LC Ecological Services

ECOLOGICAL APPRAISAL
37-39 HEATH HILL COTTAGES
HEATH HILL ROAD SOUTH
CROWTHORNE
BERKSHIRE
RG45 7BP

OCTOBER 2023

ON BEHALF OF

MEDAL DEVELOPMENTS LIMITED

LC Ecological Services

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[redacted]

Authorisation

	Name	Date
Report prepared by:	EL	13.10.2023
Report authorised by:	SH	19.10.2023

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It is company policy to share species records collected during our surveys with local biological records centres unless instructed otherwise by the client.

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SUMMARY

1. LC Ecological Services Ltd were appointed by Medal Developments Ltd to conduct ecological surveys on land at 37-39 Heath Hill Cottages, Heath Hill Road, Crowthorne, RG45 7BP, Ordnance Survey grid reference SU 83932 64026. The survey was required for the proposed construction of four attached dwellings and associated landscaping.

2. The site lies 710 metres to the west of Thames Basin Heaths Special Protection Area (SPA), Broadmoor to Bagshot Woods and Heaths Special Site of Scientific Interest (SSSI), 820 metres from Sandhurst to Owlsmoor Bogs and Heaths SSSI, 820 metres from Edgebarrow Woods Local Nature Reserve, Edgebarrow Hill and Wildmoor Heath Local Wildlife Site. Mitigation will be required in relation to the sites' close proximity to the Thames Basin Heaths SPA. This is discussed further in section 5.1.

3. The site holds limited biodiversity value comprising of sparsely vegetated land ruderal / ephemeral, hedgerow with standard tree, scattered trees, modified grassland, sealed surface and bare ground. This is discussed further in section 5.2.

4. No badger setts were s recorded on the site [redacted]

5. The site holds low potential to support foraging and commuting bats, due to its urban location. A single scattered tree on site may hold bat roosting potential but could not be assessed due to overgrown vegetation surrounding the tree. The development should incorporate a sensitive lighting scheme which is detailed further in section 5.4.

6. The site supports nesting bird habitat in the form of scattered trees and ruderal vegetation with bramble. Recommendations have been made in section 5.5.

7. Recommendations for ecological enhancements to the site have been provided in section 5.6 including the management and enhancement.

1.0 INTRODUCTION

LC Ecological Services Ltd were appointed by Medal Developments Ltd to conduct ecological surveys on land at 37-39 Heath Hill Cottages, Heath Hill Road, Crowthorne, RG45 7BP, Ordnance Survey grid reference SU 83932 64026. The survey was required in relation to the proposed construction of four attached dwellings and associated landscaping. A plan showing the location of the site has been included in appendix I.

An ecological appraisal is essentially a multi-disciplinary walk-over survey and was conducted with the objective of identifying any ecological constraints associated with any potential proposals such as the site's potential to support any legally protected species or habitats of high nature conservation value.

Section 2 of the report provides some background information on legislative requirements and relevant policy. Section 3 details the methodologies adopted for the various ecological surveys that were conducted and section 4 provides an account of the survey results. Section 5 provides information on the relevance of the results to any proposed development and makes recommendations for measures to mitigate and compensate for the effects on a particular habitat or species.

2.0 LEGISLATION AND POLICY

2.1 Legislation

The following legislation may be of relevance to the proposed works. Full details of statutory obligations with respect to biodiversity and the planning system can be found in DCLG Circular 06/2005.

- **The Conservation of Habitats and Species (Amendments) (EU Exit) Regulations 2019:** This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into domestic law. The Regulations provide protection for a number of species including:

    - All species of bat
    - Dormouse
    - Otter
    - Great crested newt.

    This legislation makes it an offence to deliberately capture, kill or injure individuals of these species listed on Schedule 2 and damage or destroy their breeding site or place of shelter. It is also illegal to deliberately disturb these species in such a way as to be likely to significantly affect: (i) the ability of any significant group of the species to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of the species[1];

    This legal protection means that where development has the potential to impact on bats, or other European protected species, the results of a protected species survey must be submitted with a planning application.

    Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are also protected under this legislation. These are a network of sites designated for supporting habitats or species of high nature conservation importance in the European context. Any activity that has a detrimental effect on these European sites is made an offence under the Regulations. Where a development is likely to have a significant impact on a European site, the Regulations require a rigorous assessment of the impacts, known as an Appropriate Assessment.

- **The Wildlife and Countryside Act 1981 (and amendments):** Protected fauna and flora are listed under Schedules 1, 5 & 8 of the Act. Species likely to be of relevance include:
    - All species of **bat.** It is an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost;

[1] The Conservation of Habitats and Species Regulations 2017 consolidates the numerous amendments that were made to the Conservation (Natural Habitats, &c.) Regulations 1994. Of particular relevance are amendments made in August 2007and January 2009 which an increased the threshold of illegal levels of disturbance to European Protected Species (EPS). An offence is only committed if the deliberate disturbance would result in significant impacts to the EPS population. However, it should be noted that activities that cause low levels of disturbance to these species continue to constitute an offence under Section 9 of the Wildlife and Countryside Act (see below).

- All species of British **reptile** (in particular grass snake (*Natrix helvetica*), common lizard (*Zootoca vivipara*), adder (*Vipera berus*) and slow worm (*Anguis fragilis*). It is illegal to kill or injure these species; and
- **Great crested newt.** It is illegal to obstruct access to any structure or place which great crested newts use for shelter or protection or to disturb any great crested newt while it is using such a place.

This Act also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). In addition, it is an offence to disturb any nesting bird listed on Schedule 1 or their young.

Schedule 9 of the Act lists those species for which it is an offence to cause their spread. Schedule 9 species that are most likely to be encountered are Japanese knotweed (*Fallopia japonica*) and New Zealand pigmyweed (*Crassula helmsii)*.

Sites of Special Scientific Interest (SSSIs) are also protected under the Wildlife and Countryside Act 1981. These are a network of sites identified as being of national nature conservation importance and hence afforded legal protection.

- **The Countryside and Rights of Way Act 2000:** This Act strengthens nature conservation and wildlife protection. It places a duty on Government Ministers and Departments to conserve biological diversity, provides police with stronger powers relating to wildlife crimes, and improves protection and management of SSSIs.

- **The Protection of Badgers Act 1992:** This Act makes it an offence to wilfully take, injure or kill a badger (*Meles meles*); cruelly mistreat a badger; interfere with badger setts. A licence is required for work which may damage or disturb a sett.

- **Wild Mammals (Protection) Act 1996:** This Act provides protection for all wild animals from intentional acts of cruelty.

- **Hedgerow Regulations 1997:** These Regulations establish a set of criteria for assessing the importance of hedgerows. Where a hedgerow is deemed to be 'important' its removal is prohibited without consent from the local Planning Authority

2.2 Policy

The following policy is of relevance to the proposed works:

- **National Planning Policy Framework (NPPF):** Chapter 15 of the National Planning Policy Framework (NPPF, 2023) '*Conserving and enhancing the natural environment*' sets out the Government's planning policies relating to biodiversity, landscape and geological conservation. The relevant paragraphs within this chapter include:

    - **Paragraph 174:** Recognise the wider benefits of ecosystem services and minimise impacts on biodiversity, providing net gains in biodiversity.
    - **Paragraph 175:** Planning positively and distinguishing between the hierarchy of designated sites and allocating land with the least environmental value and maintaining and enhancing networks of habitats and green infrastructure.

- **Paragraph 179:** Protect and enhance biodiversity and geodiversity by safeguarding wildlife-rich habitats and wider ecological networks; promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and securing biodiversity net gain.

- **Paragraph 180:** Refuse development if found to have significant harm to biodiversity; is on land within or outside a SSSI (Site of Special Scientific Interest) which is likely to have an adverse effect; if results in the loss of deterioration of irreplaceable habitats. Developments with the primary objective to conserve or enhance biodiversity will be supported, while opportunities to improve biodiversity in and around developments should be integrated as part of their design and can secure measurable net gains for biodiversity or enhance public access to nature.

- **Paragraph 181:** Protection to be given to potential SPA and possible SACs, proposed Ramsar sites, and sites identified or required as compensatory measures for impacts to these sites.

- **Local Sites (including Sites of Nature Conservation Interest (SNCIs), Local Nature Reserves (LNR), and Biological Notification Sites (BNSs)/County Wildlife Sites (CWSs)):** These are a network of sites designated for their nature conservation importance in a local context. Although they are not afforded legal protection they contribute towards local and national biodiversity. Where such development is permitted, the local planning authority will use conditions and/or planning obligations to minimise the damage and to provide compensatory and site management measures where appropriate.

- **Biodiversity Action Plans (BAPs):** BAPs set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets was strengthened through the Countryside and Rights of Way Act 2000. Habitat and Species Action Plans that are likely to be of relevance include:

  - Slow worm (*Anguis fragilis*) (UK BAP)
  - Grass snake (*Natrix helvetica*) (UK BAP)
  - Soprano pipistrelle bat (*Pipistrellus pygmaeus*) (UK BAP)

- **Local Planning Policy:** Bracknell Forest Local Plan was adopted in 2002.

  - Policy EN1 and Policy EN2 aims to protect the existing trees and hedgerows.
  - Policy EN3 aims to protect existing and potential SPAs, SACs and SSSIs, where negative impact are arising from a development, these will need to be mitigated against.

- Policy EN4 aims at ensuring that Local Nature Reserve (LNRs) and World Heritage Site (WHSs) are not affected adversely by development which is likely to have a detrimental effect on the nature conservation value of these sites, including public access.

3.0 METHODOLOGY

3.1 Desk study

The Multi-Agency Geographical Information for the Countryside (MAGIC) website was used to provide information on statutory sites within a two-kilometre radius of the site. Additionally, Thames Valley Environmental Records Centre (TVERC) was consulted to provide any information they may hold on non-statutory sites and protected species within a two kilometre radius of the site at 37-39 Heath Hill Cottages, Heath Hill Road South, Crowthorne.

3.2 Field study

3.2.1 Vegetation

The UK Habitat Classification version 2.0 (UKHab Ltd, 2023) was adopted whereby habitats are mapped using colour codes. The habitat map for the site is provided as appendix II with an accompanying key and target notes. A detailed walkover survey was undertaken on 11th August 2023 by Elen Lesourd, directly searching for legally protected and invasive species of plant and categorising any habitats of ecological value that were encountered. A general description of the vegetation was also noted, listing species encountered and scoring their abundance using the DAFOR scale:

D Dominant
A Abundant
F Frequent
O Occasional
R Rare
L Local (used as a prefix to any of the above)

3.2.2 Protected species assessment

Badgers

A direct search was undertaken for signs of badger. Signs of badger may include setts, dung pits, latrines, paths or hairs on fences and vegetation. Any setts encountered were classified according to the number of entrances and the extent of their use.

Bats

Potential for the site to support roosting, foraging and commuting bats was assessed by Experienced bat surveyor ecologist Elen Lesourd on 11th August 2023 in accordance with the Bat Conservation Trust (BCT) Bat Surveys for Professional Ecologists Good Practice Guidelines (Collins et al., 2016).

Buildings

Bats may roost in various places within buildings e.g. in cracks, crevices, brickwork, under tiles and within timber beam joints. They will often access roosts at key places such as the

gable end, soffits, bargeboards, ridge tiles, under broken/lifted tiles, between double lintels, around window frames, through open joints in brickwork, and through open doors or other building entrances.

The presence of roosting bats can be identified by signs such as accumulations of moth or butterfly wings, urine staining, bat droppings or bats themselves. The absence of these signs cannot, however, be treated as conclusive evidence that bats are not using a building. An assessment of the potential for the buildings on site to support roosting bats was carried out using the following scale presented in table 1 below:

Table 1: Classifying the bat roosting potential of buildings

Confirmed Roost	Evidence of bat occupation found.
High roosting potential	Buildings/structures with significant roosting potential, either because they contain a large number of suitable features or the features present appear to be optimal.
Moderate roosting potential	Features with moderate roosting potential. Features that appear less suitable for roosting.
Low / negligible roosting potential	Buildings with few, if any, features suitable for roosting. Features with low suitability for roosting.

Trees

The site was also assessed for its possibility to support bat roosting in trees. Bats often roost in trees. Features such as old woodpecker holes, splits, cavities and rot holes, loose or flaking bark and ivy creepers will be exploited by bats to roost. Any trees present on site were therefore assessed for their potential to support roosting bats by searching for such features. The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings, staining, bat droppings, or bats themselves. The absence of these cannot, however, be treated as conclusive evidence that bats are not present, and therefore an assessment was made of the potential of the trees to support bats based on the scale presented in table 2 below:

Table 2: Criteria for assessing bat roosting potential of trees

High Roosting Potential	Trees with multiple, highly suitable features capable of supporting larger roosts or features with evidence of bat occupation found.
Moderate Roosting Potential	Trees with definite bat potential, supporting fewer suitable features than high roosting potential trees or features with potential for use by single bats only.
Low or Negligible Roosting Potential	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features which may have limited potential to support bats. Trees with no identified potential to support bats.

Foraging and commuting habitat

The habitat on the site was assessed for the quality of potential foraging and commuting habitat to support the local bat populations. Bats navigate using linear features in the landscape, such as hedgerows and these can be important features for local roosts. The site itself may also

provide important foraging habitat and support local bat roosts. Annex II species of bat may use the site for foraging and commuting. The assessment of the habitats on site will inform the requirement for further survey work.

Breeding and foraging birds

The habitats on site were assessed for their potential to support breeding, foraging and over-wintering birds, including both arboreal and ground-nesting species, any rare, specialised, protected, notable or declining species, as well as more common and widespread species. Recommendations for further action are made where appropriate.

Great crested newts

Suitable breeding ponds are essential to support populations of great crested newt although they actually only spend a relatively short period of the year in the ponds during the spring for breeding. The remainder of the year is spent in suitable 'foraging' terrestrial habitat such as tall grassland and woodland. During the winter, the great crested newt hibernates, often amongst the roots of trees and scrub or in places such as piles of rubble, amongst foundations of buildings or under fallen trees and logs.

Great crested newts are known to forage up to at least five hundred metres from their breeding pond and suitable habitats that fall within two hundred and fifty metres must be considered even in situations where the breeding pond itself will not be affected. The site and surrounding area were therefore assessed for the presence of ponds that may provide suitable breeding habitat for great crested newt. Habitats within the site were also assessed for their suitability as terrestrial great crested newt habitat.

Hazel dormice

The habitat on the site was assessed for the potential to support the hazel dormouse, which are found in habitats such as woodlands, scrub and hedgerows with good connectivity and suitable food plants. A visual inspection for their distinctive nests was undertaken. Satellite images were used to assess the connectivity of any suitable habitat present on the site to other areas of woodland and hedgerow networks.

Reptiles

Reptiles are widespread in habitats that provide cover, in the form of scrub or tall vegetation, and basking areas such as areas of hard standing or short grassland communities. Reptiles are a notoriously difficult group to survey due to their secrecy. They do, however, have an affinity for hiding under debris exposed or partially exposed to the sun. This trait is exploited by adopting a methodology based upon placing artificial refuges around the survey site thus encouraging any reptiles present to use them.

In total twenty-five 0.25 metre square pieces of roofing felt were laid out in suitable positions in the site. The locations of the reptile mats are shown on the plan in appendix III. The reptile mats were distributed across the site on the 7th of September 2023 and left to 'settle' for a period of one week before the survey visits commenced. The 'reptile mats' were checked between 0900 and 1100 hours or between 1600 and 1900 hours and/or during suitable weather conditions, cloudy and/or with sunny breaks with temperatures between ten and twenty degrees

centigrade, when the refuges provide greater heat than the open ground. A total of seven checks were conducted between September and October 2023.

Limitations

The site was not fully accessible due to the overgrown tall ruderal vegetation including bramble recorded in most of the site.

An apple tree which appeared to be mature could not be fully assessed as it was surrounded by impenetrable vegetation.

The badger survey could not be completed as the site was overgrown and impenetrable in parts.

4.0 RESULTS

4.1 Desk study

Statutory and non-statutory sites

Table 3 below lists statutory designated sites within a five-kilometre radius and non-statutory sites within a two-kilometre radius of 37-39 Heath Hill Cottages, Heath Hill Road South, Crowthorne.

Table 3: Statutory sites within a five-kilometre radius and non-statutory sites within two kilometres of 37-39 Heath Hill Cottages, Heath Hill Road South, Crowthorne.

Site	Status	Distance from site	Size (Ha)	Habitat
Thames Basin Heaths	SPA[2]	0.71 km east	8309.5	Open heathland habitats overlie sand and gravel sediments which give rise to sandy or peaty acidic soils, supporting heathy vegetation. Site consists of heathland, scrub and woodland. Supports important breeding populations, notably nightjar (*Caprimulgus europaeus*) and woodlark (*Lullula arborea*).
Broadmoor to Bagshot Woods and Heaths	SSSI[3]	0.71 km east	1696.33	The site comprises broad-leaved woodland, coniferous plantation, dry and wet heathland, valley mire and base poor ponds. The site supports breeding rare species of invertebrates and bird species including woodlark and nightjar.
Sandhurst to Owlsmoor Bogs and Heaths	SSSI	0.82 km south	85.81	Lowland shrub heath with good cover of trees and scrub. Notable species include small red damselfly (*Ceriagrion tenellum*), bog bush-cricket (*Metrioptera brachyptera*), silver-studded blue (*Plebejus argus*) and nightjar.
Wellington College Bog	SSSI	1.23 km south west	6.24	Areas of dry heath and small areas of valley mire habitat. Dry heath has a high cover of dwarf shrubs. Notable species include bog bush-cricket, keeled skimmer (*Orthetrum coerulescens*), green hairstreak (*Callophrys rubi*), Dartford warbler (*Sylvia undata*), stonechat (*Saxicola rubicola*) and common reptiles.

[2] SPA: Special Protection Area
[3] SSSI: Site of Special Scientific Interest

Site	Status	Distance from site	Size (Ha)	Habitat
Heath Lake	SSSI	1.27 km north west	6	The site comprises a small shallow lake which is surrounded by birch (Betula sp.) pine (Pinus sp.) woodland. The pond is of importance as it supports a number of rare aquatic plant species.
Blackwater Valley	SSSI	3.03 km south	35.03	The site comprises unimproved alluvial meadows, swamp and wet valley alder wood. The site supports a diverse invertebrate fauna including a number of uncommon species
Castle Bottom to Yateley and Hawley Commons	SSSI	4.1km south	921.41	One of the largest remnants of lowland heathland is present in the Thames Basin, dry and wet heath. It supports nationally scarce upright chickweed (*Moenchia erecta)* and uncommon moonwort fern (*Botrychium lunaria)*. The site also supports valley mire. It supports nationally scarce small red damselfly (*Ceriagrion tenellum*) and the downy emerald (*Cordulia aenea*).
Wykery Copse	SSSI	4.67 km to the north west	3.15	The site comprises ancient broad-leaved woodland supporting an exceptionally diverse flora. The site supports a range of invertebrates and breeding birds.
Edgbarrow Woods	LNR[4]	0.82 km south west	36.8	Habitats include mixed, semi-natural high forest, wet and dry heathland and acidic, unimproved, lowland grassland. Bracknell Forest Borough Council Biodiversity Action Plan species include: devil's bit scabious (*Succisa pratensis*), round-leaved sundew (*Drosera rotundifolia*), glow-worm, bullfinch (*Pyrrhula pyrrhula*), hobby (*Falco subbuteo*), Dartford warbler noctule bat (*Nyctalus noctula*) and silver-studded blue butterfly.
Heathlake	LNR	1.27 km north west	22.27	Heathlake is an area of woodland and heathland. The shallow 7 acre lake is the only acid lake in Berkshire. This means it has a naturally low pH which supports several rare plants, including the water-millfoil (*Myriophyllum sp.*) and the 6 stemmed water crowfoot
Ambarrow Court	LNR	1.8 south west	7.79	The site is on the lower slopes of Ambarrow Hill which is the National Trust site to the north. Originally it was part of a Victorian country estate. Habitats include ancient woodland, birch and hazel coppice, marsh, ponds and

[4] LNR: Local Nature Reserve

Site	Status	Distance from site	Size (Ha)	Habitat
				pools and a meadow. Notable plants include bluebells and spring woodland flowers, cuckoo flower (*Cardamine pratensis*) and yellow rattle (*Rhinanthus minor*). Important animals include stag beetle, noctule bat and glow worm.
Wildmoor Heath	LWS	0.8 km south east	90.1	It supports dry and wet heath and wet woodland. It supports locally scarce plants such as bog asphodel, meadow thistle, bog pimpernel, golden-ringed dragonfly and small red damselfly
Edgebarrow Hill and Heath	LWS[5]	0.82 km south	38.76	A wide range of habitats were recorded including acidic woodland (mostly mixed plantation), lowland mixed deciduous woodland, lowland heath, lowland acid grassland, lowland fen and ponds. The site supports sand lizard, wood lark (*Lullula arborea*) and stag beetle (*Lucanus cervus*).
Butter Hill	LWS	1.7 south east	27.704	It supports lowland mixed deciduous woodland and lowland heath. Two blocks of woodland with large coniferous plantation and elements of heathland vegetation.
Broadmoor Bottom	LWS	1.9 km south west	9.4	In 2006 a colony of rare silver-studded blue butterflies was re-established at Broadmoor Bottom. The site is periodically grazed by British White cattle, cutting blocks of heather and clearing invasive birch
Land to the east and west of Sandhurst Road	LWS	2 km north west	39.34	It supports wet woodland, lowland mixed deciduous woodland, lowland heathland, fen (including remnant mire), remnant purple moor grass and rush pasture.

The proposed development lies within 0.71 kilometres of the Thames Basin Heaths SPA and Broadmoor to Bagshot Woods and Heaths SSSI. It also lies 0.8 kilometres from Edgebarrow Woods LNR, Wildmoor Heath SSSI, Edgebarrow Hill and Heath LWS. Further information is provided in section 5.1.

Protected and Notable Species

Table 4 below lists protected and notable species within a two-kilometre radius of the site provided by TVERC.

[5] LWS: Local Wildlife Site

Table 4: Protected and notable species within a two-kilometre radius of 37-39 Heath Hill Cottages, Heath Hill Road South, Crowthorne.

Common Name	Scientific name	Status	Location
Reptiles and amphibians			
Slow worm	*Anguis fragilis*	Schedule 5 WCA[6], UK BAP[7]	Over 1000 records, most recent dated 2021.
Common toad	*Bufo bufo*	Schedule 5 WCA	19 records most recent dated 2021
Grass snake	*Natrix helvetica*	Schedule 5 WCA, UK BAP	102 records most recent dated 2019.
Great crested newt	*Triturus cristatus*	Schedule 5 WCA, Schedule 2 Hab Regs[8], UK BAP	1 record dated 2019 located 405 metres to the north east of the site
Adder	*Vipera berus*	Schedule 5 WCA, UK BAP	242 records most recent dated 2020.
Common lizard	*Zootoca vivipara*	Schedule 5 WCA, UK BAP	349 records most recent dated 2021.
Mammals (terrestrial)			
European water vole	*Arvicola amphibius*	Schedule 5 WCA, UK BAP	1 record dated 2018.
West European hedgehog	*Erinaceus europaeus*	UK BAP	76 records, most recent dated 2022.
Eurasian badger	*Meles meles*	Protection of Badgers Act (1992)	[redacted]
Mammals (bats)			
Western barbastelle	*Barbastella barbastellus*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP, Habs regs Annex II	5 records most recent dated 2021
Bat species	*Chiroptera sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	41 records most recent dated 2010.
Serotine	*Eptesicus serotinus*	Schedule 2 Habs Regs, Schedule 5 WCA	18 records most recent dated 2020.
Myotis sp.	*Myotis sp.*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	10 records most recent dated 2022.
Natterer's bat	*Myotis nattereri*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	2 records dated 2021
Daubenton's bat	*Myotis daubentonii*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	4 records, most recent dated 2022.
Whiskered bat	*Myotis mystacinus*	Schedule 2 Habs Regs, Schedule 5 WCA	3 records most recent dated 2017.
Lesser noctule	*Nyctalus leisleri*	Schedule 2 Habs Regs, Schedule 5 WCA	6 records most recent dated 2017.

[6] WCA: Wildlife and Countryside Act (1981) (as amended)
[7] UK BAP: UK Biodiversity Action Plan
[8] Habs Regs: The Conservation of Habitat and Species Regulations 2017

Common Name	Scientific name	Status	Location
Noctule	*Nyctalus noctula*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	57 records most recent dated 2022.
Pipistrelle sp.	*Pipistrellus sp.*	Schedule 2 Habs Regs, Schedule 5 WCA	47 records most recent dated 2020.
Nathusius' pipistrelle	*Pipistrellus nathusii*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	2 records dated 2017 and 2018.
Common pipistrelle	*Pipistrellus pipistrellus*	Schedule 2 Habs Regs, Schedule 5 WCA	107 records most recent dated 2022.
Soprano pipistrelle	*Pipistrellus pygmaeus*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	87 records, most recent dated 2022.
Long-eared sp.	*Plecotus sp.*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	25 records most recent dated 2018.
Brown long-eared bat	*Plecotus auritus*	Schedule 2 Habs Regs, Schedule 5 WCA, UK BAP	44 most recent dated 2022.
Birds			
Common redpoll	*Acanthis flammea*	Amber List BoCC[9]	7 records within a 2 km radius of the site, most recent dated 2009.
Sparrowhawk	*Accipiter nisus*	Amber List BoCC	36 records most recent dated 2020.
Kingfisher	*Alcedo atthis*	Schedule 1 WCA, Annex 1, Amber List BoCC	51 records most recent dated 2020.
Meadow pipit	*Anthus pratensis*	Amber List BoCC	10 records most recent dated 2020.
Tree pipit	*Anthus trivialis*	Red List BoCC	69 records most recent dated 2020.
Swift	*Apus apus*	Red List BoCC	18 records most recent dated 2021.
Nightjar	*Caprimulgus europaeus*	Annex 1, Amber List BoCC, UK BAP	33 records most recent dated 2021.
Greenfinch	*Chloris chloris*	Red List BoCC	111 records most recent dated 2021.
Black-headed gull	*Chroicocephalus ridibundus*	Amber List BoCC	56 records most recent dated 2021.
White stork	*Ciconia ciconia*	Annex 1	1 record dated 2015.
Stock dove	*Columba oenas*	Amber List BoCC	25 records most recent dated 2021.
Wood pigeon	*Columba palumbus*	Amber List BoCC	262 records most recent dated 2021.
Rook	*Corvus frugilegus*	Amber List BoCC	10 records most recent dated 2013.

[9] BoCC: Birds of Conservation Concern v.4

Common Name	Scientific name	Status	Location
Cuckoo	*Cuculus canorus*	Red List BoCC, UK BAP	19 records most recent dated 2020.
Whitethroat	*Curruca communis*	Amber List BoCC	113 records most recent dated 2020.
Dartford warbler	*Curruca undata*	Schedule 1 WCA, Annex 1, Amber List BoCC	129 records most recent dated 2021
House martin	*Delichon urbicum*	Red List BoCC	13 records most recent dated 2019.
Reed bunting	*Emberiza schoeniclus*	Amber List BoCC, UK BAP	25 records most recent dated 2021
Peregrine	*Falco peregrinus*	Schedule 1 WCA, Annex 1	3 records most recent dated 2016.
Hobby	*Falco subbuteo*	Schedule 1 WCA	9 records most recent dated 2021.
Kestrel	*Falco tinnunculus*	Amber List BoCC	35 records most recent dated 2021.
Brambling	*Fringilla montifringilla*	Schedule 1 WCA	32 records most recent dated 2021.
Herring gull	*Larus argentatus*	Red List BoCC, UK BAP	8 records most recent dated 2021.
Common gull	*Larus canus*	Amber List BoCC	7 records most recent dated 2021.
Lesser black-backed gull	*Larus fuscus*	Amber List BoCC	5 records within a 2 km radius of the site dated 2021.
Linnet	*Linaria cannabina*	Red List BoCC, UK BAP	12 records most recent dated 2021.
Common crossbill	*Loxia curvirostra*	Schedule 1 WCA	57 records most dated 2020.
Woodlark	*Lullula arborea*	Schedule 1 WCA, Annex 1, UK BAP	46 records most recent dated 2021.
Nightingale	*Luscinia megarhynchos*	Red List BoCC	2 records dated 2011 and 2021.
Red kite	*Milvus milvus*	Schedule 1 WCA, Annex 1, Amber List BoCC	37 records most recent dated 2021.
Grey wagtail	*Motacilla cinerea*	Red List BoCC	37 records most recent dated 2021.
Spotted flycatcher	*Muscicapa striata*	Red List BoCC, UK BAP	3 records most recent dated 2021.
House sparrow	*Passer domesticus*	Red List BoCC, UK BAP	17 records most recent dated 2021.
Willow warbler	*Phylloscopus trochilus*	Amber List BoCC	72 records most recent dated 2021.
Dunnock	*Prunella modularis*	Amber List BoCC, UK BAP	121 records most recent dated 2021.
Bullfinch	*Pyrrhula pyrrhula*	Amber List BoCC, UK BAP	36 records most recent dated 2020.
Firecrest	*Regulus ignicapilla*	Schedule 1 WCA	20 records most recent dated 2021.
Whinchat	*Saxicola rubetra*	Red List BoCC	8 records most recent dated 2020.

Common Name	Scientific name	Status	Location
Tawny owl	*Strix aluco*	Amber List BoCC	28 records most recent dated 2021.
Starling	*Sturnus vulgaris*	Red List BoCC, UK BAP	35 records most recent dated 2021.
Wren	*Troglodytes troglodytes*	Red List BoCC	532 records most recent dated 2021.
Redwing	*Turdus iliacus*	Schedule 1 WCA, Red List BoCC	31 records most recent dated 2021.
Song thrush	*Turdus philomelos*	Red List BoCC, UK BAP	201 records most recent dated 2021.
Fieldfare	*Turdus pilaris*	Schedule 1 WCA, Red List BoCC	17 records most recent dated 2021.
Mistle thrush	*Turdus viscivorus*	Red List BoCC	38 records most recent dated 2021.
Invertebrates			
Purple emperor	*Apatura iris*	Schedule 5 WCA	2 records dated 2012 and 2015.
Glow worm	*Lampyris noctiluca*	Hamphire BAP	18 records most recent dated 2021.
Stag beetle	*Lucanus cervus*	Schedule 5 WCA, Schedule 2 Hab Regs, UK BAP	296 records most recent dated 2022.
Silver-studded blue	*Plebejus argus*	Schedule 5 WCA, UK BAP	113 records most recent dated 2021.
Non-native/invasive species			
Butterfly bush	*Buddleja davidii*	Non-native	1 record dated 2017.
Japanese knotweed	*Reynoutria japonica*	Schedule 9 WCA	6 records most recent dated 2018.
Rhododendron	*Rhododendron ponticum*	Schedule 9 WCA	14 records most recent dated 2018.

These records of protected and notable species in the vicinity of the site increase the likelihood of them being present where suitable habitat is identified in the field survey.

4.2 Field study

4.2.1 Habitats and vegetation

The accompanying habitat map provided as appendix II depicts the habitats encountered and highlights areas of particular interest with target notes. The site comprises mainly of sparsely vegetated land ruderal/ephemeral habitat with scattered trees and a native hedgerow, with a standard single oak tree (*Quercus robur*), with a tree preservation order. An area of modified grassland and artificial unvegetated and unsealed surface is location in the southwestern part of the site, whilst a built linear feature is located in the northeast and partially separating the site from the nearby car park.

Descriptions of habitats encountered are presented below.

Sparsely vegetated land - Ruderal / ephemeral essential secondary code 81, other secondary codes 202, 518, 532(Target note 1)

Most of the site comprise sparsely vegetated land of ruderal/ephemeral vegetation. This habitat has not been managed for some time and the vegetation is dense measuring between 1.5 and 2 metres high. Self-seeded scattered immature sycamores (*Acer pseudoplatanus*) are present within this habitat. Species include abundant common nettle (*Urtica dioica*), frequent bramble (*Rubus fructicosus agg.*), hedge bindweed (*Calystegia sepium*), and locally frequent hogweed (*Heracleum sphondylium*). An more open area with less dense vegetation is located on the northern boundary which supports mostly grass species and herbaceous species such as locally frequent smooth meadow grass (*Poa pratensis*), sterile brome (*Bromus sterilis*), foxglove (*Digitalis pupurea*), ivy (*Hedera helix*), occasional herb-Robert (*Geranium robertianum*), nipplewort (*Lapsana communis*), wood avens (*Geum urbanum*), and rarely occurring American willowherb (*Epilobium ciliatum*), woody nightshade and purple toadflax (*Linaria purpurea*) and black nightshade (*Solanum nigrum*).

Species within the ruderal are common and widespread however, it provides potential habitat for reptiles and great crested newts. This is discussed further in sections 4.

Hedgerow with standard tree, 11 (target note 2)

A hedgerow measuring approximately 25 metres in length, comprising of native and non-native species is located on the northwestern boundary of the site. The hedgerow also contains a standard pedunculate oak which has a TPO. This tree is large with a diameter at breast (DBH) height of approximately 80 centimetres and six metres in height. The hedgerow is managed irregularly and was measuring approximately four metres high at the time of the survey. The hedgerow is linked on the northern side to a Leylandii (*Cypressus x leylandii*) tree line. Species within the hedgerow comprise hazel (*Corylus avellana*), garden privet (*Ligustrum ovalifolium*), sycamore and oak.

Species within the hedgerow are common and widespread however, it provides potential habitat for reptiles, great crested newts, nesting birds and bats. This is discussed further in section 4.

Scattered trees (target note 3)

Four scattered sycamore trees are present within the ruderal habitat. These trees are immature and approximately 12 centimetres at DBH. One apple tree (*Malus sp.*) is located along the eastern fence. This tree appears mature however, it was not possible to assess the DBH of the tree due to the thick intervening vegetation.

The sycamore and the apple tree have the potential to support nesting birds and provides foraging habitat for bats and some refuge for reptiles and amphibians. Whilst the apple tree could also support roosting bats. Further recommendations have been made in section 4.

Modified grassland, 107, 108, (target note 4)

An area of modified grassland which is frequently mown to three centimetres high is located on the southern part of the site. The species encountered within the habitat are abundant

perennial rye-grass (*Lolium perenne*), ribwort plantain (*Plantago lanceolata*), frequent annual meadow grass (*Poa annua*), cats-ear (*Hypochaeris radicata*), occasional greater plantain (*Plantago major*), daisy (*Bellis perennis*), dandelion (*Taraxacum agg.*) and herb-Robert.

Species within the modified grassland are common and widespread however, it provides potential habitat for reptiles and great crested newts.

Artificial unvegetated unsealed surface (target note 5)

Bare ground is present in an area used for parking by the adjacent house. No species are present within the bare ground and the area holds no ecological value.

The bare ground holds no ecological value.

Sealed surface (target note 6)

Bitumen pavement is located on the most southern part of the site. No species are present within this area.

The sealed surface holds no ecological value.

Developed land, building (target note 7)

A shipping container is located on the southern part of the site and is surrounded by ruderal species. The container is measuring two metres wide by five metres long and three metres high. The building is well sealed.

The building, as it is well sealed, does not hold any ecological value.

4.2.2 Protected species

[redacted]

Bats

Trees

Young sycamore trees are located in the centre of the site however, due to their age, size and lack of roosting features, these are highly unlikely to support bat roosts.

The apple tree on the eastern boundary of the site, appear to be mature and may support features which could support roosting bats however, it was not possible to assess the tree fully, as no access was possible due to the overgrown vegetation surrounding it.

Further recommendations have been provided in section 5.4.

Foraging habitat

Records for eleven bat species were returned from a two kilometres radius from the site. Hedgerows and ruderal vegetation provide some suitable habitat to support foraging and commuting bats. The site is connected to the wider area through a series of gardens with mature trees to areas of broad-leaved woodland 365 metres south-west of the site. The site was assessed as holding low potential to support bat commuting and foraging.

Further recommendations have been made in section 5.4.

Breeding birds

Numerous birds' species were returned from a two-kilometres radius from the site. Common garden birds could breed on site within the tall ruderal, hedgerows and scattered trees on site. A wren (*Troglodytes troglodytes*) was observed along the hedgerows although no nests were recorded. It is likely that the site supports common birds for foraging and potentially breeding.

Further recommendations have been made in section 5.5.

Hazel dormice

No dormouse records were returned from a two-kilometre radius of the site. The site is located in an urban area and although it has numerous matures trees on site, it is not directly linked to optimal woodland habitat or species rich hedgerows. Therefore, due to the lack of records and connectivity to suitable dormice habitat within the immediate widder area, it is considered highly unlikely that dormice are using the site.

No further recommendations have been made.

Great crested newt

Terrestrial habitat

Tall ruderal vegetation, hedgerow and bramble scrub provide potential terrestrial foraging habitat for great crested newts. There are no ponds on site to support breeding great crested

newts. Only one record for the species was returned from a two-kilometre radius. It is located 600 metres to the northeast from the site. Matrix habitats and barriers such as high-density roads are located between the site and this record.

A large waterbody, Swan Lake, is located 450 metres to the southwest of the site, which is outside of the core sustenance zone. Low density urban habitat is located between the site and the lake. Due to the intervening distance and matrix habitats between the two, it is highly unlikely that the site supporting great crested newts.

No further recommendations have been made.

Reptiles

T tall ruderal vegetation, grassland and hedgerow habitats on site are suitable habitats to support reptile species. Numerous records were returned for the four widespread species and sand lizard (*Lacerta agilis*). However, the site is not suitable for the latter, which is restricted to heathland habitats and some habitats such as railway lines in close proximity of heathland.

Reptile surveys were conducted to ascertain the presence or absence of reptile species on the site. No reptiles were recorded on the site. Table 6 below details the survey results.

Table 6: reptile survey results at 37-39 Heath Hill Cottages, Heath Hill Road South, Crowthorne

Visit	Date	Time	Weather	Temp (°C)	Common lizard	Slow worm	Adder	Grass snake
1	7.09.23	9:00	C/C 4/8, wind 1	18	0	0	0	0
2	11.09.23	10:00	C/C 2/8, wind 3	20	0	0	0	0
3	13.09.23	09:50	C/C 4/8, wind 3	15	0	0	0	0
4	15.09.23	09:30	C/C 0/8, wind 2	15	0	0	0	0
5	21.09.23	10:00	C/C 1/8, Wind 2	14	0	0	0	0
6	22.09.23	10.45	C/C 5/8, wind 2	16	0	0	0	0
7	2.10.23	10.45	C/C 7/8, wind 1	19	0	0	0	0

No further recommendations have been made.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The site at 37-39 Heath Hill Cottages, Heath Hill Road, Crowthorne is of limited ecological value with ruderal, modified grassland, scattered trees and hedgerows with mature trees. Development of the land in the absence of mitigation is anticipated to have the following impacts.

- Impacts to the nearby designated sites through direct impacts from noise, visual disturbance, pollution or indirect impacts such as increased recreational pressure, spread of invasive species and cat predation.
- The loss of biodiversity units on site.
- [redacted]
- The loss of foraging and commuting habitat for local bat populations through loss of habitat or disruption from light pollution.
- The damage or destruction of active bird nests and the loss of nesting habitat.

Recommendations have been made below in regard to minimising these impacts and suggestions that will be required to be included within any masterplan for development on the site.

5.1 Designated and non-designated statutory sites

5.1.1 Summary of findings

Thames Basin Heath SPA and Broadmoor to Bagshot Woods and Heaths SSSI

The site is 710 metres from Thames Basin Heaths SPA which is internationally designated for the nightjar and woodlark populations that are present.

The Conservation of Habitats and Species Regulations 2019 (the Regulations) impart a duty on Local Planning Authorities (competent authorities) to carefully consider whether any proposals may have a significant effect on a European site, either alone or in combination with other plans or projects.

The SPA is designated for ground-nesting bird species that would be particularly vulnerable to cat predation and the heathland habitat itself is extremely vulnerable to accidentally or deliberately started fires. Urbanisation also increases the risk of introducing invasive species such as Japanese knotweed (*Reynoutria japonica*) that can out-compete native vegetation and reduce breeding site availability for birds.

No part of the proposed development site falls within the boundary of this European Protected Site. At their closest point they are 710 metres to the east of the site. There is also the potential for direct impacts from the construction and operation of the site from effects such as noise, lighting, and dust, or from cats or introductions of invasive plant species, given the distance and location in relation to the designated sites.

The development will increase the number of residential units within five kilometres of the SPA, this has been shown to cause an increase in recreational use which leads to disturbance to the SPA by walkers; with dog walkers in particular increasing pressure on nesting birds. Recreational pressure also lead to damage of habitats through erosion and eutrophication as a result of dog fouling.

Edgebarrow Woods LNR, Wildmoor Heath LWS and Edgebarrow Hill and Heath LWS

The site also lies within 800 metres from Edgebarrow Woods LNR, Wildmoor Heath LWS and Edgebarrow Hill and Heath LWS. These sites support mixed, semi-natural high forest, wet and dry heathland and acidic, unimproved, lowland grassland, wet woodland. lowland mixed deciduous woodland, lowland heath, lowland acid grassland, lowland fen and ponds. It supports locally scarce plants such as bog asphodel (*Narthecium ossifragum*), meadow thistle (*Cirsium dissectum*), bog pimpernel (*Anagallis tenella*), golden-ringed dragonfly (*Cordulegaster boltonii*) and small red damselfly (*Ceriagrion tenellum*). The sites support sand lizard (*Lacerta agilis*), wood lark (*Lullula arborea*), and stag beetle (*Lucanus cervus*).

5.1.2 Implications of survey findings and recommendations for further action

Due to the potential pollution that could infiltrate through to the SPA, SSSI, LNR and LWS during construction either via ground water or spills, a Construction Method Statement (CMS) should be prepared and implemented. This should set out detailed methods of construction to avoid impacts to the designated sites. With these measures in place no direct or indirect impacts are anticipated as a result of the proposed development.

The following matters will be addressed in the CMS:

- Details of how materials / chemicals will be stored and controlled on-site to avoid pollution and siltation (for example, all plant will be fitted with drip trays in order to avoid potential pollution incidents and no re-fuelling will take place on the site).

- Details on the proposed construction methodology including factors such as construction access, methods of construction, timing of work and working hours.

- Industry standard dust and noise suppression methodology to be implemented.

5.2 Habitats

5.2.1 Summary of findings

The habitats recorded on the site hold limited biodiversity value. Few scattered trees, which are of medium distinctiveness appeared to be young and small and therefore, likely to be of low biodiversity score, however the apple tree appears to be mature and may score higher.

5.2.2 Implications of survey findings and recommendations for further action

A Biodiversity Net Gain is recommended to be undertaken to follow Policy LP46 Biodiversity of the Bracknell Forest Local Planning Authorities.

5.3 Badgers

5.3.1 Summary of findings

No badger setts were recorded during the walkover survey [redacted]

5.3.2 Implications of survey findings and recommendations for further action

It is recommended that the ground vegetation is cleared to 15 centimetres above ground level with brush cutters under the supervision of an ecologist. If no sett are discovered, the works can continue with no impacts to badgers. If a sett is discovered, the works must cease immediately and a licence to close the sett from Natural England must be sought.

Natural England's guidelines on disturbance levels from developments and licensing requirements are stated below.

- Foraging areas should be maintained or new foraging areas should be created.
- Access between setts and foraging / watering areas should be maintained or new ones provided.
- Development that isolates a badger territory by surrounding it with roads or housing results in problems such as increased road traffic collisions, and badger damage to gardens and houses. This should be avoided during the design of the development.
- Natural setts are usually favoured over artificial setts, so unnecessary closure of natural setts should be avoided.
- Badger tunnels can extend to 20 metres from the entrance holes and are located between 0.2 and several metres deep, depending on the soil and topography. Excavation work and heavy machinery should be kept well away from where it could result in damage to the sett or disturbance to any badger occupying the sett.
- Fires and chemicals should not be used within 20 metres of a sett.
- Trees should be felled so that they fall away from active setts and badger paths should be cleared of felled timber and scrub wherever possible.
- Disturbances, such as loud noise or vibrations, that might agitate badgers occupying a sett should be avoided or limited to areas well away from the sett.

5.4 Bats

5.4.1 Summary of findings

Foraging

Hedgerows, scattered trees and ruderal vegetation provide some foraging and commuting habitat for bats on site. These habitats are connected through a series of gardens to areas of optimal foraging habitat for bats just over 300 metres south-west of the site. A large number of common species of bat were recorded within 2 kilometres of the site. The site was assessed as holding low potential to support bat commuting and foraging.

Development of the site will likely result in the loss of foraging habitat and potential disturbance from lighting.

Trees

The sycamore sapling located in the centre of the site appear to be young and therefore highly unlikely to support a bat roost. The apple tree, due to be removed to facilitate the development, may support a bat roost. However, it was impossible to assess due to the overgrown vegetation surrounding the tree.

5.4.2 Implications of survey findings and recommendations for further action

Foraging and commuting

A lighting scheme will need to be produced to avoid any impacts on bat species foraging and commuting through the site. In accordance with Bats and Artificial Lighting in the UK (BCT, 2023), any new lighting to be installed as part of the development should incorporate the following measures to minimise impacts on nocturnal species such as bats:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used. LED luminaires should be used where possible.
- Direct lighting to be used only where it is needed and away from linear features by using accessories such as cowls or hoods on the luminaries. Luminaries should be placed at a suitable distance from the retained habitats (or dark corridors around them) to ensure that additional light spill dissipates. Retained habitats used by commuting and foraging bats (e.g., hedgerows and woodland fringe) should not be subject to additional lighting above the predevelopment baseline.
- Keep the height of lighting columns as short as possible, ideally three metres or less.
- Use of motion sensor activated or Central Management System (CMS) controlled security lighting triggered only when necessary.

- Light sources should emit minimal ultra-violet light, peak higher than 550nm and be of a warm/neutral colour <2,700 kelvin.

- Only luminaires with a negligible or zero Upward Light Ratio (ULR), and with good optical control, should be considered. Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.

- Bollard or low-level downward-directional luminaires should not be used within the developmental design.

- Internal lighting of new structures should be recessed where possible to prevent external light spill. Where Supporting Habitat is present, glazing treatments such as tinted, frosted or low transmission glazing treatments are not considered suitable ways of fully mitigating light spill.

- Lighting of a resting place or roost is considered an obstruction under the legislation protecting bats. No additional light levels above the predevelopment baseline can be directed at bat roosting locations or potential roosting features in trees.

Commuting corridors:

- All bat species are naturally light adverse. Artificial Light at Night (ALAN) targeting commuting and foraging routes will result in disruption to natural range. The severing of a key commuting route at distance from a known roost can cause roost desertion and this loss of a roosting site could constitute an offence under the legislation.

- The development must include the preservation of a dark corridor for commuting and foraging bats to allow landscape level movement of species. Surveys of existing light levels on proposed development sites must be undertaken and submitted with the planning application. This should cover the full moon and dark of the moon periods so that an assessment of bat activity on a proposed site can be ascertained. Light levels should be measured at one metre above ground level. A lux contour plan of light levels down to 0.5 lux, modelled at one metre above ground level, should be submitted with the application to demonstrate the retention of these dark corridors within the development's operation. Lighting plans presented in support of the planning submissions should be in accordance with the Bats and Artificial Lighting in the UK (BCT, 2023) guidance (section 4.53) to ensure they can be interpreted by non-technical specialists.

- Long eared species (*Plecotus sp*), Myotis species (*Myotis sp.*), Barbastelle (*Barbastella barbastellus*) and Horseshoe bats (*Rhinolophus ferrumequinum*) are noted as being highly susceptible to adverse impacts from lighting. Where the natural range or roosting of these species is recorded a dark lighting corridor of 10 metres in width around an existing commuting feature must be retained. Light levels within this corridor should be at or below 0.2 lux on the horizontal plane, and at or below 0.4 lux on the vertical plane. Mitigation will need to be evidenced through

light monitoring prior to occupation and bat monitoring surveys will be required in the following years after development.

- Where other bat species are present the dark corridor should be no less than five metres in width with a light level of <0.5 lux within the dark corridor. In both cases there should be sufficient space for light levels to disperse from the luminaries prior to start of the dark corridor. The dark corridor cannot be used to ensure light levels are reduced to the required lux level before impacting retained commuting features.

The impact of additional lighting as a result of the proposed development will be minimised through:

5.5 Breeding birds

5.5.1 Summary of findings

Scattered trees, tall ruderals with scrub and hedgerows provides suitable nesting bird habitat. The site is likely to support common birds associated with urban gardens.

5.5.2 Mitigation

The following precautions should negate risk of harming, injuring or contributing to the demise of these species:

- Vegetation clearance should be conducted outside of the bird nesting season which is considered to run from March to September.

- Where this is not possible a suitably qualified ecologist must check potential nesting habitat immediately prior to clearance.

- Where nesting birds are encountered, a five-metre exclusion must be put in place surrounding the nest and clearance must be postponed within the exclusion zone until the nestlings have fledged.

- Ecological enhancement measures described in section 5.6 will provide foraging and nesting opportunities for many species.

5.6 Ecological enhancement

A few suggestions for ecological enhancements across the site have been made:

- Provision of bat boxes and nest boxes for bird species such as swift (*Apus apus*), house martin (*Delichon urbica*) and house sparrow (*Passer domesticus*) on trees or dwellings is recommended. Bird boxes can be purchased from websites such as Alana Ecology

http://www.nhbs.com and Jacobi Jayne www.jacobijayne.co.uk, and their provision on site would enhance the habitat for the local bird population.

- Use of native shrubs and trees for landscaping schemes provides foraging habitat for a range of bird species. Suitable species include hazel, ash (*Fraxinus excelsior*), dog-rose (*Rosa canina*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*), hawthorn and field maple (*Acer campestre*).
- Flowering grassland seed mixes from a supplier of seeds of local provenance can be used to seed the new lawn within the design of the development (such as Emorsgate EL1). Such grassland provides better nectar sources for invertebrates and hence is of greater value for foraging birds, reptiles and amphibians.
- Provision of hedgehog houses will provide potential hibernation sites for hedgehogs. Hedgehog houses can be bought from http://www.wildcareshop.com. Small holes will be left in any fences separating the gardens of the development to allow hedgehogs to move freely throughout the site.

6.0 REFERENCES

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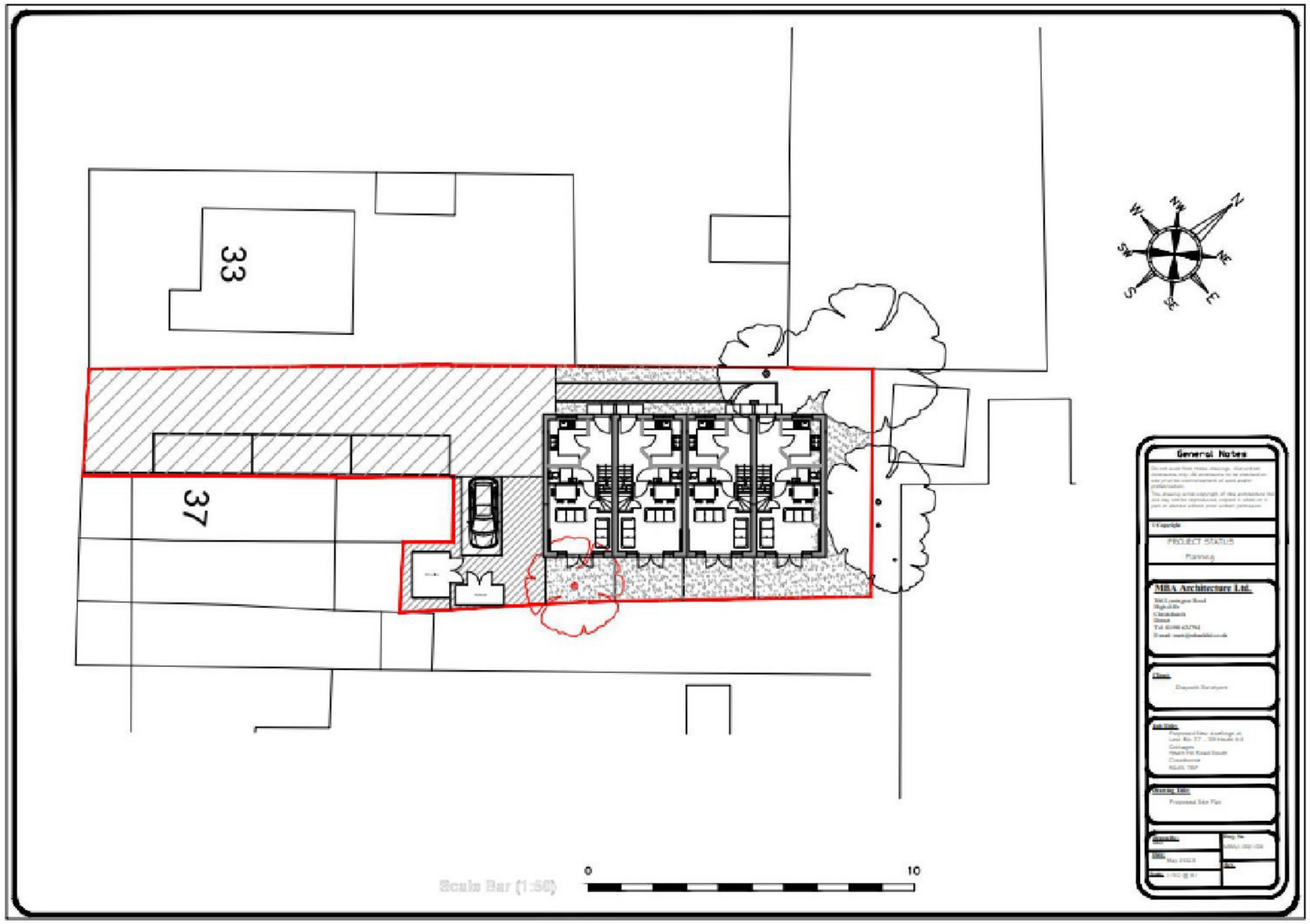
APPENDIX I: Habitat map

APPENDIX II: Proposed plans



APPENDIX III: Reptile surveys