** The proposals described above are hereafter referred to collectively as the development.
- 2.1.3** The development will be located on a 0.6ha area of land previously used as a care home and associated gardens (Grid Reference SD 82103 06996), adjacent to Pole Lane, Unsworth, Bury, BL9 8QB, see Figure 1. The area affected by the development is hereafter referred to as the site.

2.2 The Brief and Objectives

- 2.2.1** Gardiner and Theobald LLP commissioned Thomson Environmental Consultants on August 2nd, 2022, to undertake a Preliminary Ecological Appraisal (PEA) and a Preliminary Roost Assessment (PRA) of buildings and trees within the development site. The brief was to:
- carry out an ecological desk study to obtain records of designated sites and protected species held by third parties;
 - undertake an extended UK Habitat Classification system survey of the site, recording the main habitats present on site;
 - undertake PRAs of any buildings and trees with suitability for bats, internally where possible;
 - assess the potential of the site to support protected species or species of conservation concern¹;
 - provide a combined report giving the methods and results of the survey, discussion of the legal and planning policy issues and our recommendations, including opportunities for biodiversity enhancement; and
 - provide a digitised map of the survey results.
- 2.2.2** Gardiner and Theobald LLP commissioned Thomson Environmental Consultants on 28th November 2022 to complete post development Biodiversity Net Gain calculations for the site.

2.3 Limitations

- 2.3.1** The species data collated during the desk study is mainly derived from records submitted by members of the public and *ad hoc* surveys undertaken by volunteers. Therefore, it should not be taken as a definitive list of the protected species and other species of conservation concern that occur in the local area.

¹ Species of conservation concern are species identified on published lists as being rare, vulnerable or declining.

2.3.2 Some areas of the loft void were inaccessible to the surveyors undertaking the internal PRA, so the assessments were made from the loft entry points.

2.3.3 This report is based on the development boundary and layout shown on the site plan (drawing number SK-026). Subsequent changes to either may result in a requirement to reassess the potential impacts of the development and the requirements for avoidance, mitigation and enhancement.

2.4 Surveyors

2.4.1 The survey lead was Marcus Hogg BSc (Hons) MSc, and Level 1 Bat licence holder (2022-10305-CL17-BAT). The survey assistant was William Dearden BSc (Hons) MSc.

3. Methodology

3.1 Desk Study

- 3.1.1** A study area was defined as an area that encompassed the site and all land within 2km of the perimeter of the site, see Figure 1. Records of designated sites and important species were then sought for the study area.
- 3.1.2** Sources of information were as follows:
- The Multi-Agency Geographical Information for the Countryside (MAGIC)
 - Greater Manchester Local Records Centre (GMLRC)
- 3.1.3** Records of designated sites were sought for the full study area, whereas records for species were sought for part of the study area encompassing the site and within 1km of the perimeter of the site.
- 3.1.4** To ensure records are relevant for this site, records that are older than 10 years were excluded from the desk study.
- 3.1.5** Requests for information were to the Biological Record Centre sent on 10/08/2022 with responses received by 19/08/2022.
- 3.1.6** A search for waterbodies was conducted using aerial imagery, to identify any waterbodies within 250m of the site boundary.

3.2 Habitat Survey

- 3.2.1** A survey area was defined as an area that encompassed all of the land within the site boundary. The survey area is shown on Figure 1 and Figure 2.
- 3.2.2** A survey using the UK Habitat Classification system (UKHab) (Butcher et al., 2020) was conducted throughout the survey area. This is a nationally recognised habitat classification system that is compatible with the DEFRA Biodiversity Metric for calculating biodiversity net gain values (Panks et al., 2022).
- 3.2.3** The UKHab has five hierarchical levels and includes the identification of priority habitats (Habitats of Principal Importance listed under the Natural Environment and Rural Communities Act 2006) and Annex I habitats as listed under the European Habitats Directive. The five levels are:
- Level 1 - Biomes/major ecosystems (terrestrial, freshwater and coastal).
 - Level 2 - Ecosystem types (i.e. woodland, grassland, heathland and scrub)
 - Level 3 - Broad Habitats, based on those of the UK Biodiversity Action Plan (UKBAP).
 - Level 4 - Habitats, including 47 priority habitats.
 - Level 5 - Habitats, including Annex 1 habitats.
- 3.2.4** In addition, non-hierarchical secondary codes were used to provide supplementary information. These included mandatory codes for habitat mosaics/complexes, priority and Annex 1 habitats

that occur in multiple primary habitats and habitat origins (codes 10 - 41), plus any additional relevant secondary codes.

3.2.5 Prior to the survey, the potential habitats on the site were mapped using aerial imagery and government datasets (such as <http://www.magic.gov.uk/>) to the highest level of UKHab classification possible, which in most cases was either level 3 or 4.

3.2.6 During the field survey, the habitat map was ground-truthed, with all habitats mapped to the highest level possible.

3.2.7 Table 1 below shows the meta-data used for this survey.

Table 1: Survey meta-data

Scope and purpose of the survey	Preliminary Ecological Appraisal (PEA)
Area surveyed	See Figure 2
Edition of UKHab used	UKHab-Professional
Minimum Mapping Unit (MMU)	25m ² for areas, 5m for linear features
Level of UKHab Primary Hierarchy used	Level 5, where possible.
List of Secondary Code groups recorded	All secondary codes
Additional attributes recorded	Habitat condition assessment.
Date of survey	08/08/2022
Organisation and individual undertaking the survey	Thomson Environmental Consultants. Marcus Hogg: Lead William Dearden: Assistant

3.2.8 The dominant and readily identified species of higher plant species from each habitat type within the survey area were recorded and their abundance was assessed on the DAFOR scale:

- D Dominant
- A Abundant
- F Frequent
- O Occasional
- R Rare

3.2.9 These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2019).

- 3.2.10** Target notes were made for any features which were too small to map or are of particular ecological interest.
- 3.2.11** Results and discussion of features with potential to shelter roosting bats are exclusively detailed under the Preliminary Roost Assessment (PRA) part of this report (see Sections 3.3, 4.4).
- 3.2.12** Incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support protected species and other species of conservation concern, including priority species. However, no specific faunal surveys were undertaken.
- 3.2.13** Further details on the methodology are set out in Appendix 1.

Condition Weighting

- 3.2.14** To enable the calculation of biodiversity units, an assessment of the condition of each habitat was made in accordance with The Biodiversity Metric 3.1 - habitat condition assessment sheets (Panks et al., 2022). These sheets provide a series of condition assessment criteria, specific to each habitat type. A condition score of 'good' is awarded to a habitat that passes the majority of the criteria (the number of which varies between habitat types). A condition score of 'moderate' is awarded to habitats that pass just over half of the criteria and 'poor' to habitats that pass just under half or less. A habitat parcel comprising areas of differing condition should have those areas assessed separately to one another.
- 3.2.15** Once all applicable criteria have been assessed, assign a result of Good, Moderate or Poor based on the scoring instructions provided within the condition sheets. An interim score of Fairly Poor or Fairly Good should only be used in exceptional circumstances where a habitat does not fit the standard outcome of Good, Moderate or Poor.

3.3 Preliminary Roost Assessment

- 3.3.1** As per Section 3.1 a desk study was undertaken which included obtaining records of bats and records of sites designated for bats for the development site and the surrounding area.
- 3.3.2** The survey area is defined as the area within the site boundary.
- 3.3.3** Within the survey area, a Preliminary Roost Assessment (PRA) of two buildings B1 and B2 and of two trees T1 and T2, identified during the PEA was completed. This included an assessment of the individual Potential Roost Features (PRFs) on the exterior and interior loft space of building B1 and the exterior only of B2 or observable from ground level in the trees; a potential of each whole feature to support a bat roost and a search for evidence of bats.

Evidence for Roosting Bats

- 3.3.4** Evidence of roosting bats searched for included:
- Bat droppings, feeding remains and corpses (with notes made on quantity, freshness and type);
 - Dark staining below an access point that may be caused by bat faeces or urine;
 - Staining around a hole that may be caused by the natural oils in bat fur; and

- Noises made by bats.

3.3.5 Any evidence of bats found was recorded together with a note on the location. If any bat droppings were found, their location, spread, approximate number and age were recorded on a GPS enabled mobile mapper or paper form. If necessary for identification, a sample of droppings was collected and retained for later DNA analysis.

Preliminary Roost Assessments of Buildings

3.3.6 Where possible to determine, the following information was recorded for each building present within the survey area:

- Type (house, flats, offices, barn, church, etc.);
- Presence of roof void;
- Year built (1960 - present, 1914 - 1960, before-1914 or unknown);
- Aspect (orientation of the front of the building using the 8 principal compass points);
- Wall material (brick, block, stone, wood, concrete, metal, sheet materials or other), construction (solid, unfilled cavity or filled cavity) and presence of other materials (rendering, hanging tiles, wooden weather boards, plastic or metal cladding) and their condition;
- Presence and form of roof (absent, pitched (gable end or hipped) or flat), presence of roof void, type of roof covering (tiles, slates, felt or similar, thatched, corrugated sheet GRP, concrete or wood) and condition of roof covering (no, minor, moderate or severe damage/decay/gaps);
- Presence and form of eaves (presence of soffits, fascia boards, barge boards) and condition (no, minor, moderate or severe damage/decay/gaps); and
- Presence and condition of flashing (no, minor, moderate or severe damage/decay/gaps).

3.3.7 The buildings were then searched for PRFs and evidence of bats. The search was made from the ground with the aid of binoculars and a high-powered torch. PRFs looked for included:

- Presence of loft voids and wall cavities;
- Gaps around windows, doors and lintels;
- Lifted lead flashing;
- Loose or missing roof, ridge or hanging tiles;
- Gaps between stones or bricks where mortar is absent;
- Other gaps or cracks between various elements of the building structure; and
- Potential access points to an internal cavity such as a cavity wall, loft space, eaves or behind cladding (such as hanging tiles and weather boarding).

3.3.8 The search for bats and evidence of bats focused on the following key areas:

- The ground and walls below potential access points and wall cladding;

- Window recesses, especially window sills; and
- Accessible cracks and crevices.

3.3.9 The location of the PRFs and any evidence found were recorded using photographs and diagrams of the building or structure.

Preliminary Roost Assessment of Trees

3.3.10 A detailed and systematic inspection of the exterior of the tree was undertaken to look for PRFs that could be used by bats. Close-focussing binoculars and a high-powered torch were used to undertake the assessment. PRFs searched for included:

- Natural crevices and holes;
- Woodpecker and rot holes;
- Loose bark, splits and cracks;
- Bird and bat boxes; and
- Presence or absence of dense ivy or dense epicormic growth.

3.3.11 The search for bats and evidence of bats focused on these PRFs and the surfaces and ground beneath them. Information collected on the tree included: species, tree age, tree condition, diameter at breast height and tree height, plus a photograph of each tree and its location.

3.3.12 Details recorded regarding the PRF included a description of the PRF, height of the PRF above the ground, position and aspect.

3.3.13 The location of each tree with a PRF was recorded on a map of the site and photographed.

Contextual Information

3.3.14 For each structure and tree with a PRF, contextual information was also recorded to aid the assessment. This was distance to hedge, distance to woodland, distance to water, potential commuting corridors, potential foraging corridors, setting, surrounding area habitat quality and the level of disturbance.

Categorisation of Results

3.3.15 After each survey type, each building, structure, tree or underground space was assigned a level of potential to support a bat roost and the type of bat roost was identified as per Table 2, with the additional category of 'Confirmed Roost'. Where multiple surveys were undertaken on a structure, tree or PRF, the level of potential was refined at each stage based on the additional information collected. Roost types were defined as set out in Table 3.

Table 2: Habitat Suitability for Roosting Bats

Suitability for a Significant Roost	Examples for Structures	Examples for Trees
Negligible	Absence of PRFs or with PRFs of any quality but located in an environment which is not suitable for bats i.e. there is an absence of commuting and foraging habitat.	As structures.
Low	Structures which are located near only low or negligible suitability commuting and foraging habitat, or that are exposed to high levels of lighting and disturbance, and which contain one or more PRFs (of any quality). Structures which are located near moderate or high suitability commuting and foraging habitat, generally built post-1960 using modern construction methods and with one or more PRFs, all of which are shallow, small or exposed.	Trees which are located near only low or negligible suitability commuting and foraging habitat, or that are exposed to high levels of lighting and disturbance, and which contain one or more PRFs (of any quality). Trees which are located near moderate or high suitability commuting and foraging habitat and that are either (i) a mature or veteran tree with no visible PRFs but which may contain PRFs in parts of the tree not visible from the ground;(ii) a tree with one or more PRFs, all of which are shallow, small or exposed; or (iii) ivy covered and without additional PRFs.
Moderate	Structures generally built before 1960 which are not subject to high levels of lighting and disturbance, and which are either (i) located near only moderate suitability commuting and foraging habitat, and which contain multiple, sheltered PRFs of a type and size capable of supporting multiple bats; or (ii) located near moderate or high suitability commuting and foraging habitat and which contain one or more PRFs which are sheltered but not sufficiently large to support a maternity or hibernation roost.	Mature and veteran trees not subject to high levels of lighting and disturbance, and which are either (i) located near only moderate suitability commuting and foraging habitat, and which contain multiple, sheltered PRFs of a type and size capable of supporting multiple bats; or (ii) located near moderate or high suitability commuting and foraging habitat and which contain one or more PRFs which are sheltered but not sufficiently large to support a maternity or hibernation roost.
High	Structures which are located near high suitability commuting and foraging habitat, not subject to high levels of lighting and disturbance, generally built before 1914 and of traditional construction, and which contain multiple or large and sheltered PRFs that could support a maternity or hibernation roost.	Veteran trees which are located near high suitability commuting and foraging habitat, not subject to high levels of lighting and disturbance, and which contain multiple or large and sheltered PRFs that could support a maternity or hibernation roost.

Table 3: Roost type definitions

Roost Type	Definition
Transitional	Day roosts: Where bats shelter as individuals or small groups of males but are rarely found at night Night roosts: Where bats shelter at night by individuals or a whole colony, rarely used in the day Feeding roost: Used by individuals or small groups for feeding, rarely used during the day Occasional roost: Used by a few individuals or small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation Satellite roost: An alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.
Maternity roost	Mainly dominated by females where they give birth to young and raise these. Maternity roost characteristic preferences differs between species, however warm conditions are generally favoured.
Hibernation roost	Where bats are found individually or in groups during winter. These needs to have cool temperature and high humidity.

- 3.3.1** The buildings and trees were classified according to the highest suitability PRF identified during the inspections.

3.4 Biodiversity Metrics

Condition Assessment

- 3.4.1** To enable the calculation of biodiversity units with the DEFRA Biodiversity Metric, an assessment of the condition of each habitat and linear feature was made in accordance with The Biodiversity Metric 3.1: Auditing and accounting for biodiversity - User Guide. Natural England (Panks *et al*, 2022), using the appropriate condition assessment sheets.
- 3.4.2** Certain habitats are allocated a fixed score and do not need their condition assessed, including u1b Developed land; sealed surface and u1e Built linear features.

Baseline Biodiversity Units

- 3.4.3** The following calculations were carried out using the Biodiversity Metric 3.1 (Panks et al., 2022), which quantifies losses and gains in biodiversity in terms of biodiversity units. It can be used to calculate the biodiversity value of the site as it currently stands by multiplying the area (hectares) or length (km) by the distinctiveness (habitat type), condition (quality) and strategic significance (local significance for biodiversity) of each habitat parcel.

Habitats

- 3.4.4** Habitat distinctiveness and condition are given numerical 'scores' which are multiplied together with the area (hectares) of habitat. The formula for calculating baseline habitat biodiversity units is as follows (A = Area (ha), D = Distinctiveness, Q = Condition, S = Strategic Significance, AHBU = Area Habitat Biodiversity Units):

$$(A \times D \times Q \times S) = AHBU$$

Linear Features (hedgerows, lines of trees)

- 3.4.5** The calculation for linear features such as hedgerows and lines of trees, is similar to the habitats as explained in 3.3.6, however the length (km) of the habitat rather than the area is considered. The formula for calculation of hedgerow biodiversity units (HBU), where L = length is:

$$(L \times D \times Q \times S) = HBU$$

Linear Features (rivers and streams)

- 3.4.6** The calculation for linear water features such as rivers and streams, includes the same features as for the hedgerow calculations, but also includes measures which reflect the amount of encroachment in the riparian zone and the watercourse. River biodiversity units (RBU) are calculated as follows, where We=Watercourse Encroachment, and Re = Riparian Encroachment

$$(L \times D \times Q \times S) \times Re \times Rw = RBU$$

Distinctiveness

- 3.4.7** Habitats such as hard standing and buildings are assumed to have very low distinctiveness and are therefore not included. Distinctiveness has also been reduced for habitats which are either very small or created primarily for recreation/sport rather than biodiversity.
- 3.4.8** Each habitat parcel is assigned a multiplier based on the distinctiveness, as shown in Table 4. As a first step the area of the habitat parcel is multiplied by the habitat distinctiveness multiplier.

Table 4: Habitat distinctiveness scores

Habitat Distinctiveness		
Category	Multiplier	Definition
Very High	8	Priority Habitat as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action.
High	6	Priority Habitat as defined in Section 41 of the NERC Act requiring conservation action.
Medium	4	Semi-natural habitats not classified as a Priority Habitat.
Low	2	Habitat of low biodiversity value.
Very Low	0	Little or no biodiversity value e.g. hard standing.

Condition

3.4.9 To enable the calculation of biodiversity units, an assessment of the condition of each habitat was made in accordance with The Biodiversity Metric 3.1 - habitat condition assessment sheets (Panks et al., 2022).

3.4.10 Habitat condition was assessed in the field and a multiplier applied, as shown in Table 5.

Table 5: Habitat condition weighting

Habitat Condition Multipliers	
Good	3
Fairly Good	2.5
Moderate	2
Fairly Poor	1.5
Poor	1
N/A – Agriculture	1
N/A – Other	0

Strategic Significance

3.4.11 The location of habitat parcels is factored into the calculation based on whether the location has been identified locally as significant for nature conservation, as shown in Table 6.

Table 6: Strategic significance multipliers

Strategic Significance Multipliers		
High strategic significance	Within area formally identified in local strategy	1.15
Medium strategic significance	Location ecologically desirable but not in local strategy	1.1
Low Strategic Significance	Area/compensation not in local strategy/ no local strategy	1

- 3.4.12** Following the field survey, the data was used to carry out a Biodiversity Metric calculation using an online tool published by Natural England:
<http://publications.naturalengland.org.uk/publication/6049804846366720>

Biodiversity Net Gain

- 3.4.13** The Biodiversity Metric 3.1 provides a method to quantify the value of the habitats by calculating a standardised 'biodiversity unit'. Assessing the biodiversity unit value of a site before and after development can allow the scale of an impact or enhancement on the habitats on the site to be made. There are two formulae used to calculate the biodiversity units which may be achieved post development on-site:

- For habitat creation, risk multipliers are introduced to account for difficulty of habitat creation (delivery risk); and time for created habitats to reach target condition (temporal risk).
- For habitat enhancement, the difference in the baseline and post-development biodiversity units are calculated, incorporating delivery and temporal risk, and this value is added to the baseline units of the area.

- 3.4.14** If habitat creation or enhancement is required off site, then a further spatial risk is also included within the metric calculation.

- 3.4.15** The metric involves the following steps:

1. Calculate the baseline number of biodiversity units at the proposed development site (Baseline Biodiversity Units).
2. Calculate the anticipated future number of biodiversity units on the proposed development site (Post Development Biodiversity Units) using the multipliers provided by Natural England (Panks *et al.*, 2022).
3. Subtract the number of baseline units from the future number of biodiversity units to get the number of biodiversity units created as follows:

$$\begin{aligned} &\text{Post Development Biodiversity Units} - \text{Baseline Biodiversity Units} \\ &= \text{Biodiversity Units Created} \end{aligned}$$

If this number is positive, the development has achieved biodiversity net gain. If the number is negative, there is a loss.

4. Results

4.1 Background

- 4.1.1 The contents of the results section are the factual results of the desk study, extended UKHab survey and PRA surveys. Excluded from this section is the assessment of the site to support species of conservation concern not recorded during the survey. Instead, potential further ecological issues are discussed in Section 6.

4.2 Desk Study

- 4.2.1 Responses were received from Greater Manchester Local Record Centre (GMLRC) on 19th August 2022.

Designated Sites

- 4.2.2 Records were returned for seven designated sites, comprising one Local Nature Reserve (LNR) and six Sites of Biological Interest (SBIs). Location and distribution of designated sites can be found in Figure 1, and full details of the designated sites can be found in Table 7.

Table 7: Designated sites

Site Designation	Grid Reference	Area (ha)	Distance to site (km)	Description
County and Local Sites (SINCs, LNRs, etc)				
Parr Brook SBI	SD815074	1.20	0.5	A complex site that supports a mosaic of habitats on the steep slopes above Parr Brook. Habitats present include acid grassland, flush and scrub. The invasive Himalayan balsam (<i>Impatiens glandulifera</i>) is also abundant. Several species of bird and butterfly are recorded within this site. Assigned an importance of Grade C SBI covered by Policy EN6/2 as described in Section 5.2.1.
Hollins Vale LNR, Hollins Vale SBI,	SD 82034 08051	26.73	0.9	Hollins Vale is a farmland reserve with areas of woodland and wetland adding to its wildlife

Site Designation	Grid Reference	Area (ha)	Distance to site (km)	Description
and Hollins Plantation SBI				diversity. It supports high numbers of butterflies and bird species. Hollins Vale SBI and Hollins Plantation SBI are found with Hollins Vale LNR. Hollins Vale SBI is assigned an importance of Grade B and Hollins Plantation SBI of Grade C as covered by Policy EN6/2 as described in Section 5.2.1.
Pilsworth SBI	SD798067	6.90	1.3	An area of public open space supporting a mosaic of habitats including woodland, scrub, acid grassland - heath matrix and wetland habitats. The invasive rhododendron (<i>Rhododendron ponticum</i>) and Japanese knotweed (<i>Reynoutria japonica</i>) are present. Several priority species are present, including various bird and amphibian species. Assigned an importance of Grade B SBI covered by Policy EN6/2 as described in Section 5.2.1.
Heaton Park Reservoir (West) SBI	SD825050	17.80	1.7	A large concrete-lined reservoir, which is relatively free from disturbance. The site is designated primarily for its bird interest. The site is important for wintering wildfowl, comprising goldeneye (<i>Bucephala clangula</i>), goosander (<i>Mergus merganser</i>) and various other species. Assigned an importance of Grade A SBI covered by Policy EN6/2 as described in Section 5.2.1.
Sailor's Brow and Springwater Park SBI	SD798067	16.20	1.8	An area of public open space supporting a mosaic of habitats including woodland, scrub, acid grassland - heath matrix and wetland habitats. The invasive Japanese knotweed and Himalayan balsam also occur.

Site Designation	Grid Reference	Area (ha)	Distance to site (km)	Description
				Ponds on site contain several species of invertebrate and amphibian, with the site also supporting several bird species. Assigned an importance of Grade C SBI covered by Policy EN6/2 as described in Section 5.2.1.

Ancient Woodland outside designated sites

- 4.2.3** No ancient woodlands were found within the site or within 2km of the site perimeter during the desk study.

Priority Habitats

- 4.2.4** The desk study identified six types of priority habitat within 2km of the site boundary. Locations and distributions are displayed in Figure 1. The nearest parcel of priority habitat is a parcel of deciduous woodland, approximately 0.69ha in area, located 0.21km from the site (Grid Reference SD8239406962). Full details of priority habitats identified can be found in Table 5.

Table 8: Priority habitats within 2km

Priority Habitat Type	Number of Parcels	Total Area (ha)	Grid Reference of Nearest Parcel	Distance to Nearest Parcel (km)
Deciduous woodland	114	57.67	SD8239406962	0.21
Lowland fens	15	11.47	SD8157207283	0.55
Good quality semi-improved grassland	6	2.21	SD8263007689	0.73
Traditional orchard	2	0.26	SD8213106088	0.83
Lowland dry acidic grassland	11	10.34	SD8203508248	1.09
Purple moor grass and rush pastures	8	0.37	SD8194808326	1.26

Protected Species

- 4.2.5** Records were returned for four protected species within 1km of the site boundary, comprising three mammal species and one amphibian species. Full details are available in Table 6.

Other Species of Conservation Concern

- 4.2.6** Excluding the protected species mentioned, records were returned for 14 species of conservation concern within 1km of the site boundary, comprising one amphibian species, 12 bird species, and one mammal species. Full details are available in Table 6.

Waterbodies

- 4.2.7** A total of eight waterbodies were identified within 250m of the site boundary, with the nearest being 5m from the north-west site boundary (Grid Reference SD 82137 07052). Location and distribution of waterbodies can be seen in Figure 9.

Table 9: Species records derived from the desk study

Common Name	Scientific Name	HSR Sch ² 2 or 5	WCA ³ Sch1, 5 or 8	National Priority Species ⁴	Local priority/ BAP species	Red Data Book/ BoCC ⁵	Other	Grid Ref.	Date	Distance from site	Source
Amphibian											
Common toad	<i>Bufo bufo</i>			✓				SD825070	10/08/16	0.40	GMLRC
Great crested newt	<i>Triturus cristatus</i>	Schedule 2	Schedule 5	✓	✓			SD8215907013	01/06/17	0.06	GMLRC
Bird											
Bullfinch	<i>Pyrrhula pyrrhula</i>			✓		Amber		SD82260759	24/05/20	0.61	GMLRC
Common redpoll	<i>Acanthis flammea</i>					Amber		SD8248907029	01/02/21	0.39	GMLRC
Dunnock	<i>Prunella modularis</i>			✓		Amber		SD82190680	24/05/20	0.21	GMLRC
Herring gull	<i>Larus argentatus</i>			✓		Red		SD822062	05/02/17	0.80	GMLRC
House sparrow	<i>Passer domesticus</i>			✓		Red		SD82090693	24/05/20	0.07	GMLRC
Lapwing	<i>Vanellus vanellus</i>			✓		Red		SD822062	14/10/14	0.80	GMLRC

² Conservation of Habitats and Species Regulations 2017 (as amended)

³ Wildlife and Countryside Act 1981 (as amended)

⁴ Species of Principal Importance within the relevant country of the United Kingdom

⁵ Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man

Common Name	Scientific Name	HSR Sch ² 2 or 5	WCA ³ Sch1, 5 or 8	National Priority Species ⁴	Local priority/ BAP species	Red Data Book/ BoCC ⁵	Other	Grid Ref.	Date	Distance from site	Source
Lesser redpoll	<i>Acanthis cabaret</i>			✓		Red		SD81390 633	14/04/16	0.98	GMLRC
Reed bunting	<i>Emberiza schoeniclus</i>			✓		Amber		SD82607 3	24/05/20	0.58	GMLRC
Skylark	<i>Alauda arvensis</i>			✓		Red		SD82206 2	24/02/13	0.80	GMLRC
Song thrush	<i>Turdus philomelos</i>			✓		Amber		SD82500 662	24/05/20	0.55	GMLRC
Wheatear	<i>Oenanthe oenanthe</i>					Amber		SD82678 06436	01/01/21	0.80	GMLRC
Mammal											
Badger	<i>Meles meles</i>						Protectio n of Badgers Act 1992	N/A - Confiden tial	06/02/14	1.00	GMLRC
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Schedule 2	Schedule 5		✓			SD81590 665	23/09/15	0.62	GMLRC
Pipistrelle species	<i>Pipistrellus</i> sp.	Schedule 2	Schedule 5	(Species dependa nt)	✓			SD81406 4	15/08/15	0.92	GMLRC
Western European hedgehog	<i>Erinaceus europaeus</i>			✓				SD81730 701	30/10/20	0.37	GMLRC

4.3 Habitat Survey

Habitats and Flora

4.3.1 The following UKHab habitat types were identified, with secondary codes given in brackets:

- g4 (80) - Modified grassland (unmanaged)
- g4 (11, 80) - Modified grassland (scattered trees, unmanaged)
- h3f (11, 69) - Hawthorn scrub (scattered trees, fence)
- h3h - Mixed scrub
- u1b (89, 111) - Developed land, sealed surface (car park, road)
- u1b5 - Buildings
- w1f7 (10) - Other lowland mixed deciduous woodland (scattered scrub)

4.3.2 These habitats are described below and their distribution is given on Figure 2.

g4 (80) - Modified grassland (unmanaged):

4.3.3 There is an area (approximately 0.18ha) of modified grassland (g4-1 on Figure 2, Photograph 1 on Figure 3) spanning the northern and eastern sides of the main building complex. The habitat has an abundance of perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), and creeping bent (*Agrostis stolonifera*) as well as frequently occurring creeping buttercup (*Ranunculus repens*). There is occasional great willowherb (*Epilobium hirsutum*), common ragwort (*Jacobaea vulgaris*), common sow thistle (*Sonchus oleraceus*), broadleaved dock (*Rumex obtusifolius*), self-heal (*Prunella vulgaris*) and greater plantain (*Plantago major*).

4.3.4 The condition of this grassland is poor, due to the sub-optimal species density of the habitat, combined with the lack of variation in sward height. Full condition assessment results can be found in Appendix 3.

g4 (11, 80) - Modified grassland (scattered trees, unmanaged):

4.3.5 At the western boundary of the site, there is a modified grassland (g4-2 on Figure 2, Photograph 2 on Figure 3) with an area of approximately 0.06ha.. The habitat has an abundance of perennial ryegrass, Yorkshire fog, and creeping bent with frequently occurring silver birch (*Betula pendula*) and creeping buttercup. There is occasional cypress species (*Cupressus sp.*), common knapweed (*Centaurea nigra*), great willowherb, common ragwort, sow thistle, broadleaved dock, self-heal and greater plantain.

4.3.6 The condition of this grassland is poor, due to the sub-optimal species density of the habitat and the extensive bare ground cover, combined with the lack of variation in sward height. Full condition assessment results can be found in Appendix 3.

g4 (11, 80) - Modified grassland (scattered trees, unmanaged):

- 4.3.7** There is an area (approximately 0.03ha) of modified grassland (g4-3 on Figure 2, Photograph 3 on Figure 3) found at the western boundary of the site. The habitat has an abundance of perennial ryegrass, Yorkshire fog, and creeping bent with frequently creeping buttercup. There is occasional whitebeam (*Sorbus aria*), silver birch, great willowherb, common ragwort, sow thistle, broadleaved dock, self-heal and greater plantain. Cypress occurs rarely, as does bush vetch (*Vicia sepium*).
- 4.3.8** The condition of this grassland is poor, due to the sub-optimal species density of the habitat, combined with the lack of variation in sward height. Full condition assessment results can be found in Appendix 3.

h3f (11, 69) - Hawthorn scrub (scattered trees, fence):

- 4.3.9** A patch of hawthorn scrub (h3f-1 on Figure 2, Photograph 5 on Figure 3) covers an area of approximately 0.02ha at the southern boundary of the site. This is bordered by modified grassland (g4 (11, 80)) to the north. The scrub has an abundance of hawthorn (*Crataegus monogyna*) and bramble (*Rubus fruticosus* agg.), with occasional scattered field maple (*Acer campestre*).
- 4.3.10** The condition of this scrub is moderate because there are several woody species present, an absence of invasive or undesirable species and well-developed edges between the scrub and adjacent habitats. The habitat was scored down on its lack of age range and lack of glades or clearings within the scrub. Full condition assessment results can be found in Appendix 3.

h3h - Mixed scrub:

- 4.3.11** Mixed scrub (h3h-1 on Figure 2, Photograph 4 on Figure 3) covers an area approximately 0.02ha at the boundary between the modified grassland (g4-3) and the other lowland mixed deciduous woodland (w1f7-1). The scrub has an abundance of Burnet rose (*Rosa spinosissima*), bramble and nettle (*Urtica dioica*), with occasional elder (*Sambucus nigra*) and hawthorn. There is also rarely occurring invasive Himalayan balsam in this parcel.
- 4.3.12** The condition of this scrub is poor, due to the lack of age range of the plants within and the lack of glades or clearings, along with the presence of invasive non-native Himalayan balsam, and the lack of a well-developed edge between the scrub and the adjacent woodland. Full condition assessment results can be found in Appendix 3.

u1b (89, 111) - Developed land, sealed surface (car park, road):

- 4.3.13** There is a tarmac access road and car park for the building complex within the site, which covers approximately 0.04ha. This area is classified as developed land, sealed surface (u1b-1 on Figure 2, Photograph 6 on Figure 3).

u1b5 - Buildings:

- 4.3.14** Approximately 0.16ha of the site is comprised of buildings, which consist of building 1; the main building (which was formerly used as a care home, u1b5-1 on Figure 2, Photographs 7 and 8 on

Figure 3) and building 2 (u1b5-2 on Figure 2, Photograph 9 on Figure 3); a small garage adjacent to building 1.

w1f7 (10) - Other lowland mixed deciduous woodland (scattered scrub):

- 4.3.15** There is a large area (approximately 0.19ha) of other lowland mixed deciduous woodland (w1f7-1 on Figure 2, Photographs 10 and 11 on Figure 3) running along the northern and eastern boundaries of the site. The woodland is dominated by willow species (*Salix sp.*), with an abundance of English ivy (*Hedera helix*) and frequent bramble, hawthorn and nettle. Himalayan balsam is present in this parcel, occurring occasionally, along with male fern (*Dryopteris filix-mas*), wild cherry (*Prunus avium*), silver birch and hazel (*Corylus avellana*), while ash (*Fraxinus excelsior*) only occurs rarely.
- 4.3.16** The condition of this woodland is moderate as there are two age classes present within the woodland, no significant browsing pressure observed, five native tree species present, a relative abundance of mature/veteran trees and minimal nutrient enrichment apparent. However, the woodland was marked down on the presence of invasive ground flora (Himalayan balsam) and few canopy storeys. Full condition assessment results can be found in Appendix 3.

Fauna

- 4.3.17** Fauna observed during the survey includes Eurasian blackbird (*Turdus merula*), grey squirrel (*Sciurus carolinensis*) and wood pigeon (*Columba palumbus*).

Target Notes

- 4.3.18** Three target notes (TN1-TN3) were made during the survey and are displayed on Figure 2 and photographs are shown in Figure 3:
- TN1 - a large mammal track of unknown species observed in habitat h3-1 (Photograph 12 on Figure 3);
 - TN2 - Himalayan balsam observed within habitat h3-1 (Photograph 13 on Figure 3); and
 - TN3 - a stand of Himalayan balsam observed at the edge of habitat w1f7-1 (Photograph 14 on Figure 3).

4.4 Preliminary Roost Assessment

Preliminary Roost Assessment of Buildings

- 4.4.1** A summary of PRA results for building B1 and B2 are presented in Table 7 and with greater detail in Appendix 4.

Table 10: A summary PRA results for building B1 and B2

Attribute	Building 1	Building 2
Type	School Building	Shed

Attribute	Building 1	Building 2
Age	Present - 1960	Present - 1960
Construction	Brick	Brick
Exposure of PRF/crevice/void to wind and rain	A total of 18 PRFs were recorded on the exterior of B1 categorising the building as having moderate potential for roosting bats. Two (PRF 4 and 5) are broken ridge tiles measuring 10cm, a piece of broken cladding (PRF 11) measuring 5cm and a 6cm hole in the fascia (PRF15). All these PRFs were considered to have low exposure to the wind and rain. In addition, three PRFs with moderate and 11 PRFs with low potential to shelter roosting bats on the exterior of B1. An internal inspection of the loft void was recorded as suboptimal for bats due to a breathable membrane installed that may restrict entry into roof void. There were no bat droppings, feeding remains or other signs of bats within the loft void.	A single PRF (1) was recorded on the exterior of B2. This was assigned as having low potential for supporting roosting bats due to the insulative quality of the building and the high exposure of the holes in the broken cladding. This PRF was considered to have high exposure to the wind and rain.
Size of PRF	5-10cm	5cm
Setting	Sub-Urban	Sub-Urban
Distance from woodland or waterbody	< 100m from Woodland and Waterbody	< 100m from Woodland and Waterbody
Level of disturbance/lighting	Low	Low
Evidence of bats?	None	None
Overall roost potential (based on Table 3)	Moderate	Low

Attribute	Building 1	Building 2
Potential Roost Type	Potential for Day, Night, Feeding, Transitional, Maternity and Satellite Roost	Potential for Day, Transitional and Satellite Roost

Preliminary Roost Assessment of Trees

4.4.2 A summary of PRA results for building T1 and T2 are presented in Table 8 and with greater detail in Appendix 5.

Table 11: A summary PRA results for trees T1 and T2

Attribute	Tree 1	Tree 2
Tree Species	Crack willow (<i>Salix fragilis</i>)	Crack willow (<i>Salix fragilis</i>)
Life Stage	Mature	Mature
Exposure of PRF/crevice/void to wind and rain	A single large split up the trunk of T1 (PRF1) was identified to have high potential to shelter roosting bats. This PRF was considered to have low exposure to the wind and rain.	Two openings within the main branch, (PRF 1 and PRF2) were identified to have moderate potential to shelter roosting bats on T2. This PRF was considered to have moderate exposure to the wind and rain.
Size of PRF	6m	1.5m
Setting	Moderate	Moderate
Distance from woodland or waterbody	< 200m from woodland and waterbody	< 200m from woodland and waterbody
Level of disturbance/lighting	Low	Low
Evidence of bats?	None	None
Overall roost potential (based on Table 3)	Moderate	Moderate
Potential Roost Type	Potential for day, night, feeding, transitional, maternity and satellite roost.	Potential for day, night, feeding, transitional and satellite roost.

Categorisation of Results

4.4.3 It was determined that building B1 has moderate overall potential to support roosting bats. This moderate category is based on presence of PRFs that may be deep and large enough to shelter multiple bats. It does not have high potential as the internal PRA identified the roofing membrane covers any of the external access point into the roof void. Building B2 was given a low overall potential as only a single low potential PRF was recorded on the building.

4.4.4 Tree T1 was determined to have a moderate potential to support roosting bats as there was a single large split that has developed up the trunk of the tree that could lead to a significant cavity. It has been determined that tree T2 has a moderate overall potential for roosting bats.

4.5 Biodiversity Metrics

4.5.1 The site covers 0.685ha. Using the Biodiversity Metric 3.1, the site delivers 2.41 habitat units as detailed in Table 12. To achieve a 10% net gain across the site, 0.24 habitat units will be required post-development. Recommendations detailed in Section 7.3, if followed, should enable this to be achieved.

Table 12: Baseline biodiversity units

Habitat Parcel	Area (ha) / Length (km)	Habitat Distinctiveness		Habitat Condition		Strategic Significance		Habitat Units
		Distinctive -ness	Score	Condition	Score	Significance	Score	
Modified grassland (g4-1)	0.185	Low	2	Poor	1	Low Strategic Significance	1	0.37
Modified grassland (g4-2)	0.052	Low	2	Poor	1	Low Strategic Significance	1	0.10
Modified grassland (g4-3)	0.030	Low	2	Poor	1	Low Strategic Significance	1	0.06
Hawthorn scrub (h3f)	0.019	Medium	4	Moderate	2	Moderate Strategic Significance	1.1	0.17
Mixed scrub (h3h)	0.017	Medium	4	Poor	1	Moderate Strategic Significance	1.1	0.07

Habitat Parcel	Area (ha) / Length (km)	Habitat Distinctiveness		Habitat Condition		Strategic Significance		Habitat Units
		Distinctive -ness	Score	Condition	Score	Significance	Score	
Developed land, sealed surface (u1b)	0.33	Very low	0	N/A	0	Low Strategic Significance	1	0
Buildings (u1b5-1)	0.002	Very low	0	N/A	0	Low Strategic Significance	1	0
Buildings (u1b5-2)	0.156	Very low	0	N/A	0	Low Strategic Significance	1	0
Other lowland mixed deciduous woodland (w1f7)	0.186	High	6	Moderate	2	Moderate Strategic Significance	1.1	1.64
Total Habitat Units								2.41

5. Legislation and Planning Policy Considerations

5.1 Background

- 5.1.1 The content of the legislation and planning policy section is the legislation and planning policy considerations that we know are relevant based on this desk study and extended UKHab survey. The legislation and policy considerations that might arise following further surveys are excluded. Potential further ecological considerations are discussed in Section 6. A detailed description of the method for this section is given in Appendix 1.

5.2 Designated Sites

- 5.2.1 Records were returned for one LNR and six SBIs within 2km of the site boundary. LNRs are statutory designated sites under the National Parks and Access to the Countryside Act 1949. Whilst this does not offer any strict protections, LNRs are protected during the planning process under the Adopted Bury Unitary Development Plan through General Policy EN6. Specifically Policy EN6/2 states that *“Planning permission will not be granted for development which would damage either directly or indirectly, the nature conservation interests of sites of particular ecological significance (Local Nature Reserves or Grade B and C Sites of Biological Importance) unless conditions can be imposed that would acceptably mitigate those impacts.”* SBIs, whilst not receiving legislative protections, are afforded protection through the planning process. SBIs are assigned an importance of A, B or C. Policy EN6/1 of the Adopted Bury Unitary Development Plan states that *“Planning permission will not be granted for development in or in the vicinity of a designated or proposed site of national or county/regional importance (Site of Special Scientific Interest or National Nature Reserve or Site of Biological Importance which has been identified as of national or county/regional importance i.e. Grade A) which would destroy or adversely affect, either directly or indirectly, the nature conservation interest of the site, unless it can be demonstrated that other material considerations outweigh the special interest of the site.”* SBIs assigned an importance of Grade B or C are covered by Policy EN6/2 as described above.
- 5.2.2 The proposed works are unlikely to affect any of the designated sites due to the distance between these designated sites and the site of the proposed works, and due to barriers of residential buildings between the designated sites and the development. As such designated sites will not be discussed further in this report.

5.3 Priority Habitats

- 5.3.1 Records were returned for six types of priority habitat within 2km of the site boundary. Priority habitats are listed under Section 41 of the Natural Environments and Rural Communities (NERC) Act 2006 as a habitat of principal importance. Whilst these habitats do not receive any protections from this legislation, policy JP-G9 of the Greater Manchester ‘Places for everyone’ Joint Development Plan emphasizes the importance of *“increasing the quality, extent and diversity of habitats, particularly priority habitats”*; and policy JP-G 7 is focused on the implementation of the Greater Manchester Tree and Woodland Strategy within the planning process, it states the principal aim is to *“significantly increase tree cover, protect and enhance woodland, and connect people to the trees and woodland around them.”*

5.3.2 Under the National Planning Policy Framework (NPPF) 2021, priority habitats can be of material importance to plans, and should promote the conservation, restoration, and enhancement of priority habitats.

5.3.3 Priority habitat types good quality semi-improved grassland, lowland dry acidic grassland, lowland fens, purple moor grass and rush pastures and traditional orchard are unlikely to be affected by the proposed works due to the distance between these priority habitats and the site, and due to barriers of residential buildings between these priority habitats and the site. A parcel of deciduous woodland is 0.21km from the site, this is unlikely to be affected directly by the development due to the barrier of the motorway M66 between the priority habitat and the site, the priority habitat could be affected by the indirect effects of the increased pollution of the proposed works. Recommendations for mitigation in Section 7 should ensure that the development can proceed without negatively impacting priority habitats present.

5.4 Protected and Priority Species

Birds

5.4.1 Two species of bird, wood pigeon and Eurasian blackbird, were observed within the site boundary. All wild birds, eggs and nests are protected from damage and destruction under the Wildlife and Countryside Act 1981 (as amended). The wood pigeon is also an Amber listed species on the Birds of Conservation Concern (BoCC) 5.

5.4.2 Habitat was identified on site that could support these common species of bird nesting on site, comprising mixed scrub h3h-1, other lowland mixed deciduous woodland w1f7-1, and hawthorn scrub h3f-1. Based on current plans, works are predicted to affect all these habitats. Recommendations for mitigation in Section 7 will ensure that the development is compliant with national legislation.

Small Mammals

5.4.3 During the UKHab survey, a mammal track was identified at TN1 in mixed scrub h3h-1. Excluding legislation for strictly protected species, small mammals receive protection from certain methods of killing under the Wild Mammals (Protection) Act 1996, making it an offence to intentionally cause this species unnecessary suffering by certain methods, including crushing and asphyxiation, which could occur during site clearance. There is habitat on site that could be suitable for small mammals to burrow within; mixed scrub h3h-1, hawthorn scrub h3f-1 and other lowland mixed deciduous woodland w1f7-1. Based on current plans, works are predicted to affect all these habitats.

5.4.4 Recommendations in Section 7 will ensure that the development is compliant with national legislation.

5.5 Invasive Species

5.5.1 Both Himalayan balsam and grey squirrel were recorded on site, with Himalayan balsam occurring at TN2 and TN3. Both species are listed under Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019, which enforces Regulation (EU) No.

1143/2014 for the management and control of invasive species. Current development proposals are predicted to affect mixed scrub h3h-1 and other lowland mixed deciduous woodland w1f7-1, where the stands of Himalayan balsam are located. Habitat is present on site that is suitable for grey squirrel, namely mixed scrub h3h-1, hawthorn scrub h3f-1 and other lowland mixed deciduous woodland w1f7-1, with works predicted to affect all of these based on current plans. Policy JP-G9 of the Greater Manchester 'Places for Everyone' Development plan states the importance of "*combatting invasive species for achieving net enhancement of biodiversity.*"

- 5.5.2** Recommendations in Section 7 should ensure that the works do not contribute to the spread of invasive species within the site boundary and the wild.

5.6 National Planning Policy Framework (July 2021)

- 5.6.1** The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied.

- 5.6.2** Paragraph 174 of the NPPF: *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

- *a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soil; and*
- *d) minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks that are more resilient to current and future pressures;"*

- 5.6.3** Paragraph 175: *"plans should b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."*

5.7 The Environment Act (2021)

- 5.7.1** The Environment Act received royal assent and became law on 9th November 2021 and provides a framework to improve and protect the natural environment. This will be overseen by the new Office for Environmental Protection.

- 5.7.2** One of the provisions of the Act is the mandatory requirement for new developments to provide a 10% net gain in biodiversity. Both onsite and offsite enhancements will need to also be maintained for a period of at least 30 years following completion of a development.

- 5.7.3** The requirements of the Act do not have legal effect at the time of writing this report, however it is anticipated they are to become legal requirements from November 2023.

5.8 Biodiversity Net Gain

- 5.8.1** The Environment Act 2021 creates a structure for requiring Biodiversity Net Gain for future developments, with future amendments to the Town and Country Planning Act 1990 that would make Biodiversity Net Gain a legal requirement anticipated to be brought forth. Policy JP-G9 'A Net Enhancement of Biodiversity and Geodiversity' of the Greater Manchester 'Places for Everyone' Joint Development Plan states that "developers will be expected to... achieve a net gain in biodiversity".

6. Potential Further Ecological Considerations

6.1 Background

- 6.1.1 The potential further ecological considerations section sets out our assessment of the potential of the site to support protected species and other species of conservation concern which were not detected during the extended UKHab survey, either because their presence is seasonal or because specialist survey techniques are required. Further survey work or appropriate mitigation is likely to be required before these issues can be addressed. Further information on the methods of assessment is given in Appendix 1.

6.2 Bats

- 6.2.1 Two buildings (B1 and B2) and two trees (T1 and T2) have been identified to have potential to support roosting bats. The desk study returned records of common pipistrelle and a pipistrelle species. All bat species are protected by the Conservation of Habitats and Species Regulations 2017 (as amended). In addition to the protection given to bats under the Conservation of Habitats and Species Regulations 2017 (as amended) already described, bats are also partially protected in England under the Wildlife and Countryside Act 1981 (as amended).
- 6.2.2 The habitats on site and within the surrounding area were categorised between moderate and low suitability for bats and there were several sites and priority habitats such as deciduous woodland identified in the desk study that offer good foraging opportunities and perhaps roost features for resident bats. Recommendations are given in Section 7 to ensure the species are properly considered within the planning process and the development is compliant with national and international legislation.

6.3 Breeding Birds

- 6.3.1 Records were returned for 12 species of bird during the desk study within 1km of the site boundary. All wild birds, eggs and nests are protected from damage and destruction under the Wildlife and Countryside Act 1981 (as amended). Ten of the 12 species are also Species of Principal Importance (SPI), as listed under Section 41 of The NERC Act 2006. Alongside these designations, six species are listed as amber, and the other six species listed as red, on the BOCC. Whilst the SPI and BOCC designations do not confer any further protections, these species can be of material importance during the planning process.
- 6.3.2 The vast majority of the species identified in the desk study are unlikely to be found on site due to their specialist habitat requirements. The mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1 on site may support starling (*Sturnus vulgaris*), and more common species of nesting bird, such as wren (*Troglodytes troglodytes*) and carrion crow (*Corvus corone*). Works are predicted to affect all of these habitats based on current plans. Recommendations in Section 7 should ensure that the development is compliant with national legislation.

6.4 Great Crested Newt

6.4.1 Records of great crested newt (*Triturus cristatus*) (GCN) were returned during the desk study within 1km of the site boundary. Eight waterbodies were also identified within 250m of the site, with the nearest being 5m from the site boundary. GCN are strictly protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended), which make it an offence to intentionally kill, injure or disturb this species, or damage or destroy a resting place of this species.

6.4.2 Eight waterbodies were identified during the desk study, though one waterbody (WB4) has been scoped out as the motorway acts as a major barrier between the waterbody and the site (see Figure 9). There are habitats on site that may support GCN; mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, with works predicted to affect all of these based on current plans. Recommendations in Section 7 will ensure that the development can proceed without contravening national legislation.

6.5 Common Amphibians

6.5.1 There are records of common toad (*Bufo bufo*), within 1km of the site boundary. The common toad is an SPI as listed under Section 41 of The NERC Act 2006. Whilst this legislation does not provide any specific protections, priority species can be of material consideration during the planning process.

6.5.2 Mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1 on site could provide refuge for common amphibians, Works are predicted to affect all of these based on current plans. Recommendations in Section 7 will outline how the development can proceed without contravening legislation.

6.6 Reptiles

6.6.1 There is are suitable habitats on site for common species of reptile. Common reptiles are partially protected under the Wildlife and Countryside act 1981 (as amended), from intentional injury and death. Grass snake (*Natrix natrix*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) are also SPIs, as listed under Section 41 of The NERC Act 2006.

6.6.2 Habitat on site that could support common reptiles comprises mixed scrub h3h-1, hawthorn scrub h3f-1, modified grassland g4-(1-3) and other lowland mixed deciduous woodland w1f7-1, with works predicted to affect all of these based on current plans. Recommendations in Section 7 will outline how the development can proceed without contravening legislation. If current plans change, and vegetation clearance is not required in these habitats, then no further action is required.

6.7 Western European Hedgehog

6.7.1 There is habitat on site that may provide foraging opportunities and refuge for western European hedgehog (*Erinaceus europaeus*). These suitable habitats are mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, and works are predicted to affect all of these based on current plans.

- 6.7.2 Western European hedgehog is a SPI, as listed under Section 41 of The NERC Act 2006. Whilst this does not offer any further protections, species of principal importance can be of material consideration during the planning process.

6.8 Badger

- 6.8.1 Records were returned for badger (*Meles meles*) during the desk study within 1km of the site boundary. Badgers are protected under the Protection of Badgers Act 1992, making it a criminal offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. In addition, all mammals in the UK are protected under the Wild Mammals (Protection) Act 1992. As such any mammal using the burrow is protected from certain methods of killing, notably including asphyxiation (e.g. through collapsing/burying of tunnels, blocking entrances, etc).
- 6.8.2 Habitat was identified on site that could support foraging badgers, namely mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, with works predicted to affect all of these based on current plans. It is highly unlikely though that badgers would be present within the site boundary, due to the M66 motorway and M62 motorways creating a barrier to the eastern half of the site, and due to the surrounding area being comprised of mostly residential buildings. Additionally, no signs of badger were found during the site visit. As such, it is unlikely badgers will be encountered during the proposed works and will not be discussed further in this report.

7. Recommendations

7.1 Further Survey

Bats

- 7.1.1 Dusk emergence and dawn re-entry surveys are recommended to give the highest possible accuracy in determining if a bat roost is present and identifying the roost type to assist in forming appropriate mitigation. Recommendations for further emergence/re-entry surveys follow the Bat Conservation Trust Guidelines (Collins. J. Ed 2016) and the BCT Interim Guidance Note (BCT, 2022) for employing the use of night vision aids (NVAs) to improve survey accuracy.
- 7.1.2 Building B1 was assessed to have moderate potential for roosting bats, and thus should be surveyed over two visits. Surveys should be between May and September with at least one of the surveys completed between May and August. Visits should be spaced a minimum of two weeks apart and must include at least a dusk emergence and a dawn return survey. The use of NVAs should be employed to assist with these surveys.
- 7.1.3 Building B2 has a low potential for roosting bats it should be surveyed in a single visit between the months of May to August. This visit may be either a dusk emergence or a dawn re-entry visit. The use of NVAs should be employed to assist with these surveys.
- 7.1.4 Tree T1 and Tree T2 have a moderate potential for roosting bats, therefore they should be surveyed between May and September with at least one of the surveys completed between May and August. Visits should be spaced a minimum of two weeks apart and must include at least a dusk emergence and a dawn return survey. The use of NVAs should be employed to assist with these surveys.

Great Crested Newt

- 7.1.5 If vegetation clearance is required on site further surveys should be conducted for GCN to determine suitability of the eight waterbodies identified during the desk study to support GCN. Prior to works commencing, these waterbodies should undergo a Habitat Suitability Index Assessment to determine their suitability to support great crested newt. Results of these assessments will inform whether presence/likely absence surveys are required.

Reptiles

- 7.1.6 Should the mixed scrub (h3h-1), hawthorn scrub (h3f-1), or other lowland mixed deciduous woodland (w1f7-1) require permanent clearance, then it is recommended that reptile surveys are undertaken. This would assess the potential impact the proposed development may have on reptile populations if present and help to put appropriate mitigation in place if necessary.

7.2 Avoidance, Mitigation and Compensation

- 7.2.1** The recommendations for mitigation (including avoidance, mitigation and compensation) measures given in this section are based on the findings of the desk study and extended UKHab survey. It may include precautionary mitigation measures for some species which could occur on the site but excludes discussion of the mitigation measures that may be required following the results of the further surveys recommended in Section 7.1.

Priority Habitats

- 7.2.2** The woodland parcel (w1f7-1) does not qualify as a priority habitat, as it does not meet the priority habitat description due to a low variety in tree species. Therefore, this parcel will not be discussed further as a priority habitat.
- 7.2.3** All works should be carried out in accordance with guidelines that safeguard the surrounding priority habitats from pollution. Heavy earthworks and demolition works should be avoided in windy and/or following extensive dry weather. This is to reduce the spread of dust and particulates that may contain harmful materials that can damage woodland habitats and waterways.
- 7.2.4** Fuel should be stored in double lined containers, ideally refuelling will not take place on the site but instead at an equipment depot where contaminants can be properly managed away from the site. If refuelling must happen on site, a drip tray should be used over a non-porous sealed and steady surface such as on tarmac.
- 7.2.5** Noise can be minimised by only having the minimum number of personnel on site at any time and turning off any plant or machinery when not in active use, rather than leaving engines idle.

Breeding Birds

- 7.2.6** Any vegetation clearance required in habitats suitable for breeding birds, comprising mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, should be undertaken in the period September to February inclusive, outside of the breeding bird season. If works are undertaken during the breeding bird season (i.e. between the months of March and August, inclusive) in the habitat deemed suitable for breeding birds, then vegetation clearance must take place under an ecological watching brief.
- 7.2.7** If no active nests are identified, works can proceed without further consideration for breeding birds. If an active nest is present, the nest should be protected with a suitable buffer until the young have fledged or the nest is no longer active. The proposed design for the development already includes suitable replacement habitat for nesting birds.

Common Amphibians

- 7.2.8** Any vegetation clearance required in habitats suitable for common amphibians, comprising mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, should be fingertip searched by an ecologist to determine if any common amphibians, such as toads, are present within the habitats. If no common amphibians are identified, then works can

proceed with respect to common amphibians. If amphibians are identified, these should be moved to suitable offsite habitat.

Small Mammals

- 7.2.9** Any vegetation clearance required in habitats suitable for small mammals, comprising h3-1, h3f-1, and w1f7-1 should be fingertip searched by an ecologist to determine if any small mammals are present.
- 7.2.10** If a burrow is identified during the clearance, the burrow should be checked by an ecologist to determine if any mammals are present within. If it can be ascertained that no mammals are within, then works can proceed with respect to small mammals. If a small mammal is discovered within a burrow, then the burrow should be excavated using hand tools or a toothed bucket from one burrow entry, allowing the animal to exit from another. If young small mammals are present within the burrow that cannot be moved, then an ecologist should be consulted for appropriate mitigation.

Western European Hedgehog

- 7.2.11** Any vegetation clearance required in habitats suitable for western European hedgehog, mixed scrub h3h-1, hawthorn scrub h3f-1, and other lowland mixed deciduous woodland w1f7-1, should be undertaken in the active period for hedgehogs (i.e. between the months of September and October when also taking the breeding bird season into account).
- 7.2.12** During the hibernation period (October to March), a 2m exclusion zone should be implemented around potential hibernation sites, such as piles of dead brash/cut scrub or the base of bramble scrub where material such as leaves has built up.

Invasive Species

- 7.2.13** Himalayan balsam and grey squirrel are invasive species and should therefore be controlled all site following Environment Agency Guidelines (Natural England *et al.*, 2014).

7.3 Biodiversity Net Gain

- 7.3.1** The site currently supports 2.41 habitat units. Baseline units that will be maintained and do not require enhancement include:
- Poor condition mixed scrub (0.01ha)
 - Moderate condition hawthorn scrub (0.006ha)
 - Moderate condition other woodland; broadleaved (0.1ha)
- 7.3.2** To create at least 10% BNG the following habitats should be created on site:
- Good condition blackthorn scrub (0.007ha)
 - Good condition hawthorn scrub (0.013ha)
 - Good condition modified grassland (0.09ha)

- Moderate condition other woodland; broadleaved (0.01ha)

7.3.3 For the blackthorn and hawthorn scrub to reach condition it must meet all five criteria below:

- Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).
- There is a good age range - all of the following are present: seedlings, young shrubs and mature shrubs.
- There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.
- The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).
- There are clearings, glades or rides present within the scrub, providing sheltered edges.

7.3.4 For the modified grassland to reach good condition there must be six to eight species per m². Also it must meet five of the six criteria below:

- Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
- Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.
- Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.
- Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).
- Cover of bracken less than 20%.
- There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).

7.3.5 Additionally, 0.085ha of the existing other woodland; broadleaved woodland on site should be improved from moderate to good condition.

7.3.6 Himalayan balsam would have to be removed from the woodland to ensure it reaches a high condition. Additional required improvements to increase the condition from moderate to good include:

- Planting new trees to improve the age distribution of trees on site.
- All three woodland regeneration classes present in woodland; trees 4-7cm DBH (diameter at breast height), saplings and seedlings or advanced coppice regrowth.
- Improve the woodland vertical structure to aim to achieve three or more storeys.
- Manage the woodland so it contains standing deadwood, large dead branches/ stems and stumps.

- 7.3.7** Details of condition assessment criteria for woodlands is given in Appendix 9.
- 7.3.8** These recommendations would deliver 2.69 habitat units on site, which equates to 11.32% BNG and are shown in Figure 10.
- 7.3.9** A detailed breakdown of the BNG habitat creation calculations can be seen in Appendix 7, and habitat enhancement calculations in Appendix 8.
- 7.3.10** It is recommended that a Landscape and Ecological Management Plan (LEMP) is created. This will cover 30 years of maintenance, including detailed information on how to create the above habitats, the key objectives and targets for each habitat type, and the management, maintenance and monitoring required to achieve the target conditions.

7.4 Ecological Enhancement

7.4.1 The following opportunities for ecological enhancements are suggested:

- Digging permanent, well managed ponds can produce substantial benefits for a myriad of species. Ponds provide a rich substrate in which many invertebrates that make up a crucial basal trophic layer within ecosystem can complete their lifecycle. GCN and other amphibians also benefit directly by potentially utilising ponds as spawning sites. Other species, such as birds, bats and reptiles will be attracted to a productive pond.
- Seeding and managing the development of wildflower meadows replacing areas of homogenous grassland (i.e., g4 - Modified Grassland) will directly benefit pollinator species and in turn, attract insectivorous bird species such as skylark which is listed as red on the BoCC 5. Establishing a wildflower meadow is a long-term process but once self-seeding is achieved maintenance is minimal.
- The installation of bat boxes and bird nesting boxes or 'swift bricks' can enhance the sites suitability for bat and bird species that may seek roosting/nesting opportunities on the site.

8. Conclusion

- 8.1.1 Protected sites and priority habitats were located within 2km of the site, however, it is unlikely the proposed works will have an impact on these features. The site has the potential to support protected species including bats, GCN and reptiles, and further survey is required to determine if these species are present and if so, inform appropriate mitigation.
- 8.1.2 If the recommendations set out in this report are followed, Biodiversity Net Gain can be achieved on site, by delivering 2.41 habitat units, equating to an 11.32% net gain.

9. References

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- 9.1.2 Her Majesty's Stationery Office (HMSO) (1981) The Wildlife and Countryside Act.
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- 9.1.4 Stephen Panks, Nick White, Amanda Newsome, Mungo Nash, Jack Potter, Matt Heydon, Edward Mayhew, Maria Alvarez, Trudy Russell, Clare Cashon, Finn Goddard, Sarah J. Scott, Max Heaver, Sarah H. Scott, Jo Treweek, Bill Butcher Anddave Stone. (2022) Biodiversity metric 3.1: Auditing and accounting for biodiversity - Technical Supplement. Natural England.
- 9.1.5 Stace, C. (2019) New Flora of the British Isles (fourth edition). C&M Floristics, Middlewood Green, Suffolk.

- 9.1.6 UK Government (2021) National Planning Policy Framework [Online]
<https://www.gov.uk/government/publications/national-planning-policy-framework--2>

Appendix 1: Assessment Methodology

9.2 Identification of Legal and Planning Policy Issues

Scope of Assessment

- 9.2.1** The first step is to identify any biodiversity features found on the site that are subject to legal or policy controls, as follows:

Designated Sites

- 9.2.2** The location of the site is compared to the distribution of sites with a statutory or non-statutory nature conservation designation using information derived from the desk study. Consideration is given to designated sites that could be affected directly or indirectly by the proposed development.

Habitats outside Designated Sites

- 9.2.3** The habitats known to occur on the site are compared to those which receive some protection, in law or policy, outside of designated sites i.e. hedgerows, uncultivated land and semi-natural areas, habitats listed as priorities in the home nation biodiversity strategies, habitats listed as Habitats of Principal Importance for the Conservation of Biodiversity by the Secretary of State and local priority habitats listed as requiring action (formerly under the Local Biodiversity Action Plans).

Ancient Woodland

- 9.2.4** The ancient woodland inventory is checked to determine whether any known ancient woodland occurs either on the site or nearby.

Protected Species

- 9.2.5** The species known to occur on the site as a result of the desk study and UKHab survey are compared with those listed in nature conservation legislation i.e. the Wildlife and Countryside Act 1981 (as amended), the Conservation (Habitats &c) Regulations 2010.

- 9.2.6** In addition, the species known to occur on the site as a result of the desk study and UKHab survey are compared with those listed in animal welfare legislation, i.e. the Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.

Priority Species

- 9.2.7** The species known to occur on the site are compared with those listed as priority species (i.e. Species of Principal Importance for the Conservation of Biodiversity in the country concerned) or those requiring action on the local priority species lists (Local Biodiversity Action Plans).

Other Species of Conservation Concern

- 9.2.8** The species known to occur on the site are compared with other nature conservation listings, such as red data books.

Invasive Plant Species

- 9.2.9** The species of plant present on the site are compared with those listed by government agencies as invasive non-natives, with particular attention given to those listed in the Wildlife and Countryside Act 1981 (as amended).

Review of Legislation and Policy

- 9.2.10** If any of the above are found to occur on or near the site and are likely to be affected by the development in any way, the relevant legislation and planning policy (including national, regional, local policies) are examined to determine whether the proposed development is compliant.

Ecological Enhancement

- 9.2.11** Planning policy generally requires new developments to be enhanced for biodiversity. The existing proposals are considered to determine whether biodiversity enhancements are offered and whether they are adequate to meet the policy requirements. Again, national, regional and local policies are considered.

9.3 Identification of Potential Further Ecological Issues

- 9.3.1** Further ecological issues are those which cannot be resolved during the preliminary ecological appraisal for any reason, including the following:

- The development is near a designated site and consultation with the relevant regulator is required in order to determine whether further assessment is required;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and specialist survey techniques are required for their detection;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and the extended UKHab survey was not undertaken at a suitable time of year for their detection;
- A protected species/species of conservation concern was found on or near the site but further information on population size or distribution is required in order to resolve any legal and planning policy issues (such as obtaining licences).

- 9.3.2** Discussion of issues raised by 3rd parties, e.g. reports of protected species from the site by local people, may also be discussed under this heading.

- 9.3.3** The desk study is used as a guide to the protected species/species of conservation in the local area, however, the list is not taken to be exhaustive and it is borne in mind that some species may no longer occur in the locality.

- 9.3.4** No attempt is made to evaluate the importance of the site for species not yet confirmed to be on or near the site, nor to discuss the implications for the development if the species were to be found on the site.

Appendix 2: Plant Species and Abundance

g4-1 Modified grassland

Common Name	Scientific Name	Abundance
Perennial rye grass	<i>Lolium perenne</i>	A
Yorkshire fog	<i>Holcus lanatus</i>	A
Creeping bent	<i>Agrostis stolonifera</i>	A
Creeping buttercup	<i>Ranunculus repens</i>	F
Great willowherb	<i>Epilobium hirsutum</i>	O
Common ragwort	<i>Jacobaea vulgaris</i>	O
Common sow thistle	<i>Sonchus oleraceus</i>	O
Broad leaved dock	<i>Rumex obtusifolius</i>	O
Self heal	<i>Prunella vulgaris</i>	O
Greater plantain	<i>Plantago major</i>	O

g4-2 Modified grassland

Common Name	Scientific Name	Abundance
Perennial rye grass	<i>Lolium perenne</i>	A
Yorkshire fog	<i>Holcus lanatus</i>	A
Creeping bent	<i>Agrostis stolonifera</i>	A
Creeping buttercup	<i>Ranunculus repens</i>	F
Silver birch	<i>Betula pendula</i>	F
Cypress sp.	<i>Cupressus</i> sp.	O
Common knapweed	<i>Centaurea nigra</i>	O
Common ragwort	<i>Jacobaea vulgaris</i>	O
Common sow thistle	<i>Sonchus oleraceus</i>	O
Broad leaved dock	<i>Rumex obtusifolius</i>	O
Self heal	<i>Prunella vulgaris</i>	O
Greater plantain	<i>Plantago major</i>	O

g4-3 Modified grassland

Common Name	Scientific Name	Abundance
Perennial rye grass	<i>Lolium perenne</i>	A
Yorkshire fog	<i>Holcus lanatus</i>	A
Creeping bent	<i>Agrostis stolonifera</i>	A
Creeping buttercup	<i>Ranunculus repens</i>	F
Silver birch	<i>Betula pendula</i>	F
Whitebeam	<i>Sorbus aria</i>	O
Cypress sp	<i>Cupressus</i> sp	O
Common ragwort	<i>Jacobaea vulgaris</i>	O
Common sow thistle	<i>Sonchus oleraceus</i>	O
Broad leaved dock	<i>Rumex obtusifolius</i>	O
Self heal	<i>Prunella vulgaris</i>	O
Greater plantain	<i>Plantago major</i>	O
Bush vetch	<i>Vicia sepium</i>	R

h3h-1 Mixed scrub

Common Name	Scientific Name	Abundance
Burnet rose	<i>Rosa spinosissima</i>	A
Bramble	<i>Rubus fruticosus</i> agg.	A
Nettle	<i>Urtica dioica</i>	A
Elder	<i>Sambucus nigra</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Himalayan balsam	<i>Impatiens glandulifera</i>	R

h3f-1 Hawthorn scrub

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	A
Nettle	<i>Urtica dioica</i>	A
Hawthorn	<i>Crataegus monogyna</i>	A
Field maple	<i>Acer campestre</i>	O

w1f7-1 Other lowland mixed deciduous woodland

Common Name	Scientific Name	Abundance
Willow sp.	<i>Salix</i> sp.	D
English ivy	<i>Hedera helix</i>	A
Bramble	<i>Rubus fruticosus</i> agg.	F
Nettle	<i>Urtica dioica</i>	F
Hawthorn	<i>Crataegus monogyna</i>	F

Male fern	<i>Dryopteris filix-mas</i>	O
Himalayan balsam	<i>Impatiens glandulifera</i>	O
Wild cherry	<i>Prunus avium</i>	O
Hazel	<i>Corylus avellana</i>	O
Silver birch	<i>Betula pendula</i>	O
White ash	<i>Fraxinus excelsior</i>	O

Appendix 3 Habitat Condition Assessment

Condition Sheet: GRASSLAND Habitat Type - g4-1

Condition Assessment Criteria		Pass / Fail
1	"There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type.	Fail
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Fail
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Pass
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Fail
6	Cover of bracken less than 20%.	Pass
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass
Condition Assessment Result		Condition Assessment Score
Passes 0, 1, 2, or 3 of 7 criteria		Poor (1)
Notes		
Footnote 1 - Species considered undesirable for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> .		

Condition Sheet: GRASSLAND Habitat Type - g4-2

Condition Assessment Criteria	Pass / Fail
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1	"There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type.	Fail
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Fail
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Pass
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Fail
6	Cover of bracken less than 20%.	Pass
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass
Condition Assessment Result		Condition Assessment Score
Passes 0, 1, 2, or 3 of 7 criteria		Poor (1)
Notes		
Footnote 1 - Species considered undesirable for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> .		

Condition Sheet: GRASSLAND Habitat Type - g4-3

Condition Assessment Criteria		Pass / Fail
1	"There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type.	Fail
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide	Fail

	opportunities for insects, birds and small mammals to live and breed.	
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Fail
4	Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Pass
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Fail
6	Cover of bracken less than 20%.	Pass
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass
Condition Assessment Result		Condition Assessment Score
Passes 0, 1, 2, or 3 of 7 criteria		Poor (1)
Notes		
Footnote 1 - Species considered undesirable for this habitat type include: Creeping thistle <i>Cirsium arvense</i> , spear thistle <i>Cirsium vulgare</i> , curled dock <i>Rumex crispus</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common nettle <i>Urtica dioica</i> , greater plantain <i>Plantago major</i> , white clover <i>Trifolium repens</i> , cow parsley <i>Anthriscus sylvestris</i> .		

Condition Sheet: SCRUB Habitat Type - h3f-1

Condition Assessment Criteria		Pass / Fail
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Pass
2	There is a good age range - all of the following are present: seedlings, young shrubs and mature shrubs.	Fail
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Pass
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Pass

5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Fail
Condition Assessment Result		Condition Assessment Score
Passes 3 or 4 of 5 criteria		Moderate (2)
Notes		
Footnote 1 - Species considered undesirable for this habitat type include: creeping thistle <i>Cirsium arvense</i> , common nettle <i>Urtica dioica</i> , cherry laurel <i>Prunus laurocerasus</i> , snowberry <i>Symphoricarpos</i> spp., buddleia <i>Buddleja</i> spp., cotoneaster <i>Cotoneaster</i> spp., Spanish bluebell <i>Hyacinthoides hispanica</i> (or hybrids).		

Condition Sheet: SCRUB Habitat Type - h3h-1

Condition Assessment Criteria		Pass / Fail
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Pass
2	There is a good age range - all of the following are present: seedlings, young shrubs and mature shrubs.	Fail
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species ¹ make up less than 5% of ground cover.	Fail
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Fail
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Fail
Condition Assessment Result		Condition Assessment Score
Passes 0, 1, or 2 of 5 criteria		Poor (1)
Notes		
Footnote 1 - Species considered undesirable for this habitat type include: creeping thistle <i>Cirsium arvense</i> , common nettle <i>Urtica dioica</i> , cherry laurel <i>Prunus laurocerasus</i> , snowberry <i>Symphoricarpos</i> spp., buddleia <i>Buddleja</i> spp., cotoneaster <i>Cotoneaster</i> spp., Spanish bluebell <i>Hyacinthoides hispanica</i> (or hybrids).		

Condition Sheet: WOODLAND Habitat Type - w1f7-1

Condition Assessment Criteria		Score
1	Age distribution of trees ¹	2
2	Wild, domestic and feral herbivore damage	3
3	Invasive plant species ³	1
4	Number of native tree species	3
5	Cover of native tree and shrub species	3

6	Open space within woodland ⁴	3
7	Woodland regeneration ⁵	2
8	Tree health	3
9	Vegetation and ground flora	2
10	Woodland vertical structure ⁶	1
11	Veteran trees ⁷	3
12	Amount of deadwood	1
13	Woodland disturbance ⁸	3
Total Score (out of a possible 39)		30
Condition Assessment Result		Condition Assessment Score
Total Score of 26 to 34		Moderate (2)
Notes		
Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch, cherry or Sorbus: 0 - 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). A recognisable age class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age class' of young trees. Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed. Footnote 3 - See EWBG method INDICATOR 3 for more information. Check for presence of the following invasive non-native species: American skunk cabbage <i>Lysichiton americanus</i>; Himalayan balsam <i>Impatiens glandulifera</i>; Japanese knotweed <i>Fallopia japonica</i>; Cherry Laurel <i>Prunus laurocerasus</i>; Shalloon <i>Gaultheria shallon</i>; Snowberry <i>Symphoricarpos albus</i>; Variegated yellow archangel <i>Lamium galeobdolon</i> subsp. <i>argenteum</i>; and Rhododendron <i>Rhododendron ponticum</i>. Footnote 4 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (e.g. glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (e.g. tarmac, buildings, rivers). Area is at least 10m wide with less than 20% covered by shrubs or trees. Footnote 5 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, the regeneration indicator is gathers additional information by considering regeneration potential i.e. if seedlings, saplings and young trees are all present that means natural regeneration processes are happening. Footnote 6 - This indicator is looking at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer. Footnote 7- See EWBG method INDICATOR 12 for more information. All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features: 1. Rot sites associated with wounds which are decaying >400 cm²; 2. Holes and water pockets in the trunk and mature crown >5 cm diameter; 3. Dead branches or stems >15 cm diameter; 4. Any hollowing in the trunk or major limbs; 5. Fruit bodies of fungi known to cause wood decay.		

Footnote 8 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery or animal poaching; litter."

Appendix 4: Full PRA Results - Buildings

Buildings

Attribute	Building 1	Building 2
Type	School Building	Shed
Presence of roof void	Yes	No
Year built	Present-1960	Present-1960
Aspect	Southeast	Southeast
Wall material	Brick	Brick
Presence of other wall materials	Plastic cladding	Wooden cladding
Condition of other wall materials	Poor	Poor
Presence and form of roof	Present, gable and valler	Present, simple gable
Presence of roof void	Yes	No
Type of roof covering	Felt lined, slate	Felt lined
Condition of roof covering	Moderate	Moderate
Presence and form of eaves	Present. Standard fink truss.	No Present
Eaves condition	Good	N/A
Presence of flashing	Present	Not present
Condition of flashing	Moderate	N/A
PRF 1 Type	Broken cladding	Broken cladding
PRF 1 Exposure	Moderate	High
PRF 1 Size of PRF	10cm	5cm
PRF 2 Type	Broken cladding	
PRF 2 Exposure	High	
PRF 2 Size of PRF	8cm	

Attribute	Building 1	Building 2
PRF 3 Type	Broken cladding	
PRF 3 Exposure	Moderate	
PRF 3 Size of PRF	10cm	
PRF 4 Type	Broken ridge tile	
PRF 4 Exposure	Low	
PRF 4 Size of PRF	10cm	
PRF 5 Type	Broken ridge tile	
PRF 5 Exposure	Low	
PRF 5 Size of PRF	10cm	
PRF 6 Type	Broken cladding	
PRF 6 Exposure	High	
PRF 6 Size of PRF	8cm	
PRF 7 Type	Lifted/raised felt	
PRF 7 Exposure	High	
PRF 7 Size of PRF	10cm	
PRF 8 Type	Access at top of gable ends	
PRF 8 Exposure	Hgh	
PRF 8 Size of PRF	10cm	
PRF 9 Type	Broken cladding	
PRF 9 Exposure	Moderate	
PRF 9 Size of PRF	30cm	
PRF 10 Type	Access at top of gable ends	
PRF 10 Exposure	High	
PRF 10 Size of PRF	10cm	

Attribute	Building 1	Building 2
PRF 11 Type	Broken cladding	
PRF 11 Exposure	Low	
PRF 11 Size of PRF	5cm	
PRF 12 Type	Damaged ventilation feature	
PRF 12 Exposure	High	
PRF 12 Size of PRF	10cm	
PRF 13 Type	Broken cladding	
PRF 13 Exposure	High	
PRF 13 Size of PRF	8cm	
PRF 14 Type	Access at top of gable ends	
PRF 14 Exposure	High	
PRF 14 Size of PRF	10cm	
PRF 15 Type	Hole in fascia	
PRF 15 Exposure	Low	
PRF 15 Size of PRF	6cm	
PRF 16 Type	Access at top of gable ends	
PRF 16 Exposure	High	
PRF 16 Size of PRF	10cm	
PRF 17 Type	Access at top of gable ends	
PRF 17 Exposure	High	
PRF 17 Size of PRF	10cm	
PRF 18 Type	Access at top of gable ends	
PRF 18 Exposure	High	
PRF 18 Size of PRF	10cm	

Attribute	Building 1	Building 2
Distance to hedge	<100m	<100m
Distance to woodland	<100m	<100m
Distance to water	<100m	<100m
Surrounding area habitat quality	High	High
Level of disturbance/lighting	Low	Low

Appendix 5: Full PRA Results - Trees

Attribute	Tree 1	Tree 2
Tree species	Crack willow (<i>Salix fragilis</i>)	Crack willow (<i>Salix fragilis</i>)
Tree age	Mature	Mature
Tree height	20m	20m
Tree diameter	2.5m	2m
Tree condition	Good Health	Good Health
PRF 1 Type	Hollow Trunk or Branch	Hollow Trunk or Branch
PRF 1 Exposure	Moderate	Moderate
PRF 1 Size of PRF	6m	1.5m
PRF 2 Type		Hollow Trunk or Branch
PRF 2 Exposure		Moderate
PRF 2 Size of PRF		1.5m
Distance to hedge	<200m	<200m
Distance to woodland	Within a Woodland	Within a Woodland
Distance to water	<200m	<200m
Surrounding area habitat quality	Moderate	Moderate
Level of disturbance/lighting	Low	Low

Appendix 6: British Bats

9.4 Introduction

- 9.4.1 A summary of the biology of British bats and the legislation and policy that protects them is provided below.

9.5 Biology

- 9.5.1 There are 18 British species of bats, belonging to two families; the horseshoe bats (*Rhinolophidae*) and vesper bats (*Vespertilionidae*). Of the 18 species, two species are horseshoe bats and belong to the genus *Rhinolophus*. The remaining 16 species are vesper bats and are sub-divided between six genera; *Myotis*, *Eptesicus*, *Nyctalus*, *Pipistrellus*, *Plecotus* and *Barbastella*. Whilst there are many differences in the biology of the different species, all share certain characteristics and these are described below.

Roosting

- 9.5.2 Bat species utilise roost sites of varying character; some preferring tree roosts whilst others are thought to be almost entirely dependent on built structures. Most bats will have a number of available roosting sites within their range, which they move between throughout the year. They are generally faithful to their roosts and a colony of bats may use the same roost site(s) year after year.
- 9.5.3 Bats hibernate during the winter and will often gather to hibernate communally, remaining in the same hibernation roost from November to February/March. Hibernation roost sites typically have a constant low temperature and high humidity levels. Sites include caves, mines, thick walled buildings and hollow trees. With the arrival of spring, the ambient temperature and day length increase and bats begin to leave their hibernation roosts, either moving immediately to summer roost sites or occasionally, to a transitional roost.
- 9.5.4 By June, breeding females will begin to congregate in maternity roost sites where they will give birth to and nurture their young. Male bats are also occasionally found roosting in maternity roosts but during this period they mostly roost alone. Maternity roost sites include hollowed out trees, buildings and bridges. Male bats may use similar sites but also cracks and crevices in trees, under loose tiles or even amongst dense ivy growth during the summer period. Similar sites may be used by bats for brief periods during the night when they are resting or feeding on recently caught prey. In autumn, male bats establish mating roosts and are visited by females. A variety of roost sites may be used until the bats return to their hibernation roosts.

Foraging

- 9.5.5 All British bat species feed on invertebrates, with flies, beetles, moths and other insects making up much of their diet. Areas with an abundance of insect prey, such as woodlands, scrub, wetlands, river corridors and flower rich grasslands are therefore favoured foraging sites for bats. Habitats such as intensively farmed arable land, and amenity grassland support a much lower invertebrate abundance and are therefore less favoured foraging habitats for bats.

Commuting

9.5.6 Bats favour roost sites in close proximity to suitable foraging habitat, however, given variation in prey availability, land-use change, and competition with other bats, for at least part of the year bats must commute between their roosts and foraging habitat.

9.5.7 Commuting routes tend to follow linear features in the landscape such as hedgerows, woodland edges, rivers and other watercourses, particularly when crossing areas of less favourable habitat. The distance that bats commute between roost sites and foraging areas is dependent on local geography and also the species of bat. Some species will travel up to 18km, though shorter distances are more typical.

9.6 Site Designation

9.6.1 All bat roosts in the UK receive protection under the following legislation:

- Conservation of Habitats and Species Regulations 2017 (as amended) (which replaces the Conservation (Habitats &c) Regulations 1994 (as amended))
- Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way Act 2000 (which amends the Wildlife and Countryside Act); and
- Natural Environment and Rural Communities Act 2006 (which amends the Wildlife and Countryside Act).

9.6.2 This is described in more detail under 'Species Protection' below. In addition, the most important sites for certain bat species in the UK receive further statutory protection through designation of Special Areas of Conservation (SACs) and/or Sites of Special Scientific Interest (SSSIs).

9.6.3 Four UK bat species, the greater and lesser horseshoe, barbastelle and Bechstein's bats, are included on Annex II of the European Community Directive of the Conservation of Natural Habitats and of Wild Fauna and Flora, referred to as the Habitats Directive. The Habitats Directive was transposed into UK law by the Conservation of Habitats and Species Regulations 2017 (as amended). The Habitat Regulations, amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, now form stand-alone legislation for England and Wales, independent of the Directive. This legislation requires that areas are designated as Special Areas of Conservation (SACs) to protect populations of these 4 bat species. These sites form part of the National site network and are considered to be of international importance for the bat populations they support.

9.6.4 Sites designated under the Wildlife and Countryside Act 1981 (WCA) are known as Sites of Special Scientific Interest (SSSIs). SSSIs received further protection under the Countryside and Rights of Way Act 2000 (CRoW) and the Natural Environment and Rural Communities (NERC) Act 2006.

9.6.5 Some SSSIs are designated for the population(s) of bats that they support. The criteria for selecting SSSIs on the basis of their bat populations are provided in Guidelines for the Selection of Biological SSSIs (NCC, 1989):

- Greater horseshoe bat - all main breeding roosts and all winter roosts with 50 or more adult bats;
- Lesser horseshoe bat - all main breeding roosts containing 100 or more adult bats and all winter roosts containing 50 or more bats;
- Barbastelle, Bechstein's and grey long-eared bats - any traditional breeding roosts;
- Natterer's, Daubenton's, whiskered, Brandt's, serotine, noctule and Leisler's bats - only exceptionally large breeding roosts or those with a long history of use; and
- Mixed Roost sites - all hibernacula containing four or more species and more than 50 individuals or three species and 100 or more individuals or two species and 150 or more individuals, though these criteria may be lower in some parts of the UK.

9.6.6 Sites that qualify as SSSIs for the bat populations they support are considered to be of at least national importance.

9.6.7 Sites designated for nature conservation at the county level may also include bat populations as part of the site qualifying criteria, although the criteria used may vary from county to county. Such sites are protected through the planning system and there is generally a presumption against development that affects such sites in local authority development plans.

Planning Policy

9.6.8 The National Planning Policy Framework (NPPF) 2019, gives further direction with respect to biodiversity conservation and land use change / development. The NPPF encourages local planning authorities to identify, conserve and restore, ecological networks, which should benefit bats, and it also states that planning permission should be refused if significant harm to biodiversity cannot be avoided, mitigated or compensated. In addition, the Government Circular 06/05, which relates to biodiversity conservation, states that all protected species, such as bats, are a material consideration for the planning authority when considering proposed developments.

9.7 Species Protection

Legislation

9.7.1 All bat species are protected by the Conservation of Habitats and Species Regulations 2017 (as amended). The Regulations make it an offence, with very few exceptions, to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat in such a way as to be likely:
 - i. to impair its ability to survive, to breed or reproduce, or to rear or nurture its young; or
 - ii. to impair its ability to hibernate or migrate; or
 - iii. to affect significantly the local distribution or abundance of the species to which they belong.

- Damage or destroy a breeding site or resting place of a bat; or
- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

9.7.2 In addition to the protection given to bats under the Conservation of Habitats and Species Regulations 2017 (as amended) already described, bats are also partially protected in England under the Wildlife and Countryside Act 1981 (as amended), which adds the following offences (with certain exceptions):

- Disturbance while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructing access to any structure or place used for shelter or protection.

9.7.3 A roost is any structure or place used by bats for shelter or protection. As bats tend to re-use the same roosts year after year, the roost is protected whether bats are present or not, at the time.

9.7.4 In this context of the legislation, 'damage' would include such operations as treatment of wood with toxic preservatives or use of rodenticides near roosting bats while 'disturbance' includes any work in or affecting a bat roost.

9.7.5 If proposed actions, such as redevelopment of an existing building may lead to an offence under the above legislation, appropriate mitigation which seeks to avoid these impacts should be devised and implemented under licence from Natural England to allow the activity to proceed legally.

9.7.6 In addition to the above legislation, all bats are protected under the Bonn Convention, within which the Agreement on the Conservation of Bats in Europe (1991) or EUROBAT, establishes a mechanism for international collaboration to conserve bats and their habitats, including foraging habitats. All European bat species are covered under Appendix II of the Conservation of Migratory Species of Wild Animals (CMS).

9.7.7 The Hedgerow Regulations 1997 provide for the conservation of 'important' hedgerows and their constituent trees. The presence of a protected species such as bats is included in the assessment of whether a hedgerow is considered 'important' and applications to remove such hedgerows must be made to the planning authority.

9.8 UK Post-2010 Biodiversity Framework and Species of Principal Importance

9.8.1 Published by the Joint Nature Conservation Committee (JNCC) and the Department for Environment, Food and Rural Affairs (Defra) in July 2012, the UK Post-2010 Biodiversity Framework identifies UK-scale activities and priority works that are required to deliver the EU Biodiversity Strategy. Following a process of devolution, the framework is underpinned by country level strategies which are now largely responsible for continuing the work carried out under the former UK Biodiversity Action Plans (UK BAP). JNCC guidance dictates that UK BAP background information on priority species and habitats still remains relevant and it now forms the basis of country specific priority lists, which for England, are specified under Section 41 of the Natural Environment and Rural Communities Act 2006 (the NERC Act). Targets for England's biodiversity strategy 'Biodiversity 2020': A strategy for England's wildlife and ecosystem services, are informed by this list.

9.8.2 Seven species of bats (Barbastelle, Bechstein's, greater and lesser horseshoe, brown long-eared, noctule and soprano pipistrelle) have been adopted as Species of Principal Importance for the Conservation of Biodiversity in England. This places a duty on all government departments to have regard for the conservation of these species and on the Secretary of State to further, or promote others to further, the conservation of these species. Furthermore, the NPPF states that local planning authorities should promote the protection and recovery of priority species populations linked to national and local targets, which presumably means those listed under the Section 41 of the NERC Act, the former UK BAP and on Local or Regional priorities species lists.

9.9 References

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- 9.9.5** Her Majesty's Stationery Office (HMSO) (1981). Wildlife and Countryside Act 1981. Chapter 69. <https://www.legislation.gov.uk/ukpga/1981/69>
- 9.9.6** Her Majesty's Stationery Office (HMSO) (2006). Natural Environment and Rural Communities Act 2006. <https://www.legislation.gov.uk/ukpga/2006/16/introduction>
- 9.9.7** Highways Agency (1999 et seq) Design Manual for Roads and Bridges, Volume 10 Environmental Design and Management, Section 3 The Good Roads Guide- Nature Conservation, Part 6 Nature Conservation Management Advice in Relation to Bats.
- 9.9.8** Hundt L (2012). Bat Surveys: Good Practice Guidelines, 2nd Edition. Bat Conservation Trust, London.
- 9.9.9** JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). (2012). UK Post-2010 Biodiversity Framework. Available from: <http://jncc.defra.gov.uk/page-6189>.
- 9.9.10** Mitchell-Jones, A.J. & McLeish, A.P. (1999). Bat Workers' Manual (2nd Edition). Joint Nature Conservancy Committee, Peterborough
- 9.9.11** NCC (1989) Guidelines for Selection of Biological SSSIs. Nature Conservancy Council, Peterborough
- 9.9.12** Office of the Deputy Prime Minister (2005) Planning Policy Statement 9; Biodiversity and Geological Conservation.
- 9.9.13** Russ, J. (1999). The Bats of Britain and Ireland. Alana Ecology, Shropshire.

Appendix 7: Biodiversity Net Gain Habitat Creation

Proposed habitat	Area (ha)	Distinctiveness		Condition		Strategic significance		Temporal multiplier		Difficulty multiplier		Habitat units delivered
		Distinctiveness	Score	Condition	Score	Strategic significance	Score	Time to target condition (years)	Score	Difficulty of creation	Score	
Other woodland; broadleaved	0.010	Medium	4	Moderate	2	Medium	1.1	15	0.586	Low	1.00	0.05
Modified grassland	0.090	Low	2	Good	3	Medium	1.1	7	0.779	Low	1.00	0.46
Developed land; sealed surface	0.201	V. Low	0	N/A Other	0	Low	1.0	0	1.000	Medium	0.67	0.00
Blackthorn scrub	0.007	Medium	4	Good	3	Medium	1.1	10	0.700	Low	1.00	0.06
Hawthorn scrub	0.013	Medium	4	Good	3	Medium	1.1	10	0.700	Low	1.00	0.12

Appendix 8: Biodiversity Net Gain Habitat Enhancement

Proposed habitat	Area (ha)	Distinctiveness change (score)	Condition change (score)	Strategic significance		Temporal multiplier		Difficulty multiplier		Habitat units delivered
				Strategic significance	Score	Time to target condition (years)	Score	Difficulty of creation	Score	
Other woodland; broadleaved	0.085	Medium (4) - Medium (4)	Moderate (2) - Good (3)	Medium	1.1	10	0.700	Low	1.00	1.01

Appendix 9: Woodland Condition Assessment

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)
1	Age distribution of trees ¹	Three age classes present	Two age classes present	One age class present
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland ²	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland
3	Invasive plant species ³	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native

6	Open space within woodland⁴	10 - 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space
7	Woodland regeneration⁵	All three classes present in woodland; trees 4-7cm DBH, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high risk pest or disease present
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community
10	Woodland vertical structure⁶	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots
11	Veteran trees⁷	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps

13	Woodland disturbance ⁸	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground
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Condition Assessment Result	Condition Assessment Score
Total score >32 (33 to 39)	Good (3)
Total score 26 to 32	Moderate (2)
Total score <26 (13 to 25)	Poor (1)

All footnotes below refer to the EWBG woodland condition assessment methodology: EWBG (No date). Assessing your Woodland's Condition [online]. Available from: <https://woodlandwildlifetoolkit.sylva.org.uk/assess>

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch, cherry or Sorbus: 0 - 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). A recognisable age class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Check for presence of the following invasive non-native species: American skunk cabbage *Lysichiton americanus*; Himalayan balsam *Impatiens glandulifera*; Japanese knotweed *Fallopia japonica*; Cherry Laurel *Prunus laurocerasus*; Shalloon *Gaultheria shallon*; Snowberry *Symphoricarpos albus*; Variegated yellow archangel *Lamiastrum galeobdolon* subsp. *argentatum*; and Rhododendron *Rhododendron ponticum*.

Footnote 4 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (e.g. glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (e.g. tarmac, buildings, rivers). Area is at least 10m wide with less than 20% covered by shrubs or trees.

Footnote 5 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, the regeneration indicator is gathers additional information by considering regeneration potential i.e. if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 6 - See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level.

Footnote 7 - This indicator is looking at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer.

Footnote 8 - See EWBG method INDICATOR 12 for more information. All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400 cm²;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay.

Footnote 9 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery or animal poaching; litter.