PENN'S FIELD B
PETERSFIELD

ECOLOGICAL IMPACT ASSESSMENT

ACD ENVIRONMENTAL

Ecology
Archaeology
Arboriculture
Landscape Architecture

Petersfield Town Council

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1.0 EXECUTIVE SUMMARY

1.1 ACD Environmental Ltd carried out an Ecological Impact Assessment of a parcel of land at Penn's Field B, Petersfield, hereinafter referred to as the 'Application Site'.

1.2 The Application Site comprises a rough grassland field enclosed by dense scrub on the western boundary and hedgerows along its south-east and north-east boundaries. Scrub habitat was also present along the southern and eastern hedgerow lengths prior to spring 2018 strimming works.

1.3 The Application Site will be subject to a planning application for new sports lighting on Pitch 3 and Pitch 4, the removal of the hedgerows and the conversion of the rough grassland to amenity grassland to facilitate the placement of sports pitches.

1.4 The development of the site will require the removal of approximately 240 metres of hedgerow. Hedgerows are listed on section 41 of the Natural Environment and Rural Communities (NERC) Act as a habitat of principal importance in England. The hedgerow to be affected does not meet the criteria to be classed as an important hedgerow within the Hedgerow Regulations.

1.5 New coppice (0.2ha) of hazel and other native species will be planted within the site boundary which will be managed for conservation. In addition, the Rotherlands LNR will be enhanced by management of invasive species and coppice management. An existing boundary hedgerow in the south of the sports pitches will be enhanced with further native planting and a woodland buffer of 150m in length will be planted on the boundary of the Rotherlands LNR in the north of the sport pitch site.

1.6 The hedgerows and dense scrub on site are suitable for hazel dormouse, which are known to be present within connecting habitat and are present in the hedgerows and dense scrub bounding the site. The new lighting proposed is not anticipated to impact hazel dormouse, as their anticipated usage is predominantly during their hibernation period and a light spillage assessment has concluded that no light spillage onto suitable adjacent habitat is to occur. A Natural England European Protected Species Mitigation licence for hazel dormouse is recommended to facilitate the development. The licence would be attained post planning and would

include the planting of at least 0.39ha of suitable habitat within the recreational grounds, that will not be degraded by light pollution. Suitable compensatory habitat creation within the recreational grounds and enhancements within Rotherlands LNR is detailed in this report.

1.7 A reptile presence/likely absence survey was undertaken within the Application Site between March and April 2018. The survey identified a 'low' population of slow-worm (maximum count of two adults) and grass snake (maximum count 1 adult and one sub-adult). A phased clearance methodology under the supervision of a suitably qualified ecologist is recommended to allow reptiles to move, on their own accord, into the western and northern boundaries of the Application Site. These boundaries are sufficient to support the slow-worm and grass snake population as existing and are well connected to extensive suitable habitat in the wider landscape in the form of the Rotherlands LNR.

1.8 During the reptile presence/likely absence survey, common toad was recorded to be present within the Application Site. Common toad is a national priority species and will be protected from harm during the habitat clearance works. The protection of common toad will be inherently undertaken as part of the reptile mitigation.

1.9 The hedgerow and dense scrub is also suitable for nesting birds and foraging and commuting bats. The lighting proposed is not anticipated to significantly impact bat activity as it is anticipated to be mainly in use from October to April, which is outside of the main bat active season of May to September. Furthermore, the light spillage assessments have concluded that the adjacent woodland of value to foraging bats will not be subject to increase light level, further secured through new buffer planting (hazel dormouse mitigation), and the columns are designed with an upward light ratio of 0% and good optical control. Precautionary clearance measures have been recommended to prevent the risk of death and/or injury of nesting birds. Bat activity surveys were carried out in 2019 with the results confirming that the hedgerows and open space are largely used by common and widespread bat species. The loss of the hedgerows will not result in the fragmentation of suitable bat habitat. Furthermore, the loss of the suitable foraging and commuting bat habitat is to be compensated for within the hazel dormouse licence.

1.10 Lastly, the rough grassland is of site value for foraging barn owl, due to the small size of the field and the tussocks themselves. The recommendation for tussocky grassland edges within the recreational grounds will provide suitable compensatory habitat and the installation of a barn owl box will provide an on-site enhancement to this species.

Further biodiversity enhancement opportunities have been recommended in the form of wildflower meadow sowing, hibernacula creation for reptiles and small mammals and the creation of a bug hotel.

1.11 Provided that the mitigation and enhancements outlined within this report are adhered to, the proposals will be in compliance with NPPF and Local Policy CP21. The mitigation and enhancement measures will also be sufficient for incorporation into the Natural England hazel dormouse EPSM licence, which requires no net loss of hazel dormouse habitat.

2.0 INTRODUCTION, CONTEXT AND PURPOSE

Introduction

2.1 ACD Environmental Ltd was commissioned by Petersfield Town Council to carry out a Preliminary Ecological Appraisal (PEA), reptile presence/likely absence survey, and bat activity surveys of a parcel of land at Penn's Field B, Petersfield (SU 76399 23660), hereinafter referred to as the site.

2.2 The site is bounded by sports pitches to the north-east and south-east, Rotherlands Local Nature Reserve (LNR) to the north-west and a field with planning permission for residential development to the south-west. The site itself comprises a rough grassland field enclosed by dense scrub on the north-west and south-west boundaries and hedgerows along its south-east and north-west boundaries.

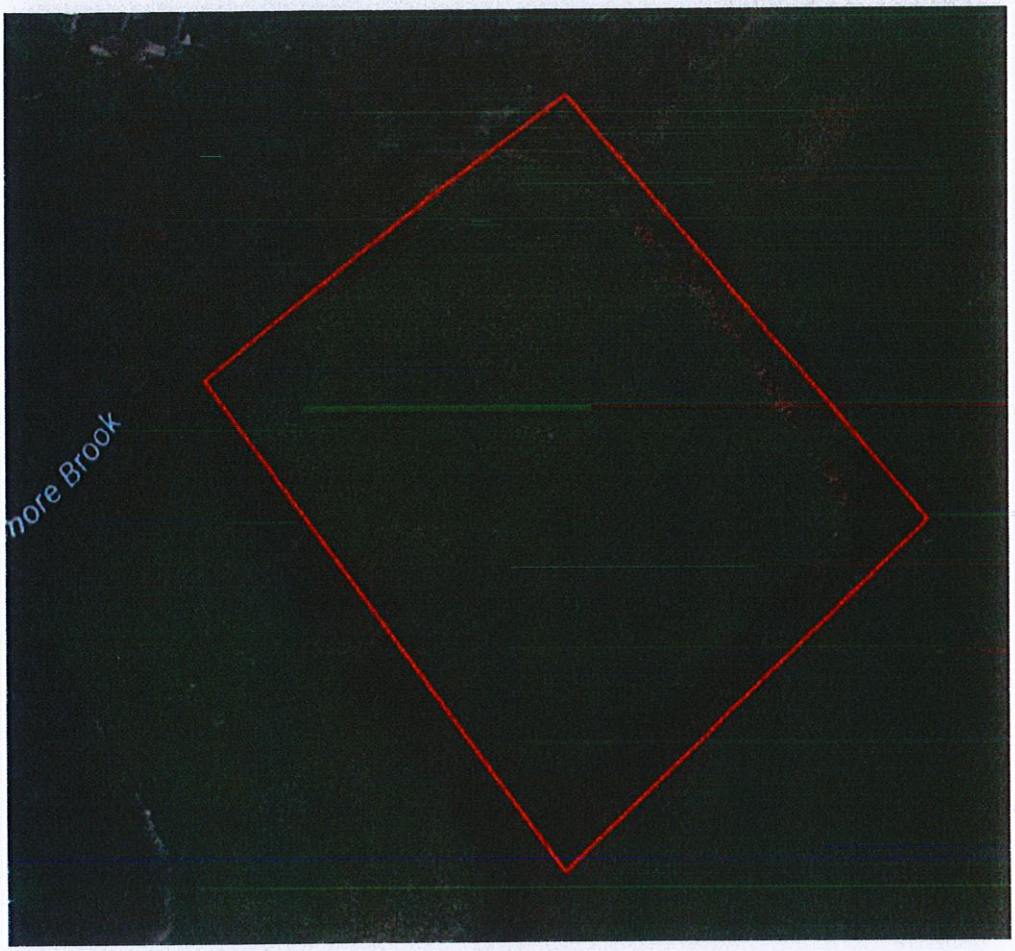


Image 1: Site location and approximate site boundary shown in red.

Context

2.3 Planning is being sought to facilitate the removal of approximately 240m of hedgerows and manage the existing rough grassland for amenity use and new sports lighting to facilitate additional sports pitches within the recreation grounds for all-year round use. The site boundary does not include the hedgerow that extends adjacent to the south-west boundary or the woodland habitat to the north-west. An indicative sports pitch positioning plan has been produced to support the planning application, shown in **Appendix 3**. Pitches 1 to 4 are also labelled within the plan, as they are frequently referred to within Section 6 of this report.

Purpose

2.4 Ecological Impact Assessment (EcIA) assesses the effects of a non-EIA development proposal on ecological resources/features, clearly identifying any 'likely significant effect/s' (LSE) and impacts on any designated sites or protected species, and detailing the mitigation measures required, as well as how these will be secured.

2.5 An EcIA can be considered as having three main purposes:

- Providing an objective assessment of the ecological impacts and effects of the proposed development or activity;
- Secure the necessary mitigation and compensation to be compliant with national, regional and local policies relevant to biodiversity and nature conservation; and
- Demonstrate that the proposed development will meet the legal requirements relating to habitats and species.

2.6 This report includes all the ecological information necessary for a decision to be made. Key aspects include:

- Statement of ecological survey methods used;
- Description of the existing ecological baseline conditions;

- Description of legal and policy consequences;
- Identification of likely impacts and an explanation of their significance on the ecological receptors; and
- Explanation of the required mitigation and compensation measures and recommended enhancement measures

3.0 METHODOLOGY

Names and qualifications of surveyors

3.1 The Phase 1 Habitat survey was carried out by Sophie Lancaster of ACD Environmental Ltd. Sophie is an Ecologist and has been involved in a wide range of ecological projects including Extended Phase 1 surveys, Phase 2 surveys for protected species, and European Protected Species Mitigation (EPSM) licence applications. She is an Associate Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and holds Natural England licences for bats and great crested newt *Triturus cristatus*.

3.2 Subsequent reptile presence/likely absence surveys were conducted by Sophie Lancaster, Victoria Mercier (Graduate Ecologist for ACD Environmental Ltd) and Rosie Tobin-Moss (Graduate Ecologist for ACD Environmental Ltd).

3.3 Bat transect surveys were carried out during 2019 by Sophie Lancaster, Rosie Tobin-Moss, Matthew Ward (Graduate Ecologist for ACD Environmental Ltd) and Brian Hicks (ACD Ecologist).

3.4 Badger surveys were carried out by Brian Hicks.

3.5 This report was checked by Daniel Wood (MCIEEM) of ACD Environmental Ltd. Daniel is the Director of Ecology and oversees all work carried out by the ACD Environmental team. Daniel has 11 years' experience working for commercial consultancies and specialises in European Protected Species legislation and mitigation. Daniel holds Natural England Class Licences for bats, great crested newts, hazel dormice *Muscardinus avellanarius* and barn owls *Tyto alba*. Daniel has extensive development project experience, on sites of varying sizes from individual dwellings to strategic land allocations involving a wide range of issues. He has experience of projects from pre-acquisition, planning applications, Preliminary Ecological Appraisal (PEA), Ecological Impact Assessment (EcIA), Environmental Statements (ES) for EIA, and Appropriate Assessment (AA).

Background Data Search

3.6 Whilst field survey is invaluable and provides a "snap-shot" of the species and habitats present on a site, it is also important to research existing ecological knowledge of the site, such as biological records, and any relevant ecological information from the surrounding area.

3.7 The data search has been undertaken within a 5km radius of the site for statutory protected nature conservation sites and within a 2km radius for non-statutory protected sites and protected species records.

3.8 The data search involved collating information from the following sources and, where relevant, the information provided has been incorporated with acknowledgement within this report:

- The Multi-Agency Geographic Information for the Countryside (MAGIC) website[1], (statutory protected nature conservation sites within a 5km radius and EPSM licenses granted within a 2km radius); and
- Hampshire Biodiversity Information Centre (HBIC), (non-statutory protected sites and species within a 2km radius).

Habitat Survey

3.9 The site was surveyed on 23rd October 2017 using the Joint Nature Conservation Committee (JNCC) Phase I habitat survey methodology[2]. This 'extended' Phase I technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail. The vegetation present was clearly visible and allowed an accurate assessment to be made.

3.10 Using the above method, the site was classified into areas of similar botanical community types with a representative sample of those species present at the time

[1] http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx.
[2] JNCC, (2010), *Handbook for Phase 1 habitat survey - a technique for environmental audit.* JNCC, Peterborough.

of the survey being described. As the field survey was undertaken in autumn, spring and summer flowering species are likely to be under recorded. This is not considered a significant limitation as an extensive plant list was produced and the habitat types confidently identified. Given the type of vegetation and habitats present, the valuation of the intrinsic interest is very unlikely to change.

Fauna

3.11 Incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support legally protected species and other species of conservation concern, including UK Biodiversity Action Plan Priority species.

3.12 In addition to the Extended Phase I survey, the following species surveys were undertaken:

- Badger (visual search);
- Bats – Preliminary Roost Assessment;
- Hazel Dormice (nut search); and
- Reptile presence/likely absence survey.

Badger

3.13 Where possible, the site was systematically surveyed for evidence of badgers, in the form of:

- Faeces - badgers deposit faeces in characteristic excavated pits, concentrations of which (latrine sites) are typically found at home range boundaries, field boundaries and around setts;
- Setts, comprising either single isolated holes or a series of holes, which may be linked to each other underground;
- Worn paths used by badgers, often linked to setts or foraging grounds;
- Scratching posts at the base of tree trunks;

- Snuffle holes (scrapes where badgers have searched for food);
- Day nests (bundles of grass and other vegetation where badgers may sleep above ground);
- Hairs (usually found outside setts or caught under fencing); and
- Footprints.

Where badger setts are found, they are described using the following criteria:

- Number of well-used holes (with one or more of the features: well-worn entrance; freshly excavated soil; bedding material);
- Number of partially-used holes (leaves or twigs in entrance and/or mosses and other plants growing in or around entrance); and
- Number of disused holes (partially or completely blocked, with considerable amount of excavation required for reoccupation).

Where feasible, badger setts are classified into the following:

- Main Sett – The continuously used, breeding and over-wintering sett for a social group of badgers. Only one main sett will exist in each social groups territory, and will be relatively centrally located within the group's range;
- Annexe Sett – An annexe of the main sett, linked by well-used paths to the main sett (but not connected underground). Not continuously used;
- Subsidiary Sett – Distant from the main sett. Several entrances, but with no well-used paths connecting to the main sett, and only used seasonally; and
- Outlier sett – Distant from the main sett. Small, with only one of two entrances only. Used for short periods sporadically, with no obvious, well-used paths connecting to other setts.

Badger monitoring surveys

3.14 Two holes characteristic of badger were recorded during 2019 in the southern hedgerow and the eastern hedgerow. These holes were partially blocked using sticks to determine whether the holes are in active use. The holes were then inspected weekly during October, which is an optimal month for recording badger activity. In addition a Bushnell trail camera was placed at the entrance to the holes to record any mammal activity.

3.15 The holes were inspected on 10th October, 17th October, 22nd October, and 30th October 2019.

Bats

Preliminary Roost Assessment

3.16 A Preliminary Roost Assessment (PRA) was undertaken[3] of the trees on-site. This includes a visual assessment to assess the likelihood of bats being present and the need for further survey and/or mitigation. The following features and signs of bats were searched for on the trees:

- Cracks and splits;
- Cavities and hollows;
- Dense epicormic growth;
- Loose bark;
- Rot holes;
- Woodpecker holes;
- Scratches around entry points;

[3] Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

- Smoothing of surfaces around entry points;
- Dark staining from droppings and urine;
- Bat droppings in and around entrance;
- Audible squeaking during warm weather;
- Flies around entrance; and
- Smell of bats.

3.17 The following equipment was used for the bat survey:

- Powerful torch to illuminate dark corners from the ground;
- Collection pots and labels for corpses and droppings;
- Camera to record evidence and potential roosting sites; and
- Personal protective equipment (e.g. boots, gloves, helmet, mobile phone).

Bat Activity Surveys

3.18 The boundary hedgerows were recognised as providing opportunities for commuting and foraging bats; therefore, bat activity surveys were carried out as follows.

3.19 Bat activity surveys were carried out to identify the species of bat utilising the Application Site and the primary commuting routes and main foraging areas within the Application Site. The survey results provide the baseline value of the Application Site for bats and inform an assessment of potential impacts and constraints to the proposed development. A combination of walked transects and automated, static detector surveys were carried out.

Static Bat Detector Deployment

3.20 Two AnaBat Express automated bat detectors were installed on site between April and October 2019. The detectors were positioned along the hedgerows and northern site boundaries using a random number generator to determine their position. The detectors were deployed in secure locations with the microphones set on trees/shrubs at a height of 2m away from immediate vegetation to minimise potential acoustic clutter. Locations of the detectors are shown in **Appendix 12**. Weather conditions and time of sunset and sunrise are shown in **Table 1**, below.

Table 1: Weather conditions during static bat detector deployment.

Survey	Date	Sunset time	Sunrise time	Temperature° LOW	Temperature° HIGH	Wind Beaufort Scale	Weather
1	27/06/2019	21:22	04:51	13	24	4	Dry
	28/06/2019	21:22	04:51	18	26	3	Dry
	29/06/2019	21:21	04:52	19	28	2	Dry
	30/06/2019	21:21	04:52	16	21	4	Dry
	01/07/2019	21:21	04:53	14	21	2	Dry
	02/07/2019	21:21	04:54	12	19	2	Dry
2	22/07/2019	21:04	05:14	16	22	3	Dry
	23/07/2019	21:03	05:16	14	30	3	Dry
	24/07/2019	21:02	05:17	18	27	3	Dry
	25/07/2019	21:00	05:18	18	30	3	Dry
	26/07/2019	20:59	05:20	18	22	3	Dry
3	15/08/2019	20:25	05:50	16	23	4	Dry
	16/08/2019	20:23	05:51	12	18	6	Light rain
	17/08/2019	20:21	05:53	16	21	4	Dry
	18/08/2019	20:19	05:54	14	20	5	Dry
	19/08/2019	20:17	05:56	15	20	5	Dry
	20/08/2019	20:15	05:57	11	20	3	Dry
4	26/09/2019	18:53	06:55	15	18	5	Rain
	27/09/2019	18:51	06:57	15	18	6	Rain
	28/09/2019	18:49	06:58	15	17	5	Rain
	29/09/2019	18:46	07:00	14	18	7	Dry
	30/09/2019	18:44	07:01	14	17	5	Dry
5	15/10/2019	18:11	07:26	9	12	3	Dry
	16/10/2019	18:09	07:27	10	21	5	Dry
	17/10/2019	18:07	07:29	9	21	5	Rain
	18/10/2019	18:05	07:31	10	24	5	Rain
	19/10/2019	18:03	07:33	6	16	4	Dry
	20/10/2019	18:01	07:34	3	11	3	Dry

Survey	Date	Sunset time	Sunrise time	Temperature° LOW	Temperature° HIGH	Wind Beaufort Scale	Weather
1	27/06/2019	21:22	04:51	13	24	4	Dry
	28/06/2019	21:22	04:51	18	26	3	Dry
	29/06/2019	21:21	04:52	19	28	2	Dry
	30/06/2019	21:21	04:52	16	21	4	Dry
	01/07/2019	21:21	04:53	14	21	2	Dry
	02/07/2019	21:21	04:54	12	19	2	Dry
2	22/07/2019	21:04	05:14	16	22	3	Dry
	23/07/2019	21:03	05:16	14	30	3	Dry
	24/07/2019	21:02	05:17	18	27	3	Dry
	25/07/2019	21:00	05:18	18	30	3	Dry
	26/07/2019	20:59	05:20	18	22	3	Dry
3	15/08/2019	20:25	05:50	16	23	4	Dry
	16/08/2019	20:23	05:51	12	18	6	Light rain
	17/08/2019	20:21	05:53	16	21	4	Dry
	18/08/2019	20:19	05:54	14	20	5	Dry
	19/08/2019	20:17	05:56	15	20	5	Dry
	20/08/2019	20:15	05:57	11	20	3	Dry
4	26/09/2019	18:53	06:55	15	18	5	Rain
	27/09/2019	18:51	06:57	15	18	6	Rain
	28/09/2019	18:49	06:58	15	17	5	Rain
	29/09/2019	18:46	07:00	14	18	7	Dry
	30/09/2019	18:44	07:01	14	17	5	Dry
5	15/10/2019	18:11	07:26	9	12	3	Dry
	16/10/2019	18:09	07:27	10	21	5	Dry
	17/10/2019	18:07	07:29	9	21	5	Rain
	18/10/2019	18:05	07:31	10	24	5	Rain
	19/10/2019	18:03	07:33	6	16	4	Dry
	20/10/2019	18:01	07:34	3	11	3	Dry

Bat Transects

3.21 The site was surveyed using standard Bat Conservation Trust methodology for bat transect surveys[4]. A combination of AnaBat Scout and Echo Meter Touch Pro bat detectors were used. Bat activity is recorded onto a recording device (tablet

[4] Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

computer or included within the AnaBat Scout).

3.22 The transect was carried out by two surveys for reasons of Health and Safety and working at night. The transect route was designed to cover all habitats within the Application Site and comprised six stationary 'listening stops', each of five minutes, and was walked one and a half to two times by each surveyor so that each part of the Application Site was covered at different times. The transect route is shown in **Appendix 4.**

3.23 The surveys commenced at sunset and continued for 1.5 hours after sunset.

3.24 The dates and weather conditions of the transects are shown in Table 2, below.

Table 2: Transect dates and weather conditions.

Survey	Date	Sunset time	Sunrise time	Temperature° LOW	Temperature° HIGH	Wind Beaufort Scale	Weather
1	27/06/2019	21:22	04:51	13	24	4	Dry
2	22/07/2019	21:04	05:14	16	22	3	Dry
3	15/08/2019	20:25	05:50	16	23	4	Dry
4	26/09/2019	18:53	06:55	15	18	5	Rain
5	28/10/2019	16:45	06:48	3	10	2	Showers

3.25 The transect map can be found in **Appendix 10.**

Data Processing

3.26 Bat data from the static detectors and transects was analysed using a combination of Analook W and Analook Insight analysis software.

Limitations

3.27 The ranges of echolocation intensity exhibited between individual bat species makes it improbable that ultrasound sampling will be equal, regardless of the make and model of detectors used. For example, all detector surveys under-record species with weak echolocation calls (Bechstein's *Myotis bechsteinii*, Barbastelle *Barbastella barbastellus* and long eared *Plecotus spp.*).

3.28 It is also generally not possible to distinguish between multiple passes by a single bat or several bats passing only once each. It is also not possible to use activity-based data on echolocation calls to estimate relative abundance (i.e. the number of bats present). Consequently, it is not possible to estimate the relative population numbers of any bat species that may exploit a site for foraging and/or commuting, or how much of said habitat would be required to support a population. Therefore, activity-based data is limited to only being able to provide an overview of the species likely to be present, and possible differences between sampling locations, either on the same night, and/or over periods of time. Activity-based data can also not distinguish the sex, age, or breeding condition of bats present.

3.29 Analysis of ultrasonic data, even when using experienced ecologists, is subject to interpretation. It is generally accepted that it is possible to distinguish the calls of the majority of the UK bat species, particularly those with distinctive ultrasonic signatures. However, calls of the five species of the genus *Myotis* should be treated with caution, because the species can be difficult to separate out from one another.

3.30 The static bat detectors deployed during August failed to record any registrations. One of the static bat detectors deployed in September also failed to record any registrations. Despite this, the data captured over the remaining months is considered to form a comprehensive assessment of the Application Site.

Hazel Dormouse Nut Search

3.31 During the Phase 1 site visit over 100 hazel nuts that had been opened by small rodents were collected and examined for characteristic signs of gnawing by hazel dormice, in accordance with the Dormouse Conservation Handbook[5]. Nut searches can confirm presence of hazel dormouse, however, this technique alone should not be applied for determining likely absence as there is a significant risk of false negatives, especially where low densities of dormice occur.

3.32 The nut search was repeated in October 2019.

[5] English Nature (2006). *The Dormouse Conservation Handbook, 2nd Edition*. Peterborough.

Reptile Surveys

3.33 The Application Sites rough grassland with boundaries of hedgerows and dense scrub was identified to be suitable to support widespread species of reptiles.

3.34 Surveys were carried out with reference to the Herpetofauna Workers' Manual[6] and Froglife Advice Sheet 10: Reptile Survey[7]. The survey comprised an artificial refuge survey where refugia are deployed in suitable reptile habitat. To establish presence or absence, a minimum of seven checks of the refugia were carried out in suitable weather conditions during March and April 2018.

3.35 The total area of the Application Site is approximately 2.2 hectares. In accordance with Gent and Gibson[6], refugia should be deployed at a density of at least 10/ha of suitable habitat. Reptile mats were deployed on 20th March 2018 comprising a total of 36 refugia in suitable habitat within the Application Site. The refugia were therefore deployed at a density exceeding the minimum required by 64%.

3.36 The refugia were left for 7 days before checking to allow the refugia to 'bed-in' and become more attractive to reptiles before the first survey commenced.

3.37 The weather conditions during the reptile surveys are shown in **Table 3.1** below.

Table 3.1 Weather conditions during the reptile surveys.

Survey	Date	Time	Weather Conditions
1	27/03/18	14:15 -14:45	Cloud cover 50%, wind Beaufort 2, Temperature 13.5°C
2	06/04/18	11:34 – 12:20	Cloud cover 20%, wind Beaufort 2, Temperature 12°C
3	10/04/18	16:00 – 16:20	Cloud cover 100%, wind Beaufort 1, Temperature 12°C
4	14/04/18	11:30 – 11:45	Cloud cover 100%, wind Beaufort 1, Temperature 9°C

[6] Gent, A. H., and Gibson, S. D., eds. (1998). *Herpetofauna Workers' Manual*. Joint Nature Conservation Committee, Peterborough.
[7] Froglife Advice Sheet 10: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation. [Online). Available from: www.froglife.org.

Survey	Date	Time	Weather Conditions
5	17/04/18	09:46 – 10:15	Cloud cover 100%, wind Beaufort 2, Temperature 11°C
6	20/04/18	08:15 - 08:30	Cloud cover 0%, wind Beaufort 1, Temperature 15°C
7	23/04/18	14:10 – 14:40	Cloud cover 75%, wind Beaufort 3, Temperature 15°C

3.38 Relative population size and density was estimated by taking the maximum number of adults recorded by one person in one day, as recommended by Froglife[8]. The Froglife system classifies populations as either 'low', 'good' or 'exceptional' based on the peak adult count seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in one day. A peak count of less than 5 adults equates to a low population, a peak count of 5-20 adults equates to a good population, and a peak count of more than 20 adults equates to an exceptional population.

Limitations

3.39 The majority of the surveys were carried out during the optimal survey month of April and all survey were undertaken during suitable weather conditions; with temperatures between 9°C - 18°C, dry and low winds.

3.40 Although attempts have been made to standardise reptile surveys methods, there is no single accepted standard methodology for surveying reptile populations or estimating population size.

3.41 Froglife[9] states that 20 visits can be required on certain sites to obtain a population estimate. However, Sewell *et al* (2013)[10] suggests that 20 visits are only required for capture-mark-recapture techniques - which call for intensive (and more invasive) effort. For those reasons, capture-mark-recapture is very impractical and is not

[8] Froglife (1999). Reptile survey - An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife advice sheet 10. http://www.froglife.org/advice/sheets/htm
[9] Froglife (1999). Reptile survey - An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife advice sheet 10. http://www.froglife.org/advice/sheets

advocated for most development projects. Sewell *et al* (2013)[11] recommends for reptile counts and densities, 6-10 visits are required, ideally spread over the periods when highest counts are likely required.

3.42 When determining presence/absence of reptiles, Sewell *et al* (2012)[12] found that three to four checks provided a 95% confidence in the results. Therefore, the survey effort conducted here is considered suitable to establish presence/ likely absence of reptile species.

3.43 On the initial survey the refugia numbered 15 to 36 (see **Appendix 4** for refugia numbering) were missing and 15 to 18 were replaced immediately and 19 to 36 replaced on the second survey. The loss of mats did not occur again until the fifth survey whereby mats 17, 18, 22 to 30 were recorded missing. These were not replaced as 25 refugia were still present within the Application Site, which is three more than is required for a 2.2ha site. This limitation frequently occurs when surveying public open spaces and it is not considered a significant limitation in this instance.

Habitats and Species Evaluation and Impact Assessment

3.44 The habitats and species evaluations are made with reference to the CIEEM guidelines for Ecological Impact Assessment[13], Ecological Report Writing[14] and Guidelines for Preliminary Ecological Appraisal[15] (PEA).

3.45 These guidelines aim to give a degree of consistency in approach to evaluating the importance of the ecological features within the Application Site and any effects or impacts a scheme will have upon them.

[14&11] Sewell, D., Griffiths, R, A., Beebee, T, J, C., Foster, J., and Wilkinson, J, W (2013). Survey protocols for the British Herpetofauna. ARC, University of Kent and University of Sussex.
[12] Sewell, D., Guillera-Arroita, G., Griffiths, R.A. and Beebee, T.J.C. (2012). *When is a species declining? Optimizing survey effort to detect population changes in reptiles.* PLoS ONE 7(8): e43387.doi:10.1371/journal.pone.0043387.
[13] CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester
[14] CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
[15] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3.46 Firstly, the species or habitats must be valued and a commonly used framework involves assigning a level of geographical importance to ecological receptors. This framework incorporates a wide range of legislation and governmental guidance in assessing each feature's value.

3.47 Next, the impacts of the proposed scheme have to be predicted, taking into account different stages and activities within the development process. These impacts then have to be assessed for their significance, based upon the value of the species or habitat in question. The assessment of impact significance is done before and after any proposed mitigation to give an overall indication of significance.

3.48 The value of specific ecological receptors (sites, habitats or species) is assigned according to their level of importance using the following terms:

- International value;
- UK value;
- National value (i.e. England/Northern Ireland/Scotland/Wales);
- Regional value;
- County value;
- District value (or Unitary Authority, City, or Borough);
- Local or Parish value; and
- Of value within the context of the Application Site; and
- Negligible value

3.49 When describing ecological impacts, consideration should be made (where applicable) to the following characteristics:

- Beneficial or adverse (positive or negative);

- Extent (spatial or geographical area);
- Magnitude (minor, moderate, major, extreme);
- Duration/timing – short and medium term (construction phase) and long term (operational phase);
- Frequency (in relation to number of years/lifecycles); and
- Reversibility (temporary or permanent).

Significance Criteria

3.50 In accordance with the current CIEEM guidance and terminology, a significant effect, in ecological terms, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (which could be species or habitats), or for biodiversity in general. Effects can be considered significant at a wide range of scales from international to local.

3.51 A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project. It can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring.

3.52 A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects can be lawfully permitted, as long as the mitigation hierarchy has been applied effectively as part of the decision-making process.

3.53 In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

3.54 Significant effects should be qualified with reference to an appropriate geographic scale. For example, a significant effect on a Site of Special Scientific Interest (SSSI) is likely to be of national significance. However, the scale of significance of an effect

may not be the same as the geographic context in which the feature is considered important. For example, an effect on a species which is on a national list of species of principal importance for biodiversity may not have a significant effect on its national population. Examples of other relevant scales include regional and county. It should be noted that effects may be significant at the local scale, particularly in view of policies for no net loss of biodiversity.

3.55 When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

Precautionary Principle

3.56 The evaluation of significant effects is based on the results of the ecological surveys carried out in the Application Site and other available evidence. In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect is assumed. Where uncertainty exists, it has been duly acknowledged.

4.0 BASELINE CONDITIONS

Context

4.1 The Site is bounded by recreational grounds to the north-east and south-east, a field anticipated for residential development to the south-west and Rotherlands LNR to the north-west.

Data Search Results

Designated Sites

4.2 Statutory designated sites are the most significant ecological receptors and include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites of **International Value** and Site of Special Scientific Interest (SSSIs) of **National Value**

4.3 LNRs are notified under Section 21 of the National Parks and Access to the Countryside Act 1949 by local authorities and are of **Local Value**. They are not necessarily of great ecological value, and are intended for public appreciation and enjoyment of wildlife. The LNR designation does not afford special protection, although LNRs are protected under legislation and planning policy.

Table 4.1 List of statutory designated sites within a 5km radius of the site.

Name of statutory designated sites	Approximate distance from Site	Reason for designation
Rotherlands LNR	0m north-west	Tilmore Brook extends through the designation, which also comprises a semi-wilderness area of unmanaged rank grassland, scrub, woodland, wetland and river bank. It supports a wide range of common birds, insects and other creatures including occasional badgers *Meles meles*, otters *Lutra lutra* and crayfish.
Rake Hanger SSSI	3.5km north-east	Broadleaved woodland with ancient woodland indicator species present. Alderwood *Alnus* is also present which is a nationally uncommon woodland community.
Ashford Hangers NNR	3.55km north-west	Supports woodland and traditionally managed lowland grassland. The site supports 32 species

		of butterfly and the yellow meadow ant *Lasius flavus*.
East Hampshire Hangers SAC	4.1km north-west	Annex 1 habitats that are a primary reason for selection of this site: • *Asperulo-Fagetum* beech *Fagus sylvatica* forests rich in vascular plants • *Tilio-Acerion forests of slopes, screes and ravines* Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia* grassland; important orchid site) • Yew *Taxus baccata* woods of the British Isles Annex II species present as a qualifying feature, but not a primary reason for site selection: • Early gentian *Gentianella anglica*
Wealden Edge Hangers SSSI	4.1km north-west	The SSSI is one of the ecologically most interesting and diverse series of Chalk woodlands in Britain.
Liss Riverside Railway Walk (South) LNR	4.15km north-east	8.7ha in size supporting alder *Alnus glutinosa* and willow *Slaix* sp. woodland extending along a river.
Harting Downs SSSI	4.18km south	The designation supports unimproved chalk grassland, scrub, secondary woodland and longer established woodland.
Coulters Dean SSSI	4.52km south-west	Small area of chalk grassland comprising a species composition indicative of ancient chalk grassland. At least 11 species of orchid occur and a diverse invertebrate community persists.
Fyning Moor SSSI	4.6km east	Supports nationally uncommon alderwood and three nationally uncommon flies *diptera* Fen and unimproved meadows of note are also present
Buriton Chalk Pit LNR	4.6km south-west	The site slowly regenerated over the years forming a rich habitat with a high level of chalk-based species of significance in Hampshire.
Upper Greensand Hangers: Empshott to Hawkley SSSI	4.86km north	Comprises a series of steep, rocky, calcareous woodlands. Supporting a notable assemblage of byrophytes (mosses and liverworts). Nationally scarce invertebrates also persist here.
Butser Hill SAC	4.9km south-west	Annex I habitats that are a primary reason for selection of this site:

		• Semi-natural dry grasslands and scrubland facies on calcareous substrates (grassland *Festuco-Brometalia* ; important orchid sites) • Yew woods of the British Isles
Butser Hill SSSI	4.9km south-west	Comprises yew woodland and chalk grassland and is noted to be among the finest examples of English chalkland. Chalk heaths also occur, as well as an exceptionally rich bryophyte flora *Bryophyta.*
Butser Hill NNR	4.9km south-west	Notable for its large area of chalk grassland that supports a notable assemblage of butterflies and moths including the Duke of Burgundy *Hamearis lucina*, Chalkhill Blue *Polyommatus coridon* and Silver-Spotted Skipper *Hesperia comma*.

4.4 In Hampshire, local sites are termed Sites of Importance for Nature Conservation (SINCs), which are of **County Value**.

Table 4.2 shows the SINCs within 2km of the site.

Name of SNCI	**Approximate distance from Application Site**	**Nature Conservation Interest**
Tilmore Brook Wood SINC	0m north	Designated for its semi-natural woodland, which comprises an important community type of restricted distribution in the County.
Tilmore Brook Marsh SINC	15m north	Designated for its grasslands, which have become impoverished through inappropriate management but which retain sufficient elements of relic unimproved grassland to enable recovery. The site also support the following wetland habitats fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged conditions.
Alder Carr alongside River Rother SINC	100m north-east	Designated for its semi-natural woodland, which comprises an important community type of restricted distribution in the County. The site also supports significant populations of alternate-leaved golden-saxifrage *Chrysosplenium alternifolium* and hazel dormouse.

Sheet Mill Alders (West) SINC	170m north	Designated for its semi-natural woodland, which comprises an important community type of restricted distribution in the County.
Sheet Mill Alders SINC	175m north	Designated for its semi-natural woodland, which comprises an important community type of restricted distribution in the County. The site also supports significant populations of alternate-leaved golden-saxifrage.
River Rother Meadow 8, Westmark Farm SINC	230m east	Designated for its Agriculturally unimproved grassland, which comprises a mixed assemblage of indigenous species in essentially semi-natural communities which has been allowed to develop without the major use of herbicides or inorganic fertilisers.
River Rother Meadow 9, Westmark Farm SINC	240m east	Designated for its agriculturally unimproved grassland, which comprises a mixed assemblage of indigenous species in essentially semi-natural communities which has been allowed to develop without the major use of herbicides or inorganic fertilisers.
Whitrow Moor SINC	415m east	Designated for its semi-natural woodland, which comprises an important community type of restricted distribution in the County. The site also supports significant populations of alternate-leaved golden-saxifrage.
River Rother Meadow 10 SINC	460m north-east	The site is designated for its semi-improved grasslands which retain a significant element of unimproved grassland.
Heath Common SINC	560m south-west	The site is designated for its semi-improved grasslands which retain a significant element of unimproved grassland. Areas of heathland vegetation; including matrices of dwarf shrub, acid grassland, valley mires and scrub. The site also supports the following wetland habitats fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged conditions. Notable plant varieties are also present including: chamomile *Chamaemelum nobile*, mossy stonecrop *Crassula tillaea*, bulbous meadow grass *Poa bulbosa*, clustered clover *Trifolium glomeratum*, subterranean clover *T. subterraneum* and fenugreek *T. ornithopodioides.*

Hog Moor Copse SINC	570m north	Designated for its semi-natural woodland, which comprises an important community type of restricted distribution in the County. The site also supports significant populations of alternate-leaved golden-saxifrage and narrow-leaved bitter-cress *Cardamine impatiens.*
Adhurst Woods & Big Moor SINC	780m north	Designated for its ancient and semi-natural woodland, which comprises an important community type of restricted distribution in the County.
River Rother SINC	850m south-east	Designated for its areas of open freshwater, which support outstanding assemblages of floating/submerged/ emergent plant species, invertebrates, birds or amphibians.
Durford Abbey Meadow SINC	1.22km south-east	Designated for the following wetland habitats: fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged conditions.
Warren Copse and Sandpit SINC	1.95km north-west	Designated for its ancient and semi-natural woodlands.

Protected Species Records

4.5 The relevant protected species records are incorporated into the Fauna section, below, with due acknowledgement.

Survey Results

Habitats

4.6 The site supports the following habitats:

- Dense Scrub (A2.1)
- Hedgerows - Native Species-Rich (J2.1)
- Poor Semi-Improved Grassland (B6)

4.7 For ease of reference, habitat types have been described alphabetically, below. All the features described are shown on the Ecological Features Plan at **Appendix 1**.

Dense Scrub (A2.1)

4.8 Dense scrub extended along all four boundaries of the site in October 2017. Species present included bramble *Rubus fruticosus* agg., bracken *Pteridium aquilinum* and blackthorn *Prunus spinosa*. Herbaceous species recorded within the scrub included rosebay willowherb *Chamerion angustifolium* and Perforated St John's-wort *Hypericum perforatum*.

4.9 The dense scrub was a result of a lack of hedgerow management and on return to the site in March 2018 to install the reptile refugia the dense scrub along the south-east and north-east boundaries had been strimmed.

4.10 Scattered lone stands of goat willow *Salix caprea* and hazel *Corylus avellana* are also present within the poor semi-improved grassland, as a result of scrub succession beginning to expand beyond the borders of the site.

Photograph 1: View of dense scrub extending along western elevation

Photograph 2: View of scrub clearance on north-east boundary in March 2018

4.11 The dense scrub comprises a low diversity of common and widespread species and therefore, is assessed to be of **site value**.

Hedgerows - Native Species-Rich (J2.1)

4.12 The site comprises two hedgerows along its south-east and north-east boundaries. The hedgerows are tall in height (4-6m). It is apparent that the hedgerows have not been appropriately managed for some time as there is limited branching at ground level, making it possible to walk through the interior of the hedgerow lengths. On return to the site in March 2018 the sides of the north-east boundary hedgerow had been significantly pruned and is no greater than 2m in width on average when taking into consideration the canopy.

4.13 The southern boundary hedgerow is dominated by hazel with blackthorn, elder *Sambucus nigra* and pedunculate oak *Quercus robur*. The north-west boundary hedgerow comprises the same species but with the addition of hawthorn *Crataegus monogyna*.

Photograph 3: View from inside the south-east boundary hedgerow.

Photograph 4: View of north-east boundary hedgerow in March 2018

4.14 The hedgerows are approximately 240m in length and provide a connection between other hedgerows and woodland habitats. However; the hedgerows are not the sole connection, with the woodland boundary in the north of the site providing a link between habitats. Due to the position of the hedgerows, adjacent to the playing fields and dog walking areas, it is likely that the hedgerows are more disturbed than habitats in the north of the site.

4.15 The hedgerows are not classified as 'important' under the Hedgerow Regulations 1997, largely due to the limited number of features associated with hedgerows that would enhance their ecological value, such as diverse ground flora, bridleways, banks, connections, ditches. Therefore, the hedgerows on site are assessed to be

of **local value**.

Poor Semi-Improved Grassland (B6)

4.16 The grassland is scheduled to undergo 2-3 cuts a year but is rough underfoot indicating the beginning of tussocky grassland formation. Extensive tussocky growth is possible in the near future, due to the dominance of the tussock-forming cock's-foot *Dactlyis glomerata*. The sward on site is defined as poor semi-improved grassland, as grasses dominate, and the herbaceous species present are indicative of high nutrient inputs. Other species present include perennial rye-grass *Lolium perenne*, false oat-grass *Arrhenatherum elatius*, dog violet *Viola* sp., sorrel *Rumex* sp., dove's-foot crane's-bill *Molle geranium*, white clover *Trifolium repens*, scarlet pimpernel *Anagallis arvensis* subsp. *arvensis*, red clover *Trifolium pratense*, creeping buttercup *Ranunculus repens*, common nettle *Urtica dioica*, wild carrot *Daucus carota*, hogweed *Heracleum sphondylium*, broad-leaved dock *Rumex obtusifolius*, rush *Juncus* sp., common ragwort *Senecio jacobaea*, common mouse-ear *Cerastium fontanum*, common vetch *Vicia sativa*, cleaver's *Galium aparine*, creeping thistle *Cirsium arvense*, meadow buttercup *Ranunculus acris*, nipplewort *Lapsana communis*, hairy tare *Vicia hirsuta* and annual meadow-grass *Poa annua*.

Photograph 5: View of poor semi-improved grassland

4.17 The grassland is of low species diversity, supporting widespread species only, therefore, it is assessed as being of **site value**.

Fauna

4.18 For ease of reference, descriptions of the fauna have been described alphabetically, below.

Amphibians

4.19 There are no records of great crested newt within a 2km radius of the site, however, this does not confirm the absence of the species in the local area.

4.20 The site is not suitable for supporting breeding great crested newt as no waterbodies are present, however, the rough grassland, scrub and hedgerow boundaries provide suitable shelter for great crested newt during their terrestrial phase. However, the adjacent Rotherlands LNR comprises more optimal terrestrial habitat in the form of extensive mature woodland.

4.21 It is highly unlikely that great crested newt would colonise the terrestrial habitat on site as there is only one pond present within suitable dispersal range, located 130m east of the site. Furthermore, great crested newts are rarely found greater than 100m from their breeding ponds[16]. Other ponds within 500m of the site are beyond the River Rother, which is a fast-flowing river and a barrier to dispersal for this species. An isolated waterbody is not favourable for great crested newt, as they require multiple ponds within suitable dispersal range from one another to support a viable population.

4.22 The reptile survey undertaken between march and April 2018 recorded a single common toad *Bufo bufo* under refugia on two separate site visits. Common toad is of principal importance under Section 41 of the NERC Act and Biodiversity Action Plan (BAP)[17] species.

4.23 Overall, great crested newts are considered likely absent and are not considered further in this report. The site is assessed as being of **site value for common toad**.

[16] Cresswell and Whitworth (2004). An assessment of the efficiency of capture techniques and the value of different habitats for great crested newt *Triturus cristatus. English Nature Research Reports: Report No. 576*

[17] UK BAP was superseded in 2012 by the UK Post-2010 Biodiversity Framework. However, UKBAP it is still referred to as the species and habitats agreed under UK BAP still form the basis of conservation action today.

Badgers

4.24 There are no records of badger within a 2km radius of the site, however, this does not confirm the absence of the species in the local area.

4.25 In October 2017 mammal holes were present within the north-east boundary hedgerow, referenced as Target Note (TN) 1, 2 and 3 in **Appendix 1**. TN2 and TN3 are within close proximity to one another and comprise two entrances each and are characteristic of historic/dis-used badger setts, as they both have an extensive amount of litter and soil build up at their entrances. Only one hole was recorded at TN1, however this area had undergone recent strimming works, making it difficult to assess whether the hole is in current-use and whether it is attributed to badger as the width of the hole is at a lower end of the average width of a badger sett (approximately 20cm) and the cutting masked possible evidence for confidently determining species (e.g. hair or footprints).

Photograph 6: View of TN1 mammal hole in October 2017

4.26 On return to the site in March 2018 TN1 was confirmed to be in use by rabbits and TN2 and TN3 were further confirmed to be in-active.

4.27 The grassland and hedgerows are suitable for foraging and commuting badger, however, the surrounding recreational fields and woodlands to the north offer more optimal foraging habitat for this species.

4.28 It is not considered that any local population would rely on the site for foraging given its, rough state, small size and the extent of suitable habitats in the wider area.

Overall, the site is assessed to be of **site value for foraging badger**.

Bats

4.29 There are records of at least seven bat species within a 2km radius of the site. The nearest records are of serotine *Eptesicus serotinus*, noctule *Nyctalus noctula* and soprano pipistrelle *Pipistrellus pygmaegus* located 340m south. There are also records of brown long-eared bat *Plecotus auritus* and pipistrelle *Pipistrelle* sp. just over 500m north-west of the site. All other bat species were recorded over 1km from the site and include Daubenton's *Myotis daubentonii*, whiskered bat *Myotis mystacinus* and common pipistrelle *Pipistrellus pipistrellus*.

4.30 Four EPSM licences have been granted for the damage or disturbance of resting places and maternity roosts within a 2km radius of the site. The nearest EPSM licence is located approximately 1.37km south-east of the site and was granted in 2015 for the disturbance of resting places of brown long-eared bat, common pipistrelle and natterer's *Myotis nattereri* (Natural England Ref. 2015-14516-EPS-MIT-1). Two licences have been granted approximately 1.54km south-west of the site in 2011 and 2015 for the destruction/disturbance of breeding roosts and resting places of common pipistrelle, soprano pipistrelle, serotine and brown long-eared (Natural England Ref. EPSM2011-3383 & 2015-8988-EPS-MIT). Lastly, a licence was granted approximately 1.55km west of the site for common pipistrelle in 2011 (Natural England Ref. EPSM2011-3189).

4.31 Bat transect surveys were undertaken in 2015 within the field immediately west, to support planning application Ref.: SDNP/15/06484/FUL. A total of seven species of bat were recorded during the survey effort: common pipistrelle, soprano pipistrelle, noctule, serotine, Daubenton's bat, natterer's and brown long-eared bat.

Roosting Habitat

4.32 Although the hedgerows have undergone minimal management over the years there is only one distinctive tree standard present, which is a semi-mature pedunculate oak on the south-east corner of the site. The oak is assessed to be of **negligible suitability** to support roosting bats due to the absence of potential roosting features. No potential roosting features were also recorded when examining the trunks of the

hedges from beneath the canopies.

Bat Activity Surveys

4.33 The boundary habitats hedgerow and woodland are suitable for foraging and commuting bats. The Application Site is well connected to an extensive network of woodland habitat which follows the River Rother and its tributaries. As such, the site is likely to be utilised as part of a larger foraging and commuting route. Bat activity surveys using static bat detectors and transect methodology were carried out during 2019. Location of static bat detectors can be found in **Appendix 12**.

4.34 June Static Detector Results.

4.35 As can be seen in the charts below, a greater number of species were recorded at detector point A, with the amount of bat registrations recorded as 318. The majority of these registrations were of common and soprano pipistrelle. At detector point B, 56 bat calls were registered with the majority being *Myotis* sp. This could be explained by the detector locations. Detector A was located next to a hedgerow in the west of the site, which would be more favoured by more open habitat preferring species such as *pipistrellus* sp. and noctule. Detector B was located on the edge of the woodland in the north east of the site, a location more likely to be favoured by *Myotis* sp. A single registration of barbastelle *Barbastella barbastellus* was recorded by bat detector A.

Figure 1: Bat detector A. June results

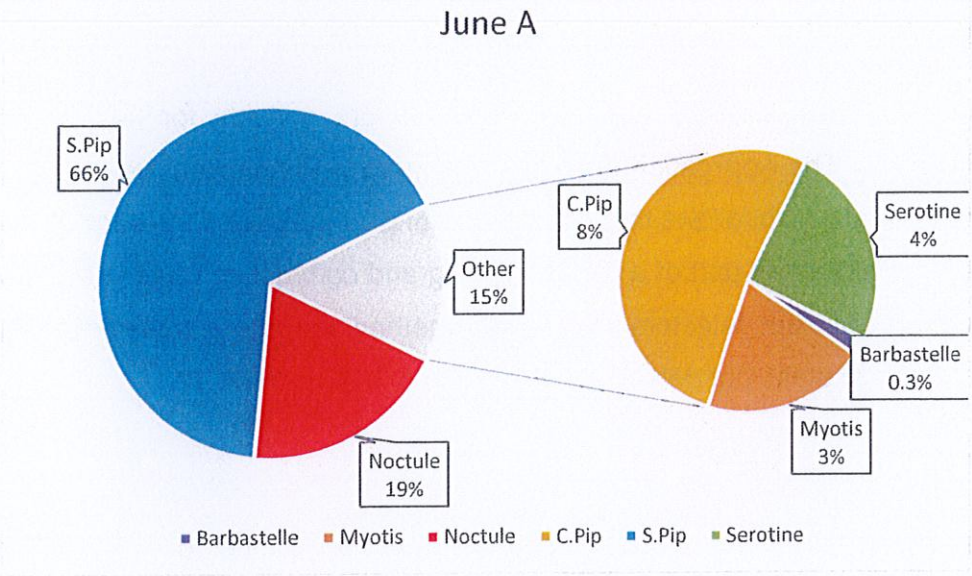
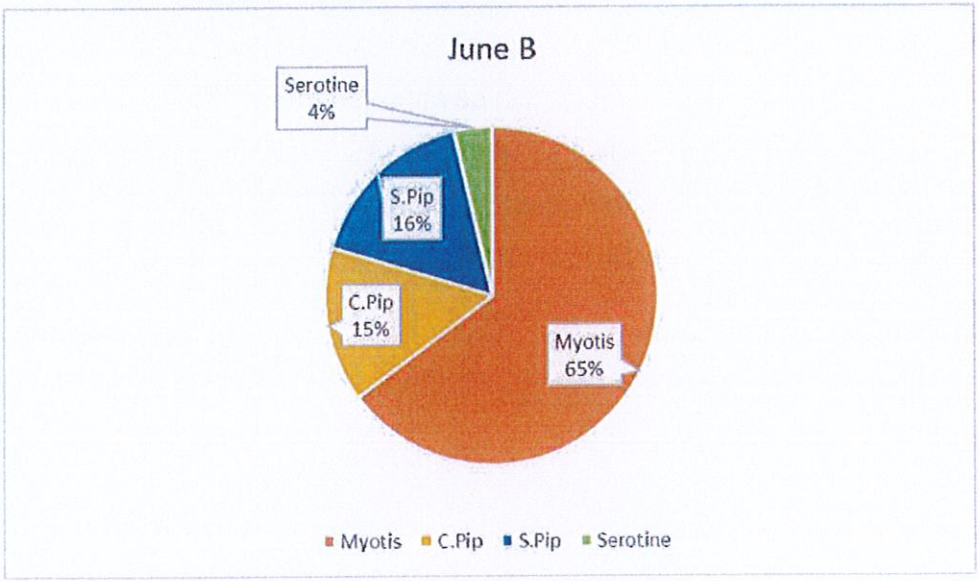


Figure 2: Bat Detector B. June results



July Static Detector Results

4.36 In July, bat detector A recorded 165 registrations, while only 10 registrations were recorded by detector B. Detector A was positioned next to hedgerow in the south of the site, and detector B next to the woodland in the north of the site. The majority of registrations were of pipistrelle species, with Myotis sp. recorded only by detector A, next to the woodland.

Figure 3: Bat Detector A. July Results.

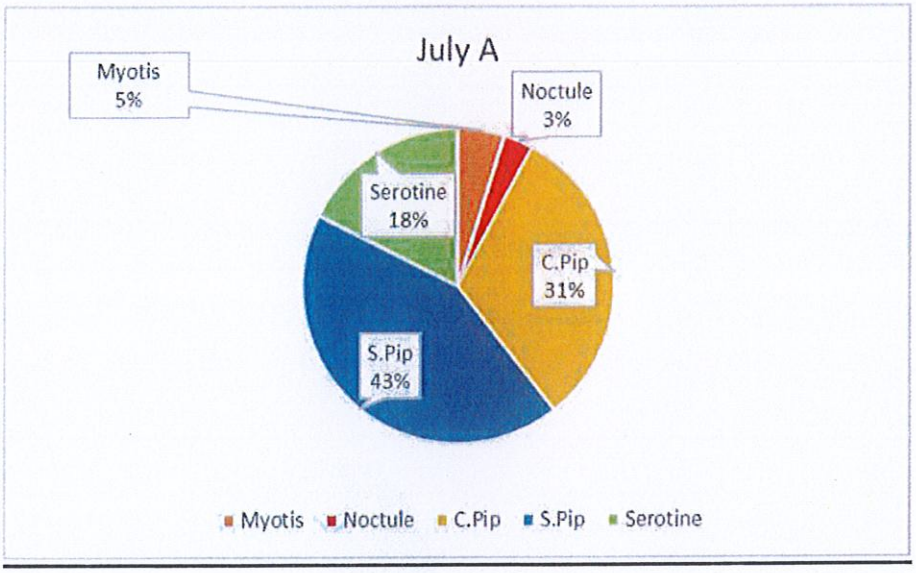
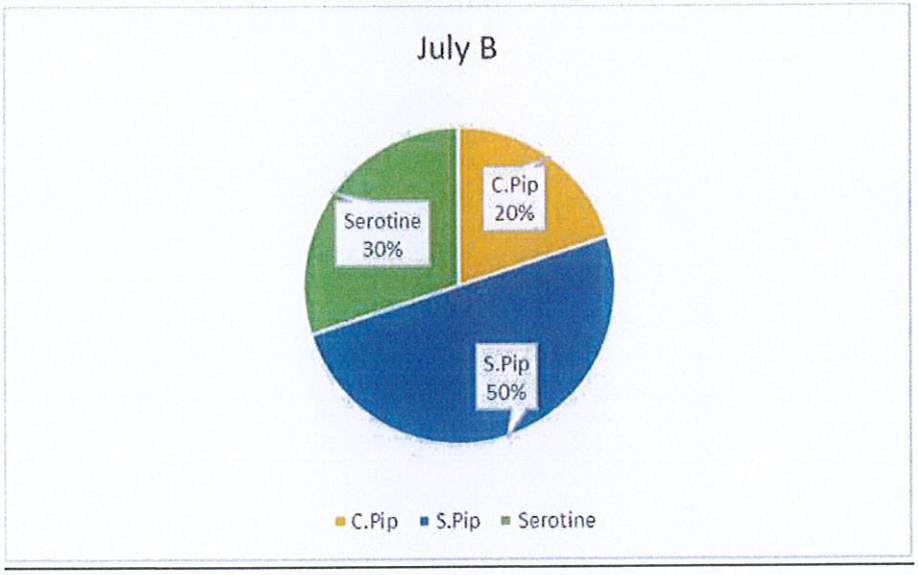


Figure 4:Bat Detector B July Results



August

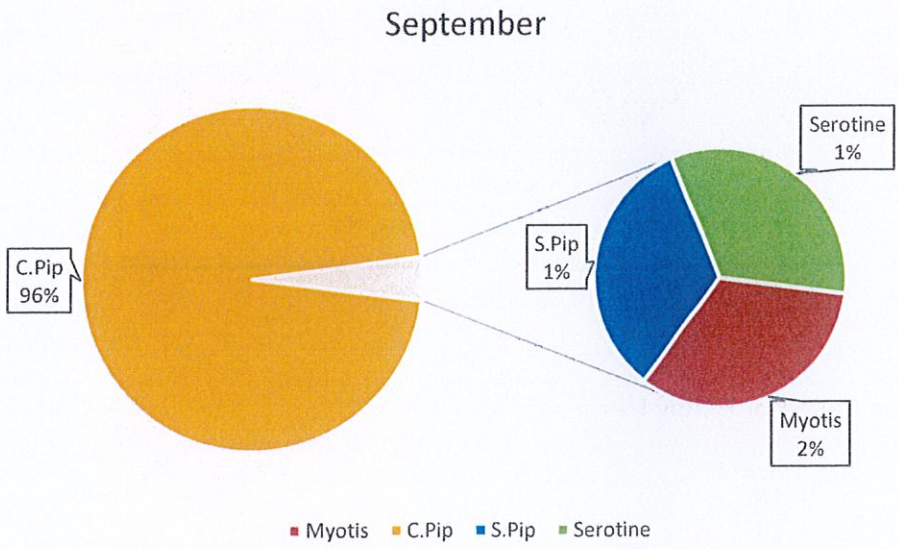
4.37 The bat detectors failed to record in August.

September Static Detector Results

4.38 A total of 74 registrations were recorded by bat detector B in September with 96% of these registrations being common pipistrelle. The detector was positioned at the

junction of the woodland and hedgerow in the north of the site. Bat detector A was positioned in the north western corner of the site, however; this detector failed to record.

Figure 5: Bat Detector B. September Results.



October Static Detector Results

4.39 The total number of registrations recorded by bat detector B was 236, with the majority being common or soprano pipistrelle. A total of 459 registrations were recorded by bat detector A, with 93% being common pipistrelle. Detector B was positioned in the hedgerow in the south of the site with detector A on the woodland edge in the north of the site.

Figure 6: Bat Detector A. October Results.

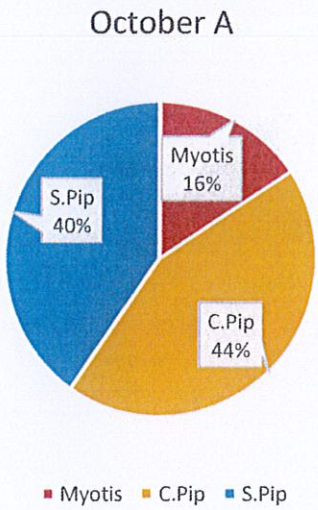
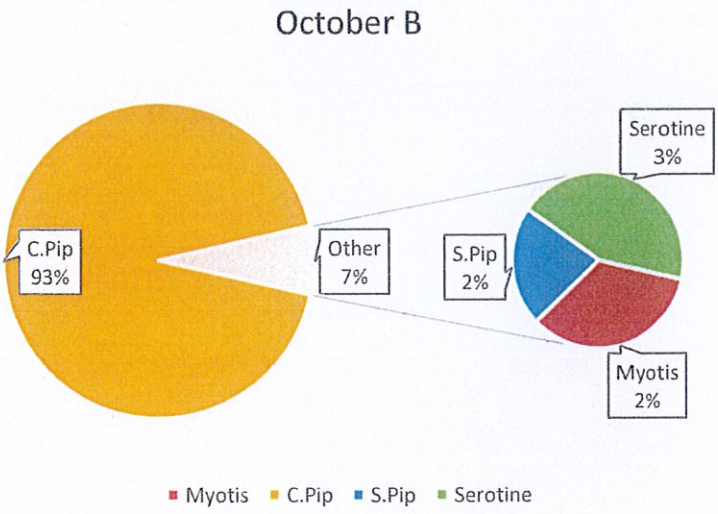


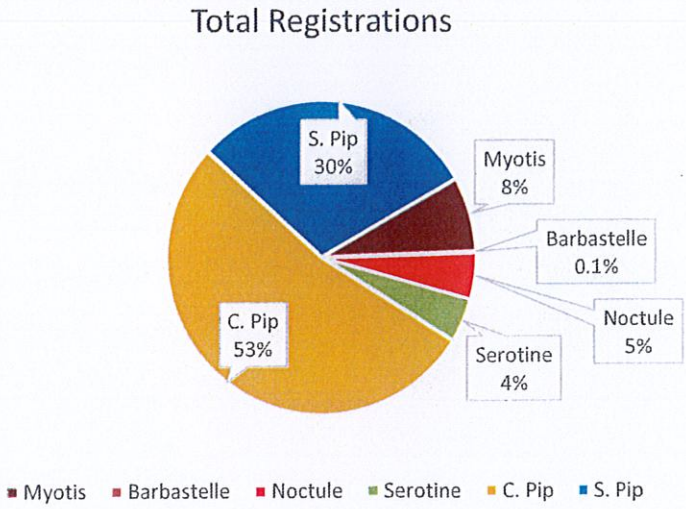
Figure 7: Bat Detector B. October Results.



Total Registrations

4.40 The total registrations recorded by the static detectors was 1301, with the majority (83%) being Pipistrelle sp.

Figure 6: Total Registrations Recorded by Static Detectors

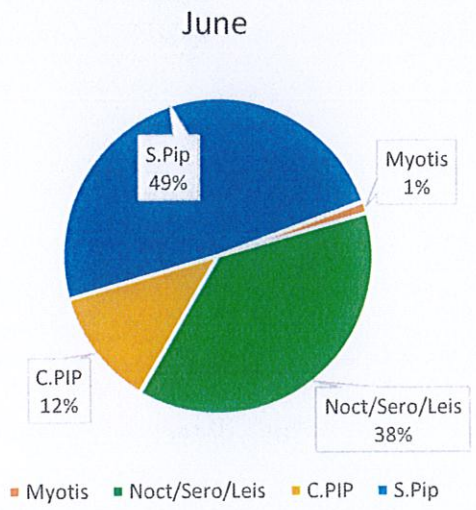


Bat Transects

June

4.41 A total of 164 bat registrations were recorded during the June transect, of which the majority were pipistrelle sp. A significant proportion of bat registrations were of the three large U.K bat species (noctule, serotine and Leisler's). These bat species have been grouped together as the calls can be difficult to separate.

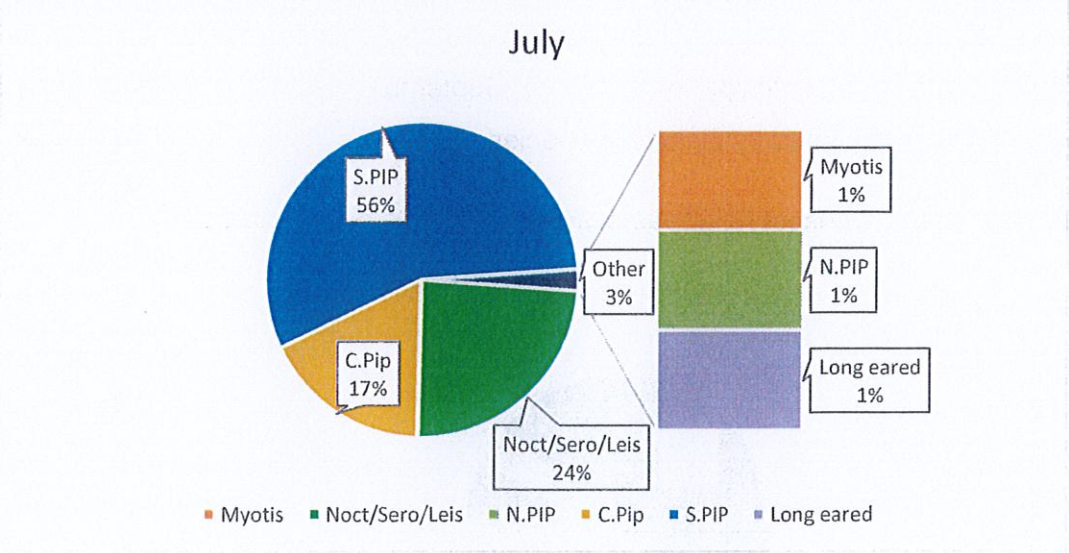
Figure 7:Bat Transect result: June



July

4.42 A total of 541 registrations were recorded during the July transect, the majority were pipistrelle sp. with the larger bat species also making up a significant proportion.

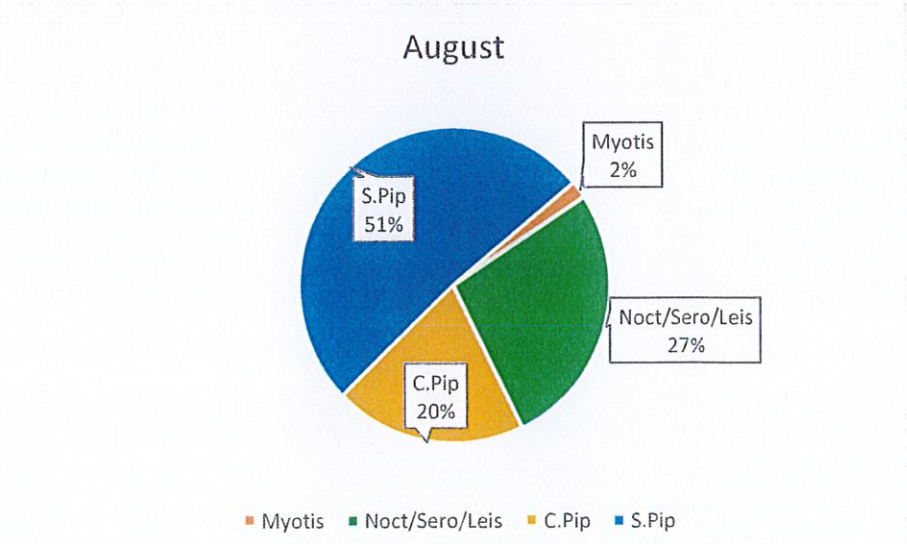
Figure 8: Bat Transect result: July



August

4.43 A total of 225 registrations were recorded in August, with the species proportions similar to previous months.

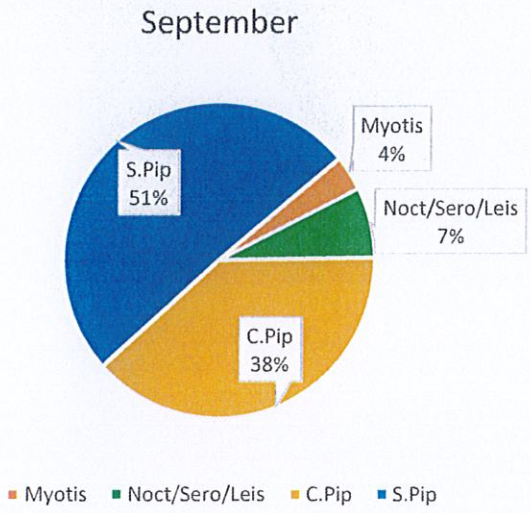
Figure 9: Bat Transect result: August



September

4.44 The total bat registrations recorded in September was 83, with the species composition dominated by pipistrelle species.

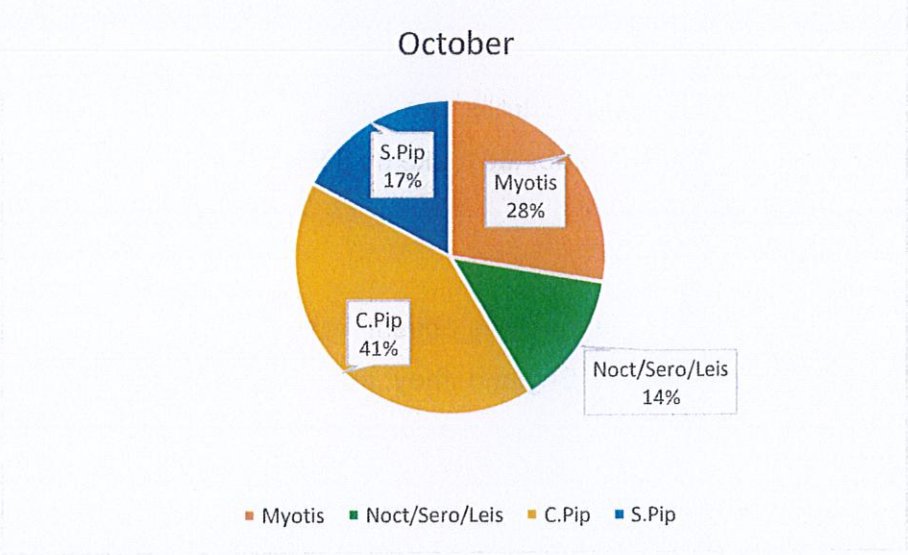
Figure 10: Bat Transect result: September



October

4.45 The total bat registrations recorded in October was 29, with a higher proportion of Myotis sp. than in previous months.

Figure 11 Bat Transect result: October



Overall Bat Transect Survey Results

4.46 The dominating bat species recorded during the transect surveys was soprano pipistrelle, with common pipistrelle and the larger bat species also significant. The bat registrations in the area of the hedgerows that will be affected by the proposed plan were overwhelmingly *pipistrellus* sp. or the larger bat species. The majority of *Myotis* sp. registrations were recorded in the vicinity of the woodland in the north of the site, although several Natterer's bat passes were recorded in the centre of the playing field. Maps showing the location of bat registrations can be found in **Appendix 11.**

Status of Bat Species Recorded

4.47 Below details the national and county (Hampshire) status of each bat species recorded during the automated bat detector surveys, based on JNCC individual species reports and mammal society[18].

Common and Soprano Pipistrelle

4.48 Common and soprano pipistrelle are widely distributed throughout England with gaps in distribution probably reflecting an absence of survey data rather than an absence of the species. Within the south-east of England both species are

[18] The Mammal Society, Mammal Watch South East, South East Mammal Atlas-5 (Bats)

considered common and widespread, however, soprano pipistrelle are considered less frequent to the east of the county.

4.49 Common pipistrelle and soprano pipistrelle are the most commonly recorded species throughout the survey and combined make up 83% of the total registrations.

Noctule

4.50 The noctule is widespread in England, but is absent from the uplands of northern England. Within the south-east of England they are considered common and widespread.

4.51 Noctule activity was infrequent between months, not making up 5% of total bat activity each month.

Serotine

4.52 Serotine is most commonly recorded south of a line from the Wash to the Bristol Channel, though with a lower density of records throughout Wales and the west midlands of England. Within the south-east of England, serotine are considered common and widespread throughout the county.

4.53 Serotine activity was infrequent between months, making up 4% of the total static detector recordings.

Myotis species

4.54 Seven Myotis species bats are found in the UK, and these range from very rare species (e.g. Bechstein's bat *Myotis bechsteinii*) to commoner species (e.g. Daubenton's bat). Generally, Myotis bats are well-distributed across Europe.

4.55 Myotis bat species registrations made up 8% of the bat registrations throughout the automated bat detector survey. The registrations were relatively consistent throughout the survey period.

4.56 It is considered that the site is being used by low numbers of bats of this genus and no meaningful estimate of numbers can be made. However, given the low numbers recorded it is considered unlikely that the site forms an important foraging resource

for Myotis bat species. There is a good potential for many of the Myotis recordings being non-typical Daubenton's bat registrations, as Daubenton's bat are widespread.

Barbastelle bat

4.57 Barbastelle is a rare species restricted to southern England and Wales with only a very few breeding sites currently known. The species is generally known to utilise pastoral landscapes with deciduous woodland, wet meadows and waterbodies.

4.58 Only one registration of barbastelle bat was recorded during the surveys.

Brown long-eared bat

4.59 Brown long-eared bat is a common and widespread species within the south-east of England and England as a whole.

4.60 A very small number of brown long-eared bat registrations were made throughout the automated bat detector survey, As it is a common bat species within England and their limited use of echolocation in comparison to the other species listed above, it is likely that this is an underestimation of brown long-eared bat.

Migrating, Foraging and Commuting Habitat

4.61 The dense scrub and hedgerows are suitable for foraging and commuting bats and the site is connected to extensive suitable habitat in the form of Rotherlands LNR immediately north. Rotherlands LNR is an extensive woodland strip that bounds the River Rother, creating what is likely an important wildlife corridor. The wider landscape is rural with a high density of woodlands, providing ample suitable habitat for bats. In context of the surrounding landscape the site's hedgerows are not considered to be of significant importance to the local bat population and do not provide an important connection feature for migrating, foraging and commuting bats. However, due to its good connectivity to suitable habitat the site is likely utilised as part of a larger foraging/commuting route.

4.62 The static bat detector survey recorded barbastelle commuting or foraging within the site. Although only one call was recorded, it is likely that barbastelle exploit the

site, albeit in small numbers on an occasional basis. Based on the low number of recorded calls, the site is not considered to be of significant importance for barbastelle, as they would be more likely to use the nearby woodland more frequently.

4.63 Overall, in accordance to current Bat Conservation Trust Guidelines[19] the site is assessed to be of **medium suitability** to support foraging and commuting bats and of **local value**.

Birds

4.64 There a number of bird records within 2km of the site from the data search. Some of the species more relevant to the site include:

- Red listed species[20] - lesser spotted woodpecker *Dendrocopos minor*, song thrush *Turdus philomelos*, spotted flycatcher *Muscicapa striata*, starling *Sturnus vulgaris*, house sparrow *Passer domesticus,* linnet *Carduelis cannabina*, yellow wagtail *Motacilla flava*, turtle dove *Streptopelia turtur,* and redwing *Turdus iliacus*.

- Amber listed species – bullfinch *Pyrrhula pyrrhula*

4.65 A large number of the notable bird records were from Rotherlands LNR located immediately adjacent to the site. A barn owl record is also located within the field located immediately west of the site in 2003.

4.66 The hedgerows and dense scrub encroachment on site offer suitable nesting bird habitat.

4.67 The rough grassland is considered unlikely to support ground nesting birds, such as skylark *Alauda arvensis* and lapwing *Vanellus vanellus* as it is isolated from further suitable farmland habitat and is too small in extent to support ground nesting birds in isolation. Furthermore, the site is heavily disturbed by dog walkers throughout the

[19] Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.
[20] The UK's birds are split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Red List criteria include species which are: globally threatened; have been subject to historical population decline in UK during 1800–1995. Amber list criteria include species which are: in unfavourable conservation status in Europe.

year.

4.68 The rough grassland and its vegetated borders on site provide suitable open foraging habitat for barn owl, which typically forage within rough grassland, corridors along watercourses, hedgerows, roadsides, woodland edges and arable field margins. The rough grassland is yet to provide the thick tussocky sward or a deep litter layer that barn owl favour. Furthermore, the field is not sufficient to support foraging barn owl in isolation, as one pair of barn owl typically require 14-47 hectares of good quality rough grassland within 2km of suitable nesting and roosting sites, depending on the type of landscape. Given the limited quantum of grassland (the whole grassland measures approximately 1.74ha), the field would comprise between 4% and 12% of the foraging resource for barn owls (if present). However, it is sub-optimal which would decrease the value of the foraging resource somewhat. Considering the size of the site and the presence of ample suitable foraging habitat within the wider landscape, the potential impacts are therefore considered minor.

Photograph 7: View of grassland in March 2018

4.69 Overall, the site is assessed to be of **site value for barn owl and non-ground nesting birds**.

Hazel Dormouse

4.70 Hazel dormice have been recorded within the sites 1kmsq. grid reference in 2017 and are known to be present within Rotherlands LNR; as they are one of the qualifying reasons for the SINC named Alder Carr alongside River Rother, located

100m north (within Rotherlands LNR).

4.71 Residential development has been approved for the field immediately west of the Site (planning reference: SDNP/15/06484/FUL). During the pre-application stage hazel dormouse were confirmed to be present within the hedgerow boundaries in January 2015 via a nut search. A nest tube search was also undertaken in 2016, which yielded a negative result, but some of the tubes were vandalised during the survey effort.

4.72 A hazel dormouse nut search was undertaken during the site visit in 2018 and no gnawed nuts indicative of hazel dormouse were recorded. This does not confirm absence of the species, which is considered highly unlikely due to their confirmed presence within the adjacent fields (west) hedgerows and Rotherlands LNR. However, the site's hedgerows and dense scrub are not sufficient to support a viable hazel dormouse population in isolation and would be in use in conjunction with the Rotherlands LNR and the adjacent hedgerows.

4.73 The updating hazel dormouse nut search carried out in 2019 recorded the presence of two nuts characteristic of those gnawed by dormouse in the southern and central hedgerows on the Application Site. It is therefore confirmed that dormouse are present within the hedgerows on site.

4.74 The hedgerows are a connection feature between other suitable habitats off site, however; the hedgerows are not the sole connection feature as the woodlands are connected on the northern site boundary to suitable dormouse habitat in the wider landscape.

4.75 Overall, the hedgerow and dense scrub habitat on site is small in extent and are not an important connection feature to further suitable hazel dormouse habitat within the wider landscape, therefore, the site is assessed to be of **local value**.

Reptiles

4.76 The HBIC returned records of slow-worm located approximately 500m south-west of the site 2010. Grass snake have also been recorded approximately 1.1km north of the site in 2015.

4.77 The Site's hedgerows, dense scrub and rough grassland with worn paths comprises a habitat mosaic suitable for sheltering, foraging and basking widespread species of reptile. No suitable hibernacula for this species group was recorded, however, this is likely readily available in the form of fallen deadwood and roots of mature tree specimens within Rotherlands LNR located immediately north of the site.

4.78 There is potential for widespread species of reptile to colonise the site via adjacent habitats and utilise the site for foraging, sheltering and basking.

4.79 Reptile presence/likely absence surveys were subsequently undertaken between March and April 2018. The results of the reptile survey are shown in **Table 4.3** below. The location of the slow-worm and grass snake are shown in **Appendix 4**.

Table 4.3: reptile survey results

Date	Reptiles Found						Other Species
	Slow worm			Grass snake			
	M	F	Juvenile	M	F	Sub-adult	
27/03/18							Common toad
06/04/18							
10/04/18							Common toad
14/04/18							
17/04/18		1		1			
20/04/18							
23/04/18	1	1			1	1	

4.80 A peak count of two slow-worm were recorded within the site on the 23rd April 2018. The single female slow-worm record on the 17th April 2018 is likely of the same female recorded on the 23rd April 2018 as the individual was recorded under refugia 35 on both occasions. A peak count of two adults constitutes a 'low' population under Froglife Guidance[21].

[21] Froglife Advice Sheet 10: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation. [Online). Available from: www.froglife.org

4.81 A peak count of two grass snake was recorded within the site on 23rd April, one being an adult female and one of which is a sub-adult. The sub-adult is included in our population estimate as it has survived its first winter and thus, survival to adulthood is highly likely.

4.82 Furthermore, despite the 23rd April peak count of two, a total of three grass snake has been concluded to be present on site, as the grass snake recorded on the 17th April was of a male and therefore, eliminating the risk of double counting. A peak count of three grass snake on site constitutes a 'low' population under Froglife Guidance.

4.83 Overall, taking into consideration the extensive suitable slow-worm and grass snake habitat within the wider landscape and the reptile survey results, the site is assessed to be of **local value** for widespread reptiles.

Water Voles

4.84 Water vole has been recorded within Petersfield Heath Pond some 1.1km south-west of the site, which is connected to the River Rother via an open ditch.

4.85 The site itself does not support suitable waterbodies for water vole, however, Tilmore Brook is located approximately 15m north-west of the site within Rotherlands LNR. There is potential for water vole to colonise Tilmore Brook via River Rother, for which the brook is a tributary of. If water vole are present within the nearby brook it is unlikely that they venture onto site as water vole do not stray far from their resident waterbodies, with activity largely confined to bankside vegetation, typically comprising runs in dense vegetation 2.5m from water's edge[22]. Subsequently, water voles are assessed as absent from site and are not considered further in this report.

Other Wildlife

4.86 There are numerous records of stag beetle *Lecanus cervus* within Fittleworth village. Stag beetle are protected under Schedule 5 of the Wildlife and Countryside Act

22 The wildlife Conservation Research Unit (2006). Water Vole Conservation Handbook 2nd edition.

1981[23]. Hedgehog *Erinaceus europaeus* and harvest mouse *Micromys europaeus* have also been recorded within the local area and are both species of principal importance under Section 41 of the NERC Act and Biodiversity Action Plan (BAP)[24] species. A large number of UK BAP moth and butterfly species have also been recorded within a 2km radius of the site that are of relevance to the site due to the presence of the mature oaks around the site boundaries. Including white admiral butterfly *Limenitis Camilla*, recorded within Rotherlands LNR.

There is potential for hedgehog and harvest mouse to be present within the hedgerows and scrub on-site. However, the latter species is less likely to be found on site; favouring the wetland habitats associated with River Rother. Overall, the site is assessed to be of **site value for hedgehog**.

Table 4.4: Summary of Baseline Conditions

Feature	Scale of Importance
Dense scrub	Site
Hedgerow – Native species rich	Local
Poor semi improved grassland	Site
Amphibian – great crested newt	Negligible
Amphibian - common toad	Site
Badger	Site
Bats – roosting	Negligible
Bats – foraging/commuting	Local
Birds	Site
Barn owl	Site
Hazel dormouse	Local

[23] WACA-Sch5_sect9.5a – Covers selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative).
[24] UK BAP was superseded in 2012 by the UK Post-2010 Biodiversity Framework. However, UKBAP it is still referred to as the species and habitats agreed under UK BAP still form the basis of conservation action today.

Reptiles	Local
Water vole	Negligible
Hedgehog	Site

5.0 LEGISLATION AND PLANNING POLICY

5.1 This section summarises the legislation and national, regional and local planning policies, as well as other reference documents, relevant to the baseline ecology results.

Legislation

5.2 Specific habitats and species receive legal protection in the UK under various pieces of legislation, including:

- The Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2010;
- The Countryside and Rights of Way Act 2000;

- The Hedgerows Regulations 1997;
- The Protection of Badgers Act 1992; and
- The Natural Environment and Rural Communities Act 2006.

5.3 Where relevant, the assessment takes account of the legislative protection afforded to specific habitats and species.

Wildlife Legislation

Non-European Protected Species

5.4 Widespread amphibians (including smooth newts *Lissotriton vulgaris*, palmate newts *Lissotriton helveticus*, common toad and common frogs) are all protected under the Wildlife and Countryside (WCA) Act 1981 (as amended). It is therefore an offence to trade or sell specimens.

5.5 Badgers and their setts are protected under the Protection of the Badgers Act 1992[25]. Activities that can harm badgers include destroying a sett, causing noise, additional lighting or vibration and pile driving, quarry blasting, lighting fires or using chemicals. It is an offence to:

- Wilfully capture, kill or injure badgers;
- Damage, destroy or block access to setts (even accidentally);
- Disturb badgers in their setts;
- Cruelly ill-treat a badger;
- Deliberately introduce a dog into a sett;
- Bait badgers;
- Dig for badgers;

[25] http://www.legislation.gov.uk/ukpga/1992/51/pdfs/ukpga_19920051_en.pdf

- Possess, sell, to offer for sale a live badger;
- Possess or control a dead badger or parts of the a badger (if unlawfully obtained); or
- Mark or attach a device to a badger.

5.6 All wild birds[26] and their nests are protected under the WCA as amended. It is an offence to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built;
- Intentionally take or destroy the egg of any wild bird;
- Have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act or the Protection of Birds Act 1954;
- Have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act or the Protection of Birds Act 1954;
- Use traps or similar items to kill, injure or take wild birds;
- Have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations (see *Schedules*); or
- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

[26] https://www.gov.uk/wild-birds-protection-surveys-and-licences

5.7 Barn Owls[27] are a Schedule 1 bird under the Wildlife and Countryside Act, 1981 (as amended) and it is therefore an offence to intentionally:

- Kill, injure or take any wild bird;
- Take damage or destroy the nest of any wild bird whilst that nest is in use or being built;
- Take or destroy and egg of any wild bird; or
- to intentionally or recklessly disturb barn owls at an active nest site with eggs or young or before eggs are laid, or to disturb the dependant young.

5.8 Widespread reptiles[28] (including; adder *Vipera berus*, common lizards *Zootoca vivipara,* grass snakes and slow worms) are protected under the WCA as amended and it is therefore an offence to deliberately kill, injure, sell or trade widespread reptiles.

European Protected Species

5.9 European Protected Species are protected The Conservation (Natural Habitats, &c.) Regulations 1994, under regulation 39[29], as well as the WCA. These species include great crested newts, *all* bat species, dormice and otter.

5.10 This level of protection for these species (at all stages of their life cycle) makes it an offence to do the following:

- Deliberately to capture or kill a wild animal of a European protected species;
- Deliberately to disturb any such animal;
- Deliberately to take or destroy the eggs of such an animal;
- To damage or destroy a breeding site or resting place of such an animal;

[27] http://www.barnowltrust.org.uk/infopage.html?Id=301
[28] http://naturenet.net/law/herps.html
[29] http://www.legislation.gov.uk/uksi/1994/2716/regulation/39/made

or

- To keep, transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal of a European protected species, or any part of, or anything derived from, such an animal.

Planning Policy

National Planning Policy Framework

5.11 The National Planning Policy Framework (NPPF)[30] sets out planning policies on protection of biodiversity and geological conservation through the planning system for local authorities in England. The NPPF outlines the role of the decision maker in considering the requirements of wildlife legislation to protect wildlife.

5.12 The NPPF states that the planning system should contribute to and enhance the natural and local environment, by measures including the following:

5.13 Minimising impacts on biodiversity and providing net gains in biodiversity;

5.14 Contributing to the Government's commitment to halt the overall decline in biodiversity;

5.15 Establishing coherent ecological networks that are more resilient to current and future pressures; and

5.16 Recognising the wider benefits from natural capital and ecosystem services.

5.17 The NPPF states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying principles including the following:

5.18 If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated for, or, as a last resort, compensated for, then planning permission should

[30] Ministry of Housing, Communities and Local Government (2018). *National Planning Policy Framework*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf

be refused; and

5.19 Development on land within or outside a SSSI, and which is likely to have an adverse effect on that designated site (either individually or in combination with other developments), should not normally be permitted. Where adverse effects on the site's notified special interest features is likely, an exception should only be made where the benefits of the development clearly outweigh both the impacts that it is likely to have on the features of the site that make of special scientific interest and any broader impacts on the national networks of SSSIs.

5.20 The Government Circular 06/2005[31] accompanies the NPPF and sets out the application of the law in relation to planning and nature conservation in England.

Local Planning Policy

East Hampshire

5.21 Local planning policy within East Hampshire District is provided by the East Hampshire District Local Plan: Joint Core Strategy, with two policies referring specifically to ecology and biodiversity:

- **Policy CP21: Biodiversity**. The policy requires new development to:
  - Protect designated sites including those of international, national and local importance;
  - Protect other features which are of local value for wildlife with examples listed including hedgerow, important trees and river corridors;
  - Contribute towards district wide network of local sites;
  - Ensure net gains in biodiversity and ensuring adverse impacts are avoided or mitigated for; and
  - Protect and strengthen populations of legally protected species.

- **Policy CP22: Internationally Designated Sites**.

[31] Office of the Deputy Prime Minister (2005). *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.* Available at: < http://www.communities.gov.uk/documents/planningandbuilding/pdf/147570.pdf>

- Any development within 400m of the Wealden Heaths Phase II SPA will be required to undertake a project specific Habitats Regulations Assessment.
- Developments comply with the findings of any forthcoming work provided by the Solent Disturbance and Mitigation Project in relation to the Solent SAC, SPA and Ramsar sites.

6.0 ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

6.1 In accordance with CIEEM guidelines, where receptors have been evaluated at "site value" or lower, no further assessment is deemed necessary as the impact on these receptors is not likely to be of significance. However, it will be noted that mitigation measures may still be required to ensure protection of receptors to comply with current wildlife legislation and best practice guidelines.

6.2 The site is dominated by rough semi-improved grassland bounded by hedgerows and dense scrub. The proposed development would result in the loss of the north-east and south-east boundary hedgerows. The lost hedgerows and the rough grassland is to be replaced with amenity grassland. The design of the proposed development has followed the mitigation hierarchy; firstly, alternative proposal layout options have been considered. The agreed upon layout of the pitches has been designed to avoid impacts to biodiversity as much as feasible, by not encroaching on to the adjacent Rotherlands LNR of greater ecological value. Secondly, adverse effects have been avoided or minimised through mitigation measures, and lastly, where there are significant residual adverse ecological effects despite the mitigation proposed, these have been offset by appropriate compensatory measures.

6.3 The following valuable ecological receptors have been identified and will be carried forward to impact assessment:

Statutory Designated Sites

- Rotherlands LNR;

Non-statutory Designated Sites

- Tilmore Brook Wood SINC
- Tilmore Brook Marsh SINC

Species

- Foraging and commuting bats;

- Hazel dormouse; and
- A 'low' population of slow-worm and grass snake.

Designated Sites

6.4 The majority of the statutory designated sites are spatially separated from the site, with the exception of Rotherlands LNR which is located adjacent to the north-west boundary. The adjacent non-statutory designations (Tilmore Brook Wood SINC and Tilmore Brook Marsh SINC) are also associated with Rotherlands LNR and River Rother. The proposals are to be retained within the site's footprint, with external sports lighting restricted to Pitch 3 and Pitch 4 (training pitch), whereby the columns will be distanced from the edge of Rotherlands LNR. An assessment of light spillage has been undertaken (see **Appendix 6, 7 and 8**), which concludes that the Rotherlands LNR will not be subject to an increase of light levels of greater than 1 luminance flux (LUX), and spillage results beyond the contours conclude that the Rotherlands LNR has potential to be subject to 0.1LUX as a result of the new lighting columns for Pitch 3. 0.1 LUX is the same lighting conditions as a 'typical moonlight/cloudy sky'[32] and this minor increase in LUX onto the LNR woodland will also be mitigated for by new coppice creation proposed as part of the hazel dormouse mitigation for this scheme (**Appendix 5**). Hedgerow clearance and the associated ground disturbance is not anticipated to extend closer than 50m from Tilmore Brook and thus, there are no pollution risks to local waterways. Overall, no likely significant effects on the adjacent LNR and SINCs are anticipated.

6.5 The site is not located within a Natural England Sites of Special Scientific Interest Impact Risk Zones (SSSI IRZ) that requires planning applications for recreation to fulfil specific criteria. Therefore, no consultation with Natural England is considered necessary for this planning application

[32] Bat Conservation Trust (2018). Bats and artificial lighting in the UK. Bats and the Built Environment series. Guidance Note 08/18.

Habitats

Dense Scrub (A2.1)

6.6 Between October 2017 and March 2018 scrub clearance works had been undertaken along the north-east and south-east boundaries, which equated to approximately 0.12ha. The proposals do not require the loss of the dense scrub habitat along the western boundaries and therefore, the proposals will have a **neutral effect**.

Hedgerows - Native Species-Rich (J2.1)

6.7 The hedgerow cover equated to approximately 0.27ha prior to the spring 2018 thinning works. The length of hedgerow to be removed is approximately 240m to facilitate the proposals which will result in a reduction in biodiversity of site value.

6.8 The hedgerow to be lost is dominated by hazel, with limited ground flora. The southern hedgerow fails to meet the definition of species rich as there are only four woody species present, with the north eastern hedgerow having five woody species present.

6.9 New planting of 0.2ha of hazel coppice and other native species is planned for the north of the site, with enhancements to the southern sports field boundary hedgerow also planned. The woodland edge in the north of the site will be planted with new native species rich buffer planting of approximately 150m. In addition the Rotherlands LNR will be enhanced by removal of invasive species and coppice management.

6.10 As the existing hedgerow is lacking in species diversity, and new planting will be more diverse and managed for conservation, it is considered that this will have a positive impact over time.

6.11 The loss of the hedgerows is to be compensated for within the hazel dormouse EPSM licence recommended within the hazel dormouse mitigation below and shown in the Ecological Mitigation and Enhancement Plan in **Appendix 5**.

6.12 If the hazel dormouse mitigation measures are implemented the **residual effect will be non-significant positive**.

Poor Semi-Improved Grassland (B6)

6.13 Approximately 2.1ha of poor semi-improved grassland is to be lost as a result of the proposals, which will result in a reduction in biodiversity of site value.

6.14 There is potential for tussocky grassland margin creation around the south-west and north-west boundaries of the Application Site, as well as within the northern boundary of the adjacent amenity field to the east, as shown in **Appendix 5**. Tussocky grassland is achieved by adhering to a minimal maintenance regime comprising of one cut every 2 to 3 years.

6.15 Provided that the compensatory tussocky grassland margin creation is undertaken the **residual effect will be neutral**.

Fauna

Amphibians

6.16 Common toad was confirmed to be present within the Application Site, which is of site value.

6.17 The habitat mitigation and enhancement recommendations shown in **Appendix 5** will compensate for the loss of suitable terrestrial habitat for common toad. Furthermore, the destructive search clearance methodology detailed within the reptile mitigation below will also prevent the risk of harming common toad.

6.18 Overall, the proposals will have a **neutral effect on common toad**.

Badgers

6.19 Badger setts are confirmed to be absent and the proposals will inherently improve the Application Site for foraging badger, as this species prefer amenity grassland for foraging.

6.20 Overall, the development proposal will inherently enhance the Application Site for foraging badger, resulting in an overall, **non-significant positive effect**.

Bats

6.21 The loss of the hedgerows on site would result in the reduction of suitable foraging and commuting habitat for bats. The amount of hedgerow to be lost is approximately 0.29ha, or approximately 240m in length. The creation of 0.2ha of new hazel coppice planting within the site boundaries, and new woodland buffer planting of 150m length adjacent to Rotherlands LNR in the north will compensate for this loss.

6.22 The significance of this loss to local bats is considered minor as the hedgerows are not sufficient to support foraging and commuting bats in isolation and the loss will not result in the fragmentation of suitable foraging and commuting bat habitat.

6.23 Furthermore, the impacts of the proposals are retained within the Application Sites footprint, with light spill assessments undertaken, concluding that an increase in lighting (Pitch 3 and 4) will be retained within the sports fields (see **Paragraph 6.4**). Furthermore, the lighting columns are designed with an upward light ratio of 0% and with good optical control and natural white light, as favoured for bat mitigation[30]. The Design and Access statement also states that "*The floodlights are proposed to be used on Monday to Friday nights between the hours of 7pm and 10pm from October through to April*"[33], which is outside of the bat active season which extends between May and September, with limited activity in April and October. Thus, the impacts on adjacent suitable bat habitat are considered to be negligible.

6.24 In accordance with Paragraph 2.2.5 of the Current Bat Conservation Trust Guidance, the requirement for further surveys is influenced by numerous factors such as:

"Size, nature and complexity of site, species concerned, scale of the proposed activities and likelihood of bats being present. Professionals should take a proportionate approach to ensure the provision of information with the planning application is appropriate to the environmental risk associated with the development and its location."

6.25 Although the hedgerows support a range of species, including small numbers of

[33] Pentangle Design (2018). Design and Access Statement. *Proposed change of use of land and new floodlights at Petersfield RFC. 3464/DAS/DRAFT.*

barbastelle, the bat activity surveys did not find any evidence of significant use by large numbers of rare species. In addition, due to the small size of the site and positioning of the hedgerows, the hedgerows are not considered to be important connection features for foraging and commuting bats, and bats would not be impacted by artificial lighting.

6.26 The loss of foraging and commuting bat habitat is to be compensated for as part of the hazel dormouse EPSM licence in the form detailed (detailed in hazel dormouse mitigation below) with the opportunity to enhance the wider Petersfield sports ground area for foraging and commuting bats. This will include 0.2ha of hazel coppice planting, strengthening of existing boundary hedgerows in the south of the sports fields and north of the site with native species rich tree planting. In addition, there will be enhancements to the Rotherlands LNR in the form of removal of non-native species and coppice management.

6.27 The retention of the hedgerows has been considered and ruled out because it would not be possible to create the sports pitches if the hedgerows were retained.

6.28 Overall, provided that the compensatory habitat creation recommendations within this report are adhered the **residual effects on bats is anticipated to be non-significant positive.**

Birds

6.29 The site offers suitable nesting bird habitat in the form of the hedgerows and dense scrub. The clearance of these habitats will result in potential loss of active nests if they are removed during the nesting bird season. The site is also suitable for foraging barn owl, however, considering the ample suitable foraging habitat for this species within the wider landscape, the impact is considered negligible.

6.30 The removal of the hedgerow and dense scrub should be undertaken outside the breeding bird season which extends from March to September, inclusive. If this is not possible, an ecologist will be present immediately prior to clearance to inspect the vegetation for active nests. Any active nests will be retained within a suitable buffer until the young have fledged.

6.31 The tussocky grassland recommendation within the poor semi-improved grassland mitigation above will provide compensatory foraging habitat for barn owl.

6.32 Compensatory nesting bird habitat is to be incorporated within the proposals as part of the hazel dormouse EPSM licence, as detailed below. Provided that the habitat mitigation is undertaken the **residual effect on nesting birds will be non-significant positive.**

Hazel Dormouse

6.33 Hazel dormice are likely to be present within the hedgerows and dense scrub on site. Based on scrub and hedgerow cover prior to spring 2018 strimming works, the extent of suitable hazel dormouse loss as a result of the proposals is anticipated to be 0.27ha. Furthermore, the removal of hedgerows risks harming and/or disturbing hazel dormouse.

6.34 As detailed in **Paragraph 6.4** in regards to light spill from the proposed sports lighting, no adjacent suitable hazel dormouse habitat is to be lost and any minor increase in lighting levels on the adjacent Rotherlands LNR (LUX 0.1) is to be mitigated through buffer planting. Furthermore, the lighting will predominantly be in use during the hazel dormouse hibernation period that extends between November to April). Therefore, if hazel dormouse were to be impacted from the additional lighting, it would be limited to the month of October between 7pm and 10pm, allowing for undisturbed foraging for the majority of the night, thus considered to be a minor impact.

6.35 The dense scrub on the north-west and south-west boundaries is anticipated for retention. As the hedgerows proposed for removal are suitable for hazel dormouse and are part of a hedgerow/woodland network with confirmed records of hazel dormouse presence, it will be necessary to obtain an EPSM licence from Natural England directly. A hazel dormouse survey is not considered necessary since dormouse were recorded within an adjacent hedgerow in 2015, which is connected to the site and have not been manipulated/fragmentated from the site since the positive recording of hazel dormouse. Surveys carried out in 2019 confirmed the presence of dormouse in the hedgerows and dense scrub bounding the site.

6.36 A Natural England EPSM licence cannot be submitted prior to planning permission being granted. The EPSM licence will detail precautionary clearance measures to prevent the risk of death and/or injury of hazel dormice. Furthermore, we recommend that a detailed mitigation strategy should be provided, which would set out the following:

- Site plan showing areas of habitat to be impacted (directly and indirectly) and location extent and timing of vegetation loss
- Measures to safeguard hazel dormice and sensitive habitats during construction and operation
- Location, extent and ongoing management of mitigation, compensation and enhancement features (e.g. new dormouse habitat, dormouse boxes)

6.37 The principle aim would be to provide like-for-like compensatory habitat to assure no net loss of suitable hazel dormouse habitat. In this instance, the compensatory habitat can be incorporated within connecting land within Petersfield Town Council ownership.

6.38 Suitable mitigation shown in **Appendix 5** includes the creation of a hazel coppice within existing amenity grassland, attached to the Rotherlands LNR. There is potential to create 0.2ha of hazel coppice habitat located immediately above Pitch 3, which will also provide a lighting buffer between the new lighting and Rotherlands LNR. To enhance the coppice for hazel dormouse honeysuckle *Lonicera periclymenum* and sweet chestnut *Castanea sativa* will also be planted. The coppice will also be managed via a coppicing regime.

6.39 Approximately 5.4ha of the Rotherlands LNR is owned by Petersfield Town Council. Therefore, to compensate for the loss of the hazel dormouse habitat the 5.4ha of Rotherlands LNR is to be enhanced for hazel dormouse. The enhancement works will be undertaken in partnership with Rotherlands Conservation Group and will include the removal and management of invasive species[34] and a coppice management regime. The extent of Petersfield Town Council ownership is shown in

[34] Rotherlands Conservation Group (2005). *Available at: http://www.rotherlands.co.uk/index.html*

Appendix 9.

6.40 Additional hazel dormouse enhancements will be incorporated into the proposals via the strengthening of an existing boundary hedgerow to the south of the recreational grounds, within Petersfield Town Council ownership. Furthermore, Rotherlands LNR woodland edge located immediately north of existing rugby pitches 1 and 2 can be strengthened with new native species rich "woodland buffer" planting (150m in length) to provide a natural light buffer to the existing light columns and any existing noise disturbance, as well as, providing an additional foraging resource. **Appendix 5** provides example locations for such habitat enhancements.

6.41 Provided that the mitigation and enhancements detailed above are carried out, the **residual effects on hazel dormouse will be non-significant positive**.

Reptiles

6.42 A low population of slow-worm and grass snake has been recorded to be present within the Application Site. The dense scrub, hedgerows and rough grassland are suitable for supporting widespread species of reptile. The removal of these habitats risk harming reptiles and would result in a net loss of reptile habitat.

6.43 Widespread reptiles are protected from death and injury only, their habitat is not protected, however, as a protected species sufficient effort is to be made to retain potential reptile populations on site. This is to be achieved via ensuring the incorporation of suitable reptile habitat during the design stage, such as tussocky grassland with a minimal management regime, a tussocky grassland and scrub mosaic and hibernacula creation, as shown in **Appendix 5**.

6.44 It is recommended that three hibernacula are created within the Application Site prior to the rough grassland and hedgerow clearance and positioned as shown in **Appendix 5**.

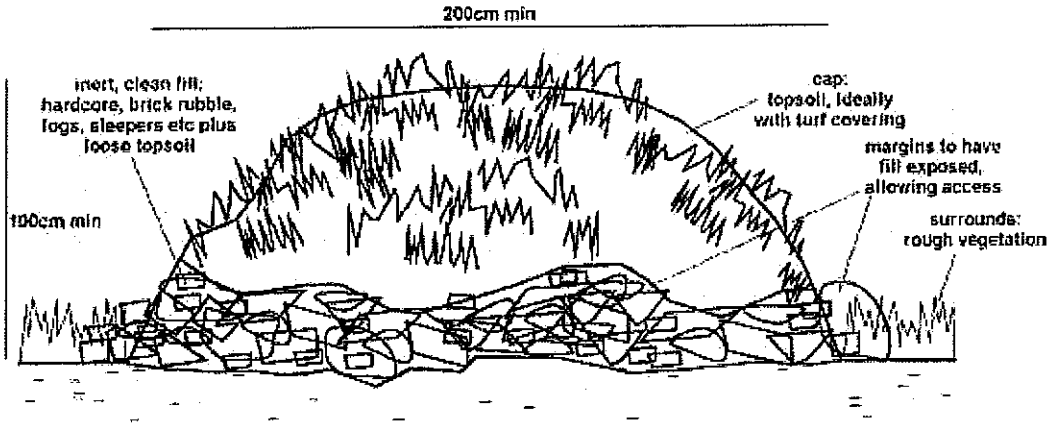


Image 2: Hibernacula specifications

6.45 Two of the three grass snake recordings and one of the two slow-worm recordings were located within the northern boundary area proposed for retention. Furthermore, the proposals will not include extensive ground works and the works themselves will be completed within a very short time frame and overall, are low impacting. Therefore, it is recommended that the rough grassland is methodically strimmed, over two days, with the first strim undertaken to a height of no less than 10-15cm and the second strim down to ground level. The strimming will also be directed towards the retained western boundaries by starting on the south-east corner and slowly moving west and north towards. Strimming will be undertaken under the supervision of a suitably qualified ecologist and on warm sunny days between April to September (inclusive), when reptiles would be active.

6.46 For the hedgerow clearance a destructive search methodology is to be carried out under the supervision of a suitably qualified ecologist. Preferably this will also be undertaken when reptiles are active, however, this is not deemed necessary due to the hedgerows poor quality ground cover, providing limited shelter for this species group. It is also recommended that the hedgerows are cleared from the south-east corner and towards the western and northern boundaries. Hedgerow clearance is also to be undertaken under the supervision of a suitably qualified ecologist.

6.47 Provided that the mitigation and enhancements detailed above are carried out, the **residual effects on reptiles will be neutral**.

Other Wildlife

6.48 It is recommended that the hedgerows are checked for the presence of hedgehog or harvest mice during removal. This check will be inherently undertaken as part of the reptile mitigation detailed above.

6.49 Provided that the mitigation measures above are followed the **residual effects will be neutral**.

Enhancements

6.50 The National Planning Policy Framework encourages development to provide net gains in biodiversity where possible.

6.51 It is recommended that the following enhancements are provided within the site:

- The provision of a barn owl nest box facing out into an unlit section of the recreational fields and preferably directed on the proposed tussocky grassland strips, as shown in **Appendix 5**.

- An area of wildflower meadow creation is recommended within the Petersfield recreational grounds. An example patch of wildflower meadow is shown in **Appendix 5**. A wildflower meadow can be established using wildflower turf or sowing a mix within a prepared section of ground. A suitable sowing mix includes Emorsgate EN1F – Special Pollen and Nectar Wild Flowers.

- The installation of a bug hotel will provide suitable habitat for beneficial pollinating insects, which also help control and reduce populations of detrimental insects. They can also be aesthetically pleasing and provide an interesting focal point for the general public.

Image 3: An example of a bug hotel (reference: Greener Places)

7.0 CONCLUSIONS

7.1 The Ecological Impact Assessment has identified the Application Site to be utilised by low populations of slow-worm, grass snake and common toad. The Application Site is also deemed likely to be utilised by hazel dormouse and also has potential to be utilised by foraging barn owl, nesting birds, and badger. The site is also used by foraging and commuting bats, including small numbers of rare species. In accordance to NPPF and Local Policy CP21, recommendations have been made within this report to ensure the protection of these legally protected species and provide compensatory habitat.

7.2 The site is significantly distanced from internationally designated sites and therefore, no impacts on such designations are anticipated, in accordance to Local Planning Policy CP22. Furthermore, as the footprint of the proposals are retained within the site boundary no impacts on the adjacent Rotherlands LNR and SINCs are anticipated.

7.3 This EclA report has explicitly set out mitigation aimed at ensuring no net loss in biodiversity and no adverse effects on protected species, to support the planning application. The mitigation will ensure compliance with NPPF and Local Policy CP21 and will be sufficient for incorporation into the Natural England hazel dormouse EPSM licence, which requires no net loss of hazel dormouse habitat.