



PROVIDING TRUSTED ECOLOGICAL ADVICE

ANGMERING SPORTS HUB SITE

INTERIM PHASE 2 SURVEY REPORT 2024

Version 3.0

Where this report is circulated publicly or uploaded to planning portals, all reference to badger sett / sign locations must be removed from the document.

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1 Summary

Instruction

Richard Graves Associates Ltd was commissioned by MACE, on behalf Arun District Council, in 2024 to undertake Phase 2 Surveys and assessments for reptiles, hazel dormice *Muscardinus avellanarius*, badgers *Meles meles* and great crested newts *Triturus cristatus* for a parcel of land identified for a proposed community sports facility known as the 'Angmering Sports Hub' (and referred to henceforth as 'the Site') within Angmering, Littlehampton.

Bat Surveys have also been undertaken / are in progress for the Site and the details of these surveys are provided separately^{1,2,3}.

While the Dormouse Surveys for this Site are still in progress, mitigation measures are proposed in this report to address any potential impacts on this species, should it be present.

Habitats

The main habitats on-site comprise a large recreational field with short sward amenity / modified grassland. Bordering the grassland is a belt of broadleaved woodland, fringed by a strip of scrub. The habitats on-site are connected to habitats within an adjacent (off-site) 'Harvest Rise Site' which is currently in the process of construction.

Development Proposal

The surveys were required to support MACE in their undertaking of Due Diligence surveys prior to submitting a planning application for the proposed re-development of the existing Palmer Road Recreation Ground for the provision of a new community sports hub which will include the demolition of existing structures, construction of a new sports hub facility building, artificial sports pitches, car parking, EV charging points, access road, landscaping and associated works and infrastructure. The development will result in the clearance of some habitats including a small area of woodland and associated scrub habitat⁴.

Protected Species

Habitat that could support a range of protected and notable species was identified during the PEA Survey undertaken in 2024⁵. As a result, to establish a baseline for the Site's ecological features, further surveys / scoping assessments have been undertaken (and have been subsequently completed / are in progress) for great crested newts, hazel dormice, reptiles and badgers. Sensitive clearance methods have also been set out for nesting birds. The findings of these surveys are provided in this report and summarised below:

- **Hazel Dormice:** Dormice and their habitats are protected under UK and EU legislation. Dormice were recorded in hedgerows (off-site, but connected to the Site) during surveys for the Harvest Rise Site in 2021. These surveys are now out of date and new surveys are in progress to establish the current status of dormice in the woodland and scrub on-site. Should dormice be present on-site an European Protected Species (EPS) Mitigation Licence will be

¹John Wenman (2024) Angmering Sports Hub - Ground Level Tree Assessment

²John Wenman (2024) Angmering Sports Hub - Interim Bat Activity Survey

³John Wenman (2024) Angmering Sports Hub - Interim Bat Survey Preliminary Roost Assessment & Emergence Survey

⁴Arbtech Palmer Road, Recreation Ground, Arboricultural Impact Assessment, Arbtech AIA 01

⁵ Richard Graves Associates (2024) *Angmering Sports Hub Project, Preliminary Ecological Appraisal Report*

required to permit the lawful clearance of suitable habitats. Habitat creation to mitigate for the loss of suitable habitats will also be required as will nest boxes and nest box monitoring. The lighting strategy has been developed to minimise impacts to dormice^{6,7}.

- **Reptiles:** The more widespread species of reptile are protected under UK legislation. A low population of slow worm *Anguis fragilis* is currently present on-site. Measures to prevent killing / or injury, as well as to provide habitat enhancement, have been summarised in this report and will be secured in a 'Reptile Mitigation Strategy'.
- **Badgers:** Badgers and their setts are protected under UK legislation. No setts or badger setts were recorded on-site or within 30m of the Site. However, as badgers have been recorded in the local area, and the Site provides suitable foraging and commuting habitat for this species which will be lost, measures to prevent harm to badgers and to enhance the Site for badgers have been provided.
- **Great Crested Newt:** There are no ponds on-site and, despite extensive survey work associated with the adjacent Harvest Rise development, no great crested newts have been recorded in the ponds local to the Site and no records of great crested newts have been returned within 1km of the Site. Although the risk to this species is low, due to the limited potential terrestrial habitat loss, a 'Precautionary Ecological Method Statement' is recommended to protect any potential populations. The proposed habitat creation will include features to benefit future great crested newts.
- **Breeding Birds:** Nesting birds and their nests, eggs and young are protected by law. Site clearance of trees and vegetation will be required, and precautionary measures have been provided in this report.

⁶ Gemma Lighting (2024) Palmer Road Sports Hub - Arun District Council v2. Outdoor Lighting Report

⁷ SSL (2024) Palmer Road Sports Complex, Arun Sports Lighting Statement

2 Introduction

2.1 Instruction

Richard Graves Associates Ltd was commissioned by MACE, on behalf Arun District Council, in 2024 to undertake Phase 2 Surveys and assessments for reptiles, hazel dormice *Muscardinus avellanarius*, badgers *Meles meles* and great crested newts *Triturus cristatus* for a parcel of land identified for a proposed community sports facility known as the 'Angmering Sports Hub' (and referred to henceforth as 'the Site') within Angmering, Littlehampton.

Bat Surveys have also been undertaken / are in progress for the Site and the details of these surveys are provided separately^{1,2,3}.

While the Dormouse Surveys for this Site are still in progress, mitigation measures are proposed in this report to address any potential impacts on this species, should it be present.

2.2 Survey Objectives

The aims of the Phase 2 Report are to:

- Identify the presence / likely presence of reptiles, hazel dormice, badgers and great crested newts and their habitats on-site / close to the Site;
- Assess the suitability of the Site and its surrounding habitats for these protected species;
- Evaluate the potential impacts of the proposed development on these species and their habitats; including the risk of habitat loss, disturbance, and fragmentation;
- Outline appropriate mitigation and any further survey effort considered necessary to support planning requirements; and
- Where possible, highlight any initial ecological enhancement opportunities.

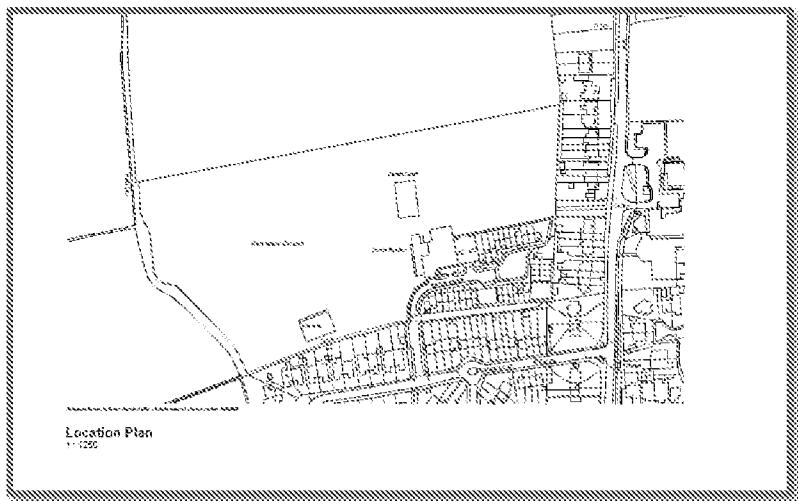
2.3 Site Location and Setting

The proposed Site for the Angmering Sports Hub is currently known as the 'Palmer Road Recreation Ground' which covers approximately 4 hectares (ha) and is centred at Ordnance Survey (OS) grid reference: TQ 06574 05141. Palmer Road Recreation Ground is a large public open space in north Angmering, that currently includes a sports pavilion, grass football pitches, a basketball court, a cricket pitch and a children's play area. The Site is bordered by housing to the south and east, arable to the west, and a development site to the north known as the 'Harvest Rise, Angmering' (Figure 1 & 2).

Figure 1: Site Location Indicated by Red Marker © Google Earth 2024



Figure 2: Site Redline Boundary^{©8}



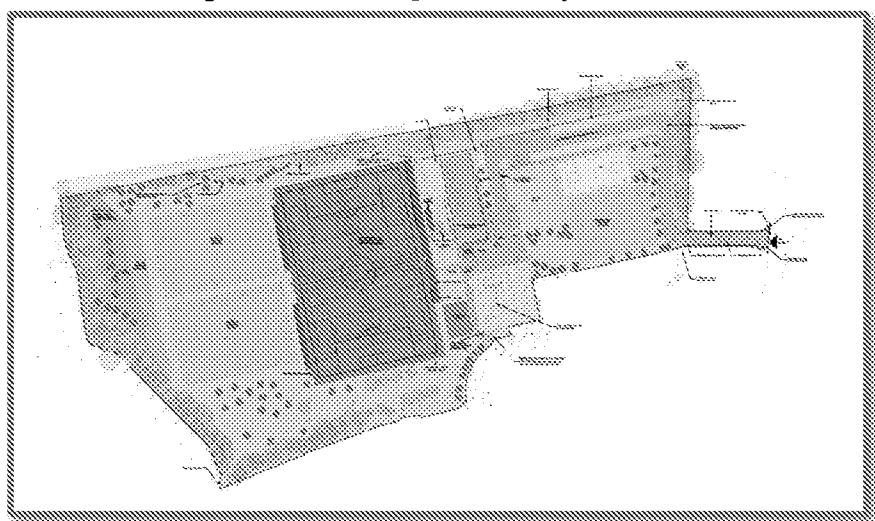
2.4 Rationale for the Survey

The survey was required to support MACE in their undertaking of Due Diligence surveys prior to submitting a planning application for the proposed development.

2.5 Proposed Development

Palmer Road Recreation Ground has been identified as a strategic priority within the Local Plan for the provision of a community sports hub. The proposal aims to help meet the shortfall in sport and leisure facilities in the district and enhance the quality of the current facilities at Palmer Road with the provision of a new community sports hub which will include the demolition of existing structures, construction of a new sports hub facility building, artificial sports pitches, car parking, EV charging points, access road, landscaping and associated works and infrastructure (Figure 3). The development will result in the clearance of some habitats including a small area of woodland and associated scrub habitat.

Figure 3: Proposed Site Layout ^{©9}



⁸ Saunders Boston Architects (2024) Palmer Road Sports Hun. Site Location. Drawing Number: 2072-SBA -XX -S1 -DR-A -5001.

⁹ Saunders Boston Architects (2024) Palmer Road Sports Hun. Site Plan Drawing Number: 2072-SBA -XX -S1 -DR-A -5002.

2.6 Assessment

The assessment documented in this report is includes an assessment of evidence of, and the presence / likely presence of protected species and their suitable habitats features. Protected species are those which are fully or partially protected by legislation. The relevant legislation includes:

- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Environment Act 2021;
- The Natural Environment and Rural Communities Act 2006;
- The Countryside and Rights of Way Act 2000;
- The Badgers Act 1992; and
- The Wild Mammals (Protection) Act 1996.

2.7 Quality Assurance

All surveys are led by Ecologists who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) at the appropriate level. By joining the CIEEM staff sign up to a professional code of conduct.

3 Hazel Dormouse

3.1 Introduction

Dormice and their habitats are legally protected. Dormouse Surveys are currently in progress and have been undertaken to provide baseline information to support a planning application for the proposed Angmering Sports Hub development.

3.2 Dormouse Ecology

Dormice are nocturnal small (weighing less than 40g) mammals which spend most of their time in the summer in trees and bramble. In the winter, they curl up into a ball and hibernate beneath the leaf litter or at the base of hedgerows.

Dormice are slow breeders and there has been a long-term decline in both their numbers and known range in the UK. They are now largely restricted to southern England, with a few outlier populations in the Lake District, Wales and Midlands. Reasons for their decline are in part due to the loss of the ancient woodland and hedgerows, a reduction in traditional forestry methods such as coppicing, and potentially, climate change, resulting in dormice awaking from hibernation early in the year before there is sufficient food available.

The species of dormouse *Muscardinus avellanarius* (sometimes referred to as the 'hazel dormouse'), subject to the surveys documented in this report, should not be confused with the grey furred 'edible dormouse' *Glis glis*, which is non-native and approx. five times larger than a hazel dormouse.

3.3 Background

3.3.1 *Desktop Study*

Recent dormouse records were returned as part of the Desktop Study undertaken in 2024⁵.

3.3.2 *Summary of Previous Surveys*

- Dormice and their nests were recorded on the Harvest Rise, Angmering Site (which is adjacent and connected to the Angmering Sports Hub Site), during Dormouse Surveys undertaken in 2018¹⁰ and 2021¹¹. Dormouse Licence 2023-64144-EPS-MIT (2023-2024) was obtained for works associated with the Harvest Rise, Angmering Site.
- The 2024 Angmering Sports Hub Site PEA noted the presence of potential foraging, commuting, nest building and hibernating opportunities for dormice on-site⁵.

3.4 Legal Protection

3.4.1 *Legislation*

Dormice are protected under the Wildlife and Countryside Act 1981 (as amended)¹² and the Conservation of Habitats and Species Regulations 2017 (as amended)¹³, commonly referred to as the 'Habitat Regulations'.

Dormice are listed on Schedule 2 (European Protected Species of animals) of the Habitat Regulations and are subject to the provisions of Regulation 41 which makes it an offence to:

- deliberately capture, injure or kill any wild dormice;

¹⁰ CSA Environmental (2019) Land West of Arundel Road, Angmering. Ecological Mitigation and Enhancement Strategy

¹¹ RPS (2024) ECO01659 Land at Arundel Phase 2 Surveys Report D January 2024

¹² HMG, 1981. The Wildlife and Countryside Act 1981. HMSO

¹³ HMG, 2017. Conservation of Habitats and Species Regulations 2017. London: HMSO

- deliberately disturb dormice (where disturbance is likely to impair their ability to survive, breed or reproduce, rear or nurture their young; or to hibernate or migrate; or to affect significantly the local distribution or abundance of the species);
- damage or destroy a breeding site or resting place of a dormouse; or
- be in possession of, control, transport, sell or exchange, or offer for sale or exchange any live or dead dormouse or any part of a wild animal or anything derived from a dormouse or any part of a dormouse.

Dormice are also listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are subject to the provisions of Section 9 of the Act, which make it an offence to:

- intentionally or recklessly disturb a dormouse whilst it is occupying a structure or place which it uses for shelter or protection;
- intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a dormouse;
- sell, offer or expose for sale, or to possess or transport for sale a live or dead dormouse or any part of or anything derived from a dormouse.

Dormouse is listed as a species of principal importance for the purpose of conserving biodiversity under Section 41 (England) of The Natural Environment and Rural Communities Act (2006). As such, they are a 'material consideration' in the planning process.

3.4.2 *Licences*

Dormice can be affected by activities such as (but not limited to):

- Handling;
- Disturbance (e.g. noise, light, woodland / hedgerow / scrub management);
- Habitat removal (removing hedgerows and scrub/ felling trees); and
- Habitat fragmentation and isolation (e.g. road creation, loss of green infrastructure connectivity).

Developers must ensure that they commission reasonable survey efforts to determine dormouse presence and, if required, obtain the necessary EPS Licence for development from the relevant Statutory Organisation (for this site, Natural England), which is likely to require appropriate mitigation for disturbance and loss of habitats.

A licence cannot be obtained until planning has been approved and associated ecology related conditions discharged. A Dormouse Survey Licence from Natural England is required to check dormouse nest tubes or boxes where dormice are already known to be present.

3.5 Methodology

3.5.1 *Survey Personnel*

Dr Suzy Cardy BSc (Hons) MSc CEcol MCIEEM

Dr Cardy has over twenty years' experience in the management and execution of the ecological elements of large-scale development projects including major rail infrastructure developments and one of the UK's largest translocation of protected species. Suzy is a Chartered Ecologist, has a Natural England hazel Dormouse Survey Licence and has managed a number of dormouse related projects. Suzy has worked with a variety of Clients across multiple sectors (transport, industrial, education, government, healthcare, commercial, leisure and power / energy).

Dani Rozycka BSc (Hons) MSc

Dani is an experienced ecologist and surveyor with over 14 years' experience. Dani possesses dormouse and great crested newt licences.

3.5.2 *Dormouse Surveys*

Dormouse Surveys were conducted in accordance with the Dormouse Conservation Handbook¹⁴.

According to this guidance, the Survey Search Effort required to confidently assume likely dormouse presence / absence is determined from an 'Index of Probability' where each month in the dormouse survey season (April to November inclusive) is assigned a value, or score.

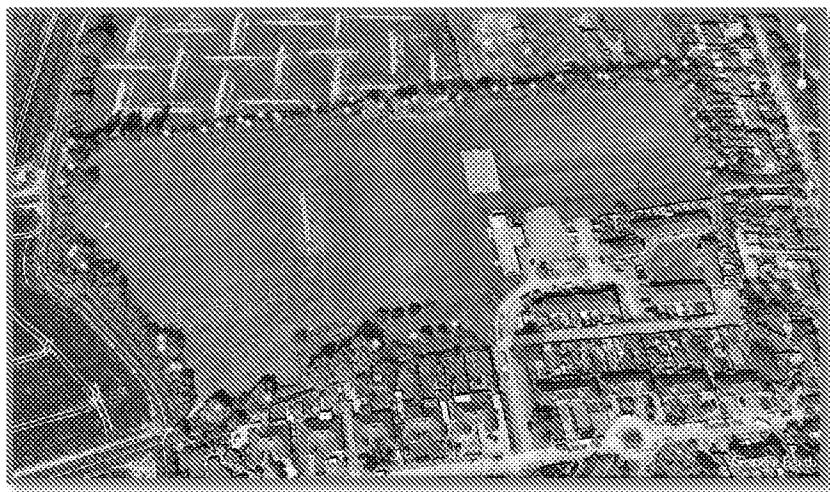
Based on using 50 tubes, a minimum total Survey Search Effort of '20' must be achieved. If 50 tubes are left out on-site for the whole dormouse survey season a Survey Search Effort of 25 is achieved (Table 1).

A total of 50 nest tubes were installed on the 28th August 2024 within, and bordering, the woodland belt on-site (Figure 4). The nest tubes are in the process of being checked monthly which will be completed by August 2025, achieving a Survey Search Effort in excess of 20.

Table 1: Index of Probability of Finding Dormice Present in Nest Tubes

Month	Index of Probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2
Total	25

Figure 4: Indicative Distribution of Nest Tubes (yellow circles) © Google Earth 2024



¹⁴ Bright, P. Morris, P. and Mitchell-Jones, T. (2006) The dormouse conservation handbook. Second edition

3.6 Limitations

- In some instances, the nest tube wooden draw was either on the floor or missing. However, missing draws were immediately replaced and due to the low numbers of nest tubes affected, it is not considered to have significantly impacted the results.

3.7 Results

The dates of the surveys and the results are summarised in Table 2. The surveys are incomplete, but no dormouse or dormouse signs have been observed during the surveys undertaken to date (Table 2).

Table 2: Summary Dormouse Survey Results

Date	Task	Dormouse Survey Undertaken	Dormice / Signs Present?
28 th August 2024	Dormouse nest tubes installed	-	-
27 th September 2024	Nest Tubes Check 1	✓	✗
29 th October 2024	Nest Tubes Check 2	✓	✗
November 2024	Nest Tubes Check 3	✗	-
April 2025	Nest Tubes Check 4	✗	-
May 2025	Nest Tubes Check 5	✗	-
June 2025	Nest Tubes Check 6	✗	-
July 2025	Nest Tubes Check 7	✗	-
August 2025	Nest Tubes Check 8	✗	-

3.8 Evaluation & Potential Impacts

3.8.1 *Current Status*

Dormouse were recorded in 2021, on the adjacent Harvest Rise, Angmering Site which possesses a hedgerow connected to the Angmering Sports Hub Site. The Government's Standing Advice States that:

"[dormouse] survey[s] should be from the current or previous active season. Surveys up to 3 years old are acceptable if the habitats have not significantly changed."

Therefore, these survey results are now considered out of date, the local habitats have undergone significant changes (including the construction of a new housing development) and updated dormouse surveys are currently in progress to establish the current status of dormice for the Angmering Sports Hub Site. These surveys will be completed in the summer of 2025.

3.8.2 *Potential Impacts*

The suitable habitats for dormice include the woodland belt and associated scrub that border the Site. Woodland and scrub will be lost to facilitate the creation of a new cricket pitch along the northern boundary. The following sections provide an evaluation of potential impacts, in the event that dormice are present:

In the absence of mitigation, potential impacts include:

Direct Impacts: loss of woodland and scrub habitat⁴ and concomitant increase in fragmentation (minor permanent, negative impact). Clearance works and subsequent interruption in arboreal connectivity could

cause disturbance to hibernating or breeding dormice and restrict the dispersal of animals throughout the breeding season. If unmitigated, the works are at risk of killing or injuring dormice.

Indirect Impacts: permanent increase in artificial lighting (minor permanent, negative impact). The disturbance also has the potential to interrupt normal animal behaviour throughout the active season, cause temporary displacement of animals, or lead to abandonment of young dormice with indirect mortality as a consequence.

As the loss of this habitat will negatively impact dormice, should they be present, an EPS Mitigation Licence will be required which will need to detail the mitigation proposals.

3.8.3 *Should Dormice not be Found During the Surveys*

Given the presence of dormice on the adjacent (and connected) Site in 2021, if dormice are not recorded during the surveys, it is recommended that works are undertaken under a 'Precautionary Method Statement', that adopts the methods of clearance set out in the Dormouse Conservation Handbook¹⁴. This document should be submitted to the LPA for approval, prior to the start of works.

If dormice are not found to be present on-site, the woodland belt has the potential to be beneficial to any future dormouse populations. Therefore, any proposed new planting across the Site should include native plant species to encourage a diversity of wildlife species including dormice.

In the event that a dormouse or dormouse signs should be found to be at any point in the site clearance work, works will need to be halted and only continued under a licence issued by Natural England. Additional surveys may be required, and mitigation may also be needed to ensure the favourable conservation status of the species is maintained.

3.9 Initial Recommendations & Mitigation Requirements

Habitat suitable for dormice will be lost as part of the development, therefore, assuming dormouse are present on-site, a Dormouse Licence would be required. Note: once granted, should there be any differences between the mitigation prescriptions specified in this document and those approved in the licence, the licence will take precedence in all cases.

3.9.1 *Mitigation Strategy*

A Mitigation Strategy would need to be developed as part of a Dormouse Licence Application. This would need to include (but would not be limited to):

- Details of the proposed phased / time restricted vegetation clearance;
- Suitable planting / habitat creation proposals;
- Sensitive lighting strategy;
- Provision / siting of wooden nest boxes;
- Monitoring schedule for nest boxes; and
- Woodland management.

3.9.2 *Phased Vegetation Clearance*

Vegetation on-site could be cleared, under licence, in one of the following processes, depending on other species considerations and programme constraints:

- **Single Stage Habitat Clearance:** Clearance would need to be undertaken within best practice timing of April – May (inclusive) (note this may conflict with nesting birds) and/or September – October (inclusive). Note that there are specific limits to the amount of vegetation that could be cleared per day.
- **Two-Stage Habitat Clearance:** Clearance to be undertaken within best practice timing of 'Stage One' in November – March (inclusive) and 'Stage Two' in April – May (inclusive).

3.9.3 *Habitat Creation*

It's understood that, with the exception of the removal of a small amount of woodland and scrub along the northern boundary, all woodland and scrub habitats will be retained (see Appendix A).

The western woodland belt and scrub habitats (connected to habitat in which dormice have been recorded previously) will be retained, protected and increased in size, by planting species, which provide food for dormice and grow relatively quickly. The planting list should include those species which are relatively fast to establish including:

- bramble *Rubus fruticosus* agg.;
- hawthorn *Crataegus monogyna*;
- honeysuckle *Lonicera periclymenum*; and
- ivy *Hedera helix*,

Other, slower growing species, to be planted to provide food and shelter in the medium to long-term should include:

- hazel *Corylus avellana* (this is a key species for dormouse as, where present, it is the principal food source to help them develop their fat reserves in preparation for hibernation);
- oak *Quercus* species;
- wayfaring tree *Viburnum lantana*; and
- hornbeam *Carpinus betulus*.

Other features should include:

- Creation of log piles;
- Retention of deadwood; and
- Creation of 'Roof Trees' planted in the opening of the new access gaps to maintain an interlinking canopy.

3.9.4 *Sensitive Lighting*

Artificial lighting will be included across the Site as part of the operation phase of development⁶⁷. However, the western woodland / scrub belt and any newly created dormouse habitat will not be subject to any light trespass.

3.9.5 *Nest Boxes*

Provision of suitable nest boxes will help dormice adjust to their newly created habitats and will help mitigate for the loss of suitable nesting habitat. It is recommended that at least 5 nest boxes are installed in suitable habitat as part of the mitigation proposals. Nest boxes should be installed within 20m of each other, not on isolated trees; 1.5-2m above ground and where they will not be disturbed.

3.9.6 *Monitoring*

The 5 dormouse boxes should be monitored for 3 years during the active season. Nest material found in boxes should be cleared during each monitoring round.

3.9.7 *Woodland Management*

Woodland should be managed to maintain a multi-storey canopy with a high species diversity, a mosaic of age classes (including plenty of links between different levels of the canopy and undergrowth), and should align with the prescriptions and methods set out in managing small woodlands for development¹⁵ and the Dormouse Conservation Handbook¹⁴.

¹⁵ PTES, 2014. Managing Small Woodlands for Dormice: A Guide for Owners and Managers.

4 Reptiles

4.1 Introduction

The more widespread species of reptiles (common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus*) are legally protected. A series of Reptile Survey visits have been undertaken to provide baseline information to support a planning application for the proposed Angmering Sports Hub development.

4.2 Reptile Ecology

There are six species of terrestrial reptile considered native to the United Kingdom. Of these, two species are European Protected Species (EPS) and only have a very restricted range; smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*. The remaining four species, adder, common lizard, grass snake and slow worm, have a wider range and all occur in the southeast of England.

Native British terrestrial reptiles are ectothermic and therefore rely on exposure to the sun (insolation), and other external forms of heat, to raise their body temperature. To increase their exposure to the sun, they bask in open areas, or they take shelter under warm vegetation or structures. Artificial refugia (as used for the reptile surveys documented in this Chapter) make use of this feature of reptile biology to facilitate the capture of individuals, as they bask on or seek shelter beneath the refugia.

Viable reptile populations need a range of habitats to provide suitable conditions in which to: bask, take shelter, hibernate, forage, breed and disperse. Ecotone habitat (habitat types which transition from mature trees, taller scrub, bramble and tussock grassland interface with the shorter grassland) provides optimal reptile habitat. In addition, they require a secure area in which to hibernate. Hibernaculum generally need to provide a stable temperature, be free from frost and provide protection from flooding and predation.

Grass snakes feed mainly on amphibians such as newts, frogs and toads, and so aquatic habitats (such as ponds) are important for this species. Grass snakes also require habitat to lay their eggs in. The key factors required for successful egg development are warmth and moisture. Therefore, materials such as decomposing organic matter (e.g., grass piles, compost heaps, woodchip piles, rotting vegetation etc) are often selected as incubation sites.

4.3 Background

4.3.1 *Desktop Study*

Recent reptile records (slow worm) were returned as part of the Desktop Study undertaken in 2024⁵.

4.3.2 *Summary of Previous Surveys*

- Reptile(s) (single common lizard) was recorded on the Harvest Rise, Angmering Site during surveys undertaken in 2018¹⁰.
- The 2024 PEA noted the presence of woodland edge, scrub and grass clipping piles, which were considered to provide some foraging, commuting, basking and sheltering opportunities, for reptiles⁵.

4.4 Legal Protection

4.4.1 *Legislation*

The four reptile species typically referred to as 'widespread' (despite the fact that all of Britain's native reptile species are declining to some degree¹⁶): common lizard, slow worm, grass snake and adder, are

¹⁶ Froglife (1999) *Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth

afforded protection under Section 9(1) and (5) only, under Part 1 of the Wildlife and Countryside Act 1981 (as amended)¹⁷, which makes it an offence to:

- intentionally kill or injure a reptile;
- sell, offer or expose for sale, or to possess or transport for sale a live or dead reptile or any part of or anything derived from a reptile.
- publish or causes to be published any advertisement likely to be understood as conveying that a person buys or sells, or intends to buy or sell, any of those things.

Please note that this information does not cover the sand lizard or the smooth snake, which are both fully protected under the Conservation of Habitats and Species Regulations 2017¹⁸.

Section 40 of the Natural Environment and Rural Communities Act 2006¹⁹ places a duty on all public bodies to have regard “*so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.*” Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act, and all four species widespread reptile are listed as species of principal importance.

4.4.2 *Licences*

A survey licence is not required to survey or monitor for common lizards, slow worms, grass snakes and adders in England²⁰. However, surveyors should have suitable knowledge, skills and experience (as detailed in the CIEEM Competencies for Species Survey: Reptiles²¹) to ensure professional survey standards are employed, including ensuring that minimal stress is caused to the target population.

4.5 Methodology

4.5.1 *Survey Personnel*

Dr Suzy Cardy BSc (Hons) MSc CEcol MCIEEM

Dr Suzy Cardy has over twenty years' experience in the management and execution of the ecological elements of large-scale development projects including major rail infrastructure developments and one of the UK's largest translocation of protected species. Suzy is a chartered ecologist, has a Great Crested Newt Survey Licence, Dormouse Survey Licence and a Natural England Level 2 Bat survey licence. She has managed reptile related projects ranging from those with small populations of reptile species, to sites hosting thousands of reptiles, as well as the design of complex reptile translocations, mitigation and enhancement.

4.5.2 *Reptile Surveys*

A total of seven reptile surveys were conducted at the Site in September and early October 2024. Each survey visit comprised a Reptile Presence / Absence Survey using direct observation and artificial refugia techniques.

¹⁷ HMG. (1981) *The Wildlife and Countryside Act 1981*. UK: HMSO.

¹⁸ HMG. (2017) *The Conservation of Habitats and Species Regulations*. London: HMSO.

¹⁹ HMG. (2006) *The Natural Environment and Rural Communities Act*, London: HMSO.

²⁰ English Nature (2004) *Reptiles: Guidelines for Developers*. English Nature, Peterborough.

²¹ CIEEM (2014) *Technical Guidance Series: Competencies for Species Survey: Reptiles*.

The Reptile Presence / Absence Surveys followed the methods set out in The Herpetofauna Workers' Manual²² (Gent & Gibson, 2003) and Froglife Advice Sheet 10²³.

Pieces of bitumen roofing felt, were used as refugia to sample for reptiles basking on or seeking shelter beneath them. Refugia were installed across the Site and its environs on the 30th August 2024 and left for over a week before the start of the surveys to provided sufficient time for:

- a suitable microhabitat for reptile basking to form below them; and
- any reptiles present on the Site to locate the refugia and start using them for basking.

Refugia were checked for the presence of reptiles. A high density of reptile refugia were deployed (sized 50 x 50 cm and 100 x 50 cm) (Table 3). The distribution of the refugia across the Site can be seen in Figure 5.

Table 3: Number and Density of Reptile Refugia

Approximate Area of Reptile Habitat Present (ha)	Minimum Actual Number of Reptile Refugia Required to achieve 10 per 1ha Density	Actual Minimum Number of Reptile Refugia installed within the Site
1.03	10	50

Figure 5: Aerial Mapping Indicating the Distribution of Reptile Refugia (sheets). © Google Earth 2024



The refugia were positioned according to the following parameters:

- suitable habitat for reptiles was targeted; and
- potential disturbance.

During the surveys, any reptiles observed basking away from the refugia were also recorded.

4.5.3 Weather Conditions

Weather data was recorded on Site using a Kestrel Weathermeter and from the WeatherOnline weather database. Surveys were conducted in suitable weather, adapted from suitable survey conditions stated in

²² Gent, T. a. G. S., 2003. Herpetofauna Workers Manual, Peterborough: JNCC.

²³ Froglife (1999) Froglife Advice Sheet 10: Reptile Survey (Froglife, 1999).

the Reptile Habitat Management Handbook²⁴. Surveys were not conducted in unsuitable conditions such during rain or when temperatures were very high or low.

4.6 Assessment

Reptile populations were assessed in accordance with population level criteria as stated in the Key Reptile Site Register (HGBI, 1998)²⁵. This system classifies populations of individual reptile species into three population categories assessing the importance of the population (Table 4). These categories are based on the total number of adult animals observed during individual survey occasions.

Table 4: Reptile Population Class Estimates based on Adult Density (HGBI 1998)

Species	Low Population	Good Population	Exceptional Population
Common lizard	<20/ ha	>40/ha	>80/ha
Slow worm	<50/ha	>50/ha	>100/ha
Grass snake	<2 /ha	2-4/ha	>4/ha
Adder	<2/ ha	2-4/ha	>4/ha

4.7 Limitations

Reptiles, particularly grass snake, can be highly mobile and their distribution over days and seasons transient. Therefore, each single site survey visit provides only a snapshot of the conditions at the time of survey with regards to nature conservation status.

4.8 Results

Seven Reptile Presence / Absence Surveys were conducted within the active season for reptiles in 2024 (Table 5). A low number of slow worm (including juveniles) were recorded during the survey (Table 6). Small mammals were also recorded under several of the refugia. No amphibians were recorded during the surveys.

Table 5: 2024 Reptile Survey Schedule

Visit	Date	Time	Air temp. (°C)	Wind speed (Beaufort)	Cloud cover (Oktas)	Rain	Reptiles recorded
1	09/09/2024	PM	17	2	8	No	Yes
2	11/09/2024	PM	15	2	4	No	Yes
3	13/09/2024	AM	13	2	2	No	Yes
4	23/09/2024	PM	17	2	7	No	Yes
5	24/09/2024	AM	16	2	6	No	Yes
6	03/10/2024	AM	15	2	4	No	Yes
7	04/10/2024	PM	14	1	4	No	Yes

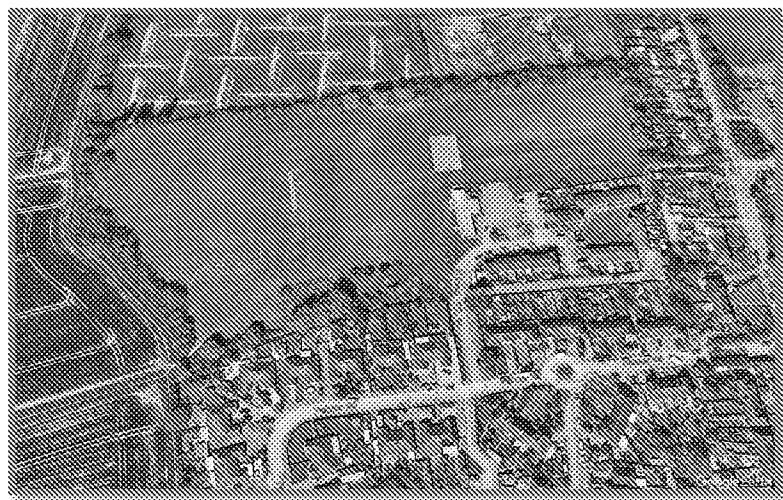
²⁴ Edgar, P., Foster, J. and Baker, J. (2010) Reptile Habitat Management Handbook. Amphibian and Reptile Conservation. Bournemouth.

²⁵ HGBI (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). Herpetofauna Groups of Britain and Ireland, c/o Froglife, Halesworth.

Table 6: 2024 Reptile Survey Results – the peak count is shown in blue

Survey Number	Date	Common Lizard		Slow Worm		Grass Snake	
		Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
1	09/09/2024	0	0	4	3	0	0
2	11/09/2024	0	0	2	0	0	0
3	13/09/2024	0	0	1	0	0	0
4	23/09/2024	0	0	5	0	0	0
5	24/09/2024	0	0	6	1	0	0
6	03/10/2024	0	0	3	0	0	0
7	04/10/2024	0	0	3	1	0	0

Figure 6: Plan showing reptile results (orange circles: slow worms) © Google Earth 2024



Note, this plan shows all slow worm observations. It is likely that the same individuals were recorded on multiple visits (peak count was 6).

4.9 Populations Class Estimate

The survey approach employed approx. five times the minimum refugia recommended per hectare, and as such we can be sufficiently confident in estimating population sizes based on the seven surveys. Based on the survey results a quantitative population assessment was conducted using the maximum count of adult reptiles recorded on any one survey visit, as per the methodology described in section 4.4 (HGBI, 1998). Based on a broad estimate of there being c. 1.03ha of suitable reptile habitat within the Site, and with comparisons to the thresholds given in Table 2, the populations of slow worm are assessed as Low (Table 7).

Table 7: Populations Class Estimate

Area of suitable reptile habitat (ha)	Species	Peak Adult no. per visit	Density	Population Estimate
1.03	Slow worm	6	5.8	Low

4.10 Evaluation & Potential Impacts

The 2024 Reptile Surveys conducted at the Site indicate that a low population of slow worm is present on-site. Juvenile slow worms were also recorded, indicating breeding populations. No amphibians were recorded during the surveys. Suitable habitats for reptiles on-site will be lost along the northern site boundary to facilitate a new cricket pitch creation.

In the absence of mitigation, potential impacts include:

- *Direct Impacts:* loss of woodland and scrub habitat and concomitant increase in fragmentation (minor, permanent, negative impact). If unmitigated, the clearance of these habitats risk of killing or injuring reptiles.

4.11 Initial Recommendations & Mitigation Requirements

4.11.1 *Mitigation Approach*

It's understood that the areas of the Site due for construction include the loss of suitable reptile habitat, to facilitate the creation of a new cricket pitch. Suitable measures will need to be undertaken to safeguard the low population of slow worm present in this habitat. Prior to the removing habitats suitable for reptiles on-site due for clearance / impacted by construction activities, a '*Reptile Safeguarding Method Statement*' should be developed. The purpose of the document will be to set out the proposed measures to protect the existing, and maintain future, viable populations of the Site's reptile populations.

4.11.2 *Reptile Safeguarding Method Statement*

The Reptile Safeguarding Method Statement should include the following actions / information:

- Identification of all suitable reptile habitat that required clearance;
- Preparation of a suitable on-site Reptile Receptor Site (this will be to the west of the Site - see Appendix A for indicative location);
- Installation of exclusion fencing;
- Reptile translocation, involving the reptile capture and relocation using densely placed artificial refugia which would be checked over a number of visits (number of visits required dependent on the population size and capture numbers);
- Where appropriate, habitat manipulation under an ecological watching brief to encourage reptiles into smaller area and thus aid their safe collection and relocation; and
- Details of the required habitat management for the retained and newly created reptile habitat.

The Reptile Presence / Absence Survey results are considered valid for a period of two years, assuming there are no significant changes in the site's habitats or management. After this period, the surveys should be repeated (assuming site clearance hasn't been conducted before this time and the current management regime hasn't been maintained).

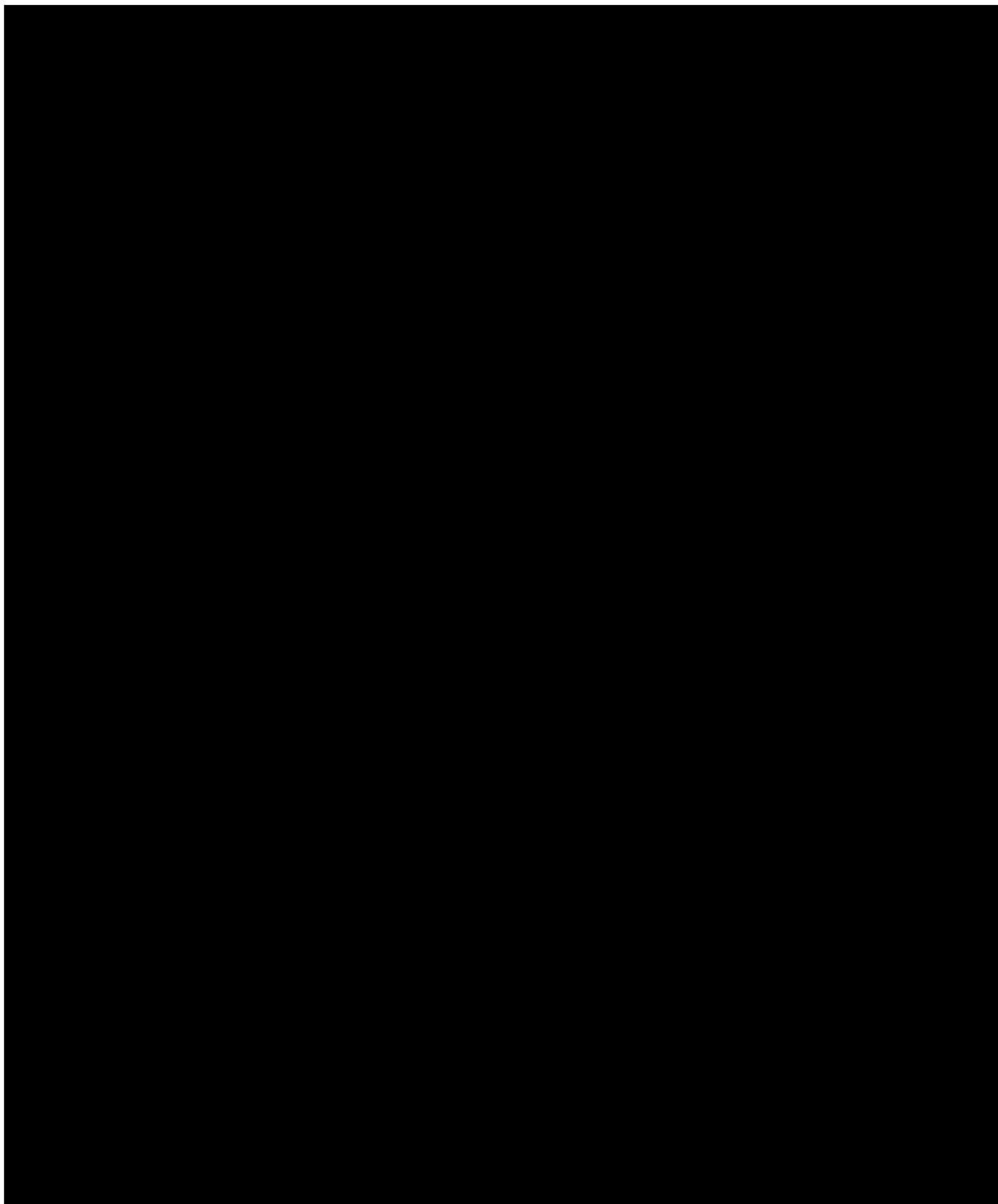
4.11.3 *Habitat Creation & Enhancement*

The western woodland belt and scrub habitats will be retained, protected and increased in size and will be enhanced with new woodland and scrub habitats, log piles and hibernacula. Long tussocky grass will fringe the area creating a suitable ecotone habitat. This area will function as a Reptile Receptor Site. The logs and brash from any felled trees and scrub could be used to create log piles (x 2) and hibernacula (x 1). Such features add value to the landscape by:

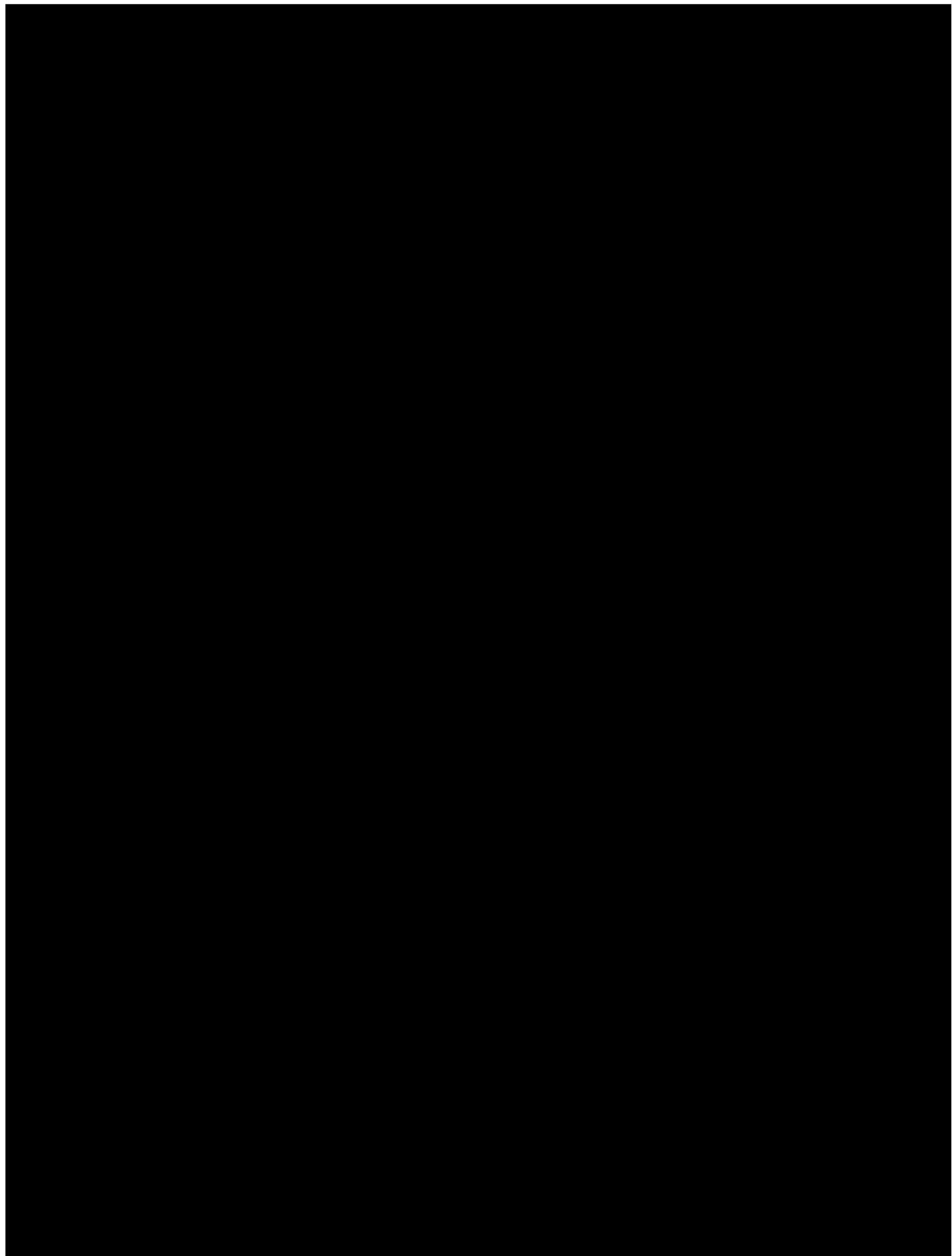
- creating cover;
- providing additional structure to existing habitat; and
- enhancing prey availability.

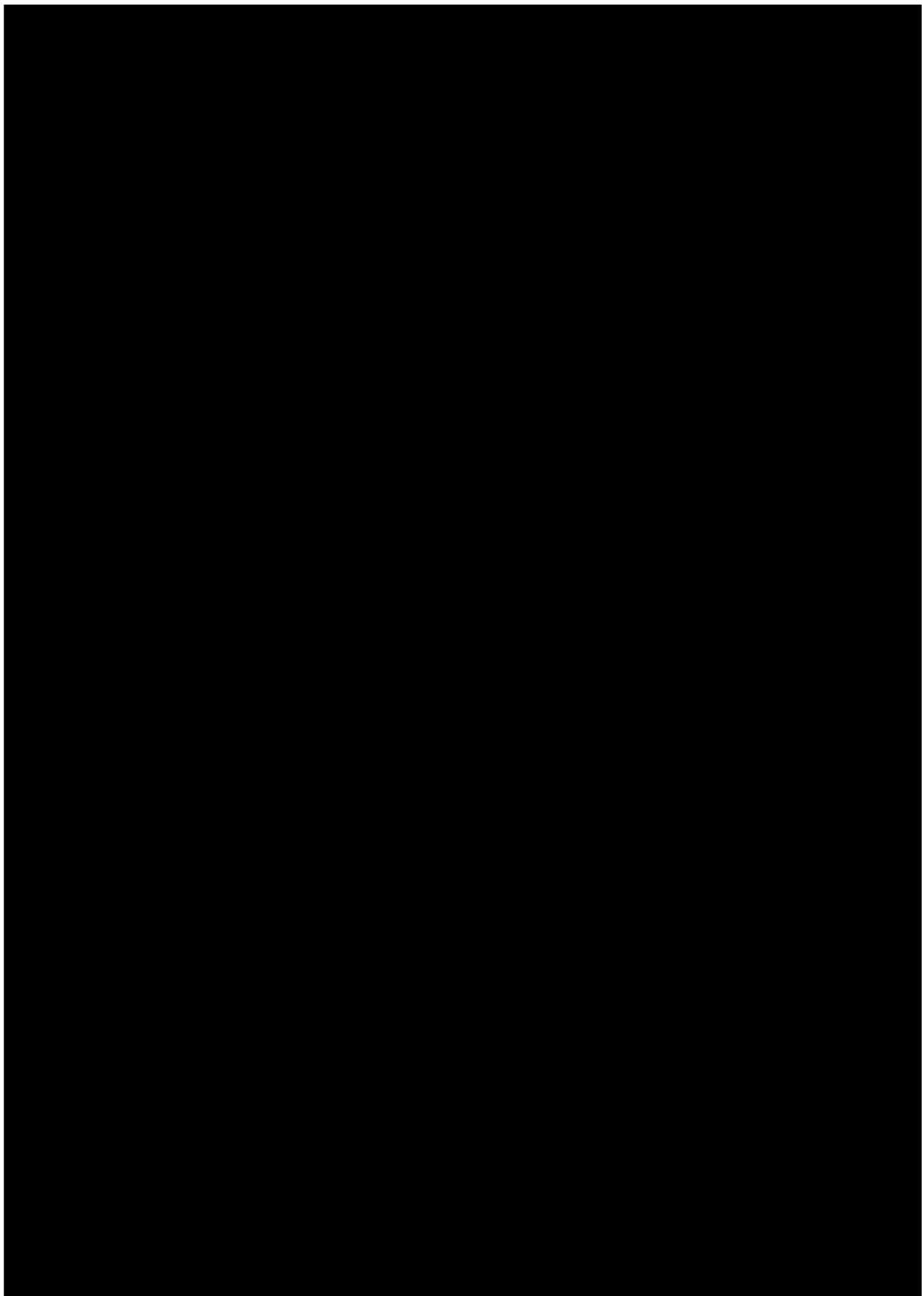
Such features should be installed in sunny locations and set within existing vegetation (e.g. in existing long grass or scrub) so that there is cover immediately available next to the features. They should be situated on well-drained soil which is not prone to flooding. It's also important to place them away from areas of general public thoroughfare to minimise the risk of disturbance and vandalism.

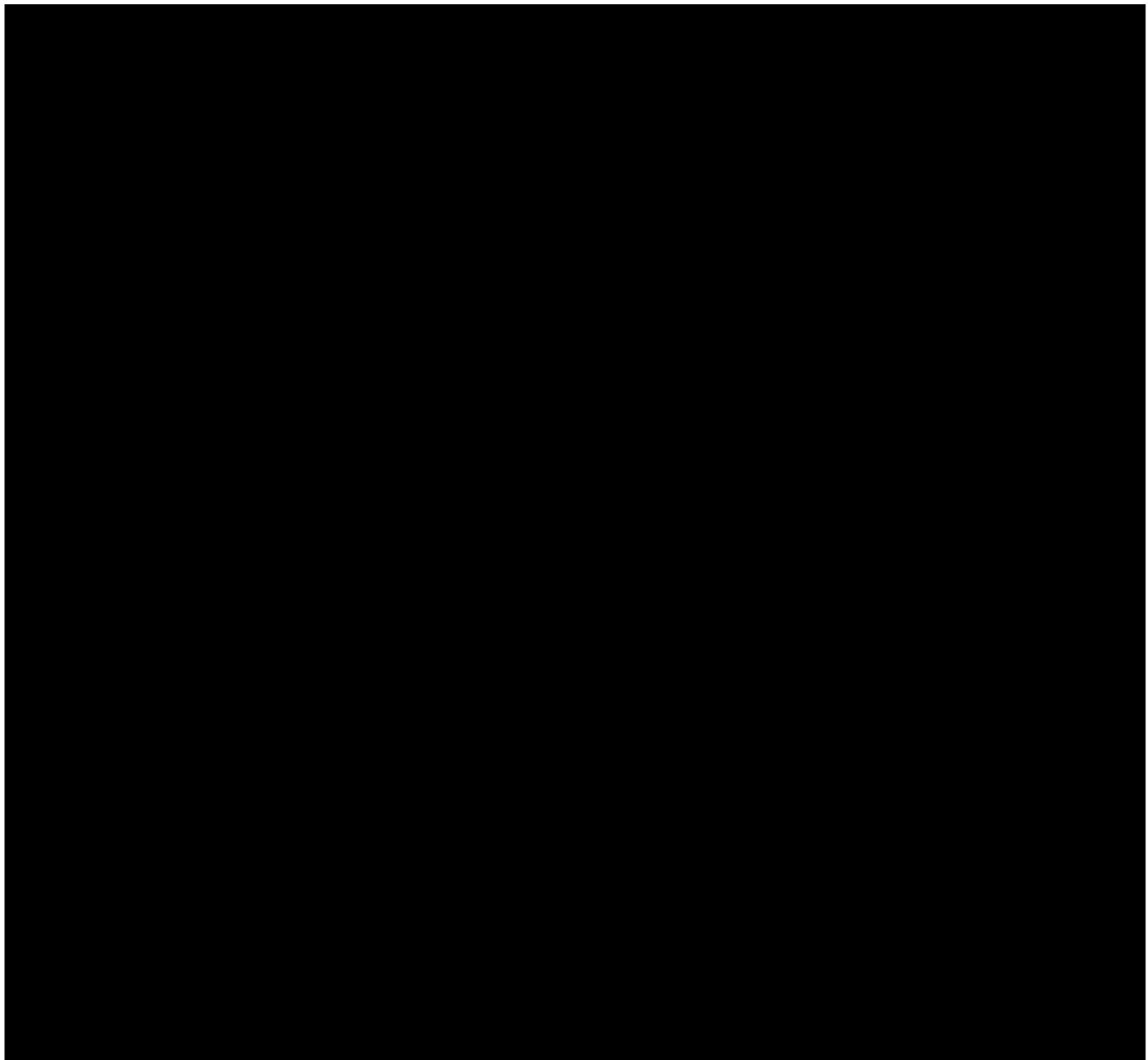
5 Badgers



²⁶ RPS (2024) Harvest Rise, Arundel Road, Angmering, Badgers Status Note







6 Great Crested Newts

6.1 Introduction

Great crested newts and their aquatic and terrestrial habitats are legally protected. A Great Crested Newt Scoping Assessment has been undertaken to provide baseline information to support the planning application for the proposed Angmering Sports Hub development.

6.2 Great Crested Newt Ecology

Great crested newts are the UK's biggest newt, growing up to approx. 17cm in length. These amphibians breed in ponds during the spring and spend the majority of the remaining time foraging for invertebrates in habitats such as rough grassland with a tussock structure, hedgerows and woodland. Great crested newts hibernate in the winter, seeking frost-free refuges such as under log piles and among tree roots.

Populations of great crested newts have been in decline in Britain and across Europe for the past 100 years. Loss and fragmentation of habitat have been key factors in this decline. In particular, agricultural intensification and development have led to the infilling of ponds, draining of wetlands and loss of woodland and rough grassland habitats. More recently, an increasing tendency to develop on 'brownfield' sites (previously developed land which has often been left to develop vegetation and other habitat features) has led to further loss of great crested newt habitat.

6.3 Background

Given the size and scale of the proposed works, ponds up to 250m away from the Site, were considered relevant for the assessment. There are no ponds within the Site boundary and there are three known ponds within 250m of the Site (Figure 7). A desk top search was undertaken to gather information on the existing survey data for these ponds and to facilitate an assessment of the likelihood of great crested newt presence in the three ponds.

Figure 7: Waterbodies within 250m of the Site © Google EarthPro 2024



6.4 Legal Protection

6.4.1 *Legislation*

Under the Conservation of Habitats and Species Regulations 2017 (as amended)²⁷ a person who:

- a) deliberately captures, injures or kills a great crested newt;
- b) deliberately disturbs a wild great crested newt;
- c) deliberately takes or destroys the eggs of a great crested newt; or
- d) damages or destroys a breeding site or resting a great crested newt,

is guilty of an offence.

It is also illegal to possess, control, transport, offer for sale or exchange, or sell or exchange any live or dead individual, or anything derived from a great crested newt.

The Wildlife and Countryside Act 1981 (as amended)²⁸ provides protection to certain wild animals – listed on Schedule 5 – including the great crested newt. Section 9 (4) & (5) detail the offences concerning great crested newt:

- (4) (a) a person is guilty of an offence if they intentionally or recklessly:
 - (b) disturb any such animal while it is occupying a structure or place which it uses for shelter or protection; or
 - (c) obstruct access to any structure or place which any such animal uses for shelter or protection.
- (5) subject to the provisions of this Part, if any person:
 - (a) sells, offers or exposes for sale, or has in his possession or transports for the purpose of sale, any live or dead wild animal included in Schedule 5, or any part of, or anything derived from, such an animal; or
 - (b) publishes or causes to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things,
he shall be guilty of an offence.

Great crested newt is listed as a species of principal importance for the purpose of conserving biodiversity under Section 41 (England) of The Natural Environment and Rural Communities Act (2006). As such, they are a 'material consideration' in the planning process.

6.4.2 *Licences*

Developers must ensure that they commission reasonable survey efforts to determine great crested newt presence and, if required, obtain the necessary European Protected Species Licence for development from the relevant Statutory Organisation (for this site, Natural England), which is likely to require appropriate mitigation for disturbance and loss of habitats.

A Great Crested Newt licence cannot be obtained until planning has been approved and associated ecology related conditions discharged. Different forms of Licence are available depending in the nature and location of the proposals.

A Great Crested Newt Survey Licence from Natural England is required to employ certain survey methods.

²⁷ HMG, 2017. The Conservation of Habitats and Species Regulations. London: HMSO

²⁸ HMG, 1981. The Wildlife and Countryside Act 1981. HMSO

6.5 Methodology

6.5.1 Survey Personnel

Dr Suzy Cardy BSc (Hons) MSc CEcol MCIEEM

Suzy is Technical Director for Richard Graves Associates Ltd and has over twenty years' experience in the management and execution of the ecological elements of large-scale development projects. Suzy holds a Natural England Licence to survey for great crested newts.

6.5.2 Great Crested Newt Scoping Survey

The desktop review included interrogation of the following information:

- OS Online Mapping and Google Earth;
- Local Records Centre Data (The Sussex Biodiversity Record Centre (SBRC));
- Ecological Reports for the adjacent Harvest Rise, Angmering Site;
- Protected Species Licences Search (*via* MAGIC);
- Identification of ponds / great crested newt records submitted as part of the 'Great Crested Newt Natural England Class Survey Licence Returns (England)'²⁹ (*via* MAGIC); and
- Identification of ponds subject to the 'Great Crested Newt eDNA Habitat Suitability Index Pond Surveys for District Level Licensing 2017, 2018, 2019'³⁰ (*via* MAGIC).

6.6 Results

6.6.1 SBRC Data

No recent or historic records of for great crested newt were returned in the Sussex Biodiversity Record Centre records within 1km of the Site³¹.

6.6.2 European Protected Species Licence Applications

MAGIC was used to search for granted European Protected Species Great Crested Newt Licence Applications within 1km of the Site, none were recorded.

6.6.3 Survey Licence Returns & DDL Data

- No positive records were returned for great crested newt from records submitted as part of the 'Great Crested Newt Natural England Class Survey Licence Returns (England)' within 1km of the Site.
- No ponds surveyed as part of the 'Great Crested Newt eDNA Habitat Suitability Index Pond Surveys for District Level Licensing 2017, 2018, 2019', were recorded within 1km of the Site.

6.6.4 Existing Ecological Reports

A series of great crested newt Habitat Suitability Assessments, Presence / Absence (bottle trapping, torchlight searching and egg searching techniques) Surveys and eDNA Surveys were undertaken for the Harvest Rise Site, Angmering between 2017-2018 by CSA¹⁰ and in 2021 by RPS¹¹.

The three ponds located within 250m of the Angmering Sports Hub Site were surveyed as part of these works, as well a number of additional ponds within the wider landscape (Figure 8). No great crested

²⁹ Natural England - GCN - Class Survey Licence Returns (England) <https://data.gov.uk/dataset/583d32c2-200a-4ed2-982c-be9c5ea3bc0f/gcn-class-survey-licence-returns-england> [Accessed 14th July 2022].

³⁰ Natural England - Great Crested Newt eDNA Habitat Suitability Index Pond Surveys for District Level Licensing 2017, 2018, 2019. <https://data.gov.uk/dataset/8643f1b9-b419-4ee8-8e9c-18200e0edc31/great-crested-newt-edna-habitat-suitability-index-pond-surveys-for-district-level-licensing-2017-2018-2019> [Accessed 14th July 2022].

³¹ Sussex Biodiversity Record Centre (2024) Ecological data search for land at Angmering Sports Hub. On behalf of Suzy Cardy (Richard Graves Associates). Report reference SxBRC/24/152. Prepared on 04/06/2024

newts were recorded during any of the surveys for Ponds 1-3 nor for any of the ponds in the wider landscape (Figure 8 and Table 10).

Figure 8: Ponds Surveyed for GCN for the Harvest Rise Site



Table 10: Summary of Existing Great Crested Newt Survey Data

Pond Ref	2018 Presence / Absence (Torch / Bottle / Egg Search Result)	2021 eDNA Result
1	No GCN	No GCN
2	No GCN	No access, not surveyed
3	No access, not surveyed	No GCN
4	Not surveyed. HSI: Poor	No access, not surveyed
5	No GCN	No GCN
6	No GCN	No GCN
7	No longer present	No access, not surveyed
8	Not surveyed. HSI: Poor	No access, not surveyed

6.7 Limitations

- Ponds within 250m of the Site have been identified primarily by aerial and OS mapping. It is possible that some additional ponds are not included in the mapping and images available.

6.8 Evaluation, Potential Impacts, Interpretation and Initial Recommendations

Despite extensive survey work, no great crested newts have been recorded in the ponds local to the Site and no records of great crested newts have been returned within 1km of the Site. Given the presence of the construction works to the north of the Site, it is also considered that the general suitability of the local landscape has decreased for this species.

The absence of positive records and survey data, combined with the relatively low impacts likely to result from the development – the loss of a small amount of suitable terrestrial habitat (woodland and scrub), the

risk to great crested newts is considered low, and the preparation of, and adherence to, a site-specific '**Precautionary Ecological Method Statement**' (PEMS), is considered proportionate provision of ecological protection given the scale, duration and nature of the proposed works to ensure this species, should it be present, is not impacted by the works. The 'Precautionary Ecological Method Statement' should be submitted to the Local Planning Authority for approval, prior to the start of works.

The Habitat creation proposed for the Site will include features that will benefit any future great crested newt populations including, log piles and hibernacula (Appendix A).

7 Nesting Birds

7.1 Introduction

The proposed Angmering Sports Hub development site included habitat suitable for nesting birds, including woodland, scrub and introduced shrubs. Birds, such as house sparrows, may also nest in the soffits and any other suitable features of the Pavilion Building on-site.

7.2 Nesting Bird Ecology

The typical time of year for birds to breed is during the more clement months; February – September inclusive. However, birds may be found nesting on development sites outside these periods. For example, species such as wood pigeon *Columba palumbus*, can nest all year around. The barn owl *Tyto alba*, which typically nests in trees hollows, agricultural buildings, old churches, and dis-used tower blocks, may also breed for longer periods.

The number of broods and the length of time it takes for bird eggs to hatch and the young to fledge is dependent of the bird species and conditions at the time. As an example, typically blackbirds *Turdus merula* have between 2-3 broods a year, each with 3-4 eggs which take approx. two weeks to hatch and a further two weeks for the young to fledge.

7.3 Legal Protection

7.3.1 *Legislation*

Wild birds, their nests and eggs, are afforded protection under Section 1(1) of The Wildlife and Countryside Act 1981 (as amended). Under this legislation, a person is guilty of an offence if he intentionally:

- Kills, injures or takes any wild bird;
- Takes, damages or destroys the nest of a wild bird included in Schedule ZA1;
- Takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- Takes or destroys an egg of any wild bird.

Nesting bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981, as amended, are also protected from disturbance.

7.3.2 *Licences*

No licences are required in relation to nesting birds which are not Schedule 1 species. To disturb Schedule 1 species, a licence must be obtained in advance. In England, this is obtained from Natural England.

7.4 Protection During Site Clearance

Areas of vegetation, in particular trees, scrub and introduced shrub, should not be cleared during the bird nesting season (February – September inclusive). Should clearance be required during these times, the Project Ecologist should be consulted and the vegetation must first be inspected by a suitably qualified ecologist, who's further advice must be complied with. Any clearance method undertaken for nesting birds must factor in the protection of other protected species such as dormice and reptiles.

8 Conclusions

In 2024, Richard Graves Associates undertook a 'Preliminary Ecological Appraisal' of a proposed Angmering Sports Hub Site. The Site was dominated by intensively managed modified grassland and areas of hard standing, currently used as a recreational ground, bordered by habitats of higher ecological value namely a woodland belt and scrub. The Site was assessed to have the potential to host a variety of protected species. As a result of the findings of the PEA Report, a suite of ecological surveys for protected species were recommended and have subsequently been undertaken / are in progress. The findings of this Interim Phase 2 Report and the subsequent species-specific surveys will be / have been employed to minimise impacts to these species and their habitats and to help develop an ecologically sensitive and biodiversity promoting, Landscape Masterplan for the Site.

If the recommendations of this report, and any subsequent species-specific survey reports, are undertaken at the appropriate stage there are no undue constraints, with respect to ecology, to potential development.

Appendix A

Map Illustrating Indicative Location of Ecological Features

