

ECOLOGY MITIGATION AND ENHANCEMENT STRATEGY

North End Road, Yapton, West Sussex

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REPORT

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1 INTRODUCTION

1.1 Purpose and scope of this report

1.1.1 RPS was commissioned by Redrow Homes to prepare an Ecology Mitigation and Enhancement Strategy (EMES) for the residential development at Maypole Lane, Yapton, West Sussex.

1.1.2 The report has been prepared in relation to Condition 14 of outline planning permission Y/49/17/OUT, which states that:

No development shall commence until details the measures to avoid or mitigate ecological impacts and provide ecological enhancements as recommended in the Extended Phase 1 Habitat Survey prepared by Corylus Ecology and submitted with the planning application have been submitted to and approved by the LPA and no dwelling shall be occupied until the approved measures have been undertaken.

1.1.3 The report specifically sets out updated survey work undertaken during 2020 and the mitigation measures that will be employed to avoid construction-phase impacts on retained habitats and species and safeguard the biodiversity interests.

1.1.4 The report also details the ecological enhancements that will be provided as part of the development.

1.2 Site Description

1.2.1 The development is approximately 1.62 ha in size situated immediately off of Maypole Lane, to the north-west of the village of Yapton, West Sussex.

1.2.2 The site comprises an improved grassland field in the majority, with thin ruderal field margins, scattered trees, and a single building. The immediate surrounds to the north, east and west are rural, comprising further expanses of arable fields, whilst the main town of Yapton lies to the south.

1.3 Background

1.3.1 The site was subject to a Preliminary Ecological Appraisal (PEA) by Corylus Ecology in 2017 to inform the outline planning permission (Corylus Ecology 2017). This included a Phase 1 Habitat Survey and protected species scoping survey. No habitat that could support protected species was identified on site and, as such, no further work was undertaken.

2 ECOLOGY RECEPTORS

- 2.1.1 Due to the nature of the site, a walk-over was undertaken on the 7th July 2020 to ensure that the work undertaken to inform the outline permission (Corylus Ecology 2017) was still relevant with respect to the recommendations made in the report, as required by Condition 14.
- 2.1.2 The key features within the site were broadly similar to those found in 2017 and comprised:
- improved grassland covering the majority of the site;
 - tall ruderal vegetation along the field boundaries;
 - species-poor hedgerows and scattered mature trees;
 - stable-type buildings; and
 - a single storey wooden shed.
- 2.1.3 The 2017 work did not consider the stable-type buildings along the frontage of North End Road with respect to their potential to support bat roosts. As such, they were assessed during the 2020 walk-over.
- 2.1.4 Also, the grassland on site was previously not considered suitable for reptiles but had been allowed to grow longer and, as such, was now suitable. As such, further surveys were also undertaken for reptiles.

2.2 Bats

- 2.2.1 The buildings along North End Road were assessed for their suitability to support bat roosts during the 2020 walk-over. Each building was assessed from the outside and, where possible, the inside for evidence of bat roosts (droppings etc.) or features that could support roosts (slipped tiles, cavities in brick work etc.). Figure 1 shows the location of the buildings and associated surveys.
- 2.2.2 Building B1 was a single-storey, brick-built, garage-type building with a sloping, slate tiled roof. Inside, the roof was wooden framed, with much of the underside of the roof exposed. There were multiple potential roosting features (PRFs) comprising slipped/missing tiles across the roof. A small number of bat droppings were found in cobwebs near one of the doors into the building along with moth wings suggesting the building was in use by bats as a day roost/feeding perch.
- 2.2.3 Buildings B2 and B3 were similar, being open fronted stable buildings of a breeze-block and wood construction with corrugated asbestos roofing. These were considered to have negligible features to support roosting bats.
- 2.2.4 Due to Building B1's status as a confirmed roost, this building was subject to three emergence survey visits to characterise the roost.
- 2.2.5 Each survey started 15 minutes before dusk and continued for up to two hours subsequently. Surveyors with bat detection equipment watched each elevation for bats emerging. Table 1 provides the conditions during the bat survey.
- 2.2.6 Results from the bat surveys are detailed below in Table 2. This includes details of species found and roost types.

Table 1 Summary of bat survey conditions

Survey date (2020) and survey type (emergence/re-entry)	Survey time	Weather conditions	Sunset/sunrise time
09 th August emergence survey	20.18 – 21.48	Dry; 20% cloud; 27°C; wind 3	20.33
23 rd August emergence survey	19.51-21.36	Dry; cloud 80%; 18°C; wind 2	20.06
06 th September emergence survey	19.23 – 21.08	Dry; 70% cloud; 15°C; wind 1	19.38

Table 2 Results of bat emergence/re-entry surveys

Survey date (2020)	Species confirmed roosting	Roost type
09 th August emergence survey	None	N/A
23 rd August emergence survey	None	N/A
06 th September emergence survey	Soprano pipistrelle x 1 Pipistrelle species x 1	Day/feeding perch

2.2.7 Two bats were observed emerging from under missing tiles on Building B1 during the final survey, one soprano pipistrelle and one unidentified pipistrelle. No other bats were observed using the building. This suggest Building B1 is periodically used as a day roost by a low number of male/non-breeding female bats.

2.2.8 A low number of common bat species were otherwise recorded foraging and/or commuting through the site including common and soprano pipistrelle, noctule, serotine and myotis species.

2.2.9 Given the low conservation status of the roost, a Bat Mitigation Class Licence (BMCL) will be required in order to disturb/destroy the roost in Building B1.

2.3 Badgers

2.3.1 While there are no badger setts currently present within the site there is evidence that badgers forage along the southern site boundary.

2.4 Reptiles

2.4.1 The ruderal field margins and dense areas of grassland adjoining it provide suitable habitat for common species of reptiles. Therefore, further surveys were undertaken to determine the presence/likely absence of common and widespread reptile species.

2.4.2 The reptile surveys were carried out in accordance with the recommended methodology outlined in the Herpetofauna Workers' Manual (JNCC, 2003) and Froglife's Advice Sheet 10 (1999). The

surveys were undertaken in September and October 2020 (an optimum time for such surveys), by experienced ecologists.

2.4.3 The survey was conducted using artificial refugia made from roofing felt measuring 50 cm x 50 cm, 50 of which were placed across the site. These provide shelter and basking opportunities for reptiles, which can be recorded on or under the refugia during suitable weather conditions, i.e. avoiding periods of strong wind, heavy rain or extreme temperatures; typically, surveys are undertaken when the air temperature is between 9 and 20°C.

2.4.4 Results of the surveys are displayed below in Table 3. No reptiles were identified on site during the surveys.

Table 3: Common and widespread reptile survey results

Date	Species and Number	Temp. (°C)	Weather Conditions
23.09.2020	None	14	100% cloud, dry, wind Beaufort Scale 2
25.09.2020	None	11	30% cloud, dry, wind Beaufort Scale 4
29.09.2020	None	16	70% cloud cover, dry, wind Beaufort Scale 1
01.10.2020	None	15	30% cloud cover, dry, wind Beaufort Scale 2
06.10.2020	None	14	100% cloud cover, dry, wind Beaufort Scale 2
11.10.2020	None	14	40% cloud cover, dry, wind Beaufort Scale 2
14.10.2020	None	14	30% cloud cover, dry, wind Beaufort Scale 3

2.5 Nesting Birds

2.5.1 The scattered trees and species-poor hedgerows on site offer suitable nesting opportunities for a range of common bird species.

2.5.1 During the walkover survey a little owl was additionally recorded within the barn located beyond the site boundary to the south.

3 PROTECTION AND MITIGATION MEASURES

3.1 Habitat Protection

- 3.1.1 Best practice general environmental protection measures will be employed throughout construction to minimise potential risks and to react to any incidents that could result in environmental damage.
- 3.1.2 Retained habitat at the boundaries of the site will also be subject to protection through the installation and maintenance of fencing to prevent indirect damage or disturbance.
- 3.1.3 The layout has been designed to protect retained individual trees and their root systems. All site materials will be stored outside of the Root Protection Areas of all retained trees/ hedgerows. No construction activities related to the development will be carried out within Root Protection Areas (RPAs).

3.2 Lighting

- 3.2.1 In order to protect the context of the boundary hedgerows and trees, the lighting scheme for the final development will adopt the following parameters set out in the guidelines published by the Institute of Lighting Engineers (ILE, 2018).
- 3.2.2 Lighting will be installed where it is strictly needed for safety, and as low as guidelines permit.
- 3.2.3 The design will avoid the backlighting of boundary habitats and upward light spill through appropriate lighting specifications, the positioning of columns and angling of lighting units. Where possible LED lamps in the warm white spectrum (2700K to 3000K) will be used.
- 3.2.4 If essential lighting is needed near trees for safety, the lighting units will be positioned to avoid light spill on the tree and ensure that the trunks remain completely unlit.
- 3.2.5 The establishment of dark corridors on the boundaries of the completed residential development will maintain their ecological integrity as wildlife corridors and avoid any decline in their value for faunal species including foraging bats and nesting birds.

3.3 Badgers

- 3.3.1 An updated badger survey will be undertaken immediately prior to construction to ensure that no badger setts have been established within the site since the Phase 1 survey.
- 3.3.2 The following measures will be implemented to ensure that no badgers are harmed during the construction phase:
 - Heras fencing to be erected around all construction works to exclude foraging badgers from the works areas;
 - Any excavated holes to have a wooden board placed in them over night so as to provide a means of escape should any badgers accidentally enter the excavation;
 - Any chemicals to be securely stored at night in a locked container; and
 - In order to avoid attracting badgers to the works area any food waste must be disposed of in appropriate bins or removed from site at the end of each day.

3.4 Reptiles

- 3.4.1 No reptiles were identified on site during surveys in 2020. However, to ensure any small mammals or other wildlife using the field are cleared without harm (including any reptiles occurring in very low numbers), the following precautionary working methods which will be implemented:
 1. Vegetation cover will be reduced to a height of 100 mm – 150 mm with all cut material removed from the site minimising to avoid creating further places of cover and shelter. It

would be trimmed directionally, towards retained habitat (i.e. site boundary hedgerows) to encourage any reptiles present to move out of the way of the cut, towards retained habitat.

2. Where required, sections of species-poor hedgerow or any areas of bramble or scrub will be removed between September and February outside of the bird nesting season, or subject to inspection by an ecologist in advance of cutting back to confirm the presence/absence of active bird nests.
3. A second cut to ground-level (<75 mm) would be undertaken under the supervision of an ECoW at least 24 hours later to provide time for animals to move away from the works area. Any potential hibernacula or refugia encountered should be carefully dismantled by hand. All cut material would be raked off and removed from the site.
4. Following trimming, a destructive search of all suitable reptile habitat would take place to establish a bare ground working area. The topsoil would be progressively stripped under the supervision of the ECoW. Any potential hibernacula or refugia would be carefully excavated using a wide-toothed digger bucket that would gently lift the features under the guidance of an appropriately experienced ECoW, who would be present to capture any reptiles disturbed by the process and relocate them to suitable retained habitat around the boundaries of the site.
5. Following the destructive search, the land will be maintained as unsuitable for recolonisation by reptiles prior to the start of construction in these areas.

- 3.4.2 Vegetation clearance would be undertaken at a time of the year when animals are active (i.e. between March to October, depending on local weather conditions) and during suitable weather conditions for them to be mobile (i.e. reasonably warm with no rain).

3.5 Nesting Birds

- 3.5.1 All active bird nests will be protected during site clearance and construction activities. Protective fencing will be installed between the boundary hedgerows and the construction areas to protect any nests from damage.
- 3.5.2 During the main bird nesting season (March 1st to August 31st inclusive) clearance of any boundary vegetation with the potential to support nesting birds (including long grass and tall herb) will be subject to pre-clearance nesting bird checks by an ECoW no more than 48hrs prior to removal.
- 3.5.3 Nests and the activity of adults indicating the presence of a nest would be searched for in the area of clearance. Where the vegetation is too dense to confirm the absence of a nest, the ECoW will direct the site staff to carefully cut back the vegetation in stages to enable a comprehensive inspection.
- 3.5.4 Where checks by the ECoW have confirmed the absence of nests, the vegetation would be cut down to ground level within 24 hours. Should an active nest be encountered, the nest must be left undisturbed. The ECoW will define an exclusion zone around active nests, using line marker paint and / or barrier tape. No works will be permitted within the exclusion zone until the ECoW confirms the nest is no longer in use.

3.6 Bats

- 3.6.1 Due to the presence of a bat roost within Building B1, it will be necessary to demolish the building under a BMCL from Natural England. The building will be demolished at an appropriate time of year (depending on the weather). Roosting features will be soft-stripped by hand under the supervision of the licensed bat ecologist.
- 3.6.2 Prior to works commencing, a bat box (Schwegler 1B) will be affixed to retained mature trees on the frontage with North End Road (see Figure 2 for the location). Any bats encountered during the soft strip will be carefully placed within the bat box.

4 ECOLOGICAL ENHANCEMENT

4.1 Habitats

- 4.1.1 The development will include a range of habitats of wildlife value, including boundary hedgerows, gardens, trees and landscaped grassland.
- 4.1.2 The landscaping scheme will use native tree and hedgerow species. Night-scented flowering plants will be included to encourage foraging bats to use the site, post-development.
- 4.1.3 Although outside the control of Redrow Homes, once the properties are occupied, the residents will develop a range of garden types. Flowering plants will benefit invertebrate diversity and abundance and provide enhancement compared to the existing site. The popularity of wildlife friendly gardening should increase the proportion of new residents that incorporate features of value for wildlife.

Management

- 4.1.4 Hedgerows will be subject to cutting back annually or bi-annually in October to maintain a dense structure to the base. The hedgerows will be cut with a bladed tractor mounted cutter (or equivalent) and will not be flailed.
- 4.1.5 Any tree, scrub and hedgerow management carried out during the bird breeding season (March to August inclusive) will be subject to pre-works inspections by a suitably qualified ecologist and any active nests protected.
- 4.1.6 The retained mature trees have high biodiversity value in the context of the site, typically supporting a diverse assemblage of species. The trees will be allowed to continue to mature. Deadwood features will be retained where there are no significant for the health and safety issues. Crown reduction or thinning would be a last resort measure where there are no other options to avoid unnecessarily impacts on species and biodiversity. The status and health of the mature trees will be subject to periodic review. Should surgery become unavoidable due to tree health or stability; the tree would be subject to pre-works bat/nesting bird survey by a suitably qualified ecologist. Appropriate actions would be taken to ensure compliance of the proposed with wildlife legislation and all surgery would be completed in accordance with BS:3998.

4.2 Bat and Bird Boxes

Bats

- 4.2.1 In total, four bat boxes suitable for use as nursery or summer roosts by small crevice dwelling bat species will be incorporated into selected residential properties. The indicative positions of the bat boxes on new buildings are shown on Figure 2. The tubes will be installed where there are short flight line connections to suitable habitat.
- 4.2.2 Schwegler 1FR bat boxes, or an equivalent alternative design, providing the same internal conditions would be used. Each bat box will be installed flush with the wall or beneath a rendered surface at over 3m above ground level and in a location that will be unlit from artificial lighting.

Birds

- 4.2.3 Four bird boxes will be installed on residential properties throughout the development. The boxes will be a combination of Schwegler 1A, 1SP, 9a or equivalent suitable for small garden birds such as sparrows, swifts or house martins.
- 4.2.4 The indicative positions are shown on Figure 2. The boxes will be installed onto the wall or built into the brickwork directly underneath the roofline or eaves on the north or west facing elevations with good connectivity to surrounding habitat.

-
- 4.2.5 In addition, two Schwegler 1B bird boxes will be installed on trees close to the development boundaries. The boxes will be placed on at least 3m above ground level on the eastern or western side of the trunk.

4.3 Hedgehogs

- 4.3.1 The residential gardens will be potential habitat for hedgehogs, a species of principal importance with a rapidly declining UK population.
- 4.3.2 To ensure the majority of new residential gardens are accessible to hedgehogs, small 100x100 mm gaps will be created in the base of solid fence lines dividing gardens.
- 4.3.3 The indicative positions of the hedgehog access gaps are shown in Figure 1 with the lines on the plan defining the gardens that will be connected via these gaps. Gardens bounded by hedgerows would remain accessible to hedgehogs.
- 4.3.4 Adult hedgehogs typically require large home ranges and the proposed access gaps in the fences will ensure that individual hedgehogs can move throughout the site, significantly increasing the availability of food and shelter in the occupied residential development.

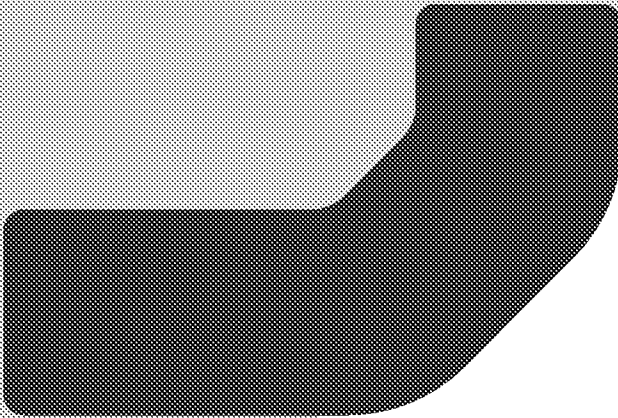
5 IMPLEMENTATION

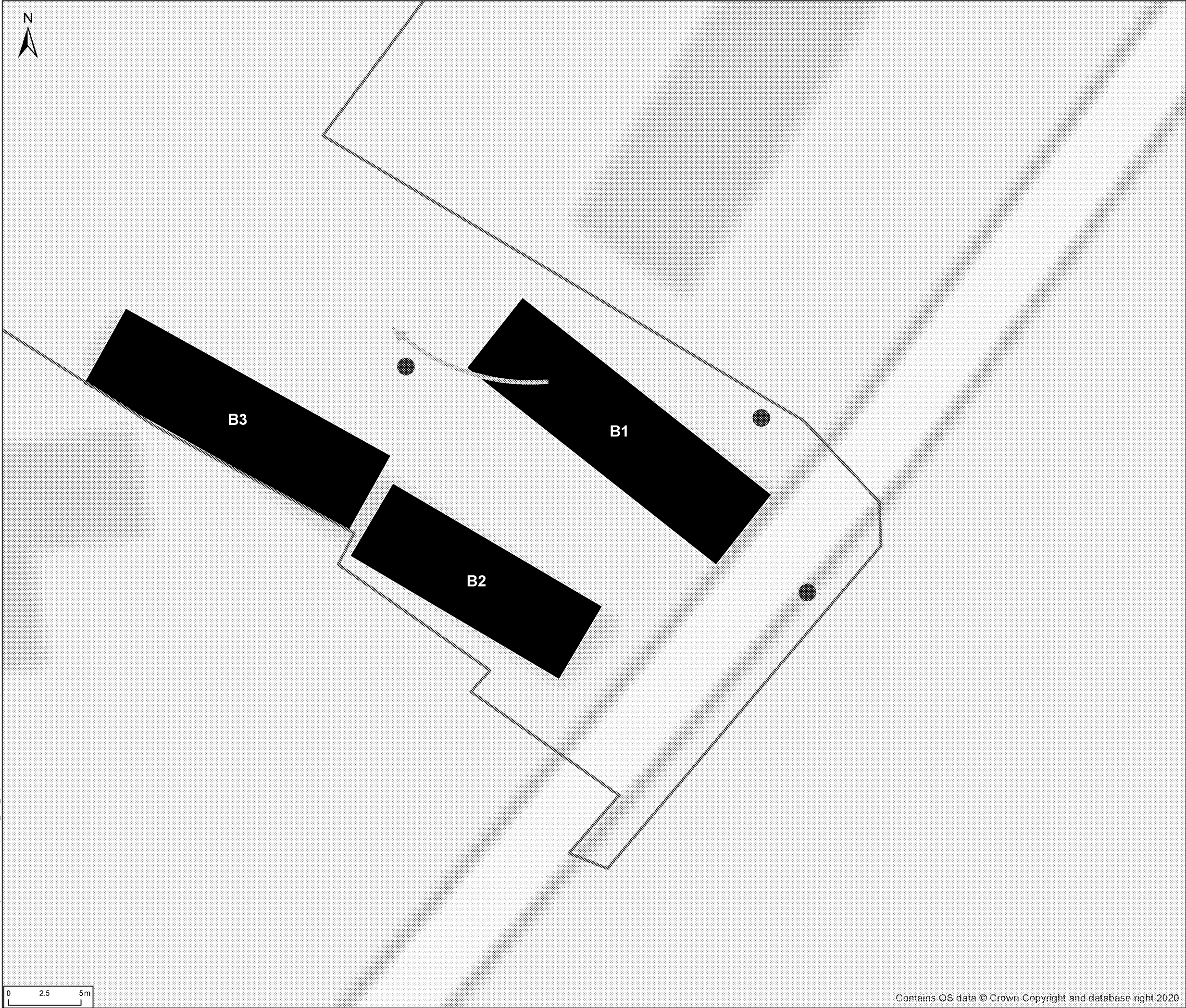
- 5.1.1 Redrow Homes will be responsible for the delivery and implementation of the mitigation and enhancement measures specified in this report.
- 5.1.2 Redrow Homes will instruct an ECoW to support with the implementation of measures requiring specialist supervision as defined in the EMES.
- 5.1.3 The site contractor team will document and photograph the implementation of the mitigation and enhancement measures in a simple log maintained during the construction of the site supported by photographs. The ecological clerk of works will provide Redrow Homes with details of all works undertaken under their supervision.

REFERENCES

- Collins J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.). London: The Bat Conservation Trust.
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- Gent, T. & Gibson, S. (eds). 2003. *Herpetofauna Workers' Manual* (revised reprint), JNCC, Peterborough, ISBN 1 86107 450 6.
- Institute of Lighting Professionals (2018). Guidance Note 08/18. Bats and Artificial lighting in the UK. Bats and the Built Environment Series.
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DRAWINGS





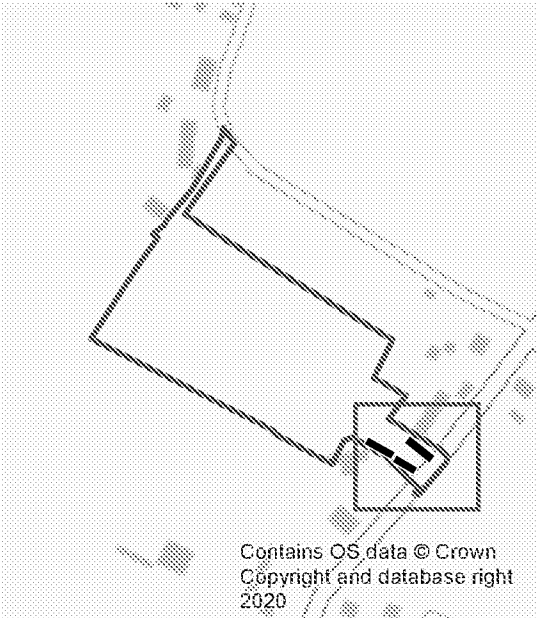
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- Application boundary
- Buildings
- Bat emergence



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Rev	Description	By	CS	Date



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Project Ford Lane, Yapton

Title Bat Survey Results

Status	Drawn By	PM/Checked By
Draft	RN	NB
Project Number	Scale @ A3	Date Created
ECO00395	1:250	15/10/20
Figure Number		Rev
1		-

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- Application boundary
- Approximate location for hedgehog gravel boards, type/design to be agreed with RPS ecologist
- Integrated bat boxes in brickwork (Schwegler 1 FR - 4 No.)
- Small tree-mounted bird box (Schwegler 1B - 2 No.)
- Wall-mounted bird nest box (Schwegler 1A, 1SP, 9a or equivalent - 4 No.)

Rev	Description	By	CS	Date



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Client **Redrow**

Project **Yapton**

Title **Habitat Enhancement Plan**

Status	Drawn By	PM/Checked By
DRAFT	RN	NB
Project Number	Scale @ A3	Date Created
ECO00395	1:1,000	OCT 2020
Figure Number		Rev
2		-

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