Land East of Knowle Lane, Cranleigh

Ecological Appraisal

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Contact Details

Aspect Ecology Ltd
Hardwick Business Park | Noral Way | Banbury | Oxfordshire OX16 2AF
t 01295 279721 e info@aspect-ecology.com
w www.aspect-ecology.com

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Executive Summary

i) **Introduction.** Aspect Ecology was commissioned by Gleeson Land in February 2021 to undertake an Ecological Appraisal in respect of proposed redevelopment of land east of Knowle Lane, Cranleigh, Surrey.

ii) **Proposals.** The proposals are for an outline planning application for approximately 220 residential dwellings at the site.

iii) **Survey.** The site was surveyed in May 2021 based on standard extended Phase 1 methodology. In addition, a general appraisal of faunal species was undertaken to record the potential presence of any protected, rare or notable species. Subsequent specialist surveys have been undertaken at the site including those for reptiles, Great Crested Newt eDNA, Dormouse, bats and Badger.

iv) **Ecological Designations.** The site itself is not subject to any statutory or non-statutory ecological designations. The nearest statutory designation is Sayers Croft Local Nature Reserve located approximately 2.8km north-east of the site. The nearest non-statutory designation is an area if Ancient & Semi-Natural Woodland (SRY 4030) located approximately 350m west of the site. Although not identified as a non-statutory site, Beryl Harvey Field approximately 25m from the western boundary of the northern part of the site, is managed as a wildlife area by Cranleigh and District Conservation Volunteers. A number of European Designations are present within the wider area surrounding the site, although none occur within 10km of the site boundary. All of the ecological designations in the surrounding area are physically separated from the site and are therefore unlikely to be adversely affected by the proposals.

v) **Habitats.** The site is approximately 11.7ha in size and is dominated by grassland fields. Field boundaries predominantly comprise established hedgerows and tree belts. Five ponds are present at or outside the site in proximity to the site boundary. The majority of trees and hedgerows within the site will be retained under the proposals and protected during construction. Small sections of hedgerows will be removed to facilitate access. This will be compensated for by new, native species-rich hedgerow planting throughout the site. The remaining habitats within the site are not considered to form important ecological features and their loss to the proposals is of negligible significance.

vi) **Protected Species.** The site generally offers limited opportunities for protected species. However, it is likely that birds nest within suitable habitat at the site and could therefore potentially be adversely affected by the proposals. Appropriate mitigation measures, centred on the careful timing of works, will therefore be implemented to safeguard nesting birds during relevant site clearance works. Long-term nesting opportunities will be maintained, if not enhanced, under the proposals through new landscape planting and provision of nest boxes.

vii) **Enhancements.** The proposals present the opportunity to secure a number of biodiversity net gains, including additional native tree planting, new roosting opportunities for bats, and more diverse nesting habitats for birds, as well as enhancement measures for Brown Hairstreak butterfly.

viii) **Summary.** In summary, the proposals have sought to minimise impacts on biodiversity and subject to the implementation of appropriate avoidance, mitigation and compensation measures, it is considered unlikely that the proposals will result in significant harm.

1 Introduction

1.1 Background and Proposals

1.1.1 Aspect Ecology was commissioned by Gleeson Land in February 2021 to undertake an Ecological Appraisal in respect of proposed redevelopment of land east of Knowle Lane, Cranleigh, Surrey, centred at grid reference TQ 059 387 (see Plan 6165/ECO1), hereafter referred to as 'the site'.

1.1.2 The proposals are for an outline planning application (with all matters reserved except means of access) for up to 3 phases of residential development of up to 162 dwellings (including 30% affordable dwellings) including the creation of new vehicular access, pedestrian and cycle accesses, parking spaces, public open space, biodiversity enhancement, landscape planting, surface water attenuation, associated infrastructure and other associated works.

1.2 Site Overview

1.2.1 The site is located to the west of Cranleigh, Surrey. The site is bounded to the north by Snoxhall playing fields, to the south by agricultural land and to the east by residential properties at the western edge of Cranleigh. To the west of the site, a small number of residential dwellings and their associated curtilages are present in addition to allotments, small areas of woodland and Knowle Lane, beyond which lies agricultural land and woodland.

1.2.2 The site itself is approximately 11.7ha in size and is dominated by grassland fields. Field boundaries predominantly comprise established hedgerows and tree belts. Five ponds are present at or outside the site in proximity to the site boundary.

1.3 Purpose of the Report

1.3.1 This report documents the methods and findings of the baseline ecology surveys and desktop study carried out in order to establish the existing ecological interest of the site, and subsequently provides an appraisal of the likely ecological effects of the proposals. The importance of the habitats and species present is evaluated. Where appropriate, avoidance, mitigation and compensation measures are proposed so as to safeguard any significant existing ecological interest within the site and where appropriate, opportunities for ecological enhancement are identified with reference to national conservation priorities and local Biodiversity Action Plans (BAPs).

2 Methodology

2.1 Desktop Study

2.1.1 In order to compile background information on the site and its immediate surroundings data was requested from Surrey Biodiversity Information Centre from within a search area extending to 2km from the centre point of the site.

2.1.2 Information on statutory designations was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database, which utilises data provided by Natural England, within an extended search distance of 25km. In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site, including Ancient Woodland.

2.1.3 The Woodland Trust's Ancient Tree Inventory was searched for records of ancient, veteran or notable trees within or adjacent to the site.

2.1.4 Statutory and non-statutory sites are shown on Plan 6165/ECO2.

2.2 Habitat Survey

2.2.1 The site was surveyed in May 2021 to identify the principal habitats and ecological features present. A subsequent repeat survey was undertaken in July 2022. This second survey included a Habitat Condition Assessment to inform the Biodiversity Metric calculation required to determine Biodiversity Net Gain.

2.2.2 The site was surveyed based on standard Phase 1 Habitat Survey methodology[1], whereby the habitat types present are identified and mapped, and an assessment of the species composition of each habitat made. This 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 through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal[2] to record details on the actual or potential presence of notable or protected species or habitats. The findings of the habitat surveys undertaken are shown on Plan 6165/ECO3.

2.3 Faunal Surveys

2.3.1 General faunal activity, such as mammals or birds observed visually or by call during the course of the surveys was recorded. Specific attention was paid to the potential presence of protected, rare or notable species as set out below.

Bats[3]

Visual Inspection Surveys

2.3.2 **Buildings.** There is a single structure within the site, a barn at TQ 057 383. This was subject to external inspection in May 2021.

[1] Joint Nature Conservation Committee (2010, as amended) *'Handbook for Phase 1 habitat survey: A technique for environmental audit.'*

[2] Chartered Institute for Ecology and Environmental Management (CIEEM) (2013) *'Guidelines for Preliminary Ecological Appraisal.'*

[3] Surveys based on: English Nature (2004) *'Bat Mitigation Guidelines'* and Collins, J. (ed.) (2016) *'Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn).' Bat Conservation Trust

2.3.3 Particular attention was given to any potential roost features or access points, such as broken or lifted roof tiles, lifted lead flashing, soffit boxes, weatherboarding, hanging tiles, and for any external signs of use by bats such as accumulations of bat droppings or staining. Binoculars were used to inspect features more closely where appropriate.

2.3.4 **Trees**. Trees were assessed for their suitability to support roosting bats based on the presence of features such as holes, cracks, splits or loose bark. Suitability for roosting bats was rated based on relevant guidance[4] as:

- Negligible;
- Low;
- Moderate; or
- High.

2.3.5 Potential roost features identified were inspected for any signs indicating possible use by bats, e.g. staining, scratch marks, bat droppings.

Dusk Emergence/ Dawn Re-entry Survey

2.3.6 A single dusk emergence survey was carried out on 1 September 2022 at specific trees to inform the proposed location of the entrance road to the site.

2.3.7 Surveyors employed Echometer EM3 or EM Touch handheld bat detectors alongside BatBox Duet detectors to aid identification of any bats observed. At dusk, surveyors were in position 15-30 minutes prior to sunset, remaining in place for approximately 2 hours. This survey method aims to identify any roosting bats emerging from or returning to potential roost sites.

2.3.8 This survey work was carried out during suitable weather conditions, as set out in Table 1 and Table 2 below.

Table 1 - Dusk survey

Date	Start & end times & time of sunset	Structure reference / location	Equipment used	Weather
01/09/2022	Start time: 19:34 End time: 21:49 Sunset: 19:49	NW corner of site at proposed road entrance	Anabat Scout (x5)	Occasional light rain, 100% cloud, BF2/3, 20°C
Comments: The survey was undertaken by 5 surveyors.				

BF0 = calm, BF12 = hurricane force.

Activity Surveys

2.3.9 Walked transect surveys were undertaken in August, September and October 2021 to assess the level of usage of the site by foraging and commuting bats. This survey method involves walking planned transect routes with key listening points, specifically at habitats or features with particular potential for use by commuting or foraging bats. Anabat Scout handheld bat detectors were employed. Each transect was walked from sunset, for 2 hours, with a minimum 3 minute stop at each listening point.

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

2.3.10 This survey work was carried out during suitable weather conditions, as set out in below.

Table 2 - Walked transect surveys

Date	Start & end times & time of sunset	Transect / location	Equipment used	Weather
16/08/2021	Start time: 20.21 End time: 22.21 Sunset: 20.21	See Plan 6165/ECO4	Anabat Scout (x2)	Dry, 40% cloud, BF1, 17°C
Comments: The survey was undertaken by 2 surveyors.				
01/09/2021	Start time: 19.47 End time: 21.47 Sunset: 19.47	See Plan 6165/ECO4	Anabat Scout (x2)	Dry, 100% cloud, BF1, 17°C
Comments: The survey was undertaken by 2 surveyors.				
04/10/2021	Start time: 18.32 End time: 20:32 Sunset: 18.32	See Plan 6165/ECO4	Anabat Scout (x2)	Dry, 90% cloud, BF1, 13°C
Comments: The survey was undertaken by 2 surveyors.				

BF0 = calm, BF12 = hurricane force

2.3.11 Automated static detector surveys were also carried out during which Song Meter 2 (SM2) detectors were positioned at two locations within the site on three occasions to record bat activity. The two SM2 detectors were deployed in the locations shown on Plan 6165/ECO4 for the periods 16-23 August 2021, 1-8 September 2021, and 4-11 October 2021. between the 27th and 29th September 2019. Detector 1 was located on the western side of hedgerow **H8** at its junction with **H7** and detector 2 attached to a pine tree south of the plantation in field **G6**. The detectors were set to switch on approximately 30 minutes before sunset and switch off approximately 30 minutes after sunrise. The weather conditions during the static detector surveys are shown in below.

Table 3 - Weather conditions during static bat detector deployment

Survey Date	Weather Conditions			
	Wind (BF)	Temp(°)	Cloud Cover (%)	Precipitation
16/08/2021	2	17	50	None/occasional light
17/08/2021	1	13	80	None/occasional light
18/08/2021	2	14	60	None/occasional light
19/08/2021	2	14	65	None/occasional light
20/08/2021	2	17	50	None/occasional light
21/08/2021	3	16	50	None/occasional light
22/08/2021	3	13	80	Light
23/08/2021	3	18	15	None/occasional light
01/09/2021	3	17	50	None
02/09/2021	3	18	45	None
03/09/2021	3	17	20	None
04/09/2021	3	17	45	None
05/09/2021	2	18	40	None
06/09/2021	1	20	10	None
07/09/2021	2	19	5	None
08/09/2021	3	15	45	None
04/10/2021	3	12	65	Light
05/10/2021	4	9	75	Light to moderate
06/10/2021	3	9	15	None
07/10/2021	1	12	50	None
08/10/2021	1	13	75	None
09/10/2021	1	13	15	None
10/10/2021	2	13	60	None/occasional light
11/10/2021	2	12	40	None

BF0 = calm, BF12 = hurricane force

Analysis of Bat Survey Recordings

2.3.12 All bat calls were analysed using Anabat Insight v2.0.1 to verify the species recorded during the survey work. Where recordings could not be reliably attributed to species (such as for *Myotis* species) or where overlaps between otherwise distinguishable species occur (such as in Pipistrelle bat calls around 40kHz or 50kHz) calls were identified to genus level; in the case of calls which could not be distinguished between *Nyctalus* sp. and Serotine, these have been labelled as 'Big Bat' species.

2.3.13

2.3.14

Dormouse *(Muscardinus avellanarius)*[6]

2.3.15 Surveys were undertaken to establish the presence/absence of Dormouse within the site between August and November 2021. Survey work followed the methodology set out within best practice guidance[6], whereby nesting tubes are attached to branches of trees and shrubs and checked on a regular basis for signs of use by Dormouse.

2.3.16 The guidance employs an indexation system to define survey effort, based on the number of tubes deployed and months over which these are in place and are checked for signs of use. Months in which use of nest tubes by Dormouse is more likely afford a higher number of points than months when there is a lower likelihood of use. The guidance recommends that determination of absence of Dormouse from a site should be based on a survey effort score of at least 20 points.

2.3.17 Accordingly, a total of 72 Dormouse nest tubes were deployed within the site (see Plan 6165/ECO5). Nest tubes were checked monthly between August and November 2021, giving a total survey effort score of 23 points across the entire survey area.

5 Based on: Mammal Society (1989) '*Occasional Publication No. 9 – Surveying Badgers*'

6 Based on: English Nature (2003) '*Surveying dormice using nest tubes: Results and experiences from the South West Dormouse Project',* English Nature (2006) '*The Dormouse Conservation Handbook*', 2nd Edition;, English Nature Research Report No. 524; and Natural England (2011) '*Interim Natural England Advice Note – Dormouse surveys for mitigation licensing – best practice and common misconceptions'*, WML-537 (12/11)

Reptiles[7]

2.3.18 Given the presence of potentially suitable reptile habitat within the site, a specific survey was undertaken to establish the presence/absence of common reptile species between August and September 2021.

2.3.19 A total of 143 No. 50x50cm sheets of thick roofing felt were placed within suitable areas across the site to act as artificial refugia, which represents an approximate average density across the site of 11 refugia per hectare. The refugia, or 'tins', provide shelter and heat up more quickly than their surroundings in the morning and can remain warmer than their surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature, which allows them to forage earlier and later in the day. Therefore, checking the refugia at appropriate times of the day (morning and evening) enables the presence/absence of common reptiles to be determined.

2.3.20 The refugia remained undisturbed for approximately 1-2 weeks to allow reptiles to find and start using them. Following this initial bedding-in period, refugia were checked at appropriate times of the day on seven occasions during suitable weather conditions, as set out below in Table 5.

Table 4 - Reptile survey dates and weather conditions

Survey Date	Weather Conditions			
	Wind (BF)	Temp(°)	Cloud Cover (%)	Precipitation
31/08/2021	0-1	15-17	95-50	Light drizzle cleared by end of survey
03/09/2021	0-1	16-18	50	None
08/09/2021	0-1	15-18	0	None
10/09/2021	1-2	17-18	100	None
13/09/2021	3	16-18	100	None
21/09/2021	2	13-18	20	None
29/09/2021	3	10-13	0	None

BF0 = calm, BF12 = hurricane force

2.3.21 In addition, reptiles basking in the open or partial cover were actively searched for in suitable locations across the site through direct observation. Existing natural objects (e.g. logs and rocks) and artificial refugia (e.g. debris, tyres, etc.) were also searched, where present, for reptiles or evidence of reptiles (e.g. sloughed skin).

Great Crested Newt (*Triturus cristatus)*

Habitat Suitability Index (HSI)

2.3.22 As a first step in identifying the potential presence of Great Crested Newt at the site, a Habitat Suitability Index (HSI) study was undertaken of all relevant water bodies within 250m[8] of the site boundary (based on available access where possible, informed by Ordnance Survey mapping and satellite imagery). Guidance set out within Natural England's Method Statement template, to be used when applying for a Great Crested Newt development licence, states that surveys of ponds within 500m of the site boundary are only required when '(a) data indicates that the pond(s) has potential to support a large

[7] Surveys based on: Froglife Advice Sheet 10 (1999) '*Reptile Survey - an introduction to planning, conducting and interpreting surveys for snake and lizard conservation.*'

[8] 250m is the typical maximum migratory range of this species, see English Nature (2004) '*An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt* Triturus cristatus'. English Nature Research Report 576

Great Crested Newt population, (b) the footprint contains particularly favourable habitat, (c) the development would have a substantial negative effect on that habitat and (d) there is an absence of dispersal barriers.' While the site provides potentially suitable habitat, this is limited to hedges and habitats bounding the site that would be retained, and the development would not lead to a substantial negative effect on that habitat. It is therefore considered that survey of ponds within 250m represents adequate survey effort.

2.3.23 The HSI is used to assess the likelihood of water bodies supporting breeding Great Crested Newt. The HSI for each pond is derived from scoring ten factors that are considered to influence the presence or absence of this species at that pond as follows:

- *SI1 Location.* The location of the water body within Great Britain;
- *SI2 Pond area.* The size of the water body;
- *SI3 Permanence.* How often the water body dries out;
- *SI4 Water Quality.* The water quality, based primarily on invertebrate diversity;
- *SI5 Shade.* The percentage of the perimeter of the water body that is shaded;
- *SI6 Fowl.* The presence or absence of water fowl;
- *SI7 Fish.* The presence or absence of fish;
- *SI8 Pond Count.* The number of water bodies within 1km of the surveyed water body (not counting those on the far side of major barriers such as roads);
- *SI9 Terrestrial.* The quality of terrestrial habitat surrounding the water body; and
- *SI10 Macrophytes.* The percentage cover of the surface area of the water body covered by macrophytes (aquatic plants).

2.3.24 The overall suitability of the water body is determined by combining these figures according to an equation devised by Oldham *et al.* (2000)[9]. The final HSI score then indicates the suitability of the pond to support breeding Great Crested Newt as either 'poor', 'below average', 'average', 'good' or 'excellent'.

2.3.25 This HSI study was undertaken in line with the guidelines developed by Oldham *et al.* and subsequently adapted by ARG UK (2010)[10]. A suitably experienced ecologist undertook the assessment in line with these guidelines. The study was supplemented by available desktop data where appropriate.

Environmental DNA (eDNA)

2.3.26 An eDNA survey was carried out to determine the presence/absence of Great Crested Newt within six off-site ponds and two off-site ditches, shown as **P1-P8** on Plan 6165/ECO6. Water samples were collected on 29 June 2021 in accordance with the procedure outlined in the methods manual prepared for DEFRA by Biggs et al. (2014)[11]. The survey fell within the acceptable seasonal window set out by Natural England (15th April to 30th June)[12]. Samples were collected by suitably licensed and trained Aspect Ecology staff. The water samples

[9] Oldham RS, Keeble J, Swan MJS & Jeffcote M (2000) '*Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*'. Herpetological Journal 10 (4), 143-155

[10] Amphibian & Reptile Groups of the UK (2010) '*ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index*'

[11] Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., Foster J., Wilkinson J., Arnett A., Williams P. and Dunn F. (2014). '*Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA*'. Freshwater Habitats Trust, Oxford.

[12] Natural England (2015) '*Great crested newts: surveys and mitigation for development projects. Standing advice for local planning authorities who need to assess the impacts of development on great crested newts*'. Last updated at www.gov.uk on 24/12/2015.

were sent for laboratory analysis which was conducted by 'Fera' and also followed the procedure set out by Biggs *et al.* (2014)[11].

2.4 Survey Constraints and Limitations

2.4.1 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent during different seasons. The Phase 1 habitat survey was undertaken within the optimal season therefore allowing a robust assessment of habitats and botanical interest across the site.

2.4.2 Attention was paid to the presence of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, the detectability of such species varies due to a number of factors, e.g. time of year, site management, etc., and hence the absence of invasive species should not be assumed even if no such species were detected during the Phase 1 survey.

2.4.3 Densely vegetated habitats within the site have the potential to reduce the detectability of field signs for faunal species such as Badger. A detailed survey was able to be completed and, whilst dense scrub vegetation is present within the site, it is considered that the survey results do provide an accurate baseline to assess the potential for impacts on Badger under the development proposals.

2.5 Ecological Evaluation Methodology

2.5.1 The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)[13], which involves identifying 'important ecological features' within a defined geographical context (i.e. international, national, regional, county, district, local or site importance).

2.6 National Policy Approach to Biodiversity in the Planning System

2.6.1 The National Planning Policy Framework (NPPF)[14] describes the Government's national policies on 'conserving and enhancing the natural environment' (Chapter 15). NPPF is accompanied by Planning Practice Guidance on 'Biodiversity, ecosystems and green infrastructure' and ODPM Circular 06/2005[15].

2.6.2 NPPF takes forward the Government's strategic objective to halt overall biodiversity loss[16], as set out at Paragraph 174, which states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*'

2.6.3 The approach to dealing with biodiversity in the context of planning applications is set out at Paragraph 180:

[13] CIEEM (2018) '*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*', ver. 1.1, Chartered Institute of Ecology and Environmental Management, Winchester
[14] Ministry of Housing, Communities & Local Government (2021) '*National Planning Policy Framework*'
[15] ODPM (2006) '*Circular 06/2005: Planning for Biodiversity and Geological Conservation – A Guide to Good Practice*'
[16] DEFRA (2011) '*Biodiversity 2020: A strategy for England's wildlife and ecosystem services*'

'When determining planning applications, local planning authorities should apply the following principles:

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

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

2.6.4 The above approach encapsulates the 'mitigation hierarchy' described in British Standard BS 42020:2019[17], which involves the following step-wise process:

- **Avoidance –** avoiding adverse effects through good design;
- **Mitigation –** where it is unavoidable, mitigation measures should be employed to minimise adverse effects;
- **Compensation –** where residual effects remain after mitigation it may be necessary to provide compensation to offset any harm; and
- **Enhancement –** planning decisions often present the opportunity to deliver benefits for biodiversity, which can also be explored alongside the above measures to resolve potential adverse effects.

2.6.5 The measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development (BS 42020:2019, section 5.5).

[17] British Standards Institution (2013) '*Biodiversity – Code of practice for planning and development*', BS 42020:2019

3 Ecological Designations

3.1 Statutory Designations

Description

3.1.1 The statutory designations of ecological importance that occur within the local area are shown on Plan 1234/ECO2. The site itself is not subject to any statutory ecological designations. The nearest statutory designation is Sayers Croft Local Nature Reserve located approximately 2.8km north-east of the site.

3.1.2 A number of European Designations are present within the wider area surrounding the site, the closest of which are Thursley, Hankley & Frensham Commons Special Protection Area and Thursley, Ash, Pirbright & Chobham Special Area of Conservation, both of which are approximately 12km West of the site. No European Designations occur within 10km of the site boundary.

3.1.3 Natural England has developed Impact Risk Zones (IRZs) as an initial tool to help assess the risk of developments adversely affecting SSSIs, taking into account the type and scale of developments. The site sits within an IRZ in relation to Chiddingfold Forest SSSI, however this IRZ does not apply to residential development.

Evaluation

3.1.4 The site itself is not subject to any statutory ecological designations. All statutory ecological designations in the surrounding area are separated from the site by existing development and given the nature and scale of the proposals, these designations are unlikely to be affected.

3.2 Non-statutory Designations

Description

3.2.1 The non-statutory designations of nature conservation interest that occur within the local area are shown on Plan 1234/ECO2. The nearest non-statutory designation is an area if Ancient & Semi-Natural Woodland (SRY 4030) located approximately 350m west of the site.

3.2.2 Although not identified as a non-statutory site, Beryl Harvey Field approximately 25m from the western boundary of the northern part of the site, is managed as a wildlife area by Cranleigh and District Conservation Volunteers.

Evaluation

3.2.3 The site itself is not subject to any non-statutory nature conservation designations. All non-statutory designations in the surrounding area are separated from the site and given the nature and scale of the proposals, these designations are unlikely to be affected. The proposals within the site close to Beryl Harvey Field are for ecological enhancements rather than development and would therefore not give rise to adverse effects at this site.

3.3 Priority Habitats, Ancient Woodland and Notable Trees

Description

3.3.1 There are no records of any notable or veteran trees within or adjacent to the site. Some woodland immediately adjacent to, but outside, the site is identified on MAGIC as the Priority Habitat 'Deciduous Woodland'.

3.3.2 The Woodland Trust Ancient Tree Inventory shows no Ancient or Veteran Trees within or in close proximity ton the site. The nearest such tree is a Veteran Pedunculate Oak over 400m to the west of the site boundary.

Evaluation

3.3.3 Subject to the implementation of the proposed planting scheme and appropriate mitigation measures (as set out in Chapter 4 below) no Priority Habitats, notable or veteran trees will be affected by the proposals.

3.4 Summary

3.4.1 The site is not subject to any statutory or non-statutory ecological designations and, subject to the implementation of appropriate mitigation measures (as described above), it is unlikely that any such designations in the surrounding area will be affected by the proposals.

4 Habitats and Ecological Features

4.1 Background Records

4.1.1 No specific records of any protected, rare or notable plant species from within the site were included within the information returned from Surrey Biodiversity Records Centre. Records of Great Crested Newt presence, from 2001, were returned for the grid square adjacent to the site at Beryl Harvey Field, as well as records of Tawny Owl from the same location and date. Additionally, two records of Brown Hairstreak butterfly were returned from 2018 from woodland immediately adjacent to the site. These records are discussed in the appropriate subsection below.

4.2 Overview

4.2.1 The habitats and ecological features present within the site are described below and evaluated in terms of whether they constitute an important ecological feature and their level of importance, taking into account the status of habitat types and the presence of rare plant communities or individual plant species of elevated interest. The likely effects of the proposals on the habitats and ecological features are then assessed. The value of habitats for the fauna they may support is considered separately in Chapter 5 below.

4.2.2 The following habitats/ecological features were identified within/adjacent to the site:

- Amenity Grassland;
- Semi-improved Grassland;
- Tall Ruderal Vegetation;
- Bramble Scrub;
- Hedgerows and Tree Lines;
- Ponds; and
- Buildings and Hardstanding.

4.2.3 The locations of these habitat types and features are illustrated on Plan 6165/ECO3 and are described below.

4.3 Priority Habitats

4.3.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats which are of principal importance for conservation in England. This list is largely derived from the 'Priority Habitats' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority habitats under the subsequent country-level biodiversity strategies.

4.3.2 Of the habitats within the site, several hedgerows are considered to qualify as Priority Habitats and therefore constitute important ecological features. This is discussed further in the relevant habitat sections below.

4.4 Amenity Grassland

Description

4.4.1 A single small area of amenity grassland is present at the northernmost extent of the site (**G1** on Plan 6165/ECO3).

4.4.2 Grassland **G1** is associated with adjacent playing fields outside the site bounary, and is a closely-mowed triangle of uniformly short sward height. A path separates this area from **TR1** to the immediate south. Species present within the grassland sward include Perennial Ryegrass *Lolium perenne* and Crested Dog's-tail *Cynosurus cristatus.* Occasional Lordsamd Ladies *Arum maculatum* and Cleavers *Galium aparine* occur at the southern extent.

Evaluation

4.4.3 Amenity grassland is of poor ecological quality and does not constitute an important ecological feature.

4.5 Semi-improved Grassland

Description

4.5.1 The majority of the site comprises areas of semi-improved grassland. These areas are labelled **G2-G7** on Plan 1234/ECO3, as described below.

4.5.2 Grassland **G2** is of uniform sward height and likely managed for hay production. Species present comprise Cock's Foot *Dactylis glomerata*, Sweet Vernal-grass *Anthoxanthum odoratum*, False Oat-grass *Arrhenatherum elatius*, Yorkshire Fog *Holcus lanatus* and Rough Meadow-grass *Poa trivialis*.

4.5.3 Grassland **G3** is of similar sward height and composition to **G2**, but with longer grass at field margins, with occasional Dock *Rumex acetosa* and Bramble *Rubus fruticosus* agg. present. The site boundary runs longitudinally through the centre of this field. The northern boundary of this field is a ditch with several semi-mature trees, including a single dead tree **T2**. An established rabbit warren is present at the northern boundary.

4.5.4 Grassland **G4**, to the west of the main body of the site, is partly sheep-grazed but otherwise also managed for hay production. Species composition is again similar to **G2**. This field contains a barn (**B1**) with associated hard standing, farm machinery and hay bales, and a broken dead oak tree roughly in its centre.

4.5.5 Grassland **G5** is another field cut for hay, of similar species composition. Several standing trees are present within this field. Patches of bramble scrub and tall ruderal vegetation occur at field margins.

4.5.6 **G6**, the largest single field component of the site, comprises rough grassland that has been sparsely planted with conifers. This area is dominated by Yorkshire-fog wit Ragwort *Senecio jacobaea,* Field Thistle *Cirsium arvense,* Bramble, Fescue *Festuca* sp., and occasional Fleabane *Pulicaria dysenterica*, Gorse *Ulex europaea* and Teasel *Dipsacus fullonum.*

4.5.7 Grassland **G7** is part of a field adjacent to and south of **G2** and **G3**, separated by a hedge. This field is of similar shorrt sward height and species composition as these, dominated by Cock's Foot, Sweet Vernal-grass, False Oat-grass and Yorkshire Fog.

Evaluation

4.5.8 Overall, the grassland areas support a low diversity of common and widespread species and based on the type and abundance of species present has been classified as semi-improved grassland[18]. While some indicator species of higher quality grassland are present, these are not sufficiently abundant for the grassland to qualify as a Priority Habitat. Semi-improved grassland is not uncommon and higher quality areas of grassland are present in the surrounding area. As such, the grassland does not constitute an important ecological feature and any losses are of minor ecological significance.

4.6 Hedgerows and Tree Lines

Description

4.6.1 Multiple hedgerows and tree lines are present within the site. These are shown as **H1-H10** and **TL1-TL6** on Plan 6165/ECO3 and described in Table 6 below.

Table 5 - Hedgerows and Tree Lines

No.	H	W	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify#
H1	3-4m	2-4m	Blackthorn, Field Maple, Oak	1	Bramble		Outgrown scrub	N
H2	2-5m	2-3m	Oak, Elder, Blackthorn, Guelder Rose	3	Bramble, Nettle, Dock		Footpath alongside hedge at field boundary	N
H3	2-4m	2-3m	Cherry, Beech, Hawthorn, Field Maple, Holly, Hazel, Sycamore, Elder	6	Nettle	Shallow bank	Hedge between fields with numerous standing trees. 40% gappy. N section managed	Y
H4	2m	2-3m	Oak, Blackthorn, Ash, Hazel, Elder, Horse Chestnut	4	Bramble, Nettle, Dock	Bank	Managed hedge	Y
H5	2m	2-3m	Rhododendron, Oak, Holly, Hazel, Privet, Yew, Sycamore	3	Bramble, Nettle, Dock	Ditch	Managed hedge with standard trees including 4 mature Oak	N
H6	2-5m	2-4m	Hazel, Holly, Sycamore, Oak, Ash, Field Maple, Cherry Laurel, Hawthorn, Privet, Rowan, Rhododendron, Beech (A)	6	Bramble, Bracken	Bank	Frequent trees, hedgerow outgrown in places, otherwise managed	Y

[18] Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition

No.	H	W	Woody species	Avg. per 30m*	Ground flora & climbers	Associated features	Comments (including structure / management)	Likely to qualify#
H7	2-3m	1-3m	Ash, Hawthorn, Hornbeam, Dog Rose, Hazel, Oak	4	Nettle, Lords and Ladies, Hogweed, Dock	Ditch	Hedge with standard trees	Y
H8	2-3m	2m	Birch, Hawthorn, Elder, Hazel, Ash, Dog Rose, Oak	5	Lords and Ladies, Bramble, Dock	Ditch, connecting hedge	Managed, 20% gaps	Y
H9	2-3m	2m	Hawthorn, Blackthorn, Ash, Oak, Privet, Dog Rose, Goat Willow	5	Bramble, Dock	Connecting hedge, footpath	Managed, 30% gaps	Y
H10	4m	2-3m	Cypress, Rhododendron, Cherry Laurel, Elder, Holly, Beech	1	Bramble		Heavily managed ornamental hedge beside road along site boundary	N
TL1 (A-C)	8-15m	3-6m	Ash, Field Maple, White Poplar, Hawthorn, Dog Rose, Blackthorn, Hazel (C), Hornbeam (C), Cedar (C).	≥5	Bramble, Dock	ditch		Y
TL2	5-15m	2-6m	Hazel, Field Maple, Oak, Cherry Laurel	3	Bramble, Woody Nightshade			N
TL3 (A-B)	8-15m	6-8m	Goat Willow, Ash, Hazel, Birch, Crack Willow, Oak, Cedar, Cherry Laurel, Hawthorn	≥4	Bramble			Y
TL4 (A-B)	3-12m	3-4m	Oak, Sycamore, Hawthorn, Blackthorn, Cedar, Ash, White Poplar (B)	≥5	Bramble	Bank, connecting hedge		Y
TL5	12-15m	3-5m	Oak, Ash, Elder, Goat Willow, Birch	4	Nettle, Dock, Bramble, Ragwort	Bank		Y
TL6	3-12m	5-7m	Ash, Oak, Sycamore, Goat Willow, Cherry, Willow	6	Bramble, Ragwort, Dock		Young trees with gappy understorey	N

Woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) and woodland ground flora species (as listed under Schedule 2 of the Hedgerows Regulations 1997) underlined, y = young, sm = semi-mature, m = mature, pv = possible veteran, B = bank, W = wall, br = bridleway, f/p = footpath, b/w = byway, (D) = dominant species

** estimated average number of woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) in any one 30m stretch*

 # likely to qualify – as 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997

Evaluation

4.6.2 The majority of hedgerows recorded within the site are relatively substantial and outgrown, and contain standard trees. From a preliminary appraisal, **H3-H4, H6-H9, TL1** and **TL3-TL5** are considered to be species-rich[19] and likely to qualify as ecologically 'important' under the Hedgerows Regulations 1997, based on the number of woody species and associated features. Other hedgerows and tree lines are unlikely to qualify as important under the Regulations.

4.6.3 All of the hedgerows within the site are likely to qualify as a Priority Habitat based on the standard definition[20], which includes all hedgerows (>20m long and <5m wide) consisting predominantly (≥80%) of at least one native woody species. It has been estimated that approximately 84% of countryside hedgerows in GB qualify as a Priority Habitat under this definition.[20]

4.6.4 On this basis, the hedgerows within the site constitute important ecological features, although are only of importance at the local level.

4.6.5 The proposals seek to retain all hedgerows and tree lines within the site, with only minor losses occurring at the site boundary to facilitate access. Retained hedgerows will be protected during the construction phase of the proposals as per the recommendations included at Chapter 6 below. The proposals incorporate extensive new hedgerow planting and enhancements to existing hedges and tree lines to strengthen the existing network and improve connectivity for wildlife. These measures will enhance the value of these features for biodiversity.

4.7 Trees

Description

4.7.1 Several isolated trees are present within the site, as well as other mature and semi-mature specimens associated with hedgerows and tree lines. Where significant trees are present, they are indicated on Plan 6165/ECO3, coloured in accordance with their initial assessment of bat roosting potential (see Table 9 below).

Evaluation

4.7.2 A number of the trees present at the site within hedgerows or free-standing within the site are mature or approaching veteran age class, and a number of these are likely to be of considerable age. Accordingly, the more mature trees recorded within the hedgerows are of ecological interest in their own right, although do not currently constitute important ecological features.

4.7.3 The proposals will retain mature and semi-mature trees within and adjacent to the site as far as possible. As such, subject to recommended safeguards set out at Chapter 6 below, the trees within the site will be retained and protected under the proposals and new planting will combine with the existing trees to provide new opportunities for wildlife.

[19] i.e. five or more native woody species within a 30m length (or four or more in Northern England) – FEP Manual
[20] Based on: Biodiversity Reporting and Information Group (2011) '*UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions'*, ed. Ant Maddock

4.8 Ponds

Description

4.8.1 There are no ponds within the site. Two ponds (**P1, P2**) are present close to the site outside the site boundary. A further six (**P3-P8**) occur within 250m of the site boundary, and are shown on Plan 6165/ECO6. Ponds **P1** and **P2** are described in Table 7 below.

Table 6 - Ponds in proximity to the site

Pond no.	Brief description	Approx. size	Shading	Aquatic/ emergent & marginal vegetation	Comments
P1	Field pond	10x10m	<60%	c.20% cover	Pond in grassland within Beryl Harvey Field, managed for wildlife.
P2	Field pond	10x10m	70%	c.30% cover	Managed garden pond immediately adjacent to the site.

Evaluation

4.8.2 Ponds close to the site are considered to form important ecological features and are of value at the local level. No ponds would be affected by the proposals.

4.8.3 Potential for the ponds to support faunal species such as amphibians is discussed below in Chapter 5.

4.9 Scrub and Tall Ruderal Vegetation

Description

4.9.1 Localised patches of scrub (**S1-S2**) and tall ruderal vegetation (**TR1-TR3**) are present within the site. All scrub areas comprise dense Bramble, while tall ruderal vegetation is dominated by species such as Field Thistle, Hogweed *Heracleum sphondylium*, Dock *Rumex* sp. and Teasel.

Evaluation

4.9.2 While these habitats provide some cover for wildlife, they are widespread in the local area and do not comprise important ecological features. Their function will be more than replaced by new scrub, grassland and tree planting within the completed proposals.

4.10 Buildings and Hard Standing

Description

4.10.1 A single barn building **B1** is present in a small area of hard standing within field **G4**. This is an open agricultural building of metal frame construction. The hardstanding is predominantly devoid of vegetation, aside from occasional cracks which support small areas of colonising vegetation, restricted to common and widespread species.

Evaluation

4.10.2 The buildings and hardstanding support a limited range of common and widespread floral species and are inherently of negligible ecological value. As such, they do not form

important ecological features and their removal under the proposals is of negligible ecological significance. Potential for the buildings to support faunal species such as roosting bats and Barn Owl is discussed below in Chapter 5.

4.11 Habitat Evaluation Summary

4.11.1 On the basis of the above, the following habitats within and in proximity to the site are considered to form important ecological features:

Table 7 - Habitats qualifying as important ecological features

Habitat	Level of Importance
Hedgerows	Local
Ponds	Local

4.11.2 Other habitats present within the site include semi-improved grassland, trees, patches of scrub and tall ruderal vegetation and buildings and hard standing. These habitats do not form important ecological features.

5 Faunal Use of the Site

5.1 Overview

5.1.1 During the survey work, general observations were made of any faunal use of the site with specific attention paid to the potential presence of protected or notable species. Specific survey work was undertaken in respect of Badgers, bats, Dormouse, reptiles and Great Crested Newt, the findings of which are set out below.

5.2 Priority Species

5.2.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of principal importance for conservation in England. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority species under the subsequent country-level biodiversity strategies.

5.3 Bats

5.3.1 **Legislation.** All British bats are classed as European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended) and are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). As such, both bats and their roosts (breeding sites and resting places) receive full protection under the legislation (see Appendix 6165/1 for detailed provisions). If proposed development work is likely to result in an offence a licence may need to be obtained from Natural England which would be subject to appropriate measures to safeguard bats. Given all bats are protected species, they are considered to represent important ecological features. A number of bat species are also considered S41 Priority Species.

5.3.2 **Background Records.** No specific records of bats from within or immediately adjacent to the site were returned from the desktop study. Information received from the LRC returned records of Natterer's Bat *Myotis nattereri*, Whiskered Bat *Myotis mystacinus*, Noctule *Nyctalus noctula*, Serotine *Eptesicus serotinus*, Brown Long-eared Bat *Plecotus auritus* and Common Pipistrelle *Pipistrellus pipistrellus* from within 2km of the site. The closest record is for a Brown Long-Eared Bat, recorded in 2017, located within 1km of the site boundary.

5.3.3 **Survey Results**

Visual Inspection Surveys

Buildings

5.3.4 Building **B1** was examined and assessed for potential features that might support roosting bats. This building is an open barn structure with metalled roof and is generally not suitable to support roosting bats. No potential roosting features were identified and the building was assessed as having negligible likelihood of supporting roosting bats. As such, no further surveys for bats are recommended at this structure.

Trees

5.3.5 A number of semi-mature and mature trees which have potential to support bats are present within the site. These are indicated on Plan 6165/ECO3 and are summarised in Table 9 below:

Table 8 - Potential suitability of trees to support bat roosts

Tree No.	Species	Age	Potential Roost Features	Suitability
T1	Oak	Semi-Mature	Woodpecker holes on horizontal limb on south side, c.5m above ground level	Low
T2	Unknown, poss. Oak	Dead	Numerous sections of lifted bark on Southern Side, sheltered from 1.5m to 8m	Low
T3	Oak	Mature	Heavy ivy cover on trunk from ground level to canopy	Low
T4	Oak	Semi-Mature	Ivy coverage	Low
T5	Oak	Semi-Mature	Small split facing east	Low
T6	Oak	Mature	Craks, lifted bark on limb facing NE at 4-6m, knot hole facing west towards road @ 8m	Low
T7	Oak	Semi-Mature	Ivy classing. Many dead limbs	Low
T8	Oak	Mature	Ivy. Lifted bark on multiple limbs. Knot hole facing east.	Low
T9	Oak	Mature	Splits on north side at 4m and 8m, pruning scars on south side	Moderate
T10	Unknown	Dead	Multiple features	Moderate

Emergence / re-entry surveys (trees)

5.3.6 Trees **T4**-**T6** and **T9** were subject to survey to inform the selection of design options for the proposed road entrance to the site. Trees were surveyed on a single occasion. The findings of this survey are summarised in Table 10 below.

Table 9 - Tree emergence survey findings

Tree	Date	Sunset/ sunrise	Emergence/ re-entry	Summary of other activity
T4	01 Sept 2022 (dusk)	Sunset: 19.49	None	Multiple foraging passes by Common Pipistrelle, a single Soprano Pipistrelle and a single Noctule/Serotine plus two passes of unidentified bat species at 20.24.
T5			None	Limited Common Pipistrelle foraging amongst trees at 20.03. Single Noctule/Serotine crossing **G4** south-north 19.58 with occasional passes 20.17-20.35.
T6			None	
T9			None	Limited foraging passes by Common Pipistrelle and a single Noctule/Serotine along the track between building **B1**, hedges **H5** and **H10**

Activity surveys (foraging /commuting)

5.3.7 Hedgerows and tree lines within the site offer potential foraging opportunities for bats. In addition, these features serve as a network connecting other habitats within the wider area. Bat activity surveys were undertaken at the site in August, September and October 2021.

5.3.8 **Manual walked transect surveys.** The findings of bat activity surveys are illustrated on Plan 6165/ECO4 and summarised in Tables 11 to 13 below.

Table 10 - Walked transect bat survey, 16 August 2021

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	62	84.9
Soprano Pipistrelle	4	5.5
Pipistrelle sp.	1	1.4
'Big Bat' sp.	5	6.8
Barbastelle	1	1.4
Total	**73**	**100**

Table 11 - Walked transect bat survey, 01 September 2021

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	78	82.1
Soprano Pipistrelle	14	14.7
Pipistrelle sp.	1	1.1
'Big Bat' sp.	2	2.1
Total	**95**	**100**

Table 12 - Walked transect bat survey, 04 October 2021

Species	Number of Passes Recorded	Approximate % of Total Passes Recorded
Common Pipistrelle	21	95.5
Soprano Pipistrelle	1	4.5
Total	**22**	**100**

5.3.9 The surveys show Common Pipistrelle to be the most frequently recorded species, accounting for over 80% of all registrations. Soprano Pipistrelle and Noctule/Serotine were also recorded.

5.3.10 During the walked transects, the highest levels of bat activity were recorded along the boundaries of the site, notably the length of the eastern boundary alongside the footpath outside the site, and at the western boundary of the southern portion of the site where a block of woodland occurs outside the site (see Plan 6165/ECO4).

5.3.11 **Remote Detector Surveys.** The findings of the automated static bat detectors placed at the site are summarised in Table 14 and Table 15 below.

Table 13 - Summary results, static bat detector 1

Survey Date	Number of registrations by species#						
	Myotis	Barb	'Big Bat'	Pip 45	Pip 55	Pip	BLE
16/08/2021	8	3	4	147		1	1
17/08/2021	5	5	8	166	11	6	1
18/08/2021	8	2		288	7	7	3
19/08/2021							

Survey Date	Number of registrations by species#						
	Myotis	Barb	'Big Bat'	Pip 45	Pip 55	Pip	BLE
20/08/2021							
21/08/2021							
22/08/2021							
23/08/2021							
01/09/2021	10		2	506	3	21	
02/09/2021	20		8	345	4	20	7
03/09/2021	8		47	438	2	5	2
04/09/2021	6		20	199	7	1	
05/09/2021	4	1	95	218	5	3	1
06/09/2021	2		42	288	6	3	4
07/09/2021	2		23	511	7	11	
08/09/2021							
04/10/2021			1	790	2		
05/10/2021	1			1			
06/10/2021			2	3			
07/10/2021	6			94			
08/10/2021	1	1	3	82	1		
09/10/2021	1			3	1		
10/10/2021			2	10	1		
11/10/2021							
Total registrations	**82**	**12**	**257**	**4089**	**57**	**78**	**19**
Approximate % of total registrations	**1.8**	**0.3**	**5.6**	**89.0**	**1.2**	**1.7**	**0.4**

Key:
Myotis- Myotis sp.
Pip 45- Common Pipistrelle
Pip 55- Soprano Pipistrelle
Pip- Common Pipistrelle or Soprano Pipistrelle
'Big Bat' - Noctule, Leislers or Serotine
BLE - Brown Long-eared bat
Barb – Barbastelle bat
 # - Figures shown are the total no. of registrations recorded during the dusk to the proceeding dawn period for each date shown, i.e. a recording 'night' for the 20th August will be registrations recorded from ~18.00 on 20/08 to 07.00 on the morning of 21/08.

Table 14 - Summary results, static bat detector 2

Survey Date	Number of registrations by species#							
	Myotis	Barb	'Big Bat'	Pip 45	Pip 55	Pip	BLE	PipNaths
16/08/2021		1	3	7	1		2	
17/08/2021	1		7	9	1			
18/08/2021	1		4	10	1			
19/08/2021				1	1		1	
20/08/2021								
21/08/2021								
22/08/2021								
23/08/2021								
01/09/2021	1		9	1	5			
02/09/2021	3	3	19	9	5	1		
03/09/2021		2	16	9	3		1	1
04/09/2021	4	2	25	6			3	
05/09/2021	3	2	21	15	10	1	2	

Survey Date	Number of registrations by species[#]							
	Myotis	Barb	'Big Bat'	Pip 45	Pip 55	Pip	BLE	PipNaths
06/09/2021	1	3	25	5	1		1	
07/09/2021		2	28	45	21	1		2
08/09/2021								
04/10/2021	4		10	205	216	1	1	
05/10/2021	1			18	6			
06/10/2021	3			12	16		5	
07/10/2021	2			71	351		7	
08/10/2021	2			40	42		5	
09/10/2021	1			11	8	1	1	
10/10/2021	4			20	22	3	3	
11/10/2021								
Total registrations	**27**	**15**	**167**	**494**	**710**	**8**	**32**	**3**
Approximate % of total registrations	**1.9**	**1.0**	**11.5**	**33.9**	**48.8**	**0.5**	**2.2**	**0.2**
Key as Table 14 above								

5.3.1 **Summary.** The bat surveys show the majority of bats present at the site to be Pipistrelle and Common Pipistrelle, which together accounted for 80-90% of registrations from transects and static bat detectors. Numbers of registrations were significantly higher from static bat detector 1 in the north of the site (4594 total registrations) compared to static bat detector 2 (1456 total registrations), suggesting that habitats in the north of the site are used more by foraging bats. The transect surveys show that the hedges and tree lines along the eastern site boundary are of particular value for foraging or commuting bats, with substantially lower levels of bat activity at hedgerows around the southern and western site boundaries.

5.3.2 Both static bat detectors confirmed the presence of Barbastelle in low numbers. This is a rarer bat species particularly associated with woodland habitats which is known to commute long distances between roosting and foraging sites. This species is likely to have been detected commuting along boundary features of the site. Ideally, linear boundary features such as hedgerows and tree lines should be retained and enhanced to encourage this and other bat species to remain able to use these commuting routes post-development. A sensitive lighting strategy at the boundaries of the site should be implemented to ensure risk of adverse effects is kept to a minimum.

5.3.3 **Evaluation and Assessment of Likely Effects**

Roosting

Buildings

5.3.4 Building **B1** provides negligible suitability for roosting bats and no evidence of roosting bats was recorded during the survey work undertaken.

5.3.5 As such it is considered that no specific mitigation or licensing for roosting bats is required. Nonetheless, bats are dynamic animals and as such it remains possible that individuals could colonise the site in the future. Natural England guidance in respect of European Protected Species[21] such as bats advises that, even where proposals are reasonably unlikely to result in any offence, such that licensing is not required, reasonable precautions should be taken to minimise the risk to protected species in the unlikely event that they should be found

[21] Natural England (2013) *'European Protected Species: Mitigation Licensing - How to get a licence (WML-G12)'*

during the course of the activity. Accordingly, recommended precautionary mitigation measures are set out at Chapter 6 below and subject to their implementation it is considered that bats will be fully safeguarded under the proposals.

Trees

5.3.6 It is understood that all trees within the site, including those described above with potential bat roost features, are to be retained under the proposals, such that in the event that bats are present within the trees they will remain unaffected. As such, subject to the implementation of the recommendation outlined at Chapter 6 below in relation lighting, it is considered that bats will be fully safeguarded under the proposals.

Foraging / Commuting

5.3.7 As noted above, the hedgerows within and bounding the site offer foraging/commuting habitat for bats and foraging and commuting bats were recorded during the activity surveys, the majority of which were the relatively common species Common Pipistrelle and fewer passes from another common species (Soprano Pipistrelle) and a rarer species (Noctule/Serotine). These habitats are abundant in the surrounding area and given the levels of activity and species recorded, the site is assessed to be of local value to bats.

5.3.8 The majority of the trees and hedgerow/tree line network within and around the site will be retained and enhanced. New planting will improve connectivity through and around the site and increase the foraging value of the site for bats.

5.3.9 Accordingly, subject to the implementation of the recommendations outlined at Chapter 6 below, and with the benefits provided by other ecological enhancements, it is considered that the conservation status of local bat populations will be fully safeguarded under the scheme.

5.4

5.4.1

5.4.2

5.4.3

5.4.4

[22] English Nature (2002) '*Badgers and Development*'
[23] Natural England (2011) '*Badgers and Development: A Guide to Best Practice and Licensing*', Interim Guidance Document

5.5 Dormouse

5.5.1 **Legislation:** Dormouse is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). Such legislation affords protection to individuals of the species and their breeding sites and places of rest (see Appendix 6165/1 for detailed provisions). Dormouse is also a S41 Priority Species. On this basis, Dormouse is considered to form an important ecological feature.

5.5.2 **Background Records:** No records of Dormouse were returned from the desktop study from within 2km of the site.

5.5.3 **Survey Results:** The study area contains habitats suitable for use by Dormouse, particularly in the form of hedgerows within and around the study area. The majority of the study area is dominated by open grassland fields which are unsuitable for Dormouse.

5.5.4 Given the presence of potential Dormouse habitat within the study area, specific Dormouse survey work was undertaken at the site. Nest tube locations used in the survey are shown on Plan 6165/ECO5.

5.5.5 The surveys found no evidence of the presence of Dormouse at the site.

5.5.6 **Evaluation:** Dormouse are concluded to be absent from the site. No further action is required in respect of this species.

5.6 Other Mammals

5.6.1 **Legislation.** A number of other UK mammal species do not receive direct legislative protection relevant to development activities but may receive protection against acts of cruelty (e.g. under the Wild Mammals (Protection) Act 1996). Some of these are S41 Priority Species and should be assessed as important ecological features.

5.6.2 **Background Records.** No specific records of other mammals from within or adjacent to the site were returned from the desktop study. A single record of Hedgehog *Erinaceus europaeus* (Priority Species) dated 1999 was returned from within 1km of the site.

5.6.3 **Survey Results and Evaluation.** No evidence of any other protected, rare or notable mammal species was recorded within the site. Other mammal species likely to use the site, such as Fox *Vulpes vulpes*, remain common in both a local and national context, and do not receive specific legislative protection in a development context. As such, these species are not a material planning consideration and the loss of potential opportunities for these species to the proposals is of negligible significance.

5.6.4 The desktop study returned background records of Hedgehog within the surrounding area. Hedgehog is a Priority Species, albeit one that remains common and widespread throughout England. The site offers potential opportunities to support this species, particularly in the form of areas of denser scrub, rank grassland tall herbs and Bramble in the east of the site, although habitats are unlikely to be of importance in more than a local context, and Hedgehog is considered to be of importance at the site level only. The majority of these areas are retained under the proposals.

5.6.5 Abundant similar opportunities are present within the local area and there is no evidence to suggest the proposals will significantly affect local populations of this species. However, it is recommended that precautionary safeguards are put in place to minimise the risk of

harm to Hedgehog in the event this species is present, and enhancement measures to encourage its presence, as described in Chapter 6 below.

5.7 Amphibians

5.7.1 **Legislation.** All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as amended). Great Crested Newt is protected under the Act and is also classed as a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). As such, both Great Crested Newt and habitats used by this species are afforded protection (see Appendix 6165/1 for detailed provisions). Great Crested Newt is also a S41 Priority Species, as are Common Toad *Bufo bufo*, Natterjack Toad *Epidalea calamita*, and Pool Frog *Pelophylax lessonae*. As such, these species should be assessed as important ecological features.

5.7.2 **Background Records.** The data search confirmed that Great Crested Newt has been recorded from within Beryl Harvey Field (record dating 2001) within close proximity to the site. Other records of Great Crested Newt exist from within 2km to the north of Cranleigh.

5.7.3 **Survey Results.** An initial appraisal of the ponds within close proximity to the site (**P1** and **P2**) was made using the HSI score, which gives an indication of the likely suitability of a water body to support breeding Great Crested Newt, as shown in Table 16 below.

Table 15 - Habitat Suitability Index scores for ponds in close proximity to the site

Pond	Suitability Indices										HSI Score	Suitability
	SI 1 Location	**SI 2** Pond Area	**SI 3** Pond Drying	**SI 4** Water Quality	**SI 5** Shade	**SI 6** Water Fowl	**SI 7** Fish	**SI 8** Ponds	**SI 9** Terrestrial Habitat	**SI 10** Macrophytes		
P1	1	0.2	0.5	0.33	0.8	0.67	0.67	0.9	0.33	0.6	**0.54**	*Below Average*
P2	1	0.2	0.9	1	1	0.67	1	0.9	1	0.5	**0.75**	*Good*

5.7.4 Further to the above assessment, environmental DNA (eDNA) surveys were undertaken at all ponds within 250m of the site boundary where access was permitted in June 2021. The results of this analysis are shown on Plan 6165/ECO6 and summarised in Table 17 below.

Table 16 - GCN eDNA test results

Pond	Access permitted	eDNA sample taken	eDNA sample result	GCN likely present/absent
P1	Y	Y	Positive	Present
P2	Y	Y	Positive	Present
P3	N	N	-	-
P4	N	N	-	-
P5	Y	Y	Negative	Absent
P6	Y	N*	-	-
P7	Y	N	Negative	Absent

** No water present in pond at time of survey*

5.7.5 **Evaluation and Assessment of Likely Effects.** Great Crested Newt is confirmed by the desk study and the eDNA survey findings to be present in ponds in close proximity to the site

boundary. While the proposals will not result in the loss of any ponds, there is a risk that individual Great Crested Newt that are present in affected suitable habitat within the site could be affected. Suitable habitat comprises the hedgerows, scrub and ruderal vegetation around the site. While it is possible that this species could occur in connected grassland areas, these are of reduced suitability for this species. This same risk of occurrence of individual animals applies with respect to reptiles in these areas and the same precautionary approach recommended for reptiles in Chapter 6 applies to protection of Great Crested Newt.

5.7.6 As Great Crested Newt has been confirmed present, it is recommended that further surveys are carried out during March-June to assess the size class of the population present as this will inform the extent of any required mitigation, such as whether fencing of areas in which this species might occur is required, and whether a European Protected Species licence application should be made.

5.8 Reptiles

5.8.1 **Legislation**. All six species of British reptile are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), which protects individuals against intentional killing or injury. Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* receive additional protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 6165/1 for detailed provisions. All six reptile species are also S41 Priority Species. As such, all reptile species should be assessed as important ecological features.

5.8.2 **Background Records.** Information returned from SBIC included a record of Grass Snake *Natrix natrix* approximately 1.2km east of the site, and a record of Adder *Vipera beris* approximately 1.5km to the north-east of the site on the other side of Cranleigh.

5.8.3 **Survey Results.** The site contains suitable habitat to support reptiles and on this basis specific survey work for reptiles was undertaken, the results of which are summarised in Table 18 below and illustrated on Plan 6165/ECO7.

Table 17 - Reptile survey results

Visit	Date	Common Lizard		Slow Worm		Grass Snake		Other Species
		Adult	Juv.	Adult	Juv.	Adult	Juv.	
1	31/08/2021	0	0	4	0	0	0	0
2	03/09/2021	0	0	5	0	0	0	0
3	08/09/2021	0	0	0	0	0	0	0
4	10/09/2021	0	0	0	0	0	0	0
5	13/09/2021	0	0	2	0	0	0	0
6	21/09/2021	0	0	2	1	0	0	0
7	29/09/2021	0	0	0	0	0	0	0
Peak Count		**0**		**5**		**0**		

5.8.4 **Evaluation and Assessment of Likely Effects.** A peak count of five Slow-worm *Anguis fragilis* was recorded during the survey work at the site, with all animals recorded in the rank grassland along the western and southern boundaries of the site beside grassland **G4** (transects F and G on Plan 6165/ECO7). The peak count of reptile corresponds to a population of low size class under the standard guidance[24]. As such, it is considered that

[24] Herpetofauna Groups of Britain and Ireland (1998) 'Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards'

the population of reptiles supported by the study area is of importance at the local level only.

5.8.5 Areas of suitable reptile habitat at the site boundaries are to be retained under the proposals and subject to the implementation of appropriate measures during construction (see Chapter 6 below) it is considered that the local conservation status of reptiles will be maintained post-development.

5.9 Birds

5.9.1 **Legislation.** All wild birds and their nests receive protection under Section 1 of the Wildlife and Countryside Act 1981 (as amended) in respect of killing and injury, and their nests, whilst being built or in use, cannot be taken, damaged or destroyed. Species included on Schedule 1 of the Act receive greater protection and are subject to special penalties (see Appendix 6165/1 for detailed provisions).

5.9.2 **Conservation Status.** The conservation importance of British bird species is categorised based on a number of criteria including the level of threat to a species' population status[25]. Species are listed as Green, Amber or Red. Red Listed species are considered to be of the highest conservation concern being either globally threatened and or experiencing a high/rapid level of population decline (>50% over the past 25 years). A number of birds are also S41 Priority Species. Red and Amber listed species and priority species should be assessed as important ecological features.

5.9.3 **Background Records.** Information from the data search included relatively few records of birds within 1km of the site. These include the Red Listed species Nightingale (recorded 2009 from within Cranleigh, approximately 500m east of the site boundary), and the Amber Listed species Tawny Owl (from Beryl Harvey Field, 2001). No records originate from within the site itself. Birds recorded within 2km of the site include Little Owl *Athene noctua,* Green Woodpecker *Picus viridis,* Great Spotted Woodpecker *Dendrocopos major,* Pied Wagtail *Motacilla alba,* Wren *Troglodytes troglodytes,* Dunnock *Prunella modularis,* Robin *Erithacus rubecula*, Fieldfare *Turdus pilaris,* Redwing *Turdus iliacus,* Blue Tit *Cyanistes caeruleus,* Great Tit *Parus major* and Nuthatch *Sitta europaea.*

5.9.4 **Survey Results.** Several species of bird were observed within the site during the Phase 1 survey including: Wood Pigeon *Columba palumbus*, Chaffinch *Fringilla coelebs*, Blackbird *Turdus merula*, House Sparrow *Passer domesticus*, Blue Tit and Great Tit.

5.9.5 **Evaluation.** Most of the birds recorded at the site are not listed as having any special conservation status, although House Sparrow is included on the Red list as a result of declines in UK breeding populations and is also a Priority Species. However, the habitats present are common in the surrounding area and there is no evidence to suggest the site is of elevated value at a local level for this species, which in any case, is common in Great Britain[26]. The proposals will result in the loss of only small sections of hedgerow to facilitate site access but this could potentially affect nesting birds that may be present at the time of works. Accordingly, a number of safeguards in respect of nesting birds are proposed, as detailed in Chapter 6 below. In the long-term, new nesting opportunities will be available for birds as described in Chapter 6 below.

[25] Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) *'Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man'* British Birds *108*, pp.708-746

[26] Population estimates of birds in Great Britain and the United Kingdom. Musgrove *et al*., British Birds, 2013

5.10 Invertebrates

5.10.1 **Legislation.** A number of invertebrate species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In addition, Large Blue Butterfly *Maculinea arion*, Fisher's Estuarine Moth *Gortyna borelii lunata* and Lesser Whirlpool Ram's-horn Snail *Anisus vorticulus* receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 6165/1 for detailed provisions. A number of invertebrates are also S41 Priority Species. Where such species are present, they should be assessed as important ecological features.

5.10.2 **Background Records.** Two records of Brown Hairstreak butterfly *Thecla betulae* were returned from within and in very close proximity to the site, both dating from 2018. One record was located at the eastern end of **H2** close to the edge of the site, the other within woodland to the immediate west of the site (2018). Multiple further records of this species exist within 2km of the site.

5.10.3 **Survey Results and Evaluation.** Brown Hairstreak is an elusive butterfly considered to be scarce in the UK, which is strongly associated with Blackthorn , typically where there is a dense patchwork of hedges and small woods. While this species is not legal protected in relation to development, it is known to have suffered declines in numbers and as a consequence Butterfly Conservation have produced a species action plan[27]. The main threats to Brown Hairstreak are the removal and intensive management of hedgerows, in particular, annual mechanical cutting/flailing of hedges is held to be responsible for rapid extinction of colonies. Because of the known presence of this species in the wider area of the proposals, measures are proposed in Chapter 6 to promote its occurrence at the site.

5.10.4 No evidence for the presence of other protected, rare or notable invertebrate species was recorded within the site. The majority of hedgerows, trees, and associated marginal habitats will be retained and enhanced post-development and accordingly it is considered unlikely that the proposals will result in significant harm to protected, rare or notable invertebrate populations.

5.11 Summary

5.11.1 Fauna that form important ecological features of the site are listed in Table 19 below.

Table 18 - Fauna that are important ecological features

Species / Group	Supported by or associated with the site	Level of Importance
Bats – Roosting	Potential habitat in trees	Local
Bats – Foraging / Commuting	Confirmed presence on site	Local to District
Great Crested Newt	Confirmed presence within offsite ponds	Local
Reptiles	Confirmed presence on site	Local
Birds	Confirmed presence on site	Local
Invertebrates	Likely presence of Brown Hairstreak butterfly on site	Local
Hedgehog	Likely presence on site	Local

[27] Butterfly Conservation (1998) *'Species Action Plan - Brown Hairstreak* Thecla betula' at https://butterfly-conservation.org/sites/default/files/brown-hairstreak-action-plan.doc

5.11.2 Other fauna supported by the site include non-priority species of mammals, amphibians and invertebrates. However, these species do not form important ecological features.

6 Mitigation and Enhancement

6.1 Mitigation

6.1.1 Based on the habitats, ecological features and associated fauna identified within / adjacent to the site, it is proposed that the following mitigation measures (**MM1-MM9**) are implemented under the proposals. Further detailed mitigation strategies or method statements can be secured via suitably-worded planning conditions, as recommended by relevant best practice guidance (BS 42020:2019).

Hedgerows and Trees

6.1.2 **MM1 – Hedgerow and Tree Protection.** All hedgerows and trees to be retained within the proposed development shall be protected during construction in line with standard arboriculturalist best practice (BS5837:2012) or as otherwise directed by a suitably competent arboriculturalist. This will involve the use of protective fencing or other methods appropriate to safeguard the root protection areas of retained trees / hedgerows.

Watercourses

6.1.3 **MM2 – Pollution Prevention.** In order to safeguard receiving waters beyond the site boundary and other areas against potential run-off or pollution events during construction, the following safeguards should be implemented:

- Storage areas for chemicals, fuels, etc. should be stored on an impervious base within an oil-tight bund with no drainage outlet. Spill kits with sand, earth or commercial products approved for the stored materials should be kept close to storage areas for use in case of spillages;
- Where possible, and with prior agreement of the sewage undertaker, silty water should be disposed of to the foul sewer or via another suitable form of disposal, e.g. tanker off-site;
- Water washing of vehicles, particularly those carrying fresh concrete and cement, mixing plant, etc. should be carried out in a contained area; and
- Refuelling of plant should take place in a designated area, on an impermeable surface.

6.1.4 Post-development, the drainage system for the development will ensure that receiving waters are not subject to adverse changes in surface water run-off or quality.

Bats

6.1.5 **MM3 – Felling of Trees Supporting Bat Roosting Potential.** Currently, the proposals are to retain all trees within the site that contain potential bat roosting features.

6.1.6 Should trees identified as having low potential to support bats be removed or subject to arboricultural works as a result of the proposals, these works should be undertaken under an ecological watching brief. Felling of trees or limbs should be carried out according to a 'soft-felling' technique, whereby sections of the tree are cut and lowered to the ground, followed by leaving the felled sections on the ground for a period of at least 24 hours to allow any bats that might be present, to escape.

6.1.7 Should trees supporting moderate potential for roosting bats be subject to removal or arboricultural works, further measures should be implemented. Such trees should be felled during the spring or autumn to avoid the main bat breeding and hibernation periods, and should be subject to inspection prior to felling in the form of climbing inspections, with use of an endoscope, to ensure that bats are absent and that no evidence of a roost is present. Following inspection, the tree should be felled, ideally on the same day as the inspection. If this is not possible, potential roosting features should be inspected again immediately prior to felling.

6.1.8 Should features remain which cannot be fully investigated (e.g. deep cavities or numerous areas of lifted bark), the tree should be subject to an emergence / dawn re-entry survey immediately prior to felling to confirm absence of roosting bats.

6.1.9 Felling or removal of limbs should be carried out using a precautionary approach. This is likely to require measures such as 'soft-felling' of sections of the tree identified as providing bat roosting opportunities (e.g. limbs with splits or holes), by lowering and cushioning these sections to reduce any potential effects caused by hard impact with the ground, and leaving felled sections on the ground for a period of at least 24 hours to allow any bats, should these be present, to escape. These works should be undertaken under the supervision of a suitably qualified ecologist.

6.1.10 If evidence of the presence of roosting bats is identified, works on that tree should be stopped and consideration given to the need to obtain a European Protected Species (EPS) development licence, and a licence application made to Natural England as required.

6.1.11 **MM4 – Sensitive Lighting.** Light-spill onto retained and newly created habitat, in particular the retained hedgerows, tree lines and scrub (especially along the southern and eastern boundary), will be minimised in accordance with good practice guidance[28] to reduce potential impacts on light-sensitive wildlife (including bats and other nocturnal fauna). This may be achieved through the implementation of a sensitively designed lighting strategy, with consideration given to the following key factors:

- **Light exclusion zones –** ideally no lighting should be used in areas likely to be used by bats, so as to allow bats to move unimpeded around the site;
- **Appropriate luminaire specifications** – consideration should be given to the type of luminaires used, in particular luminaries should lack UV elements and metal halide and fluorescent sources should be avoided in preference for LED luminaries. A warm white spectrum (ideally <2,700K) should be adopted to reduce the blue light component;
- **Light barriers / screening –** new planting (e.g. hedgerows and trees) or fences, walls and buildings can be strategically positioned to reduce light spill;
- **Spacing and height of lighting units –** increasing spacing between lighting units will minimise the area illuminated and create more dark areas. Reducing the height of lighting will also help decrease the volume of illuminated space as well as enabling bats to fly above illuminated areas. Low level lighting options are recommended for parking areas and pedestrian / cycle routes, e.g. bollard lighting, handrail lighting or LED footpath lighting;

[28] Bat Conservation Trust and Institute of Lighting Professionals (2018) '*Guidance Note 08/18: Bats and artificial lighting in the UK*'; Stone, E.L. (2013) '*Bats and lighting: Overview of current evidence and mitigation guidance.*'; ILP (2011) '*Guidance notes for the reduction of obtrusive light*' Institution of Lighting Professionals, GN01:2011.

- **Light intensity –** light intensity (i.e. lux levels) should be kept low to help reduce the overall amount and spread of illumination;
- **Directionality –** to avoid light spill, lighting should be directed only to where it is needed. Consideration should be given to avoid the upward spread of light;
- **Dimming and part-night lighting –** lighting control management systems may also be considered. These can include systems that switch off or dim lights for certain periods during the night when human activity is lowest (e.g. 12.30 – 5.30am). Motion sensors may also be considered to limit the time lighting is provided.

Mammals

6.1.12 **MM5 – Wildlife Construction Safeguards.** In order to safeguard Badger, Hedgehog and other wildlife should they be present and enter the site during construction works, the following measures should be implemented:

- A watching brief should be maintained for Hedgehog and other small mammals throughout any site clearance works;
- Any piles of material already present on site, particularly vegetation/leaves, etc. and any areas of dense scrub or hedgerows, should be dismantled/removed by hand and checked for Hedgehog and other wildlife prior to the use of any machinery or disposal;
- Trenches or excavations within the site that are to be left open overnight should be provided with a means of escape for wildlife. This could simply take the form of a gently graded ramp or roughened plank of wood within the trench that leads to the surface. This is particularly important if the trench is liable to fill with water;
- Temporarily exposed open pipes (>150mm outside diameter) should be blanked off at the end of each working day so as to prevent wildlife obtaining access;
- Trenches and pits should be inspected each morning to ensure that animals have not become trapped overnight. Should a Badger become trapped it is likely that it will attempt to dig itself into the side of the trench, forming a temporary sett. Should a trapped Badger be encountered, a suitably qualified ecologist should be contacted immediately for further advice;
- The storage of topsoil or other 'soft' building materials within the site should be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these should be kept to a minimum and any that are essential should be subject to daily inspection with consideration given to temporarily fencing such mounds to exclude Badgers;
- Chemicals should be stored in such a way that they cannot be accessed or knocked over by wildlife;
- Any material to be disposed of by burning, particularly waste from vegetation clearance and tree works, should not be left piled on site for more than 24 hours in order to minimise the risk of Hedgehogs occupying the pile. If this cannot be avoided, material should be stored within a container such as a skip to prevent animals from gaining access. Any material which has been stored on the ground overnight should be moved prior to burning to allow a thorough check for any animals which may have been occupying the pile;
- Fires should only be lit in secure compounds and should not be allowed to remain lit during the night;

- Unsecured food and litter should not be left within the working area overnight; and
- In the event that an injured Hedgehog is found, the animal should be wrapped carefully in a towel, the British Hedgehog Preservation Society (BHPS) phoned (01584 890 801) and the Hedgehog taken to a local vet immediately.

6.1.13 **MM6 – Badger Update Survey.** Badgers are dynamic animals and levels of Badger activity can rapidly change at a site, with new setts being created at any time. Although no Badgers are currently present, it is recommended that an update survey is carried out during the season prior to commencement of site works in order to confirm the current status of Badgers at the site and advise should any specific measures be required.

Amphibians

6.1.14 **MM7 – Updated Great Crested Newt Survey.** Even though no ponds would be affected by the proposals, because Great Crested Newt has been confirmed to be present in off-site ponds, it is recommended that further surveys are carried out during March-June to assess the size class of the population present. This information will then guide the extent of any required mitigation, such as whether fencing of areas in which this species might occur is required, and whether a European Protected Species licence application should be made.

Reptiles

6.1.15 **MM8 – Destructive Search.** As a precautionary measure to minimise the risk of harm to reptiles, a destructive search is proposed. The destructive search will involve cutting the grassland within the development footprint to a short height (~15cm) so as to encourage reptiles to disperse to suitable areas of retained/nearby habitat, whilst also allowing for a fingertip search of the area. This exercise should be carried out under the supervision of a competent ecologist during the active reptile season where practicable (generally March/April to September/October, depending on prevailing weather). Any potential refuge features, e.g. piles of rubble, heavy logs, brash piles, will be fingertip-searched by an ecologist prior to being carefully disassembled. Any reptiles encountered during the destructive search will be carefully rescued by the supervising ecologist and relocated to suitable nearby habitat.

Nesting Birds

6.1.16 **MM9** – **Timing of Works.** To avoid a potential offence under the relevant legislation, no clearance of suitable vegetation should be undertaken during the bird-nesting season (1st March to 31st August inclusive). If this is not practicable, any potential nesting habitat to be removed should first be checked by a competent ecologist in order to determine the location of any active nests. Any active nests identified would then need to be cordoned off (minimum 5m buffer) and protected until the end of the nesting season or until the birds have fledged. These checking surveys would need to be carried out no more than three days in advance of vegetation clearance.

6.2 Ecological Enhancement

6.2.1 The National Planning Policy Framework (NPPF) encourages new developments to maximise the opportunities for biodiversity through incorporation of enhancement measures. The proposals present the opportunity to deliver ecological enhancements at the site for the benefit of local biodiversity, thereby making a positive contribution towards the broad objectives of national conservation priorities and the local Biodiversity Action Plan (BAP). The recommendations and enhancements summarised below are considered

appropriate given the context of the site and the scale and nature of the proposals. Through implementation of the following ecological enhancements (**EE1**-**EE10**), the opportunity exists for the proposals to deliver a number of ecological enhancements at the site.

6.2.2 Biodiversity Net Gain is now a mandatory requirement of development proposals. This has been calculated for the proposals and is reported separately to this Ecological Appraisal.

Habitat Creation

6.2.3 **EE1 – New Planting.** It is recommended that where practicable, new planting within the site be comprised of native species of local provenance, including trees and shrubs appropriate to the local area. Suitable species for inclusion within the planting could include native trees such as Oak, Birch and Field Maple, whilst native shrub species of particular benefit would likely include fruit and nut bearing species which would provide additional food for wildlife, such as Blackthorn, Hawthorn, Crab Apple *Malus sylvestris*, Hazel and Elder. Where non-native species are proposed, these should include species of value to wildlife, such as varieties listed on the RHS' 'Plants for Pollinators' database, providing a nectar source for bees and other pollinating insects. Blackthorn is particularly recommended in hedgerows given the known presence of Black Hairstreak within the local area.

6.2.4 **EE2 – Wildflower Grassland.** It is recommended that areas of wildflower grassland are created within the site such that, in combination with new native landscape planting, opportunities for biodiversity will be maximised under the proposals. This would make a positive contribution towards the local BAP, which lists 'lowland meadows' as a priority. Consideration should be given to the laying of wildflower turfs, comprising locally appropriate native species, to establish wildflower grassland. This would ensure rapid establishment of these habitats, and reduce the timeframe for delivering the range of ecological benefits that are proposed.

6.2.5 **EE3 – Wetland Features.** The opportunity exists under the proposals to create new wetland habitats that will provide a range of opportunities for wildlife. It is recommended that the potential to create ponds or other wetland habitats such as Sustainable Drainage Systems (SuDS) under the proposals be given due consideration. Creation of such habitats would provide opportunities for a range of wildlife while also helping to attenuate surface water run-off.

Bats

6.2.6 **EE4 - Bat Boxes.** A number of bat boxes will be incorporated within the proposed development. The provision of bat boxes will provide new roosting opportunities for bats in the area, such as Soprano Pipistrelle, a national Priority Species. So as to maximise their potential use, the bat boxes should ideally be situated on suitable retained trees, erected as high up as possible and sited in sheltered wind-free areas that are exposed to the sun for part of the day, facing a south-east, south or south-westerly direction. In addition, where architectural design allows, a number of integrated bat boxes / roost features should be incorporated into a proportion of the new build. The precise number and locations of boxes / roost features should be determined by a competent ecologist, post-planning once the relevant final development design details have been approved.

Hedgehog

6.2.7 **EE5 – Hedgehog Nest Domes.** It is recommended that Hedgehog nest domes be installed within sheltered areas, such as the existing or newly created hedgerows to provide suitable

nesting and hibernation sites for this species. The Hedgehog nest domes should be positioned out of direct sunlight, in areas of dense vegetation.

6.2.8 **EE6 – Hedgehog Highways.** To maintain connectivity throughout the site for Hedgehog and to allow access to suitable foraging habitat contained within residential gardens, holes (recommended size 13cm x 13cm) should be created within garden fences or under gates to allow connectivity throughout the development and the wider area.

Birds

6.2.9 **EE7 - Bird Boxes**. A number of bird nesting boxes are to be incorporated within the proposed development, thereby increasing nesting opportunities for birds at the site. Ideally, the bird boxes will have greater potential for use if sited on suitable, retained trees, situated as high up as possible. The precise number and locations of boxes should be determined by a competent ecologist, post-planning once the relevant final development design details have been approved.

Invertebrates

6.2.10 **EE8 – Habitat Piles.** A proportion of the dead wood arising from vegetation clearance works should be retained within the site in a number of wood piles located within areas of new planting, new wetland habitats or areas of wildflower grassland in order to provide potential habitat opportunities for invertebrate species, which in turn could provide a prey source for a range of other wildlife. In addition, the provision and management of new native landscape planting will likely provide additional opportunities for invertebrates at the site in the long term.

6.2.11 **EE9 – Bee Bricks.** It is recommended that a number of bee bricks be incorporated within the proposed development thereby increasing nesting opportunities for declining populations of non-swarming solitary bee populations. Ideally, bee bricks should be located within suitable south-facing walls (where architectural design allows), located at least 1m off the ground. The bricks should be unobstructed by vegetation, though within close vicinity of nectar and pollen sources.

6.2.12 **EE10 – Brown Hairstreak.** The following measures should be implemented to promote the occurrence of Brown Hairstreak within the completed development:

- Hedgerow removal should be kept to a minimum;
- New planting should favour the use of Blackthorn in hedges. Hedges should be established and enhanced to improve connectivity;
- Hedgerows should not be managed by flailing and hedges should be allowed to grow wide at ground level to promote the low-level Blackthorn growth favoured by this species. Hedges should be cut on a rotation so that each stretch of hedge is cut every other year, or preferably every 3-4 years, so as to leave a high proportion uncut so that eggs and caterpillars can complete their life-cycle.

7 Conclusions

7.1 Aspect Ecology has carried out an Ecological Appraisal of the proposed development, based on the results of a desktop study, Phase 1 habitat survey and further detailed protected species surveys.

7.2 The available information confirms that no statutory or non-statutory nature conservation designations are present within or adjacent to the site, and none of the designations within the surrounding area are likely to be adversely affected by the proposals.

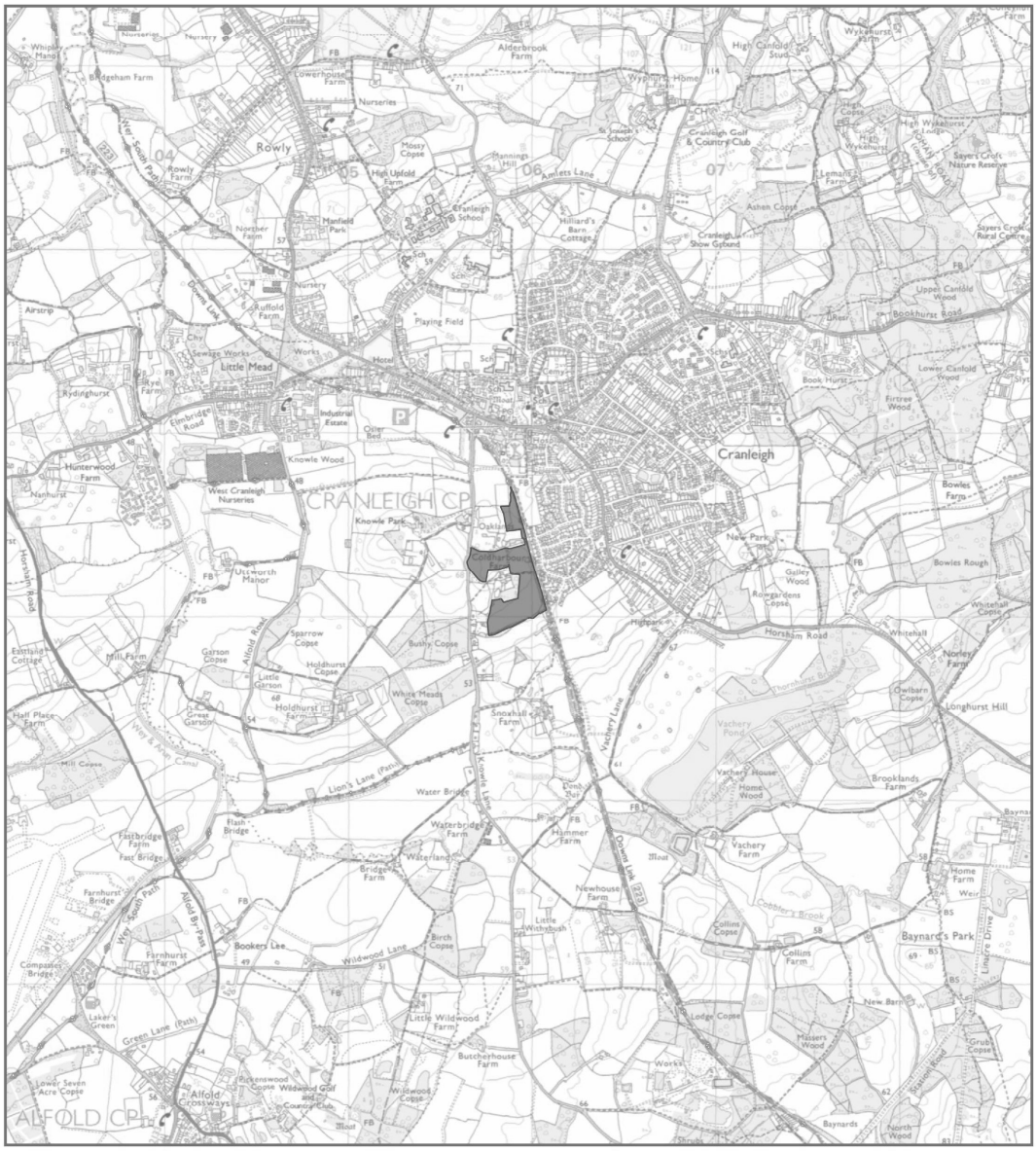
7.3 The Phase 1 habitat survey has established that the site is dominated by habitats not considered to be of ecological importance, whilst the proposals have sought to retain those features identified to be of value. Where it has not been practicable to avoid loss of habitats, new habitat creation has been proposed to offset losses, in conjunction with the landscape proposals.

7.4 The habitats within the site support some protected species, including species protected under both national and European legislation. Accordingly, mitigation measures have been set out to minimise the risk of harm to protected species, along with enhancement measures to maintain and enhance the conservation status of local populations.

7.5 In conclusion, the proposals have sought to minimise impacts and subject to the implementation of appropriate avoidance, mitigation and compensation measures, the proposals will not result in significant harm to biodiversity. The implementation of the recommendations made will ensure that the scheme provides benefits for wildlife in the local area.

Plan 6165/ECO1:

Site Location



Key:

Site Location

aspect ecology

Aspect Ecology Limited · West Court · Hardwick Business Park
Noral Way · Banbury · Oxfordshire · OX16 2AF
01295 279721 · info@aspect-ecology.com · www.aspect-ecology.com

Knowle Lane, Cranleigh	PROJECT
Site Location	TITLE
6165/ECO1	DRAWING NO.
C/JP	REV
November 2022	DATE

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Plan 6165/ECO2:

Ecological Designations

Key:

- Site Location
- Local Nature Reserve (LNR)
- Site of Nature Conservation Importance (SNCI)
- Conservation Verge
- Ancient & Semi-Natural Woodland (ASW)
- Ancient Replanted Woodland (ARW)
- Local Records Centre 2km Search Area (Only non-statuatory designations occurring within 2km of the site centre are shown)

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Noral Way · Banbury · Oxfordshire · OX16 2AF
01295 279721 · info@aspect-ecology.com · www.aspect-ecology.com

Knowle Lane, Cranleigh	PROJECT
Ecological Designations	TITLE
6165/ECO2	DRAWING NO.
C/JP	REV
November 2022	DATE

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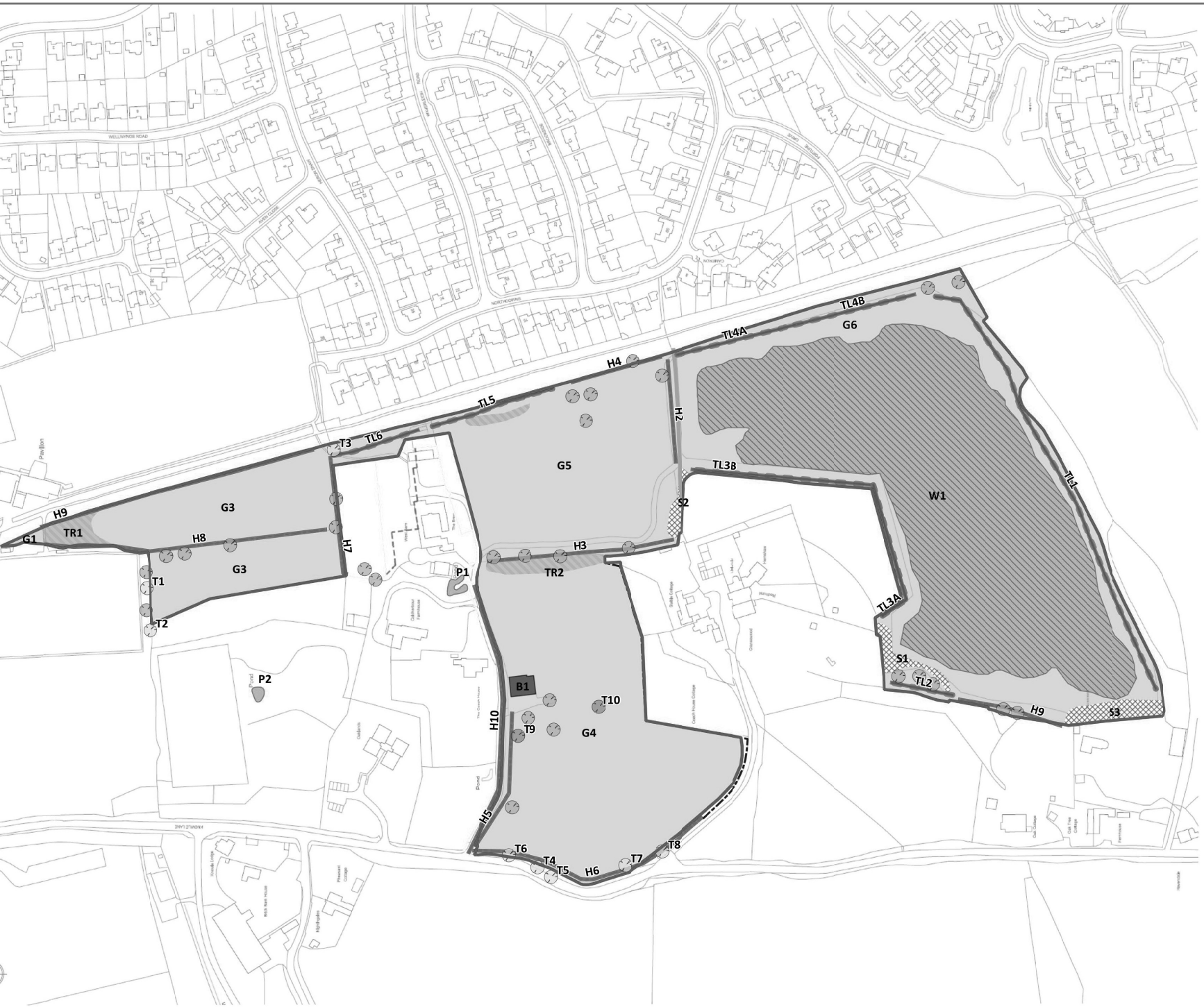
Plan 6165/ECO3:

Habitats and Ecological Features



Key:

- Site Boundary
- Amenity Grassland
- Bramble Scrub
- Building
- Conifer Plantation
- Hardstanding
- Tall Ruderal Vegetation
- Semi-improved Grassland
- Fence
- Footpath
- Hedgerow
- Treeline
- Tree
- Tree with Low Bat Roosting Poten
- Tree with Moderate Bat Roosting Potential
- Off-site Pond

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Noral Way - Banbury - Oxfordshire - OX16 2AF
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Habitats and Ecological Features

6165/ECO3

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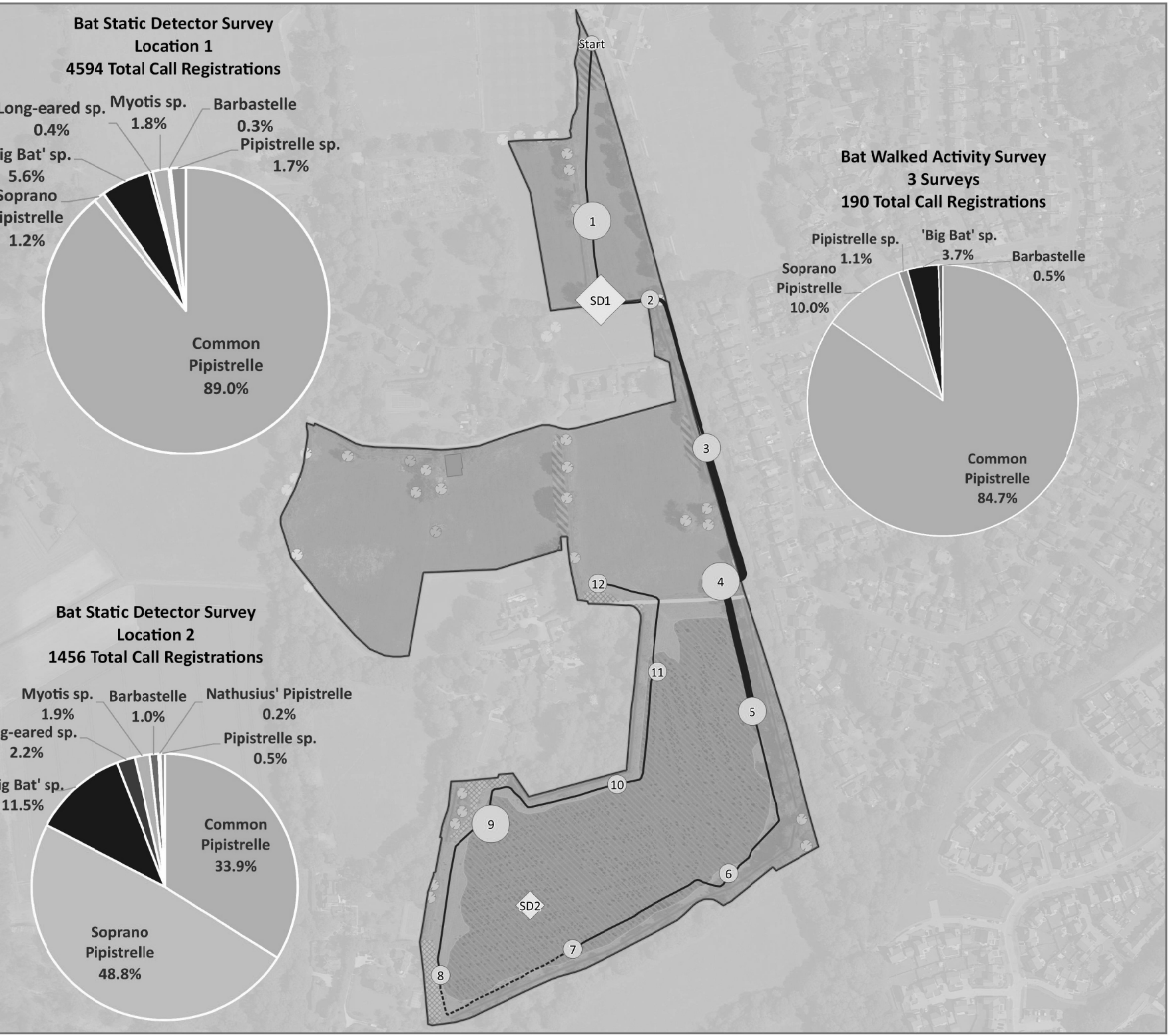
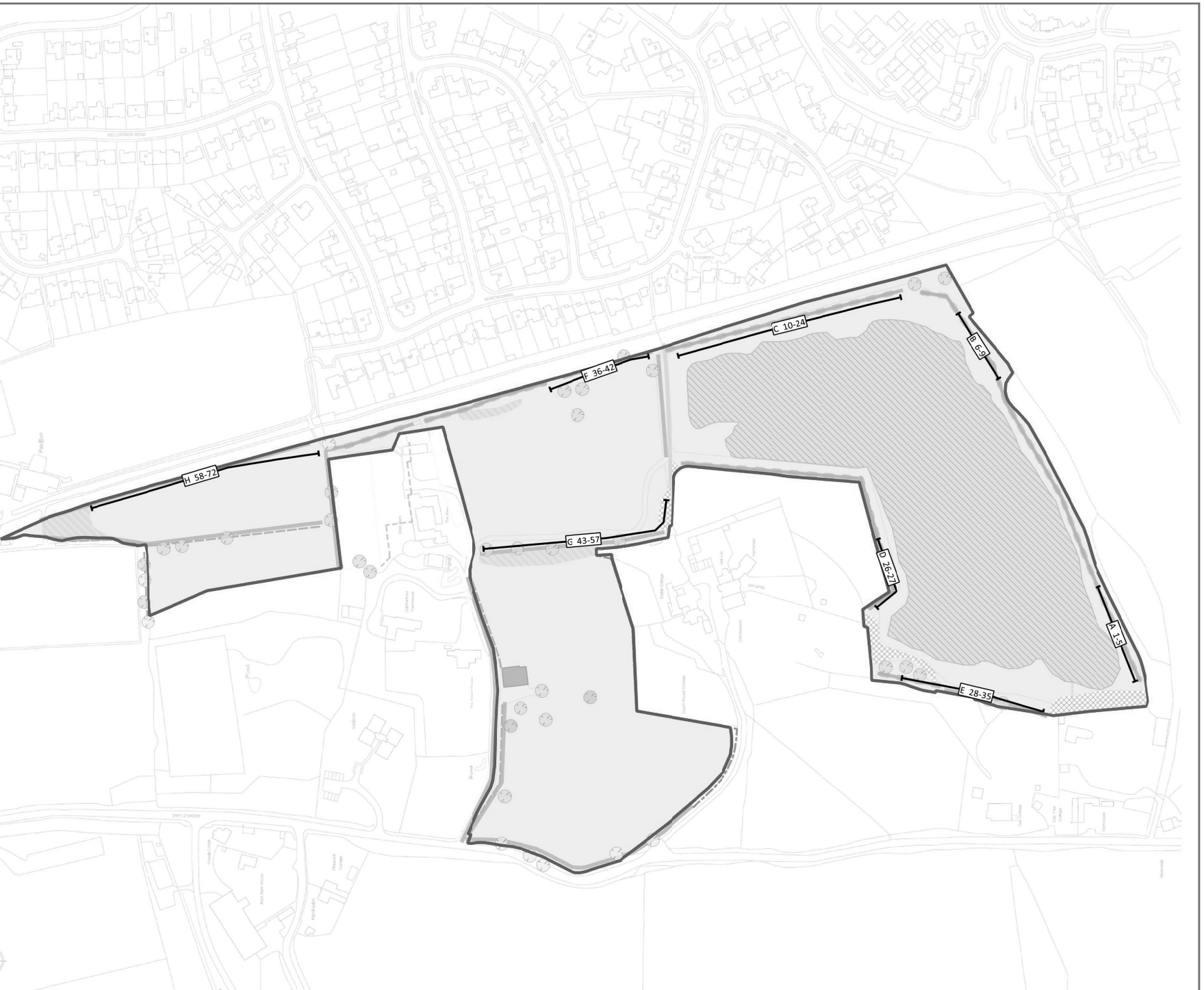
Plan 6165/ECO4:

Bat Activity Surveys



Plan 6165/ECO5:

Dormouse Surveys



Key:

Site Boundary

Transect Location

No Dormouse Recorded

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Dormouse Survey Results

6165/ECO5

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Plan 6165/ECO6:

Great Crested Newt Surveys

Key:

- Site Boundary
- 250m Buffer
- Pond with GCN Present
- Pond with No Present
- Pond Not Surveyed

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GCN Survey Results

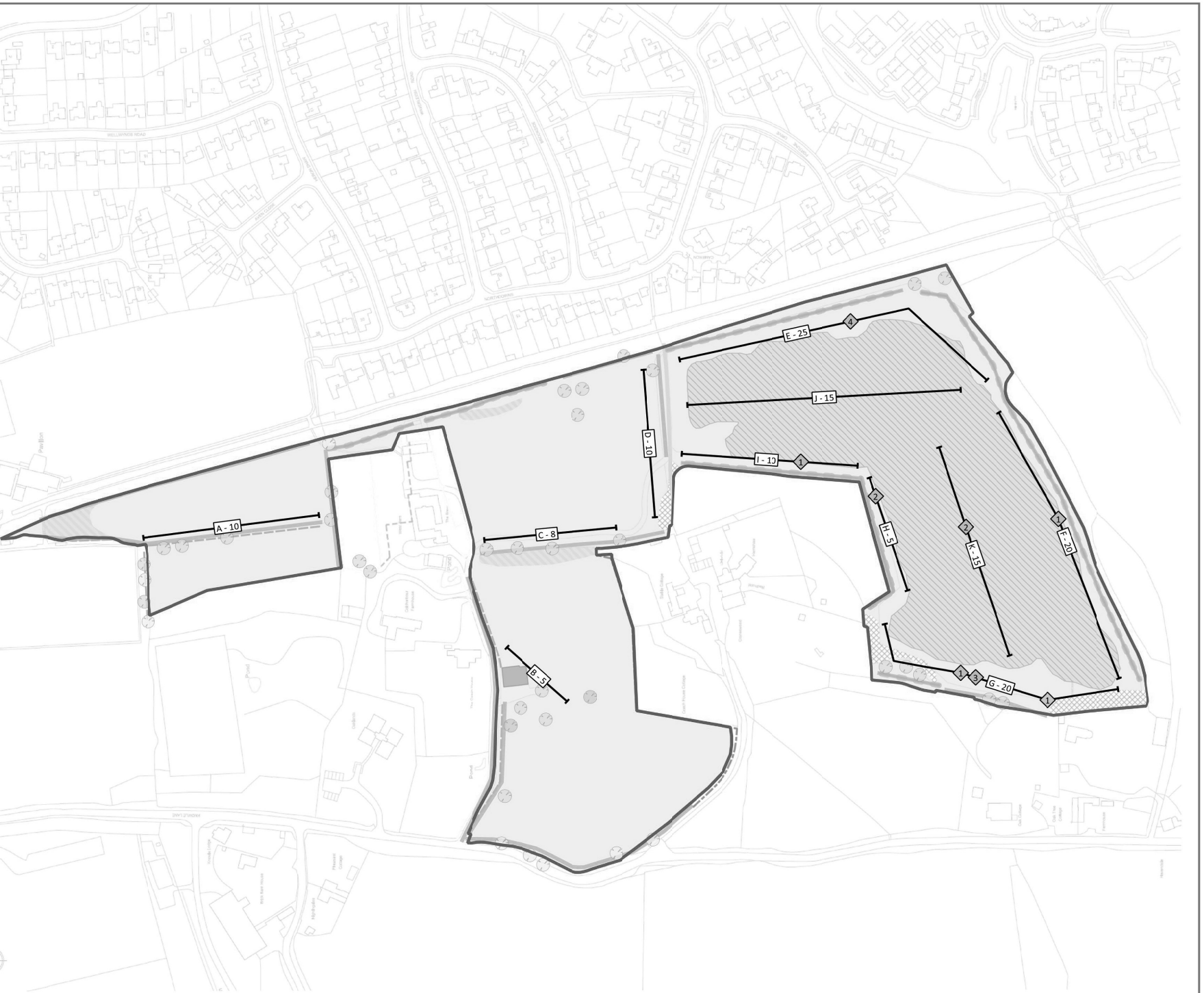
6165/ECO6

A/AM

November 2022

Plan 6165/ECO7:

Reptile Surveys



Key:

- Site Boundary
- Transcect Location
- Adult Female Slow Worm
- Adult Male Slow Worm
- Juvenil Slow Worm

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Noral Way - Banbury - Oxfordshire - OX16 2AF
01295 279721 - info@aspect-ecology.com - www.aspect-ecology

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Reptile Survey Results

6165/ECO7

A/AM

November 2022

Appendix 6452/1:

Legislation Summary

LEGISLATION SUMMARY

1. In England and Wales primary legislation is made by the UK Parliament, and in Scotland by the Scottish Parliament, in the form of Acts. The main piece of legislation relating to nature conservation in the UK is the Wildlife and Countryside Act 1981 (as amended).

2. Acts of Parliament confer powers on Ministers to make more detailed orders, rules or regulations by means of secondary legislation in the form of statutory instruments. Statutory instruments are used to provide the necessary detail that would be too complex to include in an Act itself[1]. The provisions of an Act of Parliament can also be enforced, amended or updated by secondary legislation.

3. In summary, the key pieces of legislation relating to nature conservation in the UK are:

    - Wildlife and Countryside Act 1981 (as amended)
    - Protection of Badgers Act 1992
    - Hedgerows Regulations 1997
    - Countryside and Rights of Way (CRoW) Act for England and Wales 2000
    - Natural Environment and Rural Communities Act 2006
    - Conservation of Habitats and Species Regulations 2017

4. A brief summary of the relevant legislation is provided below. The original Acts and instruments should be referred to for the full and most up to date text of the legislation.

5. **Wildlife and Countryside Act 1981 (as amended)**. The WCA Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) identified for their flora, fauna, geological or physiographical features. The Act contains strict measures for the protection and management of SSSIs.

6. The Act also refers to the treatment of UK wildlife including protected species listed under Schedules 1 (birds), 5 (mammals, herpetofauna, fish, invertebrates) and 8 (plants).

7. Under Section 1(1) of the Act, all wild birds are protected such that is an offence to intentionally:

    - Kill, injure or take any wild bird;
    - Take, damage or destroy the nest of any wild bird whilst in use* or being built;
    - Take or destroy an egg of any wild bird.

    * The nests of birds that re-use their nests as listed under Schedule ZA1, e.g. Golden Eagle, are protected against taking, damage or destruction irrespective of whether they are in use or not.

8. Offences in respect of Schedule 1 birds are subject to special, i.e. higher, penalties. Schedule 1 birds also receive greater protection such that it is an offence to intentionally or recklessly:

    - Disturb any wild bird included in Schedule 1 while it is building a nest or while it is in, on or near a nest containing eggs or young;
    - Disturb dependent young of such a bird.

[1] http://www.parliament.uk/business/bills-and-legislation/secondary-legislation/statutory-instruments/

9. Under Section 9(1) of the Act, it is an offence to:

- Intentionally kill, injure or take any wild animal included in Schedule 5.

10. In addition, under Section 9(4) it is an offence to intentionally or recklessly:

- Obstruct access to, any structure or place which any wild animal included in Schedule 5 uses for shelter or protection; or
- Disturb any wild animal included in Schedule 5 while occupying a structure or place which it uses for that purpose.

11. Under Section 13(1) it is an offence:

- To intentionally pick, uproot or destroy any wild plant listed in Schedule 8; or
- Unless the authorised person, to intentionally uproot any wild plant not included in Schedule 8.

12. The Act also contains measures (S.14) for preventing the establishment of non-native species that may be detrimental to native wildlife, prohibiting the introduction into the wild of animals (releases or allows to escape) and plants (plants or causes to grow) listed under Schedule 9.

13. **Protection of Badgers Act 1992.** The Act aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It should be noted that the legislation is not intended to prevent properly authorised development. Under the Act it is an offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat* a Badger, or attempt to do so;
- To intentionally or recklessly interfere with a sett# (this includes disturbing Badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

* the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence

\# A sett is defined as "*any structure or place which displays signs indicating current use by a Badger*". Natural England advice (June 2009) is that a sett is protected so long as such signs remain present, which in practice could potentially be for some time after the last actual occupation by Badger. Interference with a sett includes blocking tunnels or damaging the sett in any way

14. Licences can be obtained from the Statutory Nature Conservation Organisation (SNCO) for development activities that would otherwise be unlawful under the legislation, provided there is suitable justification. The SNCO for England is Natural England.

15. **Hedgerows Regulations 1997**. 'Important' hedgerows (as defined by the Regulations) are protected from removal (up-rooting or otherwise destroying). Various criteria specified in the Regulations are employed to identify 'important' hedgerows for wildlife, landscape or historical reasons.

16. **Countryside and Rights of Way (CRoW) Act for England and Wales 2000.** The CRoW Act provides increased measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation. Schedule 12 of the Act amends the species provisions of the WCA 1981, strengthening the legal protection for threatened species. The Act also introduced a duty on Government to have regard to the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

17. **Natural Environment and Rural Communities Act 2006.** Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as local planning authorities, in implementing their duty under Section 40 of the Act, to have regard to the conservation of biodiversity in England, when exercising their normal functions. 56 habitats and 943 species of principal importance are included on the S41 list. These are all the habitats and species in England that were identified as requiring action in the UK Biodiversity Action Plan (BAP).

18. **Conservation of Habitats and Species Regulations 2017 (as amended).** The Regulations enact the European Union's Habitats Directive (92/43/EEC) in the UK. The Habitats Directive was designed to contribute to the maintenance of biodiversity within member states through the conservation of sites, known in the UK as Special Areas of Conservation (SACs), containing habitats and species selected as being of EC importance (as listed in Annexes I and II of the Habitats Directive respectively). Member states are required to take measures to maintain or restore these natural and semi-natural habitats and wild species at a favourable conservation status.

19. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs)[2] classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites constitute the Natura 2000 network. The Regulations impose restrictions on planning decisions likely to significantly affect SPAs or SACs.

20. The Regulations also provide protection to European Protected Species of animals that largely overlaps with the WCA 1981, albeit the provisions are generally stricter. Under Regulation 43 it is an offence, *inter alia*, to:

- Deliberately capture, injure or kill any wild animal of a European Protected Species;
- Deliberately disturb any wild animals of any such species, including in particular any disturbance likely to impair their ability to survive, to breed or reproduce, to rear or nurture their young, to hibernate or migrate, or which is likely to affect significantly their local distribution or abundance;
- Deliberately take or destroy the eggs of such an animal;
- Damage or destroy a breeding site or resting place of such an animal.

21. Similar protection is afforded to European Protected Species of plants, as detailed under Regulation 47.

22. The Regulations do provide a licensing system that permits otherwise illegal activities in relation to European Protected Species, subject to certain tests being fulfilled.

[2] Special Protection Areas (SPAs) are protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC) (aka the Birds Directive), which came into force in April 1979. SPAs are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

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aspect

Aspect Ecology Ltd
West Court
Hardwick Business Park
Noral Way
Banbury
Oxfordshire OX16 2AF

T: 01295 279721
E: info@aspect-ecology.com
W: www.aspect-ecology.com