



## Preliminary Ecological Appraisal

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**LIABILITIES:**

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing, and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snapshot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species may be recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

## 1.0 INTRODUCTION

### *Background*

1.1 The Ecology Partnership was commissioned by Runnymede Homes to undertake a Preliminary Ecological Appraisal (PEA) of land at Land at Hook Farm, Effingham Common, Norwood Farm, East Horsely, Surrey, KT24 5JE (Figure 1).

1.2 The key objectives of a PEA (CIEEM 2017) are to:

- Identify the likely ecological constraints associated with a project;
- Identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy' (CIEEM 2016; BSI 2013, Clause 5.2);
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- Identify the opportunities offered by a project to deliver ecological enhancement.

1.3 This report comprises the:

- Legislative and planning context (Section 1);
- Assessment methodologies (Section 2);
- Results (Section 3);
- Implications for development (Section 4);
- An impact assessment (Section 5);
- A biodiversity net gain review (Section 6) and
- Conclusions (Section 7).

### *Site Context*

1.4 The site is located to the east of Horsely, to the south of Effingham Junction and to the north of Effingham. The central grid reference is TQ 10355 54937. The immediate surrounds are Effingham Common to the north and west of the site. The immediate habitats to the north are grazed horse fields and to the south a residential unit and gardens. The wider landscape supports extensive ancient woodland.



*Figure 1: Site boundary (red line)*

### **Proposed Development**

- 1.5 The proposals are for the demolition of the existing buildings on site, and the construction of two new residential dwellings, with associated hardstanding and landscaping. The eastern half of the site is due to be retained and enhanced.

### **Planning Policies**

- 1.6 The application was assessed against policy guidance provided by the National Planning Policy Framework, as well as relevant planning policies from Guildford Borough Council. The Guildford Borough Council Local Plan 2015-2034 provides a framework for planning decisions in the district. Policies relevant to biodiversity and environmental protection have been included below:

- Policy P2: Green Belt
- Policy P3: Countryside
- Policy P5: Thames Basin Heaths SPA
- Policy ID4: Green and Blue Infrastructure
- Policy D2: Climate Change, Sustainable Design, Construction and Energy

- 1.7 The Environment Bill received Royal Assent on 9<sup>th</sup> November 2021 and is now enacted as the Environment Act 2021. Part 6 (Nature and Biodiversity) and Schedule 14 of the Environment Act 2021 insert a new section 90A and Schedule 7A into the Town and Country Planning Act 1990 (TCPA), which contain the provisions requiring

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mandatory biodiversity net gain for development granted planning permission pursuant to the TCPA. These provisions are not yet in force, but once they are enacted through implementing legislation, they will require developments to provide a biodiversity value post-development that exceeds the predevelopment biodiversity value of the onsite habitats by at least 10%. These provisions are not expected to come into force until January 2024 for new planning applications.

- 1.8 The assessment also takes into consideration nature conservation and wildlife legislation including, but not limited to, the Wildlife and Countryside Act 1981 (as amended), the Natural Environment and Rural Communities (NERC) Act 2006 and the Conservation of Habitats and Species (EU Exit) Regulations 2019.
- 1.9 The report has been produced with reference to current guidelines for PEA (CIEEM 2017) and in accordance with BS 42020:2013 Biodiversity – Code of Practice for Planning and Development.

## **2.0 METHODOLOGY**

### **Desktop Study**

- 2.1 A desktop study was completed using an internet-based mapping service ([www.magic.gov.uk](http://www.magic.gov.uk)) for statutory designated sites and an internet-based aerial mapping service ([maps.google.co.uk](http://maps.google.co.uk)) was used to understand the habitats present in and around the site, including identifying habitat linkages and features (ponds, woodlands etc.) within the wider landscape.
- 2.2 Records of protected/notable species and non-statutory designated sites within 2km of the site were requested from Surrey Biodiversity Information Centre (SBIC). Species records were screened for relevance and age and those that could occur on site.

### **Phase 1 Habitat Survey and UKHab**

- 2.3 The site was surveyed on 15<sup>th</sup> November 2023 by surveyors Digby Hayden BSc (Hons) QCIEEM and Ed Simpson BSc (Hons) MSc. The surveyors identified the habitats present, following the standard 'Phase 1 habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC) and the UK Habitat classification system (UKHab). The site was surveyed on foot and the existing habitats and land uses were recorded on an appropriately scaled map (JNCC 2010).

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### Protected Species Assessments

- 2.4 Any evidence of additional protected species was recorded. Standard methods of search and measures of presence, or likely presence based on habitat suitability were used for bats in trees and buildings (Collins 2023), breeding birds (BTO 2020), hazel dormice *Muscardinus avellanarius* (Bright *et al.* 2006), great crested newts *Triturus cristatus* (ARG 2010), reptiles (Froglife 2015), badgers *Meles meles* (Creswell *et al.* 1990) and water voles *Arvicola amphibius* (Strachan *et al.* 2011).

### Limitations

- 2.5 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment. The site was visited over the period of one site visit, as such seasonal variations cannot be observed and potentially only a selection of all species that potentially occur within the site have been recorded. Therefore, the survey provides a general assessment of the potential nature conservation value of the site and does not include a definitive plant species list.
- 2.6 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on-site, based on the suitability of the habitat and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group. The assessment is only valid for the time when the survey was carried out. Additional surveys may be recommended if, based on this assessment it is considered reasonably likely that protected species may be present.

## 3.0 RESULTS

### Desktop Study

- 3.1 There are three international statutory designated sites within 15km of the site (Figure 2):
- **Mole Gap to Reigate Escarpment**, Special Areas of Conservation (SAC), located approximately 4.7km east of the site.
  - **Thames Basin Heaths**, Special Protection Areas (SPA), located approximately 3.5km northwest of the site.
  - **South West London Waterbodies** Ramsar, SPA, located approximately 12.8km north of the site.

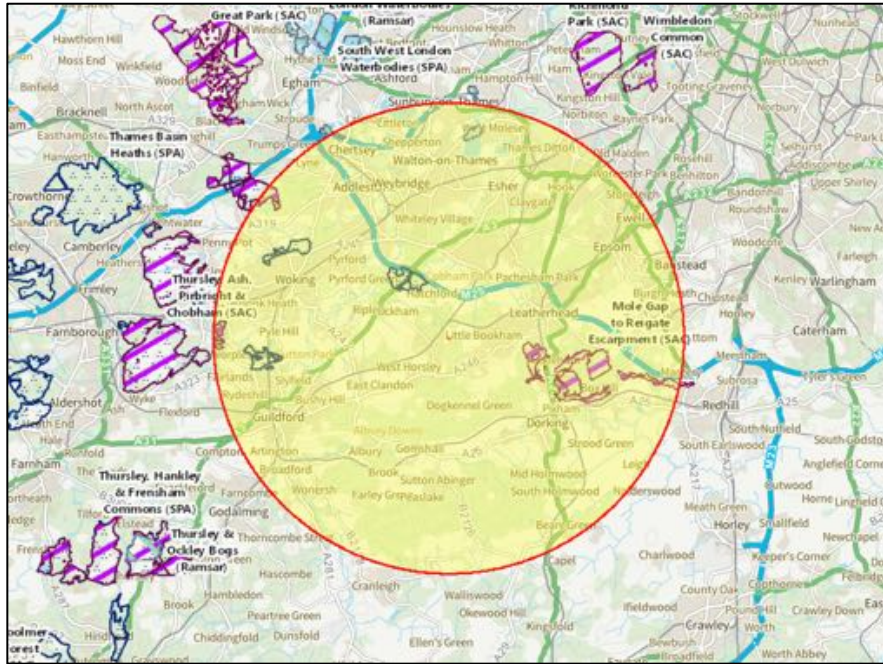


Figure 2: International designated sites within 15km (red circle) of the site.

3.2 There are no national statutory designated sites within 2km of the site, however the closest is Bookham Commons SSSI, located approximately 2.1km northwest of site. (Figure 3):

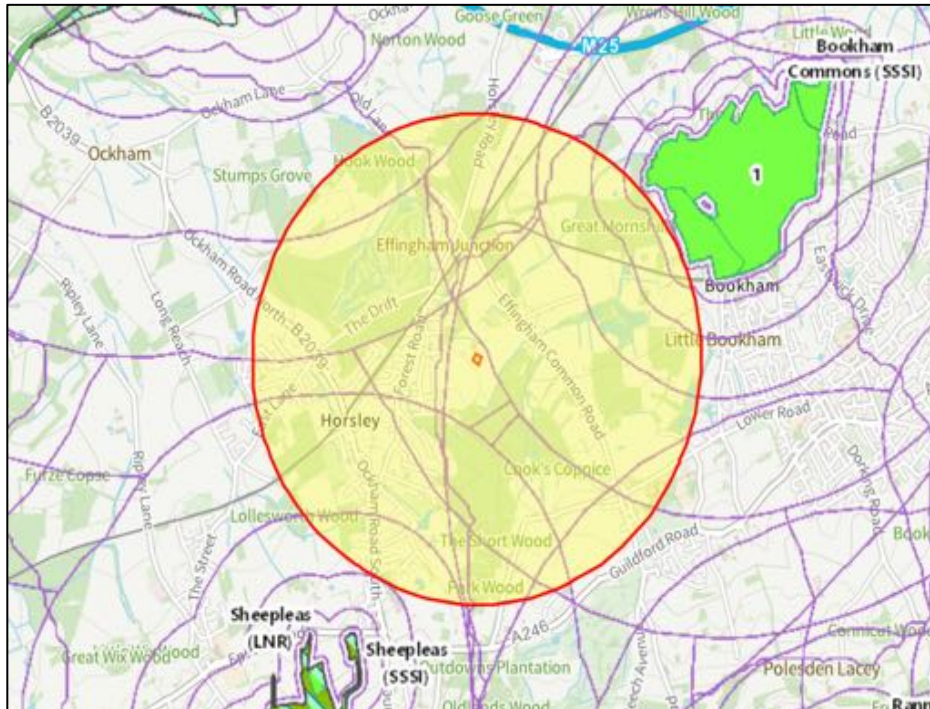


Figure 3: National designated sites within 2km (red circle) of the site.

3.3 There are four non-statutory designated sites within 2km of the site:

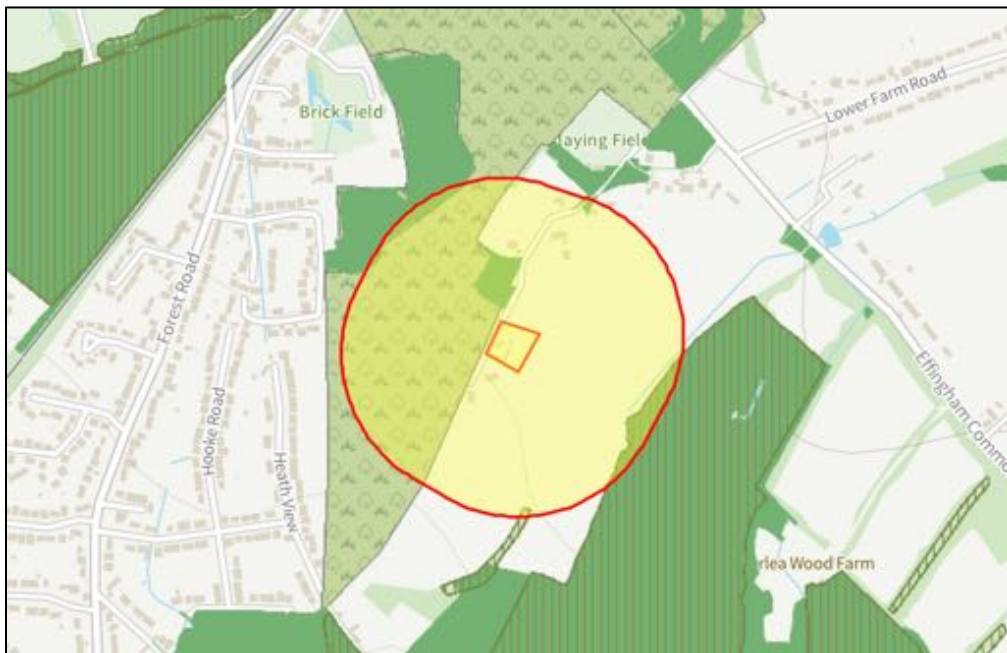
- The Drift Golf Club and The Forest SNCI, c. 650m northwest of site;

- Thornet Wood SNCI, c. 1km south of site;
- Riding's Wood SNCI, c. 1.05km east of site;
- Lollesworth Wood Site of Nature Conservation Importance (SNCI), c. 1.6km southwest of site.

3.4 Woodpasture and Parkland priority habitat is located 20m west of the site. Additional priority habitats within 1km of the site (as shown in Figure 4) include:

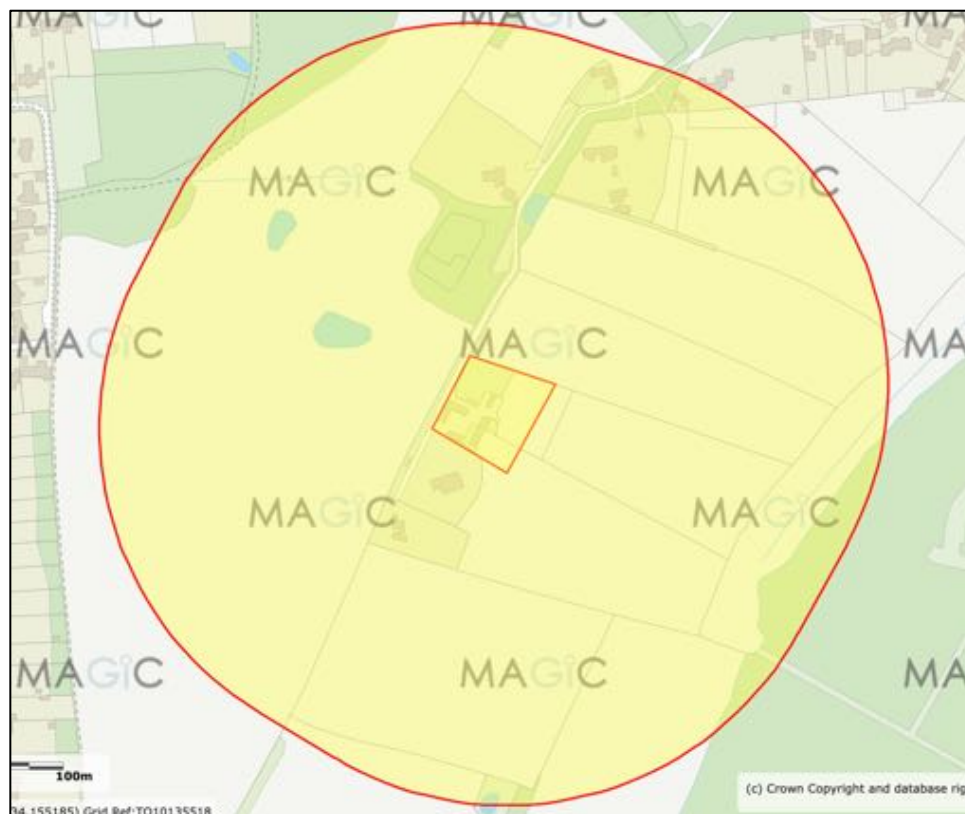
- Deciduous woodland located approximately 30m north of the site
- Ancient and semi-natural woodland located approximately 205m west of the site.

3.5 OS mapping and aerial images identified four ponds within 250m of the site, the closest being 75m west of site(Figure 5).



**Figure 4: Priority habitats within 1km of the site. Habitats present included: deciduous woodland (dark green), ancient replanted woodland (horizontal brown hatching), and woodpasture and parkland (light green with tree symbols).**





*Figure 5: Ponds present within 250m of the site.*

3.6 No European Protected Species (EPS) are present within 1km of the site. The closest past EPS licenses for each species is:

- **Bat** – located c. 1.7km south of the site, 2014 license for the destruction of a resting and breeding place for brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*.
- **Dormouse** – located c. 3.4km south of the site, license for the damage of a resting place and impact to a breeding site.
- **Great Crested Newt** – located c. 13.6km south of the site, 2020-2028 license for the damage of a resting place.



Figure 6: EPS Licences granted for bats (blue squares) within 1km of the site.

- 3.7 The closest great crested newt class survey licence return with great crested newts present is 1.5km north of the site.
- 3.8 A 2km records search was requested from SBIC. Some species have not been included due to the age of the record and likelihood of presence on site due to habitat types (Table 1).

Table 1: Notable species records within 2km of the site.

Species	Status	Closest record to site
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Hab Dir A4, Hab Reg Sch2, NERC S41, WCA Sch5 s9.4b/s9.4c/s9.5a, UK BAP Priority	Within 2km May 2022
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	Hab Dir A4, Hab Reg Sch2, WCA, Sch5 s9.4b/s9.4c/s9.5a, NERC S41, UK BAP Priority	Within 2km May 2022
Brown long eared bat <i>Plecotus auritus</i>	Hab Dir A4, Hab Reg Sch2, WCA, Sch5 s9.4b/s9.4c/s9.5a, NERC S41, UK BAP Priority	Within 2km May 2022
Noctule bat <i>Nyctalus noctula</i>	Hab Reg Sch2, WCA Sch5 s9.4b/s9.4c, Bern-A2, Hab Dir A4	Within 2km May 2022
Great crested newt <i>Triturus cristatus</i>	Habitats Directive Annex II & IV; Conservation (Natural Habitats, &c.) Regulations 2017 (Sch. 2);	1km NW March 2020

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	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC S41	
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### Previous Survey Works

3.9 The site has been subject to a preliminary roost assessment (PRA) for bats in September 2023 (The Ecology Partnership, 2023). This included detailed internal and external assessments of all buildings on site, and their suitability to support roosting bats. The assessment found all buildings on site to provide ‘negligible’ potential for roosting bats.

### Phase 1 Habitat Survey and UKHab

3.10 The habitat map is presented in Appendix 1 and the site photos are in Appendix 2.

#### *Grassland*

3.11 The site contained four distinct areas of grassland, labelled in figure 7 below.



*Figure 7: Areas of grassland present on site.*

*Grassland 1*

- 3.12 Grassland 1 was a lightly managed area in the northwest of the site. Species present included creeping bent, perennial ryegrass, white clover and creeping cinquefoil.

*Grassland 2*

- 3.13 Grassland 2 was horse-grazed field, dominating the eastern section of site. This area is regularly grazed, and areas of bare earth were present due to livestock. The area was dominated by perennial ryegrass, with other species including cock's foot, Yorkshire fog and creeping buttercup.

*Grassland 3*

- 3.14 Grassland 3 was an area of unmanaged, fenced-of grassland in the southern corner of the site. Due to a lack of management, the grassland was tussocky, with a varied sward. Species present included creeping cinquefoil, false oatgrass, tufted hair-grass, creeping bent, perennial ryegrass and creeping buttercup.

*Grassland 4*

- 3.15 Grassland 4 was a small area of grassland at the edge of a hardstanding yard. The species were dominated by perennial ryegrass, Yorkshire fog and cock's foot.

***Bramble scrub***

- 3.16 An area of scrub was present in the south of the site, encroaching on grassland 3. The scrub was dominated by bramble, with common nettle and thistle species also present.

***Hedgerows***

- 3.17 Three hedgerows were present on site, labelled in figure 8 below.

*Hedgerow 1*

- 3.18 Hedgerow 1 was a native hedgerow with trees, which was lightly managed. Species present within this hedgerow included oak, bramble, hawthorn and rose.

*Hedgerow 2*

- 3.19 Hedgerow 2 was a native hedgerow, continuous with the field boundary to the northeast. Species present included bramble, hawthorn, blackthorn and rose.

*Hedgerow 3*

- 3.20 Hedgerow 3 was a native hedgerow separating the southern corner of site, continuing as a field boundary to the southeast. Species present included bramble, hawthorn, blackthorn, hazel and rose.



*Figure 8: Hedgerows present on site.*

*Buildings and hardstanding.*

- 3.21 Six buildings are located within the site (Figure 9) and were all subject to an internal assessment for roosting bats, as detailed within the PRA (The Ecology Partnership, 2023). The buildings included two active stables (B1 and B4), a corrugated metal barn (B2), an open barn used for hay storage (B3), and a connected, brick building (B5, B6 and B7).
- 3.22 The buildings were all in the western half of the site, and interconnected by a concrete yard, through which multiple small areas of tall forbs were growing. Species included common nettle, creeping thistle, spear thistle and false oatgrass.



*Figure 9: Four buildings within the site.*

## Protected Species

### *Bats*

3.23 Due to the limited size of the site, the hedgerows and grassland on site are limited in their foraging and commuting opportunities for bats. Therefore, it is considered that the site provides low suitability for flight-paths and foraging habitats.

3.24 None of the trees on site supported any potential bat roosting features.

3.25 The buildings within the site were assessed in a PRA by The Ecology Partnership in 2020, and were all found to have 'negligible' or 'none' potential to support roosting bats due to their lack of suitable features and generally open nature.

### *Badgers*

3.26 No evidence of badgers was recorded within the site, although badgers may be present in the local area given the open, green nature of the surrounding area.

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***Birds***

- 3.27 No evidence of nesting birds was observed during the survey, but the areas of dense vegetation and buildings on site all have the potential to support nesting birds.

***Dormice***

- 3.28 Whilst the hedgerows and scrub on site are considered suitable dormouse habitat, these habitats were small in nature, with limited ability to sustain a significant population. Furthermore, the desk study returned no records of dormice within 2km of the site and the closest past EPS licence was located approximately 3.4km south of the site.

- 3.29 As such, based on the retention of the limited amount of suitable habitat on site, the lack of local records and the distance to the closest past EPS licence, it is considered that dormice are unlikely to be present within the site and no further surveys are recommended. This species will not be discussed further within this report.

***Great Crested Newts***

- 3.30 Whilst no ponds were present on site, four ponds lay within 250m of site. The nearest pond to site is located approximately 75m west of the site and separated from site by an access track, and an area of open, publicly accessible grassland in Effingham Common.

- 3.31 The majority of habitats present on site including grassland, hardstanding and buildings, are considered unsuitable for GCN. Those habitats considered suitable for GCN are limited to the hedgerows and small area of scrub on site.

- 3.32 The desk study returned records of GCN from March 2020, located 1km northwest of site, within The Forest SNCI. The closest past EPS licence is located approximately 13.6km south of the site. The closest great crested newt class survey licence return with great crested newts present is 1.5km east of the site.

- 3.33 Despite the presence of ponds in the local area, the habitats present on site are limited in their size, their suitability for GCN and their connectivity to suitable GCN habitat in the surrounding area. The distance to the closest past EPS licence and newt class licence return are significant. As such it is considered that great crested newts are unlikely to be present within the site.

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### *Reptiles*

- 3.34 The suitable reptile habitat on site is limited to the tussocky grassland, scrub and field edges within the site. These areas provide the varied habitat structure commonly associated with native reptile species. The desk study returned no records of reptiles within 2km of the site.
- 3.35 As such, due to the limited amount of suitable reptile habitat on site, and the absence of reptile records in the local area, it is considered that the site has potential to support low numbers of reptiles.

### *Hedgehog*

- 3.36 The grassland, scrub and hedgerows were considered suitable to support hedgehog. Records of the species are present within 1km in the last 10 years. As such, the site has potential to support this species.

### *Other Species*

- 3.37 Due to a lack of suitable habitat, the site is not considered suitable for other protected species such as water voles and otters. As such, no further surveys are recommended, and the species will not be discussed further within this report.

## **4.0 DISCUSSION**

- 4.1 The following paragraphs consider the effects of the development on designated sites, priority habitats and protected and priority species. Where the desk study and Phase 1 survey provide sufficient evidence for an assessment of effects on any of these groups to be taken through planning, these are detailed below, the need for additional surveys and when and how these should be completed are summarised, if required.
- 4.2 Provisional recommendations are also given for means to enhance biodiversity net gain, following the principle (CIEEM et al. 2016) of following the mitigation hierarchy of; avoidance, minimisation of loss, compensation on site and biodiversity offset.

### **Effects on Designated Sites**

- 4.3 The site does not fall within or adjacent to any statutory and non-statutory sites. The Impact Risk Zones indicate the development will likely have no impact on SSSIs/SACs/SPAs and Ramsar sites.



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- 4.4 There are five international statutory designations within 15km of the site boundary. The closest of these sites is the Thames Basin Heaths SPA, located approximately 3.5km northwest of the site. The site therefore lies within the zone of influence (400m to 5km) based on policy NRM6. However, given the proximity of the site to Effingham Common (20m east), a strategic suitable alternative natural greenspace (SANG) already provided by Guildford Borough Council, any recreational pressure is likely to be offset. As such, any impacts to Thames Basin Heaths SPA are considered likely to be negligible.
- 4.5 The second closest is the Mole Gap to Reigate Escarpment, located approximately 4.7km west of the site boundary. The site therefore lies outside of the 800m buffer zone of the SAC, and as such, impacts are considered negligible.
- 4.6 South West London Waterbodies SPA is located 12.8km north of the site. At this distance a development of this size is not likely to impact the SPA.
- 4.7 Based on the distances of the closest international statutory sites and the scale of the proposed development, it is considered the proposed development will have no direct or indirect impacts on any designated sites.
- 4.8 There are four non-statutory designated sites within 2km of the site, the closest of which being The Drift Golf Club SNCI, which is located approximately 650m northwest of the site. Due to the distance of these non-statutory sites from the site boundary and the small nature of the site, it is considered that no direct negative impacts will occur as a result of any developments on site.

#### **Effects on Priority Habitats**

- 4.9 An area of deciduous woodland priority habitat is located 30m north of the site. This area is separated from the site by an access road, as well as an area of woodpasture and parkland. No related habitats are to be lost through development, and as such no impacts are considered likely.

#### **Effects on Protected Species**

##### ***Bats***

- 4.10 The site is considered to provide limited suitability for potential flight-paths and foraging habitats due to its small size.

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4.11 According to Bat Conservation Trust guidelines, it is important that proportionality is employed when recommending further survey work for bat species on a proposed development site. As stated within section 2.2.19 of the latest survey guidelines (2023), the following points need to be taken into account with regard to planning bat surveys:

- Likelihood of bats being present;
- Type of proposed activities;
- Scale of proposed activities ;
- Size, nature and complexity of the site;
- Species concerned;
- Number of individuals.

4.12 Considering the above and the small scale of the proposals, it is considered that activity surveys for bats would not be required. Furthermore, it is considered that the development of the site would not impact upon the ecological functionality of the local landscape.

4.13 The effects on roosting bats have been detailed in the PRA (The Ecology Partnership, 2023). Whilst no potential for roosting bats was identified on site, retention and buffering of the linear features on site using a sensitive lighting scheme is recommended.

4.14 In the unlikely event a bat or evidence of bats is found during works, then all works must cease and an ecologist consulted.

#### *Badgers*

4.15 Although no evidence of badgers was recorded on site, they may be present in the local area. They may use the site for commuting and foraging and precautionary construction measures are recommended. The guidelines are as follows:

- Any trenches or excavations on site should be either covered over at night or a plank of wood placed in so as to allow any mammals to escape if they were to accidentally fall in.
- Any open pipes or conduits laid should be blocked off each night to prevent any small mammals from entering them.
- Disturbances, such as loud noises, vibrations and flood lighting in association with night working should be minimised.

**Reptiles and GCN**

4.16 Despite four ponds lying within 250m of site, it is considered that the habitats on site provide limited suitability for GCN. Those areas that provide the most suitable terrestrial habitat in the scrub, tussocky grassland and hedgerows are to be entirely retained and enhanced through development. A Natural England Risk Assessment was undertaken (figure 10 below), which considers the likely effect of a GCN being harmed due to the amount of habitat lost. An ‘amber’ result is given which identifies possible harm to GCN during works. As such, reasonable avoidance measures are recommended to prevent an offence being committed as a result of works.

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.01 - 0.1 ha lost or damaged	0.3
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
	Maximum:	0.3
<b>Rapid risk assessment result:</b>		<b>AMBER: OFFENCE LIKELY</b>

**"Amber: offence likely"** indicates that the development activities are of such a type, scale and location that an offence is likely. In this case, the best option is to redesign the development (location, layout, methods, duration or timing; see **Non-licensed avoidance measures tool**) so that the effects are minimised. You can do this and then re-run the risk assessment to test whether the result changes, or preferably run your own detailed site-specific assessment. Bear in mind that this generic risk assessment will over- or under-estimate some risks because it cannot take into account site-specific details, as mentioned in caveats above. In particular, the exact location of the development in relation to resting places, dispersal areas and barriers should be critically examined. Once you have amended the scheme you will need to decide if a licence is required; this should be done if on balance you believe an offence is reasonably likely.

*Figure 10: Natural England Risk Assessment - Amber*

4.17 Whilst the majority of suitable reptile habitat on site is to be retained and enhanced, the small area of grassland in the north of the site may be impacted by works. Due to the small nature of the area, there is limited potential for any GCN and reptile population. As such, reasonable avoidance measures are recommended to avoid harming any reptiles.

4.18 Considering the above, it is recommended that the following Reasonable Avoidance Measures (RAMs) should be employed during any habitat clearance to avoid impacting reptiles or GCN:

- Any small areas of grassland or vegetation should be cleared in two stages, using hand tools only. The first cut should be to 150mm, with the area then left for 24 hours to allow any reptiles or GCN to vacate the area of their own accord, before a second cut to ground level.

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- Any brash piles should be removed sensitively and by hand, not using any heavy machinery. This is especially important if works are to take place during winter, when reptiles and other animals are likely to be hibernating within such features.
  - Any trenches/holes dug within the construction blue print should either be covered over at night, or a plank placed inside to assist any wildlife that may fall in.

4.19 If a reptile is identified on site during work, then the reptile will be moved to suitable retained habitat.

4.20 If a great crested newt is identified on site during work, then the following procedure must be followed:

- All works must cease immediately and Natural England and/or a great crested newt licenced ecologist must be contacted immediately to provide further advice.
- A licence might be required before works can recommence. If so, procedures will be followed to obtain a Natural England European Protected Species Mitigation Licence or the district level licence for the works.
- It is considered that if these methods are used on site, then it is considered that no individual great crested newt would be harmed as a result of the proposals.

### ***Birds***

4.21 The dense vegetation and buildings on site have the potential to support nesting birds. The removal of suitable vegetation and the buildings should be undertaken outside of the breeding bird season (March-September inclusive) or immediately after a nesting bird check by a suitably qualified ecologist. If active nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest.

### **Ecological Enhancements**

4.22 Several enhancements can be made to the final development to further opportunities for wildlife and to increase the biodiversity value of the final site.

4.23 Bird boxes can be hung on mature trees within the site or integrated into buildings within the new development to increase the number of breeding opportunities (Figure 11). Bird boxes hung on trees should be woodcrete (or similar) as they provide better thermal properties, are longer lasting and more durable than wooden boxes. The box

should be positioned on a north or east facing aspect and at least 2m above the ground if possible.



*Figure 11: Habibat Small Bird Nest Box.*

4.24 To enhance the local bat population and provide additional roosting opportunities within the site, tree-mounted bat boxes can also be installed in suitable retained trees onsite. Recommended boxes include:

- Vivara Pro WoodStone Bat Box – A general purpose bat box that supports a range of species (Figure 12). These can be hung on trees in a variety of heights and aspects in order to provide a variety of micro-climates.
- Large Multi Chamber WoodStone Bat Box – This is a multipurpose box designed for larger colonies and a range of bat species including pipistrelles, noctules and brown long-eared bats. These should be hung on mature trees around the site (Figure 12).



*Figure 12: Vivara Pro WoodStone Bat Box (left) and Large Multi Chamber WoodStone Bat Box (right)*

4.25 To support the invertebrates and bees attracted to the site by the surrounding vegetation and new planting, Bee Bricks (Figure 13) can be incorporated into the buildings. The Bee Brick can be used in place of a standard brick or block in

construction to create a habitat for solitary bees. Bee Bricks need to be placed in a warm sunny spot on a south-facing wall at a minimum height of 1m, with no vegetation obstructing the holes. No cleaning or management of the Bee Bricks is required.



*Figure 13: Bee bricks to be incorporated into the development.*

4.26 All adjoining garden fences on site should have a 13cm x 13cm hole at the bottom to provide a passageway for hedgehogs to travel between gardens and other habitats on site. Fences and walls are one of the main reasons why hedgehog numbers are declining as the amount of land available to them is reduced. To ensure that new residents do not block these 'highways', small signs can be erected above the hole, such as those produced by the People's Trust for Endangered Species (PTES), informing them of their purpose (Figure 14). Hedgehog boxes can also be installed within areas of greenspace in discrete locations against boundary features and/or scrub where they will be sheltered and undisturbed (Figure 14).



*Figure 14: Hedgehog highway sign for fences (hedgehogstreet.org) (left) and hedgehog box (right)*

## 5.0 IMPACT ASSESSMENT

- 5.1 This section of the report forms an Ecological Impact Assessment (EcIA) and is designed to quantify and evaluate the potential impacts of the development on habitats and species present on site or within the local area.
- 5.2 The approach to this assessment accords with guidance presented within the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018). In essence, an EcIA assesses the activities associated with a proposed scheme that are likely to generate changes within the identified zone of influences, on identified ecological features and receptors. The proposals are subsequently reviewed and mitigation and compensation measures are outlined which help to reduce negative impacts.
- 5.3 Table 2 below summarises the impacts and required mitigation for each receptor as previously detailed in the discussion.

*Table 2: Assessment of effects from the proposal after mitigation and compensation*

Feature	Scale of Importance	Mitigation/Compensation Required	Residual Effect
Designated Sites	National	None required – considerable distance from the site.	Not significant
Priority Habitats	National	None present on site, any related habitats being retained and enhanced. .	Not significant
On site habitats	Local	Based on the recommended habitat creation, the proposed development would result in a <b>+43.56%</b> gain in habitat units, and <b>+15.43%</b> in hedgerow units and will satisfy the trading rules.	Not significant
Bat (roosting)	Local	No potential for roosting bats on site	Not significant
Bats (commuting and foraging)	Local	Site boundaries considered likely to provide foraging/commuting routes..  Sensitive lighting should be implemented to avoid impacts on habitat. See PRA.	Not significant
Nesting Birds	Site	Mitigating direct harm to nests by removal of any suitable nesting habitat outside of nesting bird season or after a check by a suitably qualified ecologist.	Not significant

		Mitigation/Enhancement in the form of the installation of bird boxes.	
Badgers	Site	Construction safeguards should be implemented to avoid impacting badgers that might commute or foraging within the site.	Not significant
Reptiles	Site	All suitable habitat on site to be retained and buffered. Recommended RAMs to avoid killing and injuring individuals..	Not significant
Dormice	Site	All hedgerows and scrub to be retained and buffered	Not significant
GCN	Site	All suitable habitat on site to be retained and buffered. Recommended RAMs to avoid killing and injuring individuals.	Not significant
Water Voles and Otters	N/A	Considered unlikely to be present on site.	Not significant

## 6.0 BIODIVERSITY NET GAIN ASSESSMENT

6.1 The Small Sites Statutory Biodiversity Metric was used to calculate biodiversity losses and gains for terrestrial habitats within the application area. This metric underpins the Environment Bill's provisions for mandatory biodiversity net-gain in England and defines 'measurable' net gains.

6.2 The Biodiversity Metric uses habitat as a proxy for wider biodiversity with different habitat types scoring different values according to their relative biodiversity value. These are dependent on the condition and location of the habitat, in order to calculate '**biodiversity units**'.

6.3 The site has been assessed in terms of the condition assessment of the baseline and habitats were classified in more detail during this assessment.

6.4 The condition assessments provide further scrutiny of the measured habitats. The condition of habitats is dependent on a number of parameters, and may include aspects of management, the impact of invasive species and nutrient enrichment, which would affect species abundance and specific characterisation of habitat value.



### Site Specific DEFRA Metric Calculations

6.5 The habitats currently present on site have been divided into a number of habitat types. These are shown in Table 3. The existing linear features on site are detailed in Table 4.

**Table 3: Habitat Breakdown – Pre-Development (4575m<sup>2</sup>)**

Habitat	Area (m <sup>2</sup> )	Condition
Urban – Developed land; sealed surface	1319	This accounts for the buildings and hard standing on site.
Grassland – Modified Grassland	2607	This accounts for the species-poor grassland areas on site. (1418m <sup>2</sup> enhanced)
Grassland – Other Neutral Grassland	477	This accounts for the species-rich grassland areas on site. (Entirely enhanced)
Heathland and Shrub – Bramble Scrub	171	This accounts for the area of bramble scrub on site. (Entirely retained)
<b>Total</b>	<b>4575</b>	

**Table 4: Linear Feature Breakdown – Pre-Development 108m**

Habitat	Length (m)	Condition
Native Hedgerow with Trees	33	Used to classify the linear feature in the northern corner of site
Native Hedgerow	75	Used to classify the two native hedgerows on site
<b>Total</b>	<b>108</b>	

6.6 The area of bramble scrub, as well as all linear features are to be retained, with the areas of grassland in the east of the site being enhanced.

6.7 The habitat types and areas from the proposal are shown below in Table 5 and Table 6 for the new linear features. Figure 15 shows the proposed site plan.

**Table 5: Habitat Breakdown – Post Development (4575m<sup>2</sup>)**

Habitat type	Area (m <sup>2</sup> )	Condition
Urban – Developed land; sealed surface	955	The proposed buildings and hard standing. Condition 'N/A' by default
Urban – Vegetated Garden	1373	Used to describe the proposed private gardens Condition 'N/A' by default

Grassland – Modified Grassland	179.58	Used to describe the proposed areas of street scene
<b>Total (Including enhanced &amp; retained habitats)</b>	<b>4575</b>	Condition ‘ <b>moderate</b> ’



Figure 15: Proposed site layout

Baseline Units	Habitat units	1.4938	
	Hedgerow units	0.5648	
	Watercourse units	Zero Units Baseline	
Post-development Units	Habitat units	2.2433	
	Hedgerow units	0.6538	
	Watercourse units	0.0000	
Total net unit change	Habitat units	0.6504	✓
	Hedgerow units	0.0870	✓
	Watercourse units	0.0000	
Total net % change	Habitat units	43.56%	✓
	Hedgerow units	15.43%	✓
	Watercourse units	% target not appropriate	

Figure 16: Headline results of the BNG calculation

6.8 The retention of the area of bramble scrub, alongside the new areas of wildflower meadow are essential for the site to achieve a net gain in biodiversity value. With these

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areas, the site achieves a **+43.56%** gain in habitat units, and **+15.43%** in hedgerow units. Trading rules are also satisfied.

6.9 It should be noted, the biodiversity units calculated for the site post-development do not take into consideration other enhancement features such as bird nesting boxes, which should be installed across the site, as these are not measurable within the metric.

## 7.0 CONCLUSION

7.1 The site does not fall within or adjacent to any non-statutory sites and the Impact Risk Zones do not indicate the development will have any likely impact on statutory designated sites. Given the distance of the site from any designated statutory or non-statutory sites, alongside the lack of related habitat on site, it is considered the proposed development will have no direct or indirect impact on any designated statutory or non-statutory sites.

7.2 The site boundaries could provide foraging and commuting opportunities for bats. Sensitive lighting should be utilised throughout the development and enhancements and the installation of bat boxes will increase roosting opportunities.

7.3 A PRA was undertaken in September 2023 (The Ecology Partnership, 2023). The results of which found none of the buildings on site to support any potential for roosting bats. As such, no further bat surveys are recommended.

7.4 Although no evidence of badger activity, such as sett entrances, faeces, or badger hairs, was recorded within the site, they may be present in the local area given the arable nature of the surrounding areas. As a precaution, it is recommended that precautionary construction measures are implemented to avoid impacting badgers that might forage and commute on the site.

3.38 The removal of suitable vegetation and the buildings should be undertaken outside of the breeding bird season (March-September inclusive) or immediately after a nesting bird check by a suitably qualified ecologist. If active nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest.

7.5 As a precautionary measure, Reasonable Avoidance Measures have been recommended during habitat clearance to avoid impacting reptile and GCNs.

- 7.6 The site does not support suitable habitat for any other protected species, and no further surveys are required.
- 7.7 The proposals were assessed against the Defra 4.0 Small Sites Metric to determine the change in biodiversity value of the site. Due to the partial retention of scrub on site, alongside the planting of new areas of mixed scrub, a net gain of **+43.56%** gain in habitat units, and **+15.43%** in hedgerow units is achieved, as well as trading rules satisfied.
- 7.8 Recommendations for enhancements have been made within this report, including bat and bird boxes, and bee bricks, aimed at improving the ecological value of the site and providing a net gain in biodiversity post-development.

## 8.0 REFERENCES

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***Internet resources:***

Google Maps: [www.google.co.uk/maps](http://www.google.co.uk/maps)

Magic Interactive Map: [www.magic.gov.uk](http://www.magic.gov.uk)

**Appendix 1: Habitat Map**





**Appendix 2: Photos**

**Photograph 1:**  
Horse-Grazed  
field (G2)



**Photograph 2:**  
Bramble Scrub in  
tussocky  
grassland



<p><b>Photograph 3:</b> Tussocky Grassland (G3)</p>	
<p><b>Photograph 4:</b> Grassland (G1)</p>	



**Photograph 5:**  
Hedgerows 1 and  
2



**Photograph 6:**  
Hardstanding in  
the centre of site



**Photograph 7:**  
Grassland 4



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