

LAND AT PENN HILL

2025 ECOLOGICAL ASSESSMENT

Prepared for Castlewood Commercial Properties

by

Hankinson Duckett Associates

HDA ref: 1071.1

November 2025

hankinson duckett associates

† 01491 838175 † 01491 838997 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

The Stables, Howbery Park, Benson Lane, Wallingford, Oxfordshire, OX10 8BA

Hankinson Duckett Associates Limited Registered in England & Wales 3462810 Registered Office: The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA

CONTENTS

	Page
1 Introduction	1
2 Methodology	1
3 Baseline Conditions	3
4 Nature Conservation Evaluation	22
5 Assessment of Effects and Mitigation Proposals	25
6 Summary and Conclusion	47
7 References	49

HDA Document Control and Quality Assurance Record

APPENDICES

A	Desk study results
B	2025 UK Habitat Classification Survey plan and target notes
C	Bat Survey Report
Ca	2025 Updated Bat Survey findings
D	Badger Survey Report
Da	2025 Updated Badger Survey findings
E	Reptile Survey Report
Ea	2025 Updated Reptile Survey findings
F	Great Crested Newt Survey Report
Fa	Updated GCN eDNA Survey findings
G	Evaluation criteria

1 INTRODUCTION

1.1 This report describes an updated Ecological Assessment of approximately 15.5ha of Land at Penn Hill, Calne, Wiltshire, hereinafter referred to as the site. The site centre is located by National Grid Reference SU 00827 72087. The study was commissioned by Castlewood Commercial Properties in May 2025.

1.2 The site is located on the north-eastern edge of Calne and is dominated by semi-improved grassland fields bordered by hedgerows, with small areas of scrub, woodland and small seasonal ponds. In the centre of the site is an area of hardstanding and warehouse buildings comprising industrial units and storage areas for vehicles. The site is bordered by residential development to the south and west and agricultural land to the north and east. The location and boundary of the site are shown in *Appendix B*.

1.3 Development proposals

1.3.1 Development proposals for the site are for up to 210 residential dwellings and 0.75ha of employment land and ancillary uses, open space, vehicular and pedestrian accesses, landscaping, drainage measures and all other associated works including the demolition of existing buildings and structures.

1.4 Scope and purpose of the report

1.4.1 This study brings together the results of all ecological survey work carried out at the site in the context of development proposals described in *Section 1.3* above. Specifically, the aims of this study are:

1. To assess the nature conservation value of habitats associated with the site;
2. To assess the likely presence of protected or notable species;
3. To identify constraints to development due to the above, and to identify the likely ecological effects of development; and
4. To identify appropriate measures to avoid or minimise the ecological effects of development, and where effects are unavoidable, to develop proposals to mitigate or compensate for these effects in accordance with planning policy and nature conservation legislation.

2 METHODOLOGY

2.1 Desk study

2.1.1 Existing ecological and nature conservation data relevant to the site and its surrounds was collated from various sources including the 'Multi Agency Geographic Information for the Countryside' (MAGIC) online database (<http://magic.defra.gov.uk>) and Wiltshire & Swindon Biological Records Centre (WSBRC). All relevant protected species records were obtained for an area of approximately 2km around the site and a check for statutory designated areas within up to 10km of the site was carried out using the MAGIC

database. The results of the desk study are summarised in *Section 3.2* below and the full results are given in *Appendix A*.

2.2 Field surveys

2.2.1 The 2022 extended Phase 1 habitat survey was updated in June 2025 with a UK Habitat Classification Survey. The survey involved walking over the site, mapping the main habitat types and compiling detailed 'target notes'. Target notes record habitat features and a list of vascular plant species, together with a qualitative assessment of relative abundance, where appropriate. Botanical names follow Stace (2019) for higher plants. The results of the updated UK Habitat Classification Survey are given in *Section 3.3*.

2.2.2 The findings of the desk study and UK Habitat Classification Survey identified the potential for protected and notable species and habitats to occur within the site and, with regard to the development proposals, this information was used to inform requirements for further specialist ecological surveys. A suite of specialist surveys was initially undertaken of the site between May 2022 and June 2023, including targeted surveys for bats, Badgers, reptiles and Great Crested Newts. These surveys were subsequently updated between May and October 2025. The results of the surveys are summarised in this report and where applicable full copies of the assessments are given in the accompanying appendices. These include:

- HDA (2023) *Land at Penn Hill: Bat Survey Report*. Hankinson Duckett Associates, March 2023 – *Appendix C* with updated findings from 2025 presented in *Appendix Ca*;
- HDA (2023) *Land at Penn Hill: Badger Survey Report*. Hankinson Duckett Associates, March 2023 – *Appendix D* with updated findings from 2025 presented in *Appendix Da*;
- HDA (2023) *Land at Penn Hill: Reptile Survey Report*. Hankinson Duckett Associates, March 2023 – *Appendix E* with updated findings from 2025 from presented in *Appendix Ea*; and
- HDA (2023) *Land at Penn Hill: Great Crested Newt eDNA and HSI Survey Report*. Hankinson Duckett Associates, March 2023 – *Appendix F* with updated findings from 2025 presented in *Appendix Fa*.

2.3 Evaluation criteria

2.3.1 The evaluation of the site, and the habitats within it, is based on the results of the field surveys described above, any designations pertaining to the site, and existing ecological information collected during the desk study.

2.3.2 Each ecological resource (site, habitat, species or feature) was assigned a value at the following geographic scales (CIEEM, 2018):

- International
- National
- Regional
- County
- District
- Local
- within immediate zone of influence only (Site/Negligible)

2.3.3 Assigning value is relatively straightforward in the case of designated sites, and undesignated sites meeting designation criteria. However, in most cases evaluation of ecological resources is not straightforward and requires a degree of knowledge, training, experience and professional judgement (Usher, 1986; Spellerberg, 1992). Evaluation of an ecological resource was based on a number of criteria (Ratcliffe, 1977; CIEEM, 2018). These are summarised in *Appendix G*.

2.3.4 The potential for protected species and Habitats and Species of Principal Importance identified under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act to be present within the site has been assessed on the basis of the habitats and features present and the results of the desk study.

2.3.5 The desk study and field surveys were not subject to any significant constraints, and it is considered that the surveys conducted are adequate to make a robust assessment of the site's likely nature conservation significance and inform the assessment and recommendations provided in *Section 5* of this report.

3 BASELINE CONDITIONS

3.1 Introduction

3.1.1 The following section summarises the findings of the desk study and extended UK Habitat Classification Survey, and outlines the findings of specialist surveys carried out at the site. The full findings of these studies are provided in *Appendices A-F*.

3.2 Desk Study

3.2.1 The following section summarises the findings of the desk study. The original data and plans showing the locations of designated sites are given in *Appendix A*.

Designated sites

3.2.2 No statutory or non-statutory nature conservation designations pertain to the site or adjacent land.

Statutory designated areas

- 3.2.3 No internationally designated areas (e.g. Special Protection Areas (SPAs) or Special Areas of Conservation (SACs)) are located within 10km of the site boundary.
- 3.2.4 There are no National Nature Reserves (NNRs) located within 5km of the site.
- 3.2.5 Three Sites of Special Scientific Interest (SSSIs) are located within 5km of the site. These are:
- Calstone and Cherhill Downs SSSI, located approximately 3.7km south-east of the site. This 128ha SSSI includes an extensive area of herb-rich chalk grassland, comprising one of the best remaining examples in North Wiltshire of unimproved downland. The flora supports a diverse population of invertebrates including an outstanding assemblage of butterflies.
 - Bencroft Hill Meadows SSSI, located approximately 4.4km to the west of the site. This 5.5ha SSSI comprises an area of unimproved pasture of exceptional botanical quality. It is one of the most species-rich examples in southern England of this habitat, with species including Adder's-tongue *Ophioglossum vulgatum*, Dyer's Greenweed *Genista tinctoria* and Betony *Stachys officinalis*.
 - Morgan's Hill SSSI, located approximately 4.8km to the south of the site. This 12ha SSSI is a botanically rich area of southern chalk grassland supporting a diverse grassland flora, as well as uncommon butterfly species such as Marsh Fritillary *Eurodryas aurinia* and Duke of Burgundy *Hamearis lucina*.
- 3.2.6 The site falls within the 3km-5km Impact Risk Zones (IRZ) for Calstone and Cherhill SSSI, Bencroft Hill Meadows SSSI and Morgan's Hill SSSI. IRZs are used by Natural England to identify development activities in the vicinity of SSSIs, SPAs and SACs which may adversely affect designated features, thereby requiring planning authorities to consult with Natural England where potentially damaging activities are proposed. Residential development is not however identified as a type of development activity with potential to impact these SSSIs and Natural England would not expect to be consulted in this regard.

Non-statutory designated areas

- 3.2.7 A number of non-statutory designated sites are located within the desk study area including three Local Wildlife Sites (LWSs) and one Wiltshire Wildlife Trust (WWT) reserve. Non-statutory designated areas closest to the site include:
- Penn Wood LWS, the north part of which comprises Penn Wood WWT reserve, located approximately 500m north-east of the site.
 - Sands Farm Quarry LWS, located approximately 700m south-east of the site.

- Whitley Farm Meadow LWS, located approximately 1.2km to the north-west of the site.

3.2.8 There are no areas of woodland listed on Natural England's Inventory of Ancient Woodland located within 2km of the site.

Biodiversity Action Plan (BAP) and 2006 NERC Act Habitats and Species of Principal Importance

3.2.9 The UK Biodiversity Action Plan (BRIG, 2011) lists habitats and species which have undergone significant declines in recent years and for which conservation is a priority in order to preserve biodiversity in the UK. The BAPs provide a list of actions to be implemented to halt or reverse these declines.

3.2.10 These habitats and species are identified as Habitats and Species of Principal Importance for the conservation of biological diversity in England under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. Together with the 2024 National Planning Policy Framework (NPPF) and underpinning guidance (ODPM 2005), Section 40 of the 2006 NERC Act requires that these habitats and species are a material consideration in the planning process.

3.2.11 The Wiltshire BAP, published in 2008, includes action plans for habitats and species considered to be of county biodiversity importance. Examples of these include the built environment, standing open water and ancient and/or species-rich hedgerows. The Wiltshire BAP also lists bats as a priority species group. This report considers the actual or likely, presence of such species in the habitats identified at the site. The Wiltshire BAP contains objectives and targets for each species and habitat identified. These should be considered for any development proposals at the site, both in terms of impact avoidance and opportunities to enhance the site and contribute to BAP targets. The objectives potentially most relevant to this site are:

Farmland:

- *'Maintaining and enhancing populations of relatively 'common' farmland species'*

Hedgerows:

- *'Protect, maintain and expand the length of this habitat'*
- *'Enhance the quality of the existing network of hedgerows'*

Bats:

- *'Maintain and where possible increase existing bat populations'*

3.2.12 The Wiltshire and Swindon Local Nature Partnership uses Landscape Biodiversity Areas (LBAs), which form the basis of the new landscape conservation framework for Wiltshire and Swindon. LBAs represent natural, landscape-scale areas within the county that

share similar geological and ecological character and within which the best opportunities for landscape-scale conservation work can be identified. The LBAs have been identified taking into account National Character Areas and the underlying geology, ecology, and community areas of the county (Landscape Biodiversity Areas, 2012).

3.2.13 The site falls within *Area 6- Bristol Avon Vale LBA* which lists priorities and opportunities for conservation including:

- Rivers;
- Neutral Grassland – neutral meadows and arable plants;
- Woodland – ancient woodland, hedgerows and bats.
- Built Environment.

3.2.14 The site contains examples of 'Hedgerows'. The target for this habitat includes:

Hedgerows:

- *Lay / coppice degraded hedgerows, planting up gaps;*
- *Allow mature standard trees to develop within hedgerows;*
- *Replant species-rich hedgerows where these have been completely lost;*
- *Manage hedgerows regularly to maintain a wide and dense base; and*
- *Maintain grassland buffer strips alongside hedgerows in arable fields.*

Protected species

3.2.15 Data provided by WSBRC has shown that there are records of protected and notable species occurring in the vicinity of the site including bats, Otter, Water Vole, Badger, birds, reptiles, Great Crested Newt, invertebrates and plants. None of these records pertain to the site itself.

Bats

3.2.16 WSBRC provided 141 records relating to bats within approximately 2km of the site, with species including Lesser Horseshoe, Soprano Pipistrelle, Common Pipistrelle, Serotine, *Myotis* sp. and Noctule bats. The closest record relates to a recording of a Long-eared species of bat recorded approximately 50m east of the site dating from 2007.

3.2.17 All UK bat species are protected as 'European Protected Species' (EPSs) under the 2017 Conservation of Habitats and Species Regulations (as amended). In relation to EPSs, the 2017 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS;
- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or to hibernate or migrate; (ii) affect

significantly the local distribution or abundance of the species to which they belong;

- Damage or destroy a breeding site or resting place of such an animal; and
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

3.2.18 In addition, all UK bats are protected under the 1981 Wildlife and Countryside Act (as amended). All species are listed on Schedule 5 of the Act and are subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; and
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat.

3.2.19 If works are planned that are likely to constitute an offence under the current legislation, then works should be carried out under an appropriate Natural England licence.

3.2.20 Seven species of bat (Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe and Lesser Horseshoe) are also listed as Species of Principal Importance under Section 41 of the 2006 NERC Act. Section 40 of the Act requires planning authorities to regard these species as a material consideration in the planning process.

Hazel Dormouse

3.2.21 No records for Hazel Dormouse were provided for the desk study area.

3.2.22 The Hazel Dormouse is protected through its inclusion on Schedule 5 of the 1981 Wildlife and Countryside Act (as amended) (see *Section 3.2.18*) and as an EPS under the 2017 Conservation of Habitats and Species Regulations (as amended) (see *Section 3.2.17*). It is also a priority species on the UKBAP and listed as Species of Principal Importance under Section 41 of the 2006 NERC Act.

Otter

3.2.23 Four records of Otter were provided for the desk study area, the closest of which relates to a record of an Otter swimming in the River Marden approximately 1.1km west of the site, dating from 2011.

3.2.24 The Otter is protected through its inclusion on Schedule 5 of the 1981 Wildlife and Countryside Act (as amended) (see *Section 3.2.18*) and as an EPS under the 2017

Conservation of Habitats and Species Regulations (as amended) (see *Section 3.2.17*). It is also a priority species on the UKBAP and listed as a Species of Principal Importance under Section 41 of the 2006 NERC Act.

Water Vole

- 3.2.25 Seventy-five records of Water Vole were provided for the desk study area, the closest of which relates to a latrine recorded approximately 320m east of the site boundary near Abberd Brook, dating from 2004.
- 3.2.26 The Water Vole is protected through its inclusion on Schedule 5 of the 1981 Wildlife and Countryside Act (as amended). Unless permitted under a licence issued by Natural England this makes it an offence to:
- Intentionally or recklessly kill, injure or take Water Voles;
 - Possess or control live or dead specimens or anything derived from a Water Vole;
 - Intentionally or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection; or
 - Intentionally or recklessly disturb Water Voles while they are using such a place.
- 3.2.27 The Water Vole is also a priority species on the UKBAP and listed as a Species of Principal Importance under Section 41 of the 2006 NERC Act.

Badger

- 3.2.28 A total of 63 records of Badger were provided by WSBRC for the desk study area. with the closest record to the site being a sett recorded in 2015 approximately 50m to the east of the site, the precise location of which was not disclosed. The next closest record related to a foraging Badger recorded on a roadside verge in 2014 approximately 185m to the west of the site.
- 3.2.29 Badgers and their setts are protected under the 1992 Protection of Badgers Act. Unless permitted under a licence issued by Natural England, this makes it an offence to:
- Kill, injure or capture a Badger;
 - Damage, destroy or obstruct access to a Badger sett; and
 - Disturb Badgers while they are occupying a sett.

Birds

- 3.2.30 WSBRC provided 706 records of bird species occurring within the desk study area, relating to 35 species. All nesting birds are afforded a basic level of protection under the 1981 Wildlife and Countryside Act (as amended). Species included on Schedule 1 of the

Act are afforded additional protection against disturbance when breeding. *Table 1* below details the bird species recorded within 2km of the site:

Table 1: Specially protected and notable bird species recorded within desk study area

Common Name	Scientific Name	Annex I ¹	WCA 1 ²	NERC 41 ³	BOCC5 (2021) ⁴
Barn Owl	<i>Tyto alba</i>				Green
Black Redstart	<i>Phoenicurus ochrurus</i>				Amber
Brambling	<i>Fringilla montifringilla</i>				Green
Cuckoo	<i>Cuculus canorus</i>				Red
Fieldfare	<i>Turdus pilaris</i>				Red
Firecrest	<i>Regulus ignicapilla</i>				Green
Golden Plover	<i>Pluvialis apricaria</i>				Green
Grasshopper Warbler	<i>Locustella naevia</i>				Red
Green Sandpiper	<i>Tringa ochropus</i>				Amber
Greenfinch	<i>Carduelis chloris</i>				Red
Greylag Goose	<i>Anser anser</i>				Amber
Harlequinfinch	<i>Coccothraustes coccothraustes</i>				Red
Herring Gull	<i>Larus argentatus</i>				Red
Hobby	<i>Falco subbuteo</i>				Green
House Martin	<i>Delichon urbicum</i>				Red
House Sparrow	<i>Passer domesticus</i>				Red
Kingfisher	<i>Alcedo atthis</i>				Green
Lapwing	<i>Vanellus vanellus</i>				Red
Liftnet	<i>Carduelis cannabina</i>				Red
Little Egret	<i>Egretta garzetta</i>				Green
Marsh Tit	<i>Poecile palustris</i>				Red
Mediterranean Gull	<i>Larus melanocephalus</i>				Amber
Mistle Thrush	<i>Turdus viscivorus</i>				Red
Peregrine Falcon	<i>Falco peregrinus</i>				Green
Pochar	<i>Aythya ferina</i>				Red
Quail	<i>Coturnix coturnix</i>				Amber
Red Kite	<i>Milvus milvus</i>				Green
Redwing	<i>Turdus iliacus</i>				Amber
Ring Ouzel	<i>Turdus torquatus</i>				Red
Short-eared Owl	<i>Asio flammeus</i>				Amber
Skylark	<i>Alauda arvensis</i>				Red
Spotted Flycatcher	<i>Muscicapa striata</i>				Red
Starling	<i>Sturnus vulgaris</i>				Red

¹ Directive 79/409/EEC on the conservation of wild birds

² Species specially protected under Schedule 1 of the 1981 Wildlife and Countryside Act (as amended)

³ Species included in the UK Biodiversity Action Plan and of Principal Importance under the 2006 NERC Act

Reptiles

3.2.31 WSBRC provided 54 records of reptiles for the desk study area, relating to Grass Snake and Slow-worm. The closest of these to the site pertains to a record of a Grass Snake at a location approximately 30m to the east of the site, dating from 1976. More recent records in close proximity to the site include records of a total of 59 Slow-worms translocated from a site on Porte Marsh Road approximately 250m to the west of the site between 2001 and 2002.

3.2.32 All native reptiles are protected against killing and injuring under the 1981 Wildlife and Countryside Act (as amended), are priority species on the UKBAP and are listed as Species of Principal Importance under Section 41 of the NERC Act (2006). Due to their rarity, Sand Lizards and Smooth Snakes have additional protection.

Great Crested Newt

3.2.33 Thirteen records of Great Crested Newt were provided by WSBRC for the desk study area, the closest of which relates to a pond approximately 400m north-west of the site, dating from 2012.

3.2.34 The Great Crested Newt is protected through its inclusion on Schedule 5 of the 1981 Wildlife and Countryside Act (as amended) (see *Section 3.2.18*) and as an EPS under the 2017 Conservation of Habitats and Species Regulations (as amended) (see *Section 3.2.17*). It is also a priority species on the UKBAP and listed as a Species of Principal Importance under Section 41 of the 2006 NERC Act.

Invertebrates

3.2.35 WSBRC provided 102 records of notable and protected invertebrate species for the desk study area. These include:

- Marsh Fritillary, which is protected against commercial exploitation under Schedule 5 of the 1981 Wildlife and Countryside Act (as amended); and
- Twenty-six species listed as Species of Principal Importance under Section 41 of the 2006 NERC Act. These include Grayling which is also listed as 'Vulnerable'²

¹ **Red Listed** (RSPB, 2021): Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.

Amber Listed (RSPB, 2021): Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.

² **Vulnerable** (IUCN Red List, 2012): A taxon is Vulnerable when it is considered to be facing a high risk of extinction in the wild in Great Britain.

on the IUCN red list and Duke of Burgundy and White Letter Hairstreak butterflies which are listed as 'Endangered'³ .

Plants

- 3.2.36 WSBRC provided 61 records of plants for the desk study area. These include:
- Corn Marigold, Corn Spurrey and Prickly Poppy which are listed as 'Vulnerable' on the IUCN Red List; and
 - Corn Chamomile and Annual Knawel which are listed as 'Endangered' on the IUCN Red List; Annual Knawel is also listed as a Species of Principal Importance under Section 41 of the 2006 NERC Act.

Other Species

- 3.2.37 Other notable species recorded within 2km of the site include Hedgehog, Brown Hare and Common Toad, all of which are UKBAP priority species and identified as Species of Principal Importance under Section 41 of the NERC Act.

Planning Policy

- 3.2.38 National and local planning policy relevant to this assessment are summarised below.

National Planning Policy Framework

- 3.2.39 The National Planning Policy Framework (NPPF), published in December 2024, outlines the Government's vision for sustainable development in England. Chapter 15 sets out the requirements for 'Conserving and Enhancing the Natural Environment', which states:

187. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible,*

³ **Endangered** (IUCN Red List, 2012): A taxon is Endangered when it is considered to be facing a very high risk of extinction in the wild in Great Britain.

help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

188. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

189. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and National Landscapes which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

190. When considering applications for development within National Parks, the Broads and National Landscapes, permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated."

191. Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 189), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

Habitats and biodiversity

192. To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

193. 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.”

194. The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;
- b) listed or proposed Ramsar sites; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

195. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System (ODPM, 2005)

3.2.40 This provides guidance on the application of English law relating to planning and nature conservation, complementing the expression of national planning policy in the NPPF. In the context of planning applications, the circular includes guidance on the following:

- Internationally designated sites;
- Nationally designated sites;
- Conservation of habitats and species outside designated sites;
- Conservation of species protected by law;
- Environmental Impact Assessment;
- Strategic Environmental Assessment; and
- The 2000 Water Framework Directive.

Local Planning Policy

3.2.41 Relevant policy from the *Wiltshire Core Strategy: Adopted January 2015*, relating to nature conservation is outlined below:

Core Policy 8 - Biodiversity and geodiversity

“Protection

Development proposals must demonstrate how they protect features of nature conservation and geological value as part of the design rationale. There is an expectation that such features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity and functionality in the long-term. Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource, and secure the integrity of local ecological networks and provision of ecosystem services.

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development.

Any development potentially affecting a Natura 2000 site must provide avoidance measures in accordance with the strategic plans or guidance set out in paragraphs 6.75-6.77 above where possible, otherwise bespoke measures must be provided to demonstrate that the proposals would have no adverse effect upon the Natura 2000 network. Any development that would have an adverse effect on the integrity of a European nature conservation site will not be in accordance with the Core Strategy.

Biodiversity enhancement

All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/ Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character.

Local sites

Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts:

- i. cannot reasonably be avoided*
- ii. are reduced as far as possible*
- iii. are outweighed by other planning considerations in the public interest*
- iv. where appropriate compensation measures can be secured through planning obligations or agreements.*

Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term.”

- 3.2.42 In addition, Calne Community Neighbourhood Plan 2016-2026 (February 2018) identifies that developments ‘should consider, assess and address their potential to:

- *Create additional habitat space, including roosting, nesting or shelter opportunities for wildlife.*
- *Facilitate or include wildlife corridors.’*

3.3 Habitats

- 3.3.1 The results of the 2025 UK Habitat Classification survey are presented in map form with target notes (represented by numbered dots) in *Appendix B*. A brief non-technical

description of the habitats and features present at the site is given below. Botanical names follow Stace (2019) for higher plants. Numbers in brackets refer to target notes.

3.3.2 *General description*

The site is dominated by species-poor agriculturally improved/ modified grassland fields bordered by hedgerows, with small areas of scrub, woodland and small seasonal ponds. In the centre of the site is an area of hardstanding and warehouse buildings comprising industrial units and storage areas for vehicles. The field boundaries largely comprise species-rich native hedgerows and fence lines, with some species-poor hedgerows also present.

3.3.3 *Species-poor modified grassland and amenity grassland*

The site is dominated by species-poor agriculturally improved/ modified grassland fields managed by cutting, with small areas of amenity grassland and small areas of rank and unmanaged species-poor semi-improved grassland also present. These comprise:

- Two fields of species-poor agriculturally modified grassland are present in the west of the site which were recently cut at the time of survey, with species including Perennial Ryegrass, Timothy, Common Knapweed, Common Ragwort, Creeping Buttercup, Red Clover, Broad Leaved Dock, Wild Carrot, Creeping Thistle, Greater Plantain, Common Mouse-ear and Soft Rush (6,13).
- A field of species-poor agriculturally modified grassland is present in the north-east of the site, with a similar species composition to the western fields but with more extensive areas of Soft Rush in the south of the field (24).
- A field of species-poor agriculturally modified grassland is present in the south-east of the site, with a similar species composition to the other fields but with patches of Common Bird's-foot-trefoil present (21).
- A smaller field of species-poor agriculturally modified grassland is located in the centre of the site, with a similar species composition to the above areas but with the addition of Yarrow and Hogweed, and patches of Creeping Thistle and Spear Thistle on the field margins (10).
- A rank and recently unmanaged modified grassland verge is present in the west of the site with species including Yorkshire Fog, Creeping Cinquefoil, Hedge Bindweed, Common Ragwort, False Oat-grass, Hogweed, Great Willowherb, Common Nettle, Yarrow, Burdock and Scentless Mayweed (1).
- A small area of rough and unmanaged modified grassland is also present in the far south-west corner of the site with species including Yorkshire Fog, Creeping Thistle, Hedge Bindweed, Teasel, Ragwort, False Oat-grass, Hogweed, Great Willowherb, Common Nettle, Yarrow and Curled Dock. Bramble scrub has begun to encroach into the grassland from the west (5).

- A small area of managed species-poor amenity grassland is present in the centre of the site (11).

3.3.4 *Hedgerows and trees*

A number of hedgerows occur along the field boundaries of the site, the majority of which are species-rich and intact. These include:

- An intact species-poor native hedgerow adjoining a line of Willow and Ash pollards (3) in the west of the site, dominated by Bramble and Dog Rose, with the adjoining verge and dry ditch comprising Hedge Bindweed, Field Horsetail, Common Nettle, Great Willowherb, Spearmint, Bramble, Yorkshire Fog and False Oat-grass.
- An unmanaged intact species-rich native hedgerow on the western site boundary, comprising English Elm, Ash, Field Maple, Hawthorn, Sycamore and Dog Rose (4).
- An unmanaged intact native hedgerow on the eastern section of the southern site boundary, growing to approximately 4m in height (7), with species including Hawthorn, Sycamore, Bramble, Hazel, Guelder Rose, Ivy, English Elm and Wild Privet, with ground flora including Creeping Bent and Lords-and-Ladies. The northern section of the hedgerow merges into an area of dense scrub (8).
- An intact species-poor native hedgerow leading south from the centre of the site, growing to approximately 2.5m in height with species comprising English Elm, Blackthorn, Wild Privet, Hawthorn, Ivy and Bramble (9).
- Intact species-rich native hedgerows around the north-western site boundaries with one mature Pedunculate Oak and other semi-mature tree and hedgerow species comprising Field Maple, Elm, Privet, Blackthorn, Elder and Bramble (12, 14).
- A species-rich native hedgerow on the eastern site boundary with several mature and semi-mature Pedunculate Oak and Ash trees, and further species including Hawthorn, Wild Privet, Dogwood, Blackthorn, Bramble, Field Maple and Goat Willow (18, 22).
- Scattered Cherry trees and a short stretch of species-poor Leylandii hedgerow are present in association with the area of amenity grassland in the centre of the site (11).
- A short length of hedgerow to 3m in height comprising Hawthorn and Blackthorn (25)
- A partially outgrown hedgerow with mature trees with species comprising Hawthorn, Field Maple, Oak, Ash, Elm, Willow sp., Elder (27).

3.3.5 *Waterbodies*

Three small ponds are situated within the site, all of which are associated with patches of scrub and trees, these comprise:

- A small and heavily shaded pond situated within an area of dense scrub and mature Ash trees in the south of the site (8). This pond was dry at the time of survey.
- A pond shaded by mature Crack Willow close to a field boundary in the north of the site (15). This pond was dry at the time of survey.
- A pond in the north-east of the site, heavily shaded by several mature Crack Willow trees and with bankside scrub vegetation comprising Hawthorn, Bramble, Common Nettle, Hedge Bindweed, Hogweed and Great Willowherb (17). This pond contained water at the time of survey albeit the pond is known to dry out.

3.3.6 *Woodland and scrub*

Small areas of woodland and scrub are present on the field boundaries of the site, including:

- A belt of broad-leaved woodland largely comprising Goat Willow, with an understory of Dogwood, Elder, Bramble, Common Nettle, Hedge Bindweed around the industrial area in the centre of the site (16).
- A steep bank of scrub on the western boundary of the site with tree species including semi-mature Willow, Field Maple, Hawthorn, Elder and Ash, and with ground flora including Common Nettle, Bramble, Red Campion, Lords-and-Ladies and Shepherds Purse (2).
- An area of scrub around a dry pond and copse in the south of the site with several mature Ash trees (8), and further woody species comprising Hawthorn, Field Maple, Privet, Blackthorn and Elder, with an understory of Bramble, Lords-and-Ladies, Common Nettle, Burdock and Creeping Thistle.
- An area of scrub on a field boundary in the east of the site, dominated by Bramble and Common Nettle (19).
- An unmanaged section in the north-west corner comprises Bramble scrub, Hawthorn, Blackthorn, Common Nettle and Common Hogweed (28).
- An area of recently cleared willow and scrub to the south of TN16 with colonizing Bramble (26).

3.3.7 *Buildings and hardstanding*

In the centre of the site are several workshop and warehouse buildings of corrugated metal and breezeblock construction, surrounded by tarmac hardstanding (23). Scattered ephemeral and ruderal species on the periphery of this area include Broad-leaved Dock, Creeping Thistle, Greater Plantain, Prickly Oxtongue, Scentless Mayweed and Herb Robert.

In addition, the site includes Sycamore Drive to where it meets the A3102 Oxford Road to the west of the site. This comprises a tarmacked road.

3.4 Protected and notable species

3.4.1 *Bats (Appendix C)*

A suite of bat surveys were carried out in 2022 and 2025 comprising Phase 1 bat roost scoping surveys to identify trees and buildings providing suitable features for roosting bats and, where appropriate, subsequent Phase 2 roost surveys to determine whether such features support active roosts. A series of bat activity transect and automated detector surveys was also undertaken to inform the assessment of the importance of the site for foraging and commuting bats. All bat survey work was carried out in accordance with the current best practice guidelines at the time of survey (BCT, 2016; BCT, 2023).

Twenty-six trees and four buildings with bat roosting potential were identified during the Phase 1 bat scoping survey. All buildings with bat roost potential and all trees with high and moderate potential (PRF-M) at risk of being affected by the emerging development proposals have subsequently been subject to Phase 2 emergence surveys. These recorded one roost within a building in the centre of the site (B1), with results indicating a low-status non-breeding roost supporting an individual/ low number of Common Pipistrelle bats. No bat roosts have been recorded within any of the trees subject to survey.

The suite of bat activity transect, automated detector surveys and Phase 2 emergence/re-entry surveys undertaken to date⁴ confirmed the presence of at least eleven bat species using the site for foraging and commuting, with varying levels of activity observed throughout the surveys. The species recorded were: Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Noctule, Leisler's, Serotine, Brown long-eared, *Myotis* sp., Barbastelle, Lesser Horseshoe and Greater Horseshoe bats, with Common Pipistrelle the most frequently recorded bat species throughout the site.

The majority of bat activity recorded to date has been focussed on hedgerow field boundaries around the site, primarily on the southern boundary in association with the adjacent road, with internal hedgerows also being used on a relatively frequent basis. The open areas of grassland dominating the site are of limited interest for foraging bats. Similar habitats to those present within the site are relatively widespread in the

⁴ The updated bat activity transect and remote detector survey work is ongoing. This report therefore draws on the findings of the 2022/ 2023 bat activity survey. Initial findings of the updated 2025/ 2026 survey work indicate that this provides a suitable basis on which to make the assessment and recommendations provided in this report.

surrounding area and despite the number of species recorded and the number of bats expected to have been present within the site at any one time, the overall level of bat activity recorded was generally considered to be low to moderate.

As a whole the site is considered to be of no more than low local interest for roosting bats and moderate local interest for foraging bats. Measures to maintain compliance with nature conservation legislation and to maintain opportunities for foraging and roosting bats at the site during and following development are provided in *Section 5*.

The full findings of the 2022-2023 Phase 1 and 2 bat roost surveys and bat activity surveys conducted at the site are provided as *Appendix C*. A summary of the 2025 Phase 2 Bat Roost Surveys is provided as *Appendix Ca*. The full findings of the 2025/2026 bat survey work will be subject of a separate report on completion of the bat activity survey work in spring 2026.

3.4.2 *Dormice*

The majority of the site is unsuitable for Dormice, comprising open grassland, buildings and hardstanding. No records for Dormouse were provided for the desk study area and where limited areas of suitable habitat occur in association with intact hedgerows and scrub along the field boundaries, Dormice are unlikely to be present due to the limited extent of these habitats and their lack of connectivity with more substantial areas of habitat. Emerging development proposals (*Framework Masterplan*, Turley, 2025a) indicate that these habitats will be largely retained in any event, and it is therefore considered that Dormice are unlikely to be present at the site or affected by the proposed development.

3.4.3 *Otter and Water Vole*

The seasonal ponds within the site are considered to provide highly suboptimal habitat for Otter and Water Vole due to their being routinely dry and disconnected from other suitable waterbodies. It is therefore considered highly unlikely that Otter or Water Vole are present at the site or will be affected by the proposed development.

3.4.4 *Badgers (Appendix D)*

A potential main Badger sett has been recorded on the central section of the western site boundary, within an area of dense scrub. A road is present to the north of the sett and a pond which was dry at the time of the survey lies to the immediate west of the sett. Most of the entrances were in the upper bank of the dry waterbody. The sett was in current use at the time of the 2025 Badger Survey and its location is shown in *Appendix Da*. The sett comprised 5 active entrances and no disused entrances. Evidence of Badger activity

in the vicinity of the sett included latrines, spoil, hairs and bedding. No other Badger setts were recorded within the site or on adjacent land.

The grassland, scrub and hedgerow base habitats provide some foraging opportunity for Badgers. During the 2025 survey, five Badger latrines were recorded within the site, and a number of mammal tracks were recorded within the site, generally in association with the field boundary hedgerows. In addition, Badger hairs and foraging signs were recorded.

Although similar and better quality foraging habitats are frequent in the area surrounding the site, as a whole the site is considered to be of moderate local value for the local Badger population given the presence of a small potential main Badger sett. Measures to maintain opportunities for Badgers within the development proposals for the site are given in *Section 5*.

The full findings of the Badger survey work undertaken at the site are given in *Appendices D and Da*.

3.4.5 *Birds*

The site comprises a variety of habitats suitable for foraging and nesting birds and it is likely that a breeding bird assemblage typical of farmland habitats is supported by the site. This is likely to include species of conservation concern listed on the RSPB Red and Amber lists (RSPB, 2021) and may include species specially protected under Schedule 1 of the 1981 Wildlife and Countryside Act (as amended). Due to the abundance of similar and better-quality habitat in the surrounding area, the site is unlikely however to be of any more than moderate local interest for birds. Notwithstanding this, the legislation afforded to all birds under the 1981 Wildlife and Countryside Act (as amended) (i.e. protection whilst nesting) should be considered, and this is discussed further in *Section 5* below.

3.4.6 *Reptiles (Appendix E)*

Reptile surveys of the site were undertaken in 2022 and 2025.

The 2022 survey recorded a population of two common and widespread reptile species within the site: Slow-worm and Grass Snake. During the course of the survey a maximum count of 1 adult Slow-worm and 1 juvenile Grass Snake were recorded on any one visit, suggesting only a 'low' population of Slow-worm and 'very low' population of Grass Snake are present. Two of the reptiles were recorded in an area of rough grassland located in the centre of the site and one reptile was found along the eastern boundary. In contrast, the updated reptile survey undertaken in 2025 recorded only Slow-worm from a single location on the north-eastern site boundary.

The full findings of the 2022 reptile survey conducted at the site is provided as *Appendix E*. A summary of the findings of the 2025 updated reptile survey is provided as *Appendix Ea*.

3.4.7 *Great Crested Newts (Appendix F)*

Six ponds are located within, or immediately adjacent to, the site which are considered to have limited potential to support breeding Great Crested Newts. In addition, a review of an OS 1:10,000 scale map and aerial photographs suggested that there are six additional ponds within 300m of the site. Subsequently, a Habitat Suitability Index (HSI) assessment and Great Crested Newt eDNA sampling survey of waterbodies within and in the vicinity of the site was undertaken in June 2022, and the survey was subsequently updated in June 2025. The extent of the 2022 and 2025 Great Crested Newt surveys is shown on the plans provided in *Appendices F* and *Fa*.

The results of the eDNA surveys in 2022 and 2025 indicate that Great Crested Newts were absent from the sampled on-site ponds and off-site ponds at the time of survey, despite the suitability (albeit limited) of some of the ponds for this species.

With regard to the above it is considered highly unlikely that Great Crested Newts are present within any of the on-site or off-site ponds identified during the survey and Great Crested Newts are therefore unlikely to be present within the site during terrestrial or aquatic phases.

The full findings of the 2022 and 2025 Great Crested Newt surveys are given in *Appendices F* and *Fa*.

3.4.8 *Invertebrates*

Habitats of moderate invertebrate interest occur within the site, mainly in association with the rough grassland, field boundary hedgerows and scrub. However similar habitat is likely to be widespread in the surrounding area and the site is unlikely to be of significant local interest for this group.

3.4.9 *Plants*

The site is dominated by species-poor agriculturally improved/ modified grasslands and is unlikely to support protected and notable plant species, and the site is unlikely to be of local interest in this regard.

4 **NATURE CONSERVATION EVALUATION**

4.1 **Habitats**

- 4.1.1 The habitats within the site have been assessed with consideration given to the criteria summarised in *Appendix G* of this report (Ratcliffe 1977; CIEEM 2018). A summary of the site habitat evaluation is given in *Table 2*. Numbers in brackets refer to target notes.

Table 2: Site habitat evaluation

Value	Habitats present
International	None
National	None
Regional	None
County	None
District	None
Local	High: - None Moderate: - Network of woodland, hedgerows, scattered trees and scrub [in combination] (2, 3, 4, 7, 8, 9, 12, 14, 16, 18, 19, 22, 25, 26, 27, 28) - Ponds (8, 15, 17) - Species-poor agriculturally improved/ modified grassland (1, 5, 6, 10, 11, 13, 20, 21, 24) Low: - None
Site/negligible	All other habitats recorded.

- 4.1.2 Current knowledge suggests that there are no habitats of International, National, Regional, County or District nature conservation value within the site.
- 4.1.3 The habitats of highest nature conservation interest associated with the site are the network of woodland, hedgerows, and associated scrub and mature trees which are considered in combination to be of **moderate local value**. Although the value of each individual feature varies, together they combine to form a network of semi-natural habitats across the site, providing habitat connectivity within the site and contributing towards that of the wider area. In addition, hedgerows are listed as a Habitat of Principal Importance under Section 41 of the 2006 NERC Act and priority habitat for the UK BAP.
- 4.1.4 The on-site ponds are also considered to be of **moderate local value** as although they are generally in poor condition and seasonally dry, they provide habitat for a range of wildlife and appreciably enhance the ecological interest of the site. Ponds are listed as a Habitat of Principal Importance under Section 41 of the 2006 NERC Act and are a priority habitat for the UK BAP.
- 4.1.5 The species-poor agriculturally improved/ modified grassland fields located throughout the site are also considered to be of **moderate local value**. Although they do not

constitute good quality grassland habitat and are unlikely to qualify for consideration as Habitat of Principal Importance under Section 41 of the 2006 NERC Act or as UK BAP priority habitat, they are of substantial scale and appreciably enhance the ecological interest of the site and its immediate surrounds.

- 4.1.6 The remaining habitats recorded within the site, including the buildings, hardstanding and amenity grassland are regarded in a local context to be of **negligible value** in their own right.

4.2 Species

4.2.1 Bats

One bat roost has been recorded within a building in the centre of the site (B1), comprising a low-status non-breeding roost supporting an individual/ small number of Common Pipistrelle bats. The Common Pipistrelle is a relatively common and widespread species, with an estimated UK population of 3,040,000 individuals (Mathews *et. al.*, 2018), and therefore the roost recorded within B1 is unlikely to be of more than low local interest.

Up to eleven species of bat have been recorded during the bat activity survey, mostly relating to common and widespread bat species such as Common Pipistrelle. The majority of bat activity recorded was focussed on hedgerow field boundaries around the site, primarily on the southern site boundary in association with the adjacent road, with internal hedgerows also being used on a relatively frequent basis. The open areas of grassland dominating the site are of limited interest for foraging bats. Similar habitats to those present within the site are relatively widespread in the surrounding area and despite the number of species recorded and the number of bats expected to have been present within the site at any one time, the overall level of bat activity recorded was generally considered to be low to moderate. As a whole the site is considered to be of moderate local interest for foraging bats. Recommendations to maintain and potentially enhance opportunities for foraging and roosting bats at the site during and following development of the site are provided in *Section 5*.

4.2.2 Dormice

The majority of the site is unsuitable for Dormice and it is considered that this species is absent from the site. The site is therefore considered to be of negligible value for Dormice.

4.2.3 Water Vole and Otter

No suitable habitat for either Otter or Water Vole is present within the site and it is considered that these species are absent from the site. The site is therefore considered to currently be of negligible value for Water Voles and Otters and these species are not considered further in this assessment.

4.2.4 *Badgers*

As a whole the site is considered to be of moderate local value for the local Badger population given the presence of a small potential main Badger sett. Measures to maintain opportunities for Badgers within the development proposals for the site are given in *Section 5*.

4.2.5 *Birds*

Although breeding birds are likely to occur at the site, it is unlikely that locally significant populations of this group would be affected by the proposed works and no further survey is recommended at this stage. Nature conservation legislation relating to birds would however still apply and measures to ensure compliance during development works are set out in *Section 5* below.

4.2.6 *Reptiles*

With reference to the Key Reptile Site criteria (Froglife, 1999) the site is considered to support a 'low' population of Slow-worm and a 'very low' population of Grass Snake. In view of this the site would not qualify as a SSSI, SINC or Key Reptile Site on the basis of its reptile assemblage.

Habitats suitable for reptiles within the site include rough grassland, scrub, hedgerow bases and ponds. These habitats are however abundant in the wider area. Furthermore, Slow-worm and Grass Snakes are common and widespread reptile species and the records of these species provided during the desk study suggest that these species are relatively widespread in the surrounding area (see *Section 3.2*). It is therefore considered that the site is of low local value for reptiles. Notwithstanding this, development proposals should maintain opportunities for the local reptile population as well as implementing the protection afforded to all reptiles under the 1981 Wildlife and Countryside Act (as amended). This is considered further in *Section 5* below.

4.2.7 *Great Crested Newts*

It is considered highly unlikely that Great Crested Newts are present within the site during either breeding or terrestrial phases. The site is therefore considered to currently be of negligible value for Great Crested Newts. Notwithstanding this, development proposals

should seek to maintain and where possible enhance future opportunities for Great Crested Newts and other amphibians, and this is discussed further in *Section 5* below.

4.2.8 *Invertebrates*

It is highly unlikely that the site supports a notable assemblage of invertebrates in a local context. Although similar and higher quality habitats to those present within the site are available within the wider area, the proposed development should seek to maintain opportunities for invertebrates at the site and this is discussed further in *Section 5* below.

4.2.9 *Plants*

The site is likely to support a plant assemblage typical of the wider area, and it is unlikely that locally notable populations of plants are present.

5 ASSESSMENT OF EFFECTS AND MITIGATION PROPOSALS

5.1 Introduction

5.1.1 Advice on ecological constraints and opportunities for ecological enhancement has been provided throughout the design process. Consequently, where possible, measures to avoid and minimise effects on features of ecological interest have been incorporated into the scheme design and are described below alongside any additional mitigation requirements. Ecological enhancement measures have also been incorporated into the scheme where possible in accordance with nature conservation legislation, national planning policy (NPPF, 2024) and the 2006 NERC Act and these are also described together with other potential enhancement opportunities arising from the scheme in *Section 5* below.

5.1.2 The development proposals are summarised on the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a). In general terms, development proposals for the site include the construction of up to 210 residential dwellings, and a 0.75ha employment area and associated landscaping.

5.1.3 This section identifies potential impacts of the development on features of nature conservation interest both within the site and the wider area, and measures to avoid, reduce, mitigate and compensate for such impacts, before discussing the likely residual impacts following development. Ecological enhancement measures which have been incorporated into the proposals are also described together with other potential enhancement opportunities arising from the scheme.

5.2 Designated sites

5.2.1 No statutory or non-statutory designated areas pertain to the site or its immediate surrounds.

5.2.2 No statutory or non-statutory sites within the wider area have been identified as being likely to be affected by indirect effects arising from the proposed development of the site either alone or in combination with other plans or projects. This is due to a combination of distance from the site, the nature of the proposed development, the ecological character of the development area, the retention of a network of green corridors within and around the site to maintain connectivity (see *Section 5.4* below), limited ecological connectivity with the site and the robustness of the habitats present. This is supported by the description of potentially damaging works for the Natural England IRZs in which the site is located, which do not identify the proposed development as presenting a potential risk to the nearby protected sites.

5.3 Grassland

5.3.1 *Potential effects*

The emerging proposals set out in the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) show that proposed development will require the removal of approximately 6.44ha of species-poor agriculturally improved/ modified grassland to facilitate construction of residential dwellings and associated infrastructure.

These areas of agriculturally improved grassland are considered to be of limited nature conservation value in their own right, owing to their limited species diversity and similar habitat being abundant in the wider area. However, due to the extent of grassland within the site and the mosaic of habitat it contributes towards, these fields are considered collectively to be of moderate local value. The development has been designed to allow partial retention of existing grassland habitats within proposed informal open space.

5.3.2 *Mitigation and enhancement proposals*

The *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) indicate that opportunity to create approximately 3.61ha of species-rich meadow grassland habitat will be provided through new planting and enhancement of retained grassland habitats. In addition, areas of amenity grassland will be created within and around the development areas and road infrastructure, which could be sown with a diverse flowering lawn mix and managed for both its wildlife and amenity value. The retained and new grasslands within areas of public open space should be subject to management for biodiversity as indicated within the *Framework Masterplan* (Turley, 2025a). Recommendations to create, maintain and enhance grassland habitats within the site include:

- Long-term management of the retained grassland habitats to create a species-rich meadow grassland/rough grassland mosaic to increase their floristic diversity;
- Creation of new areas of high-quality grassland in association with the verges of access roads, woodland edges, hedgerow bases, site margins and public open space, though use of diverse seed mixes appropriate to the location and end use (e.g. meadow mixes within areas of informal open space, and flowering lawn mixes where a more intensive management regime is required);
- Where management by cutting is employed, all arisings should be removed to prevent accumulation of nutrient levels;
- Cuts on established meadow grassland areas should be carried out no more than twice annually at the end of May and the end of September and should be timed to allow seed set of target species;
- Selected areas of meadow grassland should be left uncut during each mowing period in order to provide additional refuge habitat for reptiles, small mammals and invertebrates and encourage a more diverse flora;
- Areas managed as rough grassland should be established along hedgerow bases, woodland and scrub edges and around pond margins to provide structural diversity. These should be cut every 2-3 years in order to establish a tussocky sward favoured by small mammals, reptiles and hibernating invertebrates;
- If required, injurious weed species (e.g. Creeping Thistle) should be controlled, particularly whilst the grassland is becoming established. This should be achieved either through topping before flowering or using spot treatment with herbicide;
- No fertilisers, lime or manure should be added to any areas of the meadow/rough grassland;
- Scrub areas should be managed to maintain species diversity and prevent encroachment into the grassland areas or succession into woodland;
- Meadow grassland should be established as the ground layer within the proposed orchard area; and
- Use of diverse herb-rich seed mixes where appropriate for amenity grassland creation (e.g. Naturescape N14 'flowering lawn' seed mix or similar).

5.3.3 *Residual effects*

Although the proposed development is expected to result in an overall reduction in the current extent of grassland habitats within the site, it is recommended that the above measures are implemented to maximise the value of retained and newly created areas of grassland. Subject to implementation of these measure across all informal grassland habitats indicated on the *Parameter Plans* (Turley, 2025b-d) and the *Framework*

Masterplan (Turley, 2025a), it is considered that the proposed development would not result in a significant adverse impact on the grassland resource in a local context.

5.4 Hedgerows, scrub, scattered mature trees and woodland

5.4.1 *Potential effects*

The majority of existing hedgerow, scrub, and mature trees will be retained and enhanced within the development scheme, however the *Tree Survey Report and Arboricultural Impact Assessment* (HDA, 2025) identifies that the development proposals require the removal of approximately 165m of hedgerow across six different locations, removal of 12 trees and removal of two areas of scrub, largely to provide access links into and within the site.

The hedgerow, scrub, and mature trees within the site provide habitat for wildlife including bats, invertebrates and birds, and are of particular interest where these combine with areas associated with the aquatic habitats and areas of species-poor improved grassland. The network of hedgerow, scrub, and mature trees within the site also act as corridors for the movement of wildlife across the site. In the absence of mitigation, where these habitats are to be removed, there is likely to be a net loss of habitat as well as some loss of habitat continuity across the site and the wider area.

5.4.2 *Mitigation and enhancement proposals*

The development has been designed to ensure that loss of existing hedgerows, trees and scrub habitats is limited and where possible these features are retained within areas of informal open space within the proposed development. Development design has also avoided the use of retained woodland, hedgerows and mature trees as residential curtilages. Notwithstanding this, in line with the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a), the following measures should be implemented to minimise the effect of the loss of hedgerows, scrub and trees and to minimise the effect of the development on retained woodland, trees, scrub and hedgerow habitats:

- General/scrub:
 - New areas of species-rich hedgerow, woodland, orchard, scrub, tree and woodland planting should be established within areas of informal open space and within proposed landscape planting on the site boundaries, thereby creating new and enhanced links between areas of retained and newly created habitat within and adjacent to the site;
 - Further ornamental wildlife friendly tree and shrub planting should be carried out within areas of public open space and the gardens of the new development. Where appropriate this should include fruit and nut

producing species and nectar and pollen rich species in order to maximise benefits for wildlife;

- Construction activities should avoid works within the Root Protection Areas (RPAs) of the retained mature trees and hedgerows. Where incursion is unavoidable then works should be carried out in accordance with the protocols outlined in an agreed arboricultural method statement and supervised by a suitably qualified arboriculturalist;
 - New and supplementary hedgerow, tree and scrub planting should include a mix of native species typical of the local area, sourced from stock of local provenance where available;
 - Lighting should be restricted in the vicinity of new and retained scrub, trees, woodland, orchard, treelines and hedgerows during both the construction and operational phases in order to maintain their value for nocturnal wildlife. Further details are provided in *Section 5.7*; and
 - Scrub habitats should be managed to maintain species diversity and prevent succession into woodland.
- Hedgerows:
 - Any loss of hedgerow to road crossing points should be kept to the minimum width required for road provision. Where possible existing gaps should be used;
 - Supplementary planting of retained hedgerows should be carried out through planting up of existing gaps with native trees and hedging shrubs;
 - Proposed and existing hedgerows should be managed to encourage bushier growth and increased fruiting for the benefit of birds and other wildlife;
 - Existing standard trees within hedgerows should be maintained and new standard trees established within new and existing hedgerows; and
 - Where possible retained and newly created hedgerows, scrub and woodland edges should be complemented by a rough or meadow grassland buffer of at least 3m.
 - Mature trees and woodland:
 - Loss of mature trees across the site has been avoided wherever possible and no loss of woodland will arise. Any loss of trees should be mitigated through planting of new native trees elsewhere within areas of informal open space as indicated on the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a).
 - Selective thinning or pollarding of trees and scrub should be carried out to encourage increased light levels to ponds (see below). High quality mature native trees should however be retained and managed;

- New native tree planting should be carried out at a low density within areas of informal open space in order to ensure successive generations of high quality mature standard trees;
 - 'Ecotones' should be established along the retained woodland edges. These provide a gradation from woodland, to scrub to rough/ meadow grassland and are noted for their high biodiversity and provide complementary habitat for woodland species;
 - Maintenance and enhancement of standing and fallen deadwood habitats where safe to do so, including use of management techniques such as veteranisation of selected retained mature trees to promote deadwood; and
 - Provision of alternative areas for informal recreation to use of woodland.
- Orchard habitat:
The *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) identify approximately 0.57ha of proposed orchard habitat. This should be designed and managed as detailed below:
 - The proposed orchard should be planted with heritage fruit tree varieties appropriate to the local area. It is likely that this will include varieties of Apple, Pear and Plum;
 - Planting of orchard habitats using a diverse range of fruit trees selected to provide fruit and blossom for as much of the year as possible;
 - The orchard should be managed to encourage a diverse age structure of fruit trees;
 - Retention of standing and fallen deadwood habitats (where safe to do so);
 - The ground layer of the orchard should be enhanced to provide complementary habitats such as species-rich meadow grassland (see *Section 5.3*);
 - Provision or retention of complementary habitats in vicinity of new orchard area including hedgerows, scrub, woodland, wetland and grassland habitats;
 - Avoidance of herbicide, fungicide, fertiliser and pesticide use except where required to spot treating pernicious weeds and/or establish new fruit tree plantings; and
 - The orchard should be a publicly accessible community orchard thereby enhancing its cultural value.

Where appropriate these measures should be reflected in the detailed landscape scheme and it is recommended they are subject of a Management Plan ensuring establishment

and long-term management of a coherent network of semi-natural habitats across the site.

5.4.3 *Residual effects*

Although the proposed development will result in some loss of hedgerows and trees from within the site, the emerging proposals shown on the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) indicate that the number of trees present at the site would increase as a result of the proposed development. In addition new areas of woodland, scrub and orchard planting are proposed. It is also likely that additional lengths of hedgerows will be incorporated within the development at detailed design stages. Subject to implementation of the measures outlined above, the proposed removal of short sections of hedgerow and a limited number of trees is not considered to represent significant losses in a local context and would maintain a network of habitats allowing the movement of wildlife across and around the site.

5.5 **Ponds**

5.5.1 *Potential effects*

The development proposals show that the two ponds within the west of the site will be retained within public open spaces and not directly affected by the proposed development. The dry pond on the central section of the western site boundary is however likely to be lost. The network of ponds within the site is considered as a whole to be of moderate local value in its own right, as although individually the ponds are considered to be of no more than low local interest, being heavily shaded and shallow with limited aquatic vegetation, they form opportunities for specialist wildlife and are integral parts of wetland connectivity across the wider landscape.

Notwithstanding the above, in addition to loss of the westernmost pond, in the absence of mitigation and avoidance measures the proposed development has the potential to indirectly affect the retained ponds through impacts on the quality, quantity and constancy of water entering these features during the construction and operational phases, and through increased recreational pressure during the operational phase. These potential effects are described below.

5.5.2 *Mitigation and enhancement proposals*

The emerging proposals set out in the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) show that the development has been designed to ensure retention of two of the ponds, with only the dry pond on the western boundary lost to the proposed development. Four new waterbodies will be created either as stand-alone features or as part of the surface water drainage strategy.

Pollution avoidance measures should be implemented in the vicinity of the retained and newly created ponds during the construction period including:

- The design of the surface water drainage scheme for the proposed development should seek to maintain the quality, quantity and constancy of water entering the ponds;
- Workers should be fully briefed on ecologically sensitive habitats and all construction activities should be conducted in accordance with the Environment Agency's *Pollution Prevention for Businesses* guidance (www.gov.uk/guidance/pollution-prevention-for-businesses#construction-inspection-and-maintenance); and
- All hazardous liquids and chemicals should be stored and utilised in accordance with the 2002 Control of Substances Hazardous to Health (COSHH) Regulations (HSE, 2002).

The existing ponds are currently heavily shaded in places and regularly dry out due to excessive silt and leaf litter. It is recommended that management of the retained waterbodies aims to restore and enhance the diversity and quality of wetland habitat they provide to increase their value or suitability for a range of specialist species including aquatic plants, amphibians and invertebrates. The management of the waterbodies and associated semi-natural habitats across the site should be subject of a Management Plan, with management works including a selection of:

- Management of adjacent trees and scrub where appropriate to maintain habitat diversity, reduce shading and encourage marginal plant growth;
- Rotational dredging of the ponds when required to prevent excessive silting whilst minimising disturbance to aquatic habitats; and
- Management and control of non-native and invasive aquatic plant species such as Reedmace (*Typha*).

Where appropriate these measures would be reflected in the detailed landscape scheme and it is recommended are subject of a Management Plan to ensure the successful establishment and long-term management of a coherent network of semi-natural habitats across the site.

In addition to the retention, enhancement and management of two of the existing waterbodies, the emerging proposals indicate that it would also be possible to provide new wetland habitats created both as part of the surface water drainage scheme and as standalone features. These should be of wildlife friendly design, including:

- A variety of wetland habitats including permanent open water, ephemeral waterbodies, ditches, swales and reed/ sedgebeds.

- Margins should be gently sloping to increase opportunities for aquatic marginals and an extended 'draw down' zone;
- New waterbodies should be planted using native marginal and aquatic planting; and
- Once established, new wetland habitats should be brought into a long-term management plan applying measures such as those recommended for the existing waterbodies described above.

Measures to maintain the value of the wetlands for nocturnal wildlife through sensitive use of lighting are provided in *Section 5.7*.

5.5.3 *Residual effects*

Although the proposed development would likely result in the loss of the dry pond on the western site boundary, and it is possible that in the absence of avoidance and mitigation the development could result in impacts on the quality, quantity and constancy of water entering the waterbodies, subject to implementation of the measures outlined above, the proposals for the site are not considered to result in significant impacts in a local context. The enhancement of the existing retained waterbodies and creation of new wetland habitat could in fact substantially enhance the wetland resource of the site in the long term.

5.6 **Other habitats**

5.6.1 The proposed development also provides opportunities for the enhancement of proposed built areas of the site, including formal gardens and surrounding scattered trees, shrubs and scrub, for wildlife through appropriate management and new planting. This could be achieved through the implementation of the following:

- Prioritising use of native species typical of the local area in landscape planting where appropriate to do so and avoid invasive species and cultivars. Where possible these should be sourced from stock of local provenance;
- Use of native scrub or hedging as boundary features where appropriate;
- Planting of a diverse range of flowers and shrubs, including fruiting trees and shrubs, nectar and pollen-rich plants, providing possible food sources for birds, invertebrates and mammals;
- Provision of compost heaps, providing habitat for amphibians and invertebrates;
- Provision of gaps in new development boundary fencing to allow movement of wildlife such as Hedgehogs;
- Provision of a variety of bat and bird boxes on new buildings and existing trees; and

- Use of arisings from open space management to create log and brash piles within informally managed areas for sheltering amphibians, invertebrates and small mammals.

5.7 Bats

5.7.1 *Potential effects*

The *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) indicate that the building supporting roosting bats (B1) will be lost to the development proposals. In the absence of mitigation, proposals therefore have the potential to conflict with the nature conservation legislation afforded to bats.

In addition, the proposals indicate that two buildings (B2 and B6) and five trees providing suitable features for roosting bats (albeit not considered to be supporting roosting bats at the time of survey) will be lost as a result of the proposed works. Although current knowledge suggests that a licence will not be required for the demolition or removal of these features, in view of the highly mobile nature of bats, a precautionous approach to demolition/felling of these buildings/trees is set out below.

The site is considered to be of moderate local interest for foraging bats, with at least eleven species using the site. Potential negative effects on bats from the development include loss of limited areas of foraging habitat where buildings and hardstanding take the place of areas currently dominated by grassland, scrub, trees and hedgerow habitats, and disturbance of foraging bats and retained roost features by on-site lighting during the construction and operational phases. These potential effects are considered below.

5.7.2 *Avoidance, mitigation and enhancement*

Measures to avoid injury or killing of bats to comply with nature conservation legislation, and to avoid any long-term adverse effects on the favourable conservation status of the local bat population, are summarised below.

Roosting bats

The only roost recorded within the site, within B1, is considered to comprise a low status non-breeding day roost supporting an individual/ low numbers of Common Pipistrelle.

The proposed development works will result in the loss of the confirmed roost site identified in B1. As such, either: i) an EPS licence would need to be obtained from Natural England prior to the commencement of any works affecting the roosts; or ii) the work would need to be carried out under a Low Impact Licence under the supervision of an appropriately registered bat ecologist. All works affecting the bat roost should be supported by a detailed method statement describing how the favourable conservation

status of bats at the site would be maintained, including information on how loss of the roost site would be compensated and timing of works to minimise impacts on bats. Mitigation would centre on:

- Creation of appropriately designed and sited new roosting opportunities for bats, proportionate to that being lost; and
- Implementation of works affecting roost sites at a time of year when bats are least vulnerable to disturbance/likely to be present, employing sensitive working practices.

Measures by which this can be achieved are given below. These measures described should be implemented unless otherwise agreed with the local planning authority or Natural England.

Replacement of roost sites:

A strategy for mitigating the loss of the existing roost site is described below. Provision of replacement roosting opportunities should be reviewed at an appropriate stage in light of detailed design and, where necessary, the findings of updated surveys to determine the status of bats at the time of works.

Since the proposed works involve removal of B1 containing the identified bat roost prior to construction of new buildings at the site, it will not be possible to provide equivalent replacement opportunities in the new buildings prior to the loss of the roost. However, the species recorded roosting is known to roost in both trees and bat boxes (University of Bristol, 2010), with records of bat boxes having been used for successful breeding of Common Pipistrelle. It would therefore be possible to provide suitable replacement opportunities during the construction phase prior to new roosting opportunities being created within the new development.

To provide replacement opportunities for bats associated with the impacted roost site prior to works commencing, at least two bat boxes should be installed on suitable retained trees or building elevations within the site in the vicinity of the existing roost to be lost. These should be located within areas away from the proposed construction works. The precise position should be determined through consultation with an appropriately qualified and experienced bat ecologist, but will need to integrate the location of suitable retained trees and habitat connections with avoidance of areas with highest potential future lightspill. Suitable locations exist in association with retained mature trees on the hedgerow network within the site. Specifically, initial replacement roost mitigation should consist of the following bat boxes or similar as advised by a suitably qualified ecologist:

- 1 x Greenwood Ecohabitats Two Crevice Bat Box; and
- 1 x Greenwood Ecohabitats Medium Hollow Bat Box.

To provide the opportunity for bats to find and utilise new roost sites prior to development, bat boxes should be put in place at an appropriate stage in advance of works commencing.

Long-term roost replacement and enhancement

The bat boxes described above should be retained on completion of the development works in order to mitigate for the loss of bat roosting opportunities. Measures to ensure the long-term availability of roost sites following the proposed works are described below.

Common Pipistrelle are considered to be primarily crevice or hole-dwelling bats. In order to provide equivalent roosting opportunities to those being lost and deliver enhancements to the long-term roosting potential of the site, a number of features suitable for crevice dwelling bats should be incorporated into the new buildings. A list of potential long-term replacement roost features proportionate to the identified roosts and potential roosting features at the site to be lost to the proposed works is given below:

- A minimum of ten dedicated features such as Schwegler 1FR Bat Tubes or 'Habibat' type boxes should be incorporated into south to west-facing elevations of the new buildings; and
- A selection of other opportunities for crevice dwelling bats (a minimum of ten) should be provided in a variety of locations on the new buildings. These may include a selection of:
 - Provision of 20mm x 100mm gaps beneath roof and ridge tiles to allow access by bats to the underfelt below. Alternatively, dedicated bat access tiles could be installed to perform a similar function; and
 - Provision of 20mm x 200mm gaps along soffit boards providing access into the soffit box (using self-contained soffit bat boxes if desired).

Where any features such as crevices and voids for roosting bats are provided, the lining of the roof should comprise bitumen (traditional) 1F felt that is of a non-woven short fibred construction. No breathable roofing membranes should be used in areas accessible by bats in order to avoid entanglement.

All replacement roost sites should be located away from areas most affected by construction and operational phase noise and lighting. The precise position of replacement roost sites should be determined through consultation with an appropriately qualified and experienced ecologist at the detailed design stage, but would in any case need to integrate the location of suitable retained trees and habitat connections with avoidance of areas subject to significant levels of light spill.

Approach and timing of works:

Works affecting roost sites should ideally be carried out at a time of year when bats are least likely to be present and susceptible to disturbance. Works should therefore be carried out between either April to May or September to October to avoid the hibernation and breeding seasons.

In the event that building stripping is required outside of the timeframe described above then works potentially affecting roosting bats should be either: (i) preceded by an updated survey to confirm the absence of breeding roosts at the time of works (for works between June and August); or (ii) carried out during periods of mild weather when bats are active with minimum night time temperatures exceeding 8°C for five consecutive nights (for works between November and February).

As identified above, bat boxes on retained trees should be provided in advance of loss of any roost in order to provide alternative roost sites prior to works commencing.

Trees:

Although no bat roosts have been recorded within any of the trees subject to survey, where retention of trees identified as providing opportunities for roosting bats is not possible within the proposed development, due to the transitory nature with which bats may use roost sites in trees it is recommended that felling works are carried out in accordance with the following procedure, including where the Phase 2 surveys have not identified a roost as being present (BCT, 2023):

1. Trees suitable for climbing inspections should first be climbed by a licensed bat worker to inspect potential roost sites for bats. It should be noted that trees with moderate or higher potential (PRF-M) that have not been previously or recently subject to Phase 2 bat roost surveys may need to be climbed on up to 3 occasions between the months of May and September inclusive to determine the presence/ likely absence of roosting bats. In the event that a bat (or evidence of bats) is encountered, and the tree cannot be retained, then felling/works to this tree should be delayed until an EPS licence has been sought and obtained from Natural England prior to soft felling in accordance with the methodology described under Point 3 below.
2. Trees with 'high' or 'moderate' potential (PRF-M), for which an exhaustive climbed inspection is not possible or practical, should be subject to three emergence/re-entry surveys following BCT best practice guidelines to confirm the absence of roosting bats prior to any works affecting the tree commencing. Emergence surveys can only be carried out between the months of May and September inclusive.

3. 'Low' potential trees (PRF-I) that are unsuitable for climbing inspections and/or have not been subject to an emergence survey immediately in advance of works should be 'soft felled' under the supervision of a suitably qualified ecologist. Soft felling involves progressive removal of the tree, using ropes to gently lower sections of tree potentially supporting roosting bats to the ground for inspection by a suitably qualified ecologist. Where appropriate, features should be left on the ground overnight before clearing to allow any bats present to escape.

In the event that a roosting bat is discovered during any of the above works, trimming/felling works must cease and Natural England contacted to agree an appropriate course of action. A licence may need to be applied for, and approved, before works can continue.

Further survey:

Bats may occupy roost sites on a seasonal or temporary basis and old roost sites may be abandoned and new roosts occupied within relatively short periods of time. Where appropriate, Phase 2 bat roost surveys of potential roost features should be updated in advance of works commencing. The guidance of a suitably qualified ecologist should be sought to determine if and when surveys should be updated with regard to the development programme. This would ensure that up-to-date information is available to inform the extent of any mitigation and licensing requirements relating to bats.

Foraging and commuting bats

Notwithstanding the current limited interest of the site for foraging and commuting bats, wherever possible development proposals should seek to maintain and enhance the value of the site for this group in accordance with 2024 NPPF and the 2006 NERC Act. The *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) allow the retention of the majority of the existing hedgerow network which forms the focus of bat activity at the site, along with associated ponds, scrub and trees. As shown in the *Framework Masterplan* (Turley, 2025a) it is proposed that the green corridors within which the hedgerows are located would be subject to adjacent habitat creation works such as woodland and native scrub planting, creation of meadow grassland and creation and enhancement of wetland habitats. These will complement the existing hedgerows and provide higher quality bat habitat on areas currently dominated by species-poor - improved grassland of limited value to foraging bats. In addition, more substantial areas of informal open space comprising semi-natural habitats are proposed in the east of the site and it is also expected that the proposed areas of open space within the new development areas will provide new opportunities for foraging bats as these mature, however consideration should also be given to the use of pollen and nectar rich species within the formal planting schemes in order to maximise invertebrate prey.

Levels of external lighting currently present on site are relatively low and associated with streetlighting along the southern site boundary. The integrity of retained and new foraging and commuting habitat within the site should be conserved through the sensitive use of lighting throughout the construction and operational phases of the proposed development. In accordance with the Bat Conservation Trust and Institute of Lighting Practitioners guidance (BCT and ILP, 2023) this could be achieved through a selection of the following measures in the vicinity of retained/ newly created areas of suitable foraging habitat such as scrub, woodland, mature treelines and hedgerow habitats, and in the vicinity of retained trees providing opportunities for roosting bats:

- Use of only the minimum amount of light required for safety and amenity, and minimise upward reflected light.
- No bare bulbs or upward-pointing lights. The spread of light should be kept near or below the horizontal (luminaires with a negligible or zero Upward Light Ratio).
- Use of LED luminaires with warm white narrow-spectrum bulbs <2700k to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm.
- Avoidance of light-spill into adjacent areas through luminaire design or with accessories, such as hoods, cowls, louvres and shields to direct the light.
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.
- For pedestrian lighting, waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges should be used. The use of bollard or low-level downward-directional luminaires is now generally discouraged.
- Where necessary, use of embedded road lights to illuminate roadways and/ or only high-risk stretches of roads such as crossings and merges.
- Limiting the times that lights are on to provide some dark periods for wildlife through use of timers and/or use of automatic dimmers to reduce lighting outside times of peak use.

All detailed external lighting proposals should be reviewed at appropriate detailed design stages by a suitably qualified ecologist. This could be subject of a condition of planning consent.

5.7.3 *Residual effects*

Following implementation of the mitigation and enhancement measures described above, it is unlikely that the proposed development would have any adverse long-term effects on the favourable conservation status of the local bat population. Development of the site could in fact create opportunity to provide enhanced roosting, foraging and commuting opportunities for the local bat population in the long term.

5.8 Badgers

5.8.1 *Potential effects*

The emerging proposals indicate that the small potential main Badger sett located on the central section of the western site boundary will be lost to the proposed development. In addition, the proposed development will result in loss of foraging habitat where the existing improved/ modified grassland fields are lost to built form.

5.8.2 *Avoidance, mitigation and enhancement*

If possible the small, possible main, Badger sett located on the western site boundary should be retained and afforded a suitable buffer to prevent damage and disturbance during construction and operation of the proposed development.

The emerging proposals indicate however that this will not be achievable. In the event that it is not possible to retain the Badger sett or works have potential to damage an active sett or disturb Badgers present, it will be necessary to apply for a Natural England licence to close and/or damage/destroy the sett prior to works commencing. The recommended method for sett closure involves the affected entrances being “soft stopped” initially to confirm current use, followed by the installation of one-way gates at the sett entrances. The entrances are then monitored until use by Badgers has ceased, after which the sett is destroyed under the supervision of a suitably qualified ecologist. Where only part of a Badger sett is to be affected by the works, exclusion by use of one-way gates may not be effective due to the presence of interlying tunnels, in which case it may be necessary to proceed to supervised destruction of the affected part of the sett under the supervision of a suitably qualified ecologist even if the entrance remains active. Closure of setts usually takes in the region of three to six weeks and licences are usually only granted for works affecting setts between July and November outside of the Badger breeding season.

As the sett located on the western site boundary is a possible main Badger sett, then it may be necessary to construct a replacement sett close to the affected sett but away from the areas of work in order to provide suitable replacement refuge for any Badgers displaced during sett closure. Suitable opportunities for provision of a replacement artificial Badger sett are provided by the substantial area of informal greenspace in the east of the site.

All procedures relating to the closure or damage to a sett or disturbance of occupying Badgers would need to be subject of a detailed method statement and monitored by the licensee and/or accredited agents. The requirement for this would be assessed on finalisation of the scheme design and, if necessary, the detail of any replacement sett provision would be provided in the detailed method statement to be prepared in support of the licence application.

In addition, where possible opportunities for foraging Badgers should be maintained at the site following development. The *Framework Masterplan* (Turley, 2025a) indicates that habitats of high value for foraging Badgers will be retained within the site and will include the establishment and maintenance of orchard, scrub and species-rich grassland habitats within the area of open space in the east of the site. Although the proposed development will result in a loss of foraging habitat where built development takes the place of grassland fields, due to the abundance of suitable foraging opportunities in the wider area, this loss is unlikely to be significant in a local context, and would be substantially off-set by habitat enhancement and creation associated with the eastern open space.

Badgers are a highly mobile species and new setts may be created and old setts abandoned over short periods of time. It is therefore recommended that the site is resurveyed prior to commencement of development to ensure that the status of Badgers has not changed.

It is also recommended that construction activities take into account the presence of foraging Badgers at the site. To ensure the safety of Badgers and other wildlife foraging and moving around the site during the construction phase, in order to prevent entrapment any steep sided holes left open overnight during the site preparation, earthworks and construction should be equipped with a mammal ladder (a reinforced plywood board >60cm wide set at an angle of no greater than 30° to the base of the pit) and temporarily open pipes with a diameter of >150mm plugged.

5.8.3 *Residual effects*

Implementation of the measures outlined above would ensure compliance with the 1992 Protection of Badgers Act and maintain opportunities for sett building and foraging Badgers within the site following development. Consequently no significant adverse long-term effect on the local Badger population would be expected to arise as a result of the proposed development.

5.9 **Birds**

5.9.1 *Potential effects*

The proposed development is focused on species-poor agriculturally improved/ modified grassland generally of low value for birds in its own right. Although the development proposals will result in the loss of limited areas of habitats of higher interest, such as sections of hedgerow and individual trees, the majority of the habitats of highest ornithological interest, comprising the wider hedgerow network and associated trees, scrub and ponds will be retained.

Given the abundance of similar and higher quality habitat in the wider area it is unlikely that the proposed works would result in significant effects on birds in a local context, however where possible development proposals should seek to maintain and enhance opportunities at the site for birds and have due regard to nature conservation legislation protecting nesting birds.

5.9.2 *Avoidance, mitigation and enhancement proposals*

Wherever possible, the development proposals should seek to maintain and enhance opportunities for birds of nature conservation interest at the site. The establishment and enhancement of scrub, woodland, wetland, orchard and grassland habitats indicated on the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) are expected to maintain and enhance opportunities for a range of bird species in the long-term. In order to protect breeding birds at the site and maximise the value of the development for birds, it is recommended that the following measures are implemented:

- Removal of trees, hedgerows, scrub or buildings and/or initial disturbance of open ground should be carried out outside the bird-breeding season (i.e. generally not between March and early September inclusive) unless supervised by a suitably experienced ecologist;
- Retention of hedgerows and scrub within the development areas where possible to do so;
- Inclusion of new native tree and species-rich scrub planting within the landscape planting strategy;
- Enhancement of retained habitats including scrub, hedgerow and grassland habitats through the provision of replacement/complimentary species-rich native tree and scrub/ hedgerow planting, retention of deadwood habitats where safe to do so, and sensitive management;
- Creation of 'ecotone' habitats bordering the proposed new woodland planting comprising a gradation from woodland to scrub to rough and meadow grassland habitats;
- Use of high value plants for foraging birds within the landscape planting scheme. This should include fruit and nut producing species in addition to those with high pollen and nectar yields (attracting invertebrate prey);

- Provision of a range of bird boxes situated on new buildings and existing trees within the site; and
- Hedgerow, scrub and tree management works should be carried out during January/February to allow the majority of fruits and nuts to be eaten prior to cutting/coppicing and to avoid impacts on nesting birds.

Where appropriate these measures should be reflected within the detailed design and a Landscape and Ecological Management Plan.

5.9.3 *Residual effects*

Subject to the measures outlined above, the proposed development is unlikely to result in any significant overall adverse impact on birds at a local level.

5.10 **Reptiles**

5.10.1 *Potential effects*

The site is considered to support a 'low' population of Slow-worm and a 'very low' population of Grass Snake, associated with scrub edges and hedgerow bases across the site. Proposals for the site are expected to result in loss of a substantial proportion of the suitable reptile habitat within the site including grassland and scrub. In the absence of mitigation and avoidance measures there is the potential for the development works to affect these species at local level and result in contravention of nature conservation legislation relating to reptiles by killing or injuring reptiles during the course of the site clearance works.

5.10.2 *Avoidance, mitigation and enhancement*

Where habitats with the potential to support reptiles are lost to development, in view of the limited number and distribution of reptiles recorded, and assuming that the site management remains the same (and subsequently the distribution and character of habitats on site does not change significantly prior to construction), a full reptile translocation exercise is not recommended in this instance prior to development commencing. Instead, it is recommended that a precautionary approach to vegetation clearance is employed to displace any reptiles present into areas of retained or newly created habitats. This would involve a phased approach to vegetation clearance as described in the Reptile Survey Report provided in *Appendix E*. The mitigation procedure should be detailed within a reptile method statement to be agreed with the Local Planning Authority.

The *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) show that an area of open space would be created in the east of the site and other open spaces will be created around the development areas. These areas will include suitable

reptile habitats including rough/meadow grassland and scrub habitats in addition to a network of wetland features associated with the site surface water drainage system. Subject to detailed design these areas could maintain and possibly enhance opportunities for reptiles at the site.

Habitat retention, creation and enhancement measures to maximise the value of these areas for reptiles include:

- Enhancement of woodland edge habitats through creation of ecotones (a gradation from woodland to scrub to rough grassland habitats);
- Creation of new waterbodies and enhancement of existing ponds in order to provide improved habitats favoured by Grass Snake;
- Maintenance and establishment other high quality reptile habitats within the landscape scheme such as rough and meadow grasslands and scrub;
- Provision of opportunities for hibernation and refuge through provision of log/brush piles and purpose-built hibernaculum; and
- Securing the long-term integrity of new and retained reptile habitat through inclusion within a long-term management plan.

To reduce effects on reptiles from increased cat predation it is recommended that new residents are provided with a 'Living with Wildlife' leaflet to raise awareness about the habitats within and adjacent to the site and the presence of local wildlife, including reptiles. This should include advice to keep cats in at dusk/ dawn and ensuring cats wear collars with bells to avoid them killing reptiles and other groups, such as small mammals.

5.10.3 *Residual effects*

Following implementation of the measures described above, it is unlikely that the proposed development will have an adverse effect on the local reptile population. Furthermore, through habitat retention, enhancement, creation and management, development at the site could in fact provide opportunities to safeguard and enhance its value for reptiles in the long-term.

5.11 **Invertebrates**

5.11.1 *Potential effects*

The development proposals are primarily focussed on species-poor semi-improved grassland which offers few opportunities for invertebrates. The *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) show that habitats of higher value for invertebrates such as the hedgerow network and associated ponds and scrub

can be retained within the proposed development, with only limited sections of hedgerow lost for access.

5.11.2 *Avoidance, mitigation and enhancement*

Notwithstanding the limited interest of the site for invertebrates and the retention of areas of highest quality habitats, wherever possible, development proposals for the site should seek to maintain and enhance opportunities for invertebrates. In order to maximise the value of the landscape scheme for invertebrates, it is recommended that the following measures, compatible with the proposed development as illustrated on the *Parameter Plans* (Turley, 2025b-d) and the *Framework Masterplan* (Turley, 2025a) are implemented:

- Inclusion of new native tree and species-rich scrub planting within the landscape planting strategy;
- Enhancement of hedgerow edge habitats through supplementary planting with native species;
- Creation of ecotones alongside woodland and hedgerow edges (a gradation from woodland/hedgerow to rough and meadow grassland habitats);
- Creation of new wetland habitat in association with the SuDS and as standalone features to be planted with a variety of native aquatic, marginal and wet grassland plant species;
- Use of high value plants for invertebrates within the landscape planting scheme, including species with high pollen and nectar yields. The formal planting scheme should consider Royal Horticultural Society guidance 'Plants for Pollinators'⁵; and
- Use of arisings from management to create log and brash piles along scrub, hedgerow and woodland edges and waterbody margins.

5.11.3 *Residual effects*

Following implementation of the measures described above, it is unlikely that the proposed development would have any adverse long-term effect on invertebrates, and the proposals could potentially increase the value of the site for some invertebrate species in the long-term.

5.12 **Management and monitoring**

Management

5.12.1 It is recommended that the habitat creation, restoration and enhancement measures outlined in this report form the basis of a detailed Landscape and Ecology Management Plan, the provision of which could be subject to a condition of planning consent. The detailed plan should be subject to approval by the local planning authority and should

⁵ <https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/rhs-perfect-for-pollinators-plants-of-the-world.pdf>

include detailed prescriptions for management activities including schedules detailing the timing of management works and 'milestones' by which the implementation and success of the proposed management can be monitored. The management plan would ensure the long-term maintenance and enhancement of the ecological value of habitats within the site for wildlife, landscape and amenity.

Monitoring

5.12.2 In order to assess the effectiveness of the mitigation described within this report during the operational phase of the proposed development, and to ensure the successful establishment of ecological enhancements across the site, it is recommended that a monitoring programme is implemented as part of the ongoing management to assess the condition of retained, enhanced and newly created habitats, and target species of nature conservation interest such as reptiles. This could be subject to a condition of planning consent.

5.12.3 In addition, prior to the site preparation and construction works the advice of a suitably qualified ecologist should be sought with regard to any requirement to update ecological survey work in order to ensure that mitigation proposals reflect the current status of species occurring at the site at the time of the development works.

5.13 Conditions

5.13.1 With regards to the recommendations provided above, it is suggested that consideration be given to the inclusion of ecology-related planning conditions in any outline planning permission granted for the site. This would allow consideration of future design stages and any subsequent changes in the ecological character of the site. These should cover:

- Preparation and agreement of a Construction Ecological Management Plan (CEMP) setting out measures to avoid and mitigate effects of construction on features of ecological interest at the site during construction. This should be based on updated surveys for protected and notable species where appropriate.
- Preparation and review of detailed external lighting proposals to ensure avoidance of adverse lighting on nocturnal wildlife and associated habitats.
- Preparation and agreement of a Landscape and Ecological Management Plan (LEMP), setting out measures for the establishment and long-term management of habitats across the site.
- Preparation of an ecological auditing scheme to monitor establishment of proposed habitat creation works.

6 CONCLUSION

- 6.1 The site is dominated by habitats of limited nature conservation interest in their own right and subject to the implementation of the recommended measures to maintain the habitat resource of the site and maintain populations of protected and notable species, no reduction in the ecological interest of the site or its surrounds is likely to arise as a result of the proposed development. Development at the site could in fact provide opportunity to enhance its nature conservation interest for a number of species through incorporation of the measures outlined in *Section 5* above. This is in keeping with planning policy and the 2006 NERC Act.
- 6.2 It is therefore concluded that there appear to be no overriding nature conservation constraints that would preclude the proposed development of the site.

REFERENCES

Bat Conservation Trust (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. Bat Conservation Trust, London.

Bat Conservation Trust (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition*. Bat Conservation Trust, London.

Bat Conservation Trust and Institute of Lighting Professionals (2023) *Bats and artificial lighting in the UK: Bats and the Built Environment series*. Institute of Lighting Professionals, Rugby.

BRIG (2011) *UK Biodiversity Action Plan*. UK Biodiversity Partnership. Available from: <http://jncc.defra.gov.uk/page-5155>

Bright, P. Morris, P. & Mitchell-Jones, T. (1996) *The Dormouse Conservation Handbook*. English Nature, Peterborough.

Calne Town Council and Calne Without Parish Council (2018) *Calne Community Neighbourhood Plan*. Calne.

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Version 1.1)*. Chartered Institute of Ecology and Environmental Management, Winchester.

Cresswell, W. and Whitworth, R. (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. English Nature, Peterborough.

Department for Communities & Local Government, (2021) *National Planning Policy Framework: Legislation and policy, Good practice and guidance*. Sited on https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Dietz C, Helversen O V, and Nill D (2011) *Bats of Britain, Europe and Northwest Africa*. A & C Black Publishers Ltd, London.

GOV.UK (2025) *Pollution prevention for businesses' guidelines*. Accessed from <https://www.gov.uk/guidance/pollution-prevention-for-businesses> in October 2025.

Harris S, Cresswell P and Jefferies D (1989) *Surveying Badgers*. The Mammal Society, Bristol.

HDA (2025) *Land at Penn Farm, Calne: Tree Survey Report and Arboricultural Impact Assessment*. Hankinson Duckett Associates, October 2025.

Joint Nature Conservation Committee (2016) *Handbook for Phase 1 Habitat survey: a technique for environmental audit*. JNCC, Peterborough.

Langton T, Beckett C, and Foster J. (2001) *Great Crested Newt Conservation Handbook*. Froglife, Halesworth, Suffolk.

MAGIC (2023) *Interactive Map*. Available from: <http://magic.defra.gov.uk/MagicMap.aspx> [Accessed March 2025].

Turley (2025a) *Land at Penn Farm, Calne: Framework Masterplan, dwg. CASS3002_3001/S*.

Turley (2025b) *Land at Penn Farm, Calne: Parameter Access, dwg. CASS3002_3601/F*.

Turley (2025c) *Land at Penn Farm, Calne: Parameter Green Infrastructure*, dwg. CASS3002_3602/F.

Turley (2025d) *Land at Penn Farm, Calne: Parameter Land Use*, dwg. CASS3002_3600/F.

Natural England (2007) *Badgers and Development: A Guide to Best Practice and Licensing*. Natural England.

Natural England (2009) *Guidance on 'Current Use' in the definition of a Badger Sett*. Natural England.

Ratcliffe, D.A. (ed.) (1977) *A Nature Conservation Review, Vols. 1 and 2*. Cambridge University Press, Cambridge.

Royal Society for the Protection of Birds (2021) *Birds of Conservation Concern 5*. RSPB, Bedfordshire.

Stace, C. (2019). *New Flora of the British Isles (fourth edition)*. Cambridge University Press, Cambridge.

Spellerberg, I.F. (1992) *Evaluation and Assessment for Conservation*. Chapman & Hall, London.

UKBP (2007) *UK Biodiversity Action Plan*. UK Biodiversity Partnership. Available from: <http://jncc.defra.gov.uk/page-5155>.

Usher, M.B. (ed.) (1986) *Wildlife Conservation Evaluation*. Chapman & Hall, London.

Wiltshire Council (2015) *Wiltshire Core Strategy, Adopted January 2015*. Wiltshire Council.

HDA Document Control and Quality Assurance Record

Project Title: Land at Penn Hill
Project Reference: 1071.1
Document Title: 2025 Ecological Assessment
Commissioning Party: Castlewood Commercial Properties

Issue	Description	Date of Issue	Signed
1	2025 Ecological Assessment	November 2025	AM

	Personnel	Position
Authors	Filippo Faraone	Senior Ecologist
	Adrian Meurer MCIEEM	Director
Approved for issue	Adrian Meurer MCIEEM	Director

© Hankinson Duckett Associates. All rights reserved

No part of this report may be copied or reproduced by any means without prior written permission from Hankinson Duckett Associates. If you have received this report in error, please destroy all copies in your possession or control and notify Hankinson Duckett Associates.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Hankinson Duckett Associates no other party may use, make use of or rely on the contents of the report. No liability is accepted by Hankinson Duckett Associates for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Hankinson Duckett Associates using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Hankinson Duckett Associates has been made.

APPENDIX A

Desk study results



KEY

 Ancient & Semi-Natural Woodland

 Ancient Replanted Woodland

Map data from OpenStreetMap 2025-11-18

CLIENT
Castlewood Commercial Properties

PROJECT:
Land at Penn Hill

TITLE:
2km Search for Local Nature Reserves and Ancient Woodland

SCALE AT A3: See Scale Bar **DATE:** November 2025

1071.1

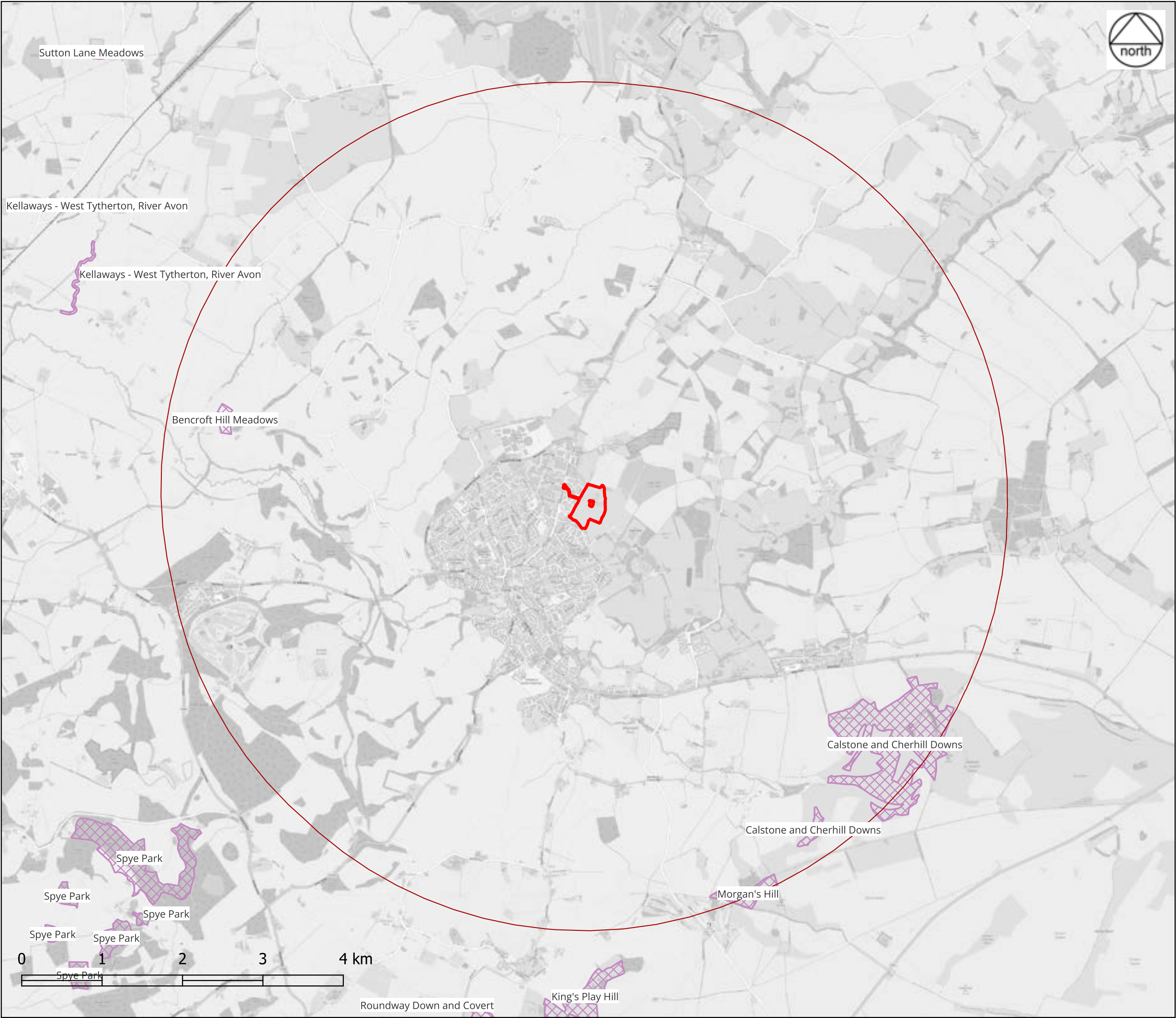
Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

© hankinson duckett associates

The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

**Landscape Architecture
Masterplanning
Ecology**





KEY

 Sites of Special Scientific Interest

Map data from OpenStreetMap 2025-09-03

CLIENT
Castlewood Commercial Properties

PROJECT:
Land at Penn Hill

TITLE:
5km Search for SSSIs and NNRs

SCALE AT A3: DATE:
See Scale Bar November 2025

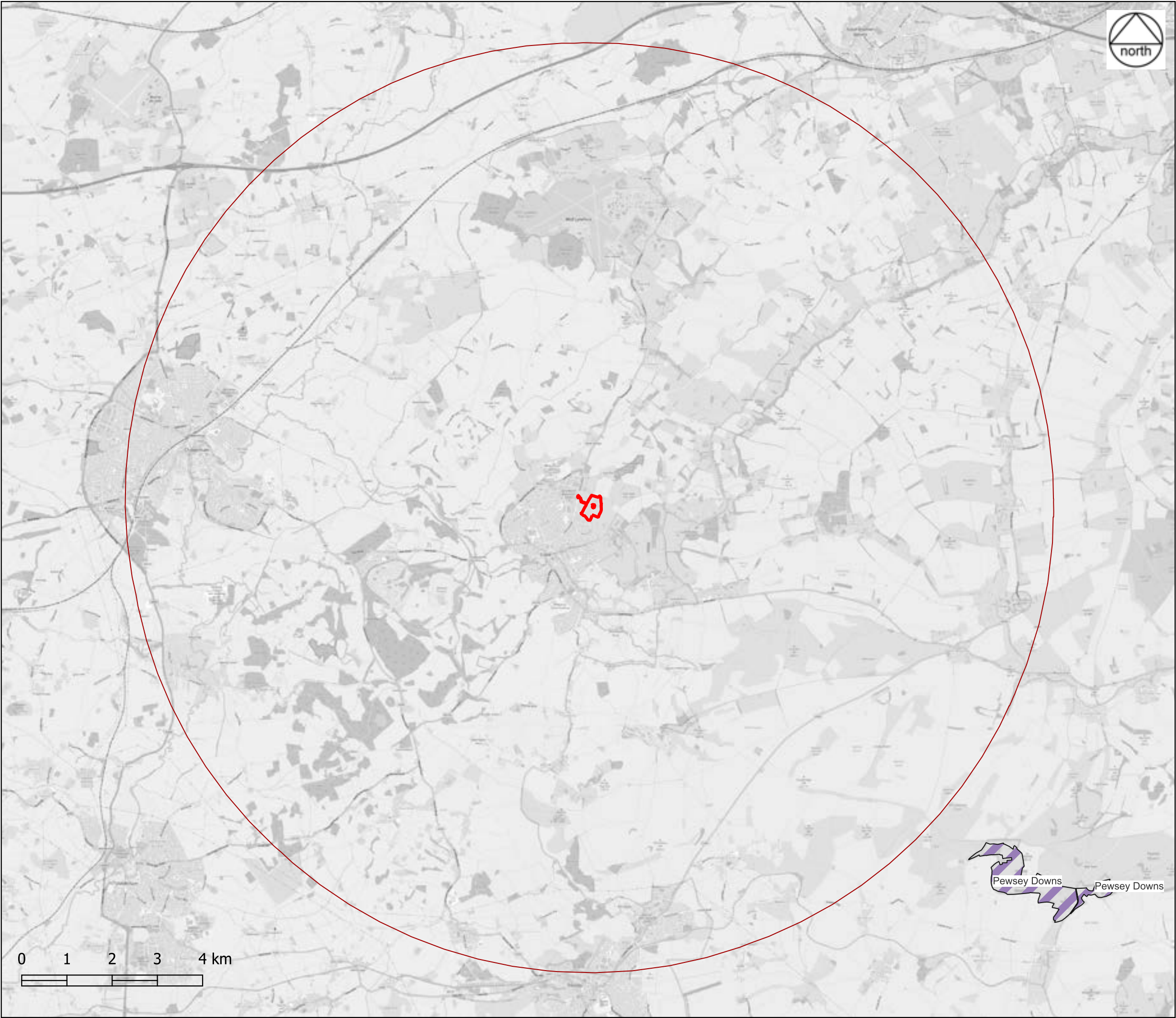
1071.1

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology





KEY

 Special Areas of Conservation

Map data from OpenStreetMap 2025-11-18

CLIENT
Castlewood Commercial Properties

PROJECT:
Land at Penn Hill

TITLE:
10km Search for Internationally Designated
Areas

SCALE AT A3:
See Scale Bar

DATE:
November 2025

1071.1

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

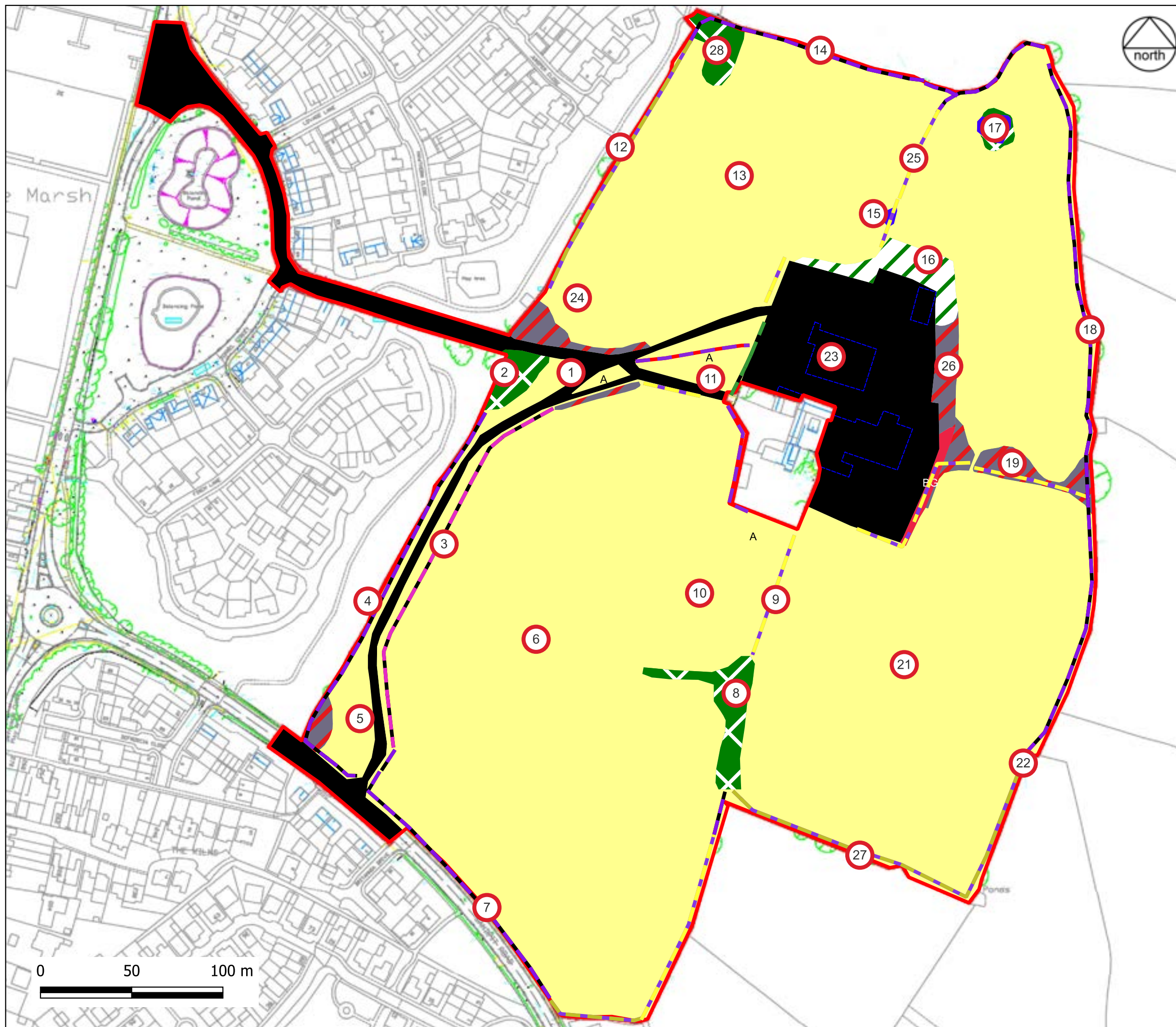
© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX B

2025 UK Habitat Classification Survey plan and target notes



- KEY**
- Site boundary
 - Target Note
 - Bramble scrub
 - Developed land; sealed surface
 - Mixed scrub
 - Modified grassland
 - Other woodland; broadleaved
 - Ponds (non-priority habitat)
 - BG Bare ground
 - Buildings
 - Non-native and ornamental hedgerow
 - Line of trees
 - Native hedgerow
 - Native hedgerow with trees
 - Species-rich native hedgerow
 - Species-rich native hedgerow with trees - associated with bank or ditch

CLIENT:
Castlewood Ltd

PROJECT:
Land at Penn Hill

TITLE:
UK Habit Classification Survey Plan

SCALE AT A3:
See scale bar

DATE:
October 2025

1071.1 / 01a

Target Notes

1. A species-poor semi-improved grassland verge that has not been recently managed with species including Yorkshire Fog *Holcus lanatus*, Cock's Foot *Dactylus glomerata*, Creeping Cinquefoil *Potentilla reptans*, Hedge Bindweed *Calystegia sepium*, Common Ragwort *Jacobaea vulgaris*, False Oat-grass *Arrhenatherum elatius*, Hogweed *Heracleum sphondylium*, Great Willowherb *Epilobium hirsutum*, Common Nettle *Urtica dioica*, Greater Knapweed *Centaurea scabiosa*, Yarrow *Achillea millefolium*, Black Medick *Medicago lupulina*, Greater Burdock *Arctium lappa* and Scentless Mayweed *Tripleurospermum inodorum*.
2. Steep bank of dense scrub with semi-mature Willow *Salix* sp., Field Maple *Acer campestre*, Hawthorn *Crataegus monogyna*, Crab Apple *Malus sylvestris*, White Willow *Salix alba*, Elder *Sambucus nigra* and Ash *Fraxinus excelsior* with ground flora including Common Nettle, Bramble *Rubus fruticosus*, Red Campion *Silene dioica*, Lords-and-Ladies *Arum maculatum* and Shepherds Purse *Capsella bursa-pastoris*.
3. Intact species-poor hedgerow adjoining a line of Willow and Ash pollards, with the hedge dominated by Bramble and Dog Rose *Rosa canina*, and the adjoining verge and dry ditch comprising Hedge Bindweed, Field Horsetail *Equisetum arvense*, Common Nettle, Great Willowherb, Spearmint *Mentha spicata*, Bramble, Yorkshire Fog and False Oat-grass.
4. Unmanaged intact species rich hedgerow comprising English Elm *Ulmus procera*, Ash, Field Maple, Hawthorn, Sycamore *Acer pseudoplatanus* and Dog Rose.
5. A small section of unmanaged species-poor semi-improved grassland with species including Yorkshire Fog, Creeping Thistle *Cirsium arvense*, Hedge Bindweed, Teasel *Dipsacus fullonum*, Ragwort, False Oat-grass, Hogweed, Great Willowherb, Common Nettle, Yarrow Selfheal *Prunella vulgaris*, Greater Knapweed, Common Daisy *Bellis perennis*, False Brome *Brachypodium sylvaticum*, Bush Vetch *Vicia sepium*, Crow Garlic *Allium vineale*, Common Nettle, Hedge Bedstraw *Galium mollugo*, Rough Meadow Grass *Poa trivialis*, Yellow Oat Grass *Trisetum flavescens*, Germander Speedwell *Veronica chamaedrys*, White Clover *Trifolium repens*, Ground Ivy *Glechoma hederacea*, Rosebay Willowherb *Chamaenerion angustifolium*, Perennial Ryegrass *Lolium perenne*, Ribwort Plantain *Plantago lanceolata*, Creeping Cinquefoil, Meadow Barley *Hordeum secalinum*, Cocks Foot, Doves Foot Cranesbill *Geranium molle* and Curled Dock *Rumex crispus*. Bramble has begun to encroach into the grassland from the west.
6. A field of species-poor semi-improved grassland, recently mown at the time of survey, with species including Perennial Ryegrass, False Oat-grass, Sweet Vernal Grass *Anthoxanthum odoratum*, Timothy *Phleum pratense*, Yorkshire Fog, Common Knapweed *Centaurea nigra*, Common Ragwort, Creeping Cinquefoil, Creeping Buttercup *Ranunculus repens*, Red Clover *Trifolium pratense*, Broad-leaved Dock *Rumex obtusifolius*, Wild Carrot *Daucus carota*, Creeping Thistle, Greater Plantain *Plantago major*, Common Mouse-ear *Cerastium fontanum* and Soft Rush *Juncus effusus*.
7. An unmanaged and intact species-rich hedgerow to approximately 4m in height, with species including Hawthorn, Sycamore, Bramble, Hazel *Corylus avellana*, Guelder Rose *Viburnum opulus*, Ivy *Hedera helix*, English Elm and Wild Privet *Ligustrum vulgare*, with ground flora including Creeping Bent *Agrostis stolonifera* and Lords-and-Ladies. The northern section of the hedge merges into an area of dense scrub (TN8).
8. An area of dense scrub around a small copse and pond (dry at the time of inspection) with several mature Ash trees, and further woody species comprising Hawthorn, Field Maple, Wild Privet, Blackthorn *Prunus spinosa* and Elder, with the understory comprising Bramble, Lords-and-Ladies, Common Nettle, Burdock and Creeping Thistle.

9. An intact species-poor hedgerow with trees, approximately 2.5m in height on average with species comprising English Elm, Ash, Blackthorn, Wild Privet, Hawthorn, Ivy and Bramble.
10. A small field of species-poor semi-improved grassland with species composition as described at TN6 with patches of Yarrow and Hogweed, with Creeping Thistle and Spear Thistle *Cirsium vulgare* on the field margins.
11. Managed species-poor amenity grassland with Cherry *Prunus* sp. Trees, an early mature Oak tree and a short stretch of species-poor Leylandii *Cupressus × leylandii*. hedgerow. Species within the grassland include Common Daisy, Creeping Buttercup, Yorkshire Fog, Perennial Ryegrass, False Oat Grass and Yellow Loosestrife.
12. An unmanaged intact species-rich hedgerow with one mature Pedunculate Oak *Quercus robur* and other semi-mature tree and hedgerow species comprising Field Maple, English Elm, Wild Privet, Blackthorn, Elder and Bramble.
13. A field of species-poor semi-improved grassland with species composition as described at TN6.
14. An unmanaged intact species-rich hedgerow as described at TN12 but growing to a height of approximately 3m.
15. A small occasional pond, dry at the time of survey, with a mature Crack Willow *Salix × fragilis* overhanging, and flora including Bramble, Red Campion and Common Hogweed.
16. A belt of broadleaved woodland largely comprising Goat Willow *Salix caprea*, with an understory of Dogwood *Cornus sanguinea*, Hawthorn, Elder, Bramble, Common Nettle, Common Hogweed and Hedge Bindweed
17. A pond, dry at the time of inspection, with several mature Crack Willows overhanging, surrounded by scrub with species comprising Hawthorn, Bramble, Common Nettle, Cock's Foot, Hedge Bindweed, Broad-leaved Dock, Cow Parsley *Anthriscus sylvestris*, Hogweed and Great Willowherb.
18. Unmanaged and intact species-rich hedgerow with several mature and semi-mature Pedunculate Oak and Ash trees, and further species including Hawthorn, Elm, Wild Privet, Dogwood, Blackthorn, Bramble, Field Maple and Goat Willow.
19. An area of dense scrub dominated by Bramble and Common Nettle, with the adjoining hedge comprising Ash, Blackthorn, Elder, Dogwood and Blackthorn, with ground flora including Hedge Woundwort *Stachys sylvatica*, Chickweed and Common Vetch.
20. A field of species-poor semi-improved grassland, with species composition as described at TN6 with the addition of Meadow Barley, Ox-eye Daisy *Leucanthemum vulgare*, Common Chickweed *Stellaria media*, Cow Parsley, Field Horsetail, Common Vetch *Vicia sativa* and larger areas of Soft Rush in the south of the field.
21. A field of species-poor semi-improved grassland, with species composition similar to TN6 and TN20, with Common Bird's-foot-trefoil *Lotus corniculatus*, Common Mouse Ear *Cerastium fontanum*, Annual Meadow Grass *Poa annua*, Sheep Sorrel *Rumex acetosella*.
22. A hedgerow with trees with species comprising Ash, Blackthorn, Elder, Dogwood and Dog Rose with ground flora including Bramble, Hedge Woundwort, Chickweed, Common Vetch, Soft Rush and Ivy, becoming patchier and less intact towards the southern end.
23. Several workshop and warehouse buildings of corrugated metal and breezeblock construction, surrounded by tarmac hardstanding. Ephemeral and ruderal species on the periphery include Broad-leaved Dock, Creeping Thistle, Greater Plantain *Plantago major*, Prickly Oxtongue

Helminthotheca echioides, Scentless Mayweed, Hedge Bindweed, Common Nettle and Herb Robert *Geranium robertianum*.

24. A damper area of TN13 with frequent Soft Rush, Yorkshire Fog, common Spotted Orchid and Yellow Oat Grass.
25. A short length of hedgerow to 3m in height comprising Hawthorn and Blackthorn.
26. An area of recently cleared willow and scrub to the south of T16 with colonizing Bramble.
27. A partially outgrown hedgerow with mature trees with species comprising Hawthorn, Field Maple, Oak, Ash, Elm, Willow sp., Elder
28. An unmanaged section in the north-west corner comprises Bramble scrub, Hawthorn, Blackthorn, Common Nettle and Common Hogweed.

APPENDIX C

Bat Survey Report

LAND AT PENN HILL
BAT SURVEY REPORT

Prepared for Castlewood Commercial Properties

by

Hankinson Duckett Associates

HDA ref: 1071.1

August 2023

hankinson duckett associates

† 01491 838175 ‡ 01491 838997 ✉ consult@hda-enviro.co.uk 🌐 www.hda-enviro.co.uk

The Stables, Howbery Park, Benson Lane, Wallingford, Oxfordshire, OX10 8BA

Hankinson Duckett Associates Limited Registered in England & Wales 3462810 Registered Office: The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA

CONTENTS

	Page
1 Introduction	1
2 Methodology	2
3 Results	7
4 Evaluation	14
5 Recommendations	15
6 Conclusion	23
7 References	24

HDA Document Control and Quality Assurance Record

APPENDICES

- A Bat Roost Survey Summary Plan
- B Bat Activity Survey Summary Plan

1 INTRODUCTION

1.1 Site location and summary description

1.1.1 This report describes a suite of bat surveys carried out within approximately 14.99ha of Land at Penn Hill, Calne, Wiltshire, hereinafter referred to as the site. The site centre is located by National Grid Reference SU 00827 72087. The study was commissioned by Castlewood Commercial Properties in phases in June and August 2022 and July 2023.

1.1.2 The site is located on the north-eastern edge of Calne and is dominated by semi-improved grassland fields bordered by hedgerows, with small areas of scrub, woodland and small seasonal ponds. In the centre of the site is an area of hardstanding and warehouse buildings comprising industrial units and storage areas for vehicles. The site is bordered by residential development to the south and west and agricultural land to the north and east. The location and boundary of the site are shown in *Appendix A*.

1.2 Legislative context

1.2.1 All UK bat species are protected as 'European Protected Species' (EPS) under the 2017 Conservation of Habitats and Species Regulations (as amended). In relation to an EPS, the 2017 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS;
- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or to hibernate or migrate; (ii) affect significantly the local distribution or abundance of the species to which they belong;
- Damage or destroy a breeding site or resting place of such an animal; and/or
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

1.2.2 In addition, all UK bats are protected under the 1981 Wildlife and Countryside Act (as amended). All species are listed on Schedule 5 of the Act and are subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; and/or
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a bat.

1.2.3 If works are planned that are likely to constitute an offence under the current legislation, an application for a derogation licence should be made to Natural England.

1.2.4 Seven species of bat (Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe and Lesser Horseshoe) are also identified as Species of Principal Importance under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. Section 40 of the Act, together with planning policy and

guidelines, require planning authorities to regard these species as a material consideration in the planning process.

1.3 Development proposals

1.3.1 Development proposals for the site are for up to 205 residential dwellings and 0.75ha of employment land and ancillary uses, open space, vehicular and pedestrian accesses, landscaping, drainage measures and all other associated works including the demolition of existing buildings and structures.

1.4 Scope and purpose of the report

1.4.1 In recognition of the proposed development of the site and its potential to be used by bats, and within the legislative context set out in *Section 1.2*, the suite of bat surveys was subsequently undertaken to confirm use of the site by roosting, foraging and commuting bats, and to determine the need for any licensing or mitigation in relation to bats. Specifically, the aims of the study are:

1. To identify potential bat roosts in structures and trees within the site, where potentially affected by the proposed development;
2. To determine the presence/likely absence of bats within potential roosts affected by the proposed works and identify species and numbers;
3. To provide an assessment of the importance of the site for foraging and commuting bats;
4. To determine any further survey, mitigation and/or licensing requirements relating to bats; and
5. To provide outline recommendations for any mitigation and/or enhancement required to ensure that the development avoids adverse impacts on bats and, where possible, provides enhancements to support the long-term favourable conservation status of bats in accordance with nature conservation legislation, planning policy and the 2006 NERC Act.

2 METHODOLOGY

2.1 Introduction

2.1.1 The methodology followed in relation to all the bat survey work undertaken by HDA is consistent with current legislation and good practice guidelines set out by the Bat Conservation Trust (BCT, 2016). The following sections detail the suite of surveys undertaken to inform the proposed development and the results of these surveys are provided in *Section 3*.

2.2 Phase 1 bat scoping survey

2.2.1 A Phase 1 bat scoping survey was undertaken of buildings and trees within the site on the 9th August 2022 by Nick Chambers of HDA. The buildings and trees subject to survey

were assessed for their potential to support roosting bats and classified according to their potential. The methodology for each has been outlined below.

Phase 1 building survey

- 2.2.2 All buildings within the site were inspected externally from ground level using binoculars and a powerful torch to identify and investigate any potential entry and exit points such as missing roof tiles, loose fascias and lifted lead flashing, and to look for evidence of entry/exit in the form of staining, discolouration and/or scratch marks.
- 2.2.3 Internally, buildings were searched exhaustively where possible, to look for evidence of current or former occupation by bats. A powerful torch was also used to investigate any accessible cavities, crevices and recesses in each building.
- 2.2.4 In view of the findings of the internal/external inspections, the potential of the buildings to support roosting bats ('confirmed roost', 'high', 'moderate', 'low' or 'negligible') was assessed in accordance with current best practice guidelines. Assessment of bat roosting potential requires consideration of a number of criteria, including the design and construction of the building or structure, the size and location of potential features and access points, the position of the building or structure, aspect, geographical location, surrounding land use and adjacent landscape linkages.

Phase 1 tree survey

- 2.2.5 All trees within and immediately adjacent to the site were inspected from ground-level with the aid of binoculars and a powerful torch to identify potential features suitable for use by roosting bats. Potential features include splits, cracks and cavities, peeling bark, woodpecker holes, broken branches and a covering of Ivy where this is of a sufficient age to provide a suitable microclimate between the tree and Ivy stem(s).
- 2.2.6 In accordance with current best practice guidelines (BCT, 2016), trees were placed into one of five categories. Categorisation was based on the nature, size, location and quality of features present in each tree:
- Negligible suitability - Trees with no or negligible features for roosting bats;
 - Low suitability - Trees of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential;
 - Moderate suitability - Trees with one or more potential roost sites that could be used by bats but are unlikely to support roost types of high conservation status;
 - High suitability - Trees with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time; or

- Known or confirmed bat roost.

2.3 Phase 2 bat roost surveys

- 2.3.1 The results of the Phase 1 bat scoping survey of buildings and trees were used to determine the need for Phase 2 survey work of features understood to have potential to be affected by the emerging development proposals at the time of survey. Phase 2 bat roost surveys, comprising emergence surveys, were conducted to determine presence/probable absence of roosting bats and, where present, identify species and numbers. The level of survey effort conducted was determined with reference to the identified bat roosting potential of the tree in accordance with best practice guidelines (BCT, 2016).
- 2.3.2 Surveyors with electronic bat detectors¹ were positioned around each feature to record bats emerging from or entering potential roost sites. For the more complex/dark locations, surveyors were supplemented by infrared camcorders² coupled with infrared lights to illuminate the possible roost features. Potential emergences/re-entries camcorder recordings were analysed in real time by an ecologist the following day. Surveyors and camcorders were positioned to provide adequate coverage of all potential emergence points on each feature surveyed. Dusk emergence surveys generally began 15 minutes before sunset, ending approximately 1.5 hours after sunset. Records were made of any emergences and entries, and incidental records were also made of bat commuting and foraging activity in the vicinity of each surveyor.
- 2.3.3 In line with current best practice guidelines (BCT, 2016), Phase 2 bat roost surveys were not conducted on trees which were assessed as having low potential to support roosting bats. Further surveys of these low potential trees are not required, at this stage, in support of a planning application. However, in the event that retention of a tree identified as having low potential to support roosting bats is not possible, the appropriate approach to works is given in *Section 5* below.
- 2.3.4 Details of the dates and times of Phase 2 emergence surveys, along with weather conditions and sunset times, are provided in *Table 1* below.

¹ Anabat Walkabout and Anabat Express with 'Analook' recording software.

² Canon XA40 4K camcorders with infrared capability.

Table 1: Timing and conditions of Phase 2 bat roost surveys

Buidling/ Tree ref	Date / Time	Sunset	Conditions
B1	22.08.2022 20:01 – 21:46	20:16	100% cloud cover, Beaufort Scale=0-1, dry, 20-18°C
	19.09.2022 18.59 – 20:44	19:14	65% cloud cover, Beaufort Scale = 0-1, dry, 17-15°C
	20.06.2023 21:13 – 22:58	21:28	60% cloud cover, Beaufort Scale = 2, rain from 21:00-21:15, 18-16°C
B2	22.08.2022 20:01 – 21:46	20:16	100% cloud cover, Beaufort Scale=0-1, dry, 20-18°C
Trees 16, 17 and 18	22.08.2022 20:01 – 21:46	20:16	100% cloud cover, Beaufort Scale=0-1, dry, 20-18°C
	19.09.2022 18.59 – 20:44	19:14	65% cloud cover, Beaufort Scale = 0-1, dry, 17-15°C
Tree 19	22.08.2022 20:01 – 21:46	20:16	100% cloud cover, Beaufort Scale=0-1, dry, 20-18°C
	31.08.2022 19:42 – 21:27	19:57	30% cloud cover, Beaufort Scale = 1, dry, 21-18°C
	19.09.2022 18.59 – 20:44	19:14	65% cloud cover, Beaufort Scale = 0-1, dry, 17-15°C

2.4 Phase 2 bat activity survey

Bat activity transects

2.4.1 In order to provide an assessment of the importance of the site for foraging and commuting bats, dusk activity surveys were undertaken between June and October 2022 and June 2023. Surveyors carrying hand-held bat detectors walked transects of the site, with listening stops at regular intervals for periods of up to 5 minutes. Visual observations of bats and bat call registrations were noted, recording time, location, activity and, where known, species. Recordings of foraging and/or commuting activity made using digital devices were subsequently analysed to determine the identity of any unconfirmed species recorded during the surveys. Times and dates of surveys are given in *Table 2* below, along with weather conditions.

Table 2: Details of bat activity surveys

Date	Sunset	Time	Conditions
20.06.2022	21:28	21:28 – 23:28	5% cloud cover, Beaufort Scale = 0-1, dry, 19-14°C
03.08.2022	20:52	20:52 – 22:52	10% cloud cover, Beaufort Scale = 3, dry, 22-19°C
31.08.2022	19:57	19:57 – 21:57	30% cloud cover, Beaufort Scale = 1, dry, 21-18°C
19.09.2022	19:14	19:14 – 21:14	65% cloud cover, Beaufort Scale = 0-1, dry, 17-15°C
05.10.2022	18:36	18:36 – 20:36	10% cloud cover, Beaufort Scale = 5-1, dry, 14-7°C
20.06.2023	21:28	21:28 – 23:28	60% cloud cover, Beaufort Scale = 2, rain from 21:00-21:15, 18-16°C

Automated surveys

2.4.2 Automated surveys were carried out as a supplement to the activity transect surveys and to gain further information on the species and frequency of bat activity within the site. A programmable electronic bat detector³ was positioned in suitable habitat and left in place

³ Anabat Express.

on six occasions between June 2022 and July 2023. The detectors were programmed to record all bat activity. Details of the times and dates of automated bat detector deployment are provided in *Table 3* below and the location of each detector deployed is shown in *Appendix B*.

Table 3: Details of automated bat detector deployment

Location	Night	Sunset / Sunrise	Temp. Max. / Min. (°C)
A	20.06.2022 – 21.06.2022	21:27 / 04:52	20 / 10
	21.06.2022 – 22.06.2022	21:27 / 04:52	23 / 12
	22.06.2022 – 23.06.2022	21:27 / 04:52	26 / 14
	23.06.2022 – 24.06.2022	21:27 / 04:52	23 / 13
	24.06.2022 – 25.06.2022	21:27 / 04:53	20 / 10
B	03.08.2022 – 04.08.2022	20:51 / 05:37	24 / 13
	04.08.2022 – 05.08.2022	20:49 / 05:39	22 / 10
	05.08.2022 – 06.08.2022	20:47 / 05:40	21 / 9
	06.08.2022 – 07.08.2022	20:46 / 05:42	23 / 11
	07.08.2022 – 08.08.2022	20:44 / 05:43	26 / 12
C	24.08.2022 – 25.08.2022	20:10 / 06:10	25 / 13
	25.08.2022 – 26.08.2022	20:08 / 06:12	20 / 13
	26.08.2022 – 27.08.2022	20:06 / 06:13	21 / 13
	27.08.2022 – 28.08.2022	20:04 / 06:15	25 / 13
	28.08.2022 – 29.08.2022	20:02 / 06:16	24 / 16
D	18.09.2022 – 19.09.2022	19:14 / 06:50	18 / 10
	19.09.2022 – 20.09.2022	19:12 / 06:51	18 / 11
	20.09.2022 – 21.09.2022	19:10 / 06:53	19 / 10
	21.09.2022 – 22.09.2022	19:07 / 06:54	21 / 11
	22.09.2022 – 23.09.2022	19:05 / 06:56	20 / 8
	23.09.2022 – 24.09.2022	19:03 / 06:58	19 / 8
	24.09.2022 – 25.09.2022	19:00 / 06:59	18 / 7
E	05.10.2022 – 06.10.2022	18:35 / 07:17	17 / 7
	06.10.2022 – 07.10.2022	18:33 / 07:19	17 / 10
	07.10.2022 – 08.10.2022	18:31 / 07:20	18 / 7
	08.10.2022 – 09.10.2022	18:29 / 07:22	16 / 5
	09.10.2022 – 10.10.2022	18:27 / 07:24	17 / 5
	10.10.2022 – 11.10.2022	18:24 / 07:25	15 / 3
F	20.06.2023 – 21.06.2023	21:27 / 04:52	22 / 12
	21.06.2023 – 22.06.2023	21:27 / 04:52	23 / 13
	22.06.2023 – 23.06.2023	21:27 / 04:52	25 / 13
	23.06.2023 – 24.06.2023	21:27 / 04:53	24 / 16
	24.06.2023 – 25.06.2023	21:27 / 04:53	26 / 15
	25.06.2023 – 26.06.2023	21:27 / 04:53	28 / 12
	26.06.2023 – 27.06.2023	21:27 / 04:54	21 / 13
	27.06.2023 – 28.06.2023	21:27 / 04:54	20 / 16
	28.06.2023 – 29.06.2023	21:27 / 04:55	23 / 11
	29.06.2023 – 30.06.2023	21:27 / 04:56	21 / 11
	30.06.2023 – 01.07.2023	21:27 / 04:56	18 / 13
	01.07.2023 – 02.07.2023	21:26 / 04:57	21 / 10
	02.07.2023 – 03.07.2023	21:26 / 04:58	19 / 10
	03.07.2023 – 04.07.2023	21:26 / 04:58	19 / 10
	04.07.2023 – 05.07.2023	21:25 / 04:59	14 / 9
	05.07.2023 – 06.07.2023	21:25 / 05:00	19 / 10

2.4.3 The results of the dedicated bat activity transect and automated detector surveys are further supported by additional incidental records of bat activity made during the dusk emergence surveys of the trees and buildings within the site. Together, these surveys allow a robust assessment of bat foraging and commuting activity throughout the site.

2.5 Limitations of surveys

2.5.1 All surveys followed best practice guidelines and were conducted at an appropriate time of year, under favourable weather conditions and with an appropriate level of survey effort both in terms of the number of surveyors used and number of survey visits undertaken. A short period of heavy rain occurred during the first 15 minutes of the final survey on 20th June 2023, however the remainder of the survey was dry. The level of survey work carried out within the site is therefore considered sufficient to inform an assessment of the likely effects of the proposed development on bats and inform the recommendations provided in *Section 5* of this report with regard to the protection of individual bats during works and the maintenance of the favourable conservation status of the local bat population.

3 RESULTS

3.1 Phase 1 building scoping survey

3.1.1 All buildings within the site were inspected during the Phase 1 bat scoping survey. The results of the Phase 1 building survey are summarised in *Table 4* below and the locations of the buildings are shown in *Appendix A*.

Table 4: Results of Phase 1 bat scoping survey of buildings

Building	Description	Findings	Bat roost potential
B1	A single storey concrete and corrugated metal building with a pitched tiled roof.	External Potential bat roosting features include holes around flashing on the north-western and north-eastern corners of the building, and under the eaves on the eastern and western elevations of the building. Internal Possible void in roof-space. Evidence of bat activity: None recorded.	Moderate
B2	A one storey building of breeze block construction with a flat corrugated metal roof.	External Void in between roof and west facing breeze block elevation. Internal No access for internal inspection. Evidence of bat activity: None recorded.	Low
B3	A warehouse building of concrete and corrugated metal construction	External No potential bat roost features recorded. Internal Largely open with no bat roost features recorded. Evidence of bat activity: None recorded.	Negligible

B4	A warehouse building of concrete and corrugated metal construction	External No potential bat roost features recorded. Internal Largely open with no bat roost features recorded. Evidence of bat activity: None recorded.	Negligible
B5	A warehouse building of concrete and corrugated metal construction	External No potential bat roost features recorded. Internal Largely open with no bat roost features recorded. Evidence of bat activity: None recorded.	Negligible

3.2 Phase 1 tree survey

3.2.1 All trees identified as having potential to support roosting bats within the site are described in *Table 5* below and their locations are given in *Appendix A*.

Table 5: Results of Phase 1 bat scoping tree survey

Tree	Species	Findings	Bat roost potential
1	Ash	Heavily Ivy-clad and of an age and structure that potential roost features may not be visible from ground level.	Low
2,3,4,5,6,7 & 9	Willow	Seven mature Willow pollards, with dense epicormic regrowth at around 1 to 3m possibly concealing potential roost features.	Low
8	Dead	Cracks in trunk which are open to elements, with potential roost features inside hollow trunk possibly concealed by thick Bramble.	Low
10,11,12,13,14 & 15	Willow	Six mature Willow pollards, with cracks on bark, and with dense epicormic regrowth at around 1 to 3m possibly concealing potential roost features.	Low
16	False Acacia	Crevices and bark shedding at 1m on southern aspect. Holes in bark on northern aspect.	Moderate
17	Willow	Two branches on northern and western aspects at 4-6m with small holes.	Moderate
18	Oak	Crack in dead branch at approximately 15m on eastern aspect.	Moderate
19	Hawthorn	Hollow trunk with several holes on northern and eastern aspects.	High
20	Crack Willow	Peeling bark around dead branch cavities on western aspect.	Low
21	Ash	Heavily Ivy-clad and of an age and structure that potential roost features may not be visible from ground level.	Low
22	Crack Willow	Large crack in trunk on eastern aspect.	High
23	Crack Willow	Large crack in trunk on northern aspect.	High
24	Oak	Mature Oak of an age and structure that potential roost features may not be visible from ground level.	Low
25	Oak	Woodpecker hole on branch on north-western aspect.	Moderate
26	Ash	Woodpecker hole and cracking on western aspect of trunk.	Moderate

Tree	Species	Findings	Bat roost potential
27	Ash	Dead branch cavity on western aspect.	Low

3.2.2 All other trees within and immediately adjacent to the site were assessed as having negligible potential to support roosting bats.

3.3 Phase 2 roost surveys

3.3.1 In view of the findings of the Phase 1 bat scoping survey and in accordance with current best practice guidelines (BCT, 2016), buildings with bat roost potential and trees with moderate or higher potential to support roosting bats potentially affected by the proposed works were subject to emergence surveys using an appropriate number of surveyors to ensure comprehensive coverage.

3.3.2 In accordance with best practice guidelines (BCT, 2016), confirmed bat roosts and high potential trees were subject to three emergence surveys, moderate potential trees were subject to two emergence surveys, and low potential buildings were subject to one emergence re-entry survey. In accordance with the guidelines low potential trees potentially affected by the proposed development were not subject to Phase 2 roost surveys at this stage however, in the event that retention of a tree identified as having low potential to support roosting bats is not possible, the appropriate approach to works is given in *Section 5* below.

3.3.3 A summary of the results of the Phase 2 roost surveys is provided in *Table 6* below. Buildings and trees that were subject to Phase 2 roost surveys and their revised roost status are mapped in *Appendix A*. In addition, locations of identified emergence/re-entry points described in the table (and represented by codes) are given in *Appendix A*.

Table 6: Results of Phase 2 bat roost surveys

Building/ Tree	Date	Results	Updated roost status
B1	22.08.2022 Dusk	No emergence/re-entry	Confirmed Roost Day roost supporting up to two Common Pipistrelle.
	19.09.2022 Dusk	Emergence of one x Common Pipistrelle bat from under eaves on eastern elevation of building (Ref: 1).	
	20.06.2023 Dusk	Emergence of one x Common Pipistrelle bat from under eaves on eastern elevation of building (Ref: 1). Emergence of one x Common Pipistrelle bat from under the eaves on the western elevation (Ref: 2).	
B2	22.08.2022 Dusk	No emergence/re-entry	Low
Tree 16	22.08.2022 Dusk	No emergence/re-entry	Moderate

	19.09.2022 Dusk	No emergence/re-entry	
Tree 17	22.08.2022 Dusk	No emergence/re-entry	Moderate
	19.09.2022 Dusk	No emergence/re-entry	
Tree 18	22.08.2022 Dusk	No emergence/re-entry	Moderate
	19.09.2022 Dusk	No emergence/re-entry	
Tree 19	22.08.2022 Dusk	No emergence/re-entry	High
	31.08.2022 Dusk	No emergence/re-entry	
	19.09.2022 Dusk	No emergence/re-entry	

3.4 Bat activity

3.4.1 Details of the date and time of bat activity transect surveys, along with weather conditions and sunset times, are provided in *Table 2*. The areas covered during each survey visit included all boundaries, hedgerows and woodland copses within the site.

3.4.2 A visual summary of bat foraging and commuting activity recorded during the surveys has been provided in *Appendix B*. In total, five species/species groups were recorded during the transect surveys: Common Pipistrelle, Soprano Pipistrelle, Noctule, Serotine and *Myotis* sp. bats. A summary of each species recorded, their activity and an estimation of numbers using the site during any one survey is provided in *Table 7* below.

Table 7: Summary of bat activity during transect surveys

Species	Activity summary	Approx. number recorded*
Common Pipistrelle	Common Pipistrelle was the most frequently recorded species during the activity surveys. Common Pipistrelle activity was recorded throughout the site, mainly in association with hedgerow and woodland copse habitats. It is expected that up to 7 Common Pipistrelle bats could have been using the site at any one time for foraging and commuting.	7
Noctule	Noctule was the second most frequently recorded species during the activity surveys. The majority of Noctule activity was associated with a treelined hedgerow in the south of the site. Occasional Noctule activity was also recorded in association with grassland and hedgerow habitats throughout the site, mostly associated with high level passes by individuals crossing the site. It is likely that the site was used by up to 2 Noctule bats at any one time during the survey, and that the site forms part of a much larger foraging range for a low number of individuals of this species.	2

Species	Activity summary	Approx. number recorded*
Soprano Pipistrelle	Soprano Pipistrelle were recorded on an occasional basis during the activity surveys. Soprano Pipistrelle activity was recorded along hedgerow habitats on the eastern and western site boundaries. It is likely that the site was used by no more than 2 Soprano Pipistrelle bats at any one time during the survey and that the site forms part of a much larger foraging range for a low number of individuals of this species.	2
<i>Myotis</i> sp. bat	<i>Myotis</i> sp. bat were recorded on two occasions during the activity survey. Activity comprised a period of foraging by one individual along the hedgerow habitat on the southern site boundary, and a single pass along a tree lined hedgerow in the north of the site. It is likely that the site was used by no more than 1 <i>Myotis</i> sp. bat at any one time during the survey and that the site forms part of a much larger foraging range for individuals of this species group.	1
Serotine bat	A Serotine bat was recorded on one occasion during the transect survey, associated with the trees and buildings in the centre of the site. It is likely that the site was used by no more than 1 Serotine bat at any one time during the survey as part of a much larger foraging range for individuals of this species.	1

* This is an approximation of the number of bats of any one species estimated to have been using the site during any one visit.

3.5 Phase 2 automated activity surveys

3.5.1 The dates during which the automated detector was deployed, along with sunset/sunrise times and temperatures, are provided in *Table 3*. The locations in which the automated bat detector was placed during each deployment are shown on the plan in *Appendix B*.

3.5.2 Automated detectors were placed in six separate locations to give an indication of the species using different areas of the site and relative levels of activity throughout the night. A summary of bat activity recorded during the automated surveys in each location is provided below in *Table 8*. In total eleven species/species groups were recorded during the automated surveys: Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Noctule, Serotine, Leisler's, Brown Long-eared bat, Barbastelle, Greater Horseshoe, Lesser Horseshoe and *Myotis* sp. bats.

Table 8: Summary of bat activity recorded by the automated detector

Location	Activity summary
A	The automated detector at Location A recorded bat activity associated with scrub, grassland and hedgerow habitats in the north-west of the site. A total of 60 bat passes were recorded over 5 nights; an average of 12 bat recordings per night. On one night however no bat passes were recorded, possibly due to unfavourable weather conditions. Removing this night from the calculations increases the average number of bat recordings per night to 15. Common Pipistrelle was the most frequently recorded species at Location A (70% of the bat recordings), with occasional foraging activity recorded each night. Occasional passes by Soprano Pipistrelle, Noctule, Serotine and Leisler's bats were also recorded (10%, 10%, 5%, and 5% of passes, respectively).
B	The automated detector at Location B recorded bat activity in association with the trees and scrub to the north of the industrial buildings in the centre of the site. A total of 447 bat passes were recorded over 5 nights; an average of 89 bat recordings per night. Common Pipistrelle was the most frequently recorded species at Location B (94.4% of the bat recordings), with regular foraging activity recorded each night. Occasional passes by <i>Myotis</i> sp. bat, Soprano Pipistrelle and Brown Long-eared bat were also recorded (3.8%, 1.3%, and 0.4% of passes, respectively).
C	The automated detector at Location C recorded bat activity along the hedgerow on the south-eastern boundary of the site. A total of 189 bat passes were recorded over 5 nights; an average of 38 bat recordings per night. Common Pipistrelle was the most frequently recorded species at Location C (75.1% of the bat recordings), with regular foraging activity recorded each night. Occasional passes by <i>Myotis</i> sp. bat, Brown Long-eared bat, Soprano Pipistrelle, Serotine and Noctule were also recorded (16.4%, 4.8%, 2.6%, 0.5% and 0.5% of passes, respectively).
D	The automated detector at Location D recorded bat activity in association with a small woodland copse and field boundary in the south of the site. A total of 11,216 bat passes were recorded over 7 nights; an average of 1,602 bat recordings per night. Greater Horseshoe was the most frequently recorded species at Location D (89.3% of the bat recordings), with a large number of passes recorded on three consecutive nights, but the species being absent during the remainder of the survey. Common Pipistrelle was the second most frequently recorded species at Location D (9.4% of the bat recordings) with regular foraging activity recorded each night. Occasional passes by <i>Myotis</i> sp. bat, Soprano Pipistrelle, Noctule, Leisler's bat and Brown Long-eared bat were also recorded (0.7%, 0.4%, 0.1%, 0.1%, and 0.1% of passes, respectively).
E	The automated detector at Location E recorded bat activity in association with the hedgerow and pollarded trees in the west of the site. A total of 101 bat passes were recorded over 6 nights; an average of 17 bat recordings per night. Common Pipistrelle was the most frequently recorded species at Location E (81.2% of the bat recordings), with regular foraging activity recorded each night. Occasional passes by Soprano Pipistrelle, <i>Myotis</i> sp. bat, Leisler's bat and Noctule were also recorded (11.9%, 3%, 2% and 2% of passes, respectively).

Location	Activity summary
F	The automated detector at Location F recorded bat activity in association with the hedgerow and mature trees on the eastern site boundary. A total of 1226 bat passes were recorded over 16 nights; an average of 77 bat recordings per night. Common Pipistrelle was the most frequently recorded species at Location F (90.7% of the bat recordings), with regular foraging activity recorded each night. Noctule was the second most frequently recorded species at Location F (5.1% of bat recordings), with activity recorded during most nights. Occasional passes by Soprano Pipistrelle, <i>Myotis</i> sp. bat, Nathusius' Pipistrelle, Leisler's, Brown Long-eared bat, Greater Horseshoe, Barbastelle, Lesser Horseshoe and Serotine were also recorded (1.5%, 0.7%, 0.6%, 0.4%, 0.4%, 0.2%, 0.2%, 0.2% and 0.1% of passes, respectively).

3.5.3 In summary, Common Pipistrelle and Soprano Pipistrelle were recorded at all locations the static detectors were deployed. *Myotis* sp. bats being recorded at all locations except Location A; and Noctule were recorded at all locations except Location B. Brown Long-eared bat were recorded at all locations except Locations A and E; Leisler's bat was recorded at all locations except Locations B and C; and Serotine were recorded at all locations except Locations B, D and E. Greater Horseshoe bat was recorded at Locations D and F; Lesser Horseshoe bat was recorded at Location F; and Barbastelle and Nathusius' Pipistrelle were recorded at Locations D and F.

3.5.4 The highest number of bat recordings were recorded at Location D, with the majority of these recordings relating to three consecutive nights of high levels of Greater Horseshoe bat activity. The greatest diversity of bat species was recorded at Location F. The lowest number of bat recordings per night was recorded at Location A and the lowest diversity of bat species was recorded at Location B. Greater Horseshoe was the most frequently recorded species relating to 75.6% of all bat passes recorded, with recordings of this species predominantly restricted to significant numbers over three nights at Location D, with three passes also recorded over two nights at Location F. Common Pipistrelle was the second most frequently recorded species relating to 21.6% of all bat passes recorded, with all locations being used by foraging bats of this species on at least an occasional basis on each night. *Myotis* sp. bat, Soprano Pipistrelle, Noctule and Brown Long-eared bat were the next most frequently recorded bat species (1%, 0.7%, 0.6% and 0.2% of passes, respectively), with similar patterns of activity to the Common Pipistrelle bats however at much lower numbers. Low numbers of recordings (10 or less) of Leisler's, Nathusius' Pipistrelle, Barbastelle, Lesser Horseshoe and Serotine bat were also made across the site during the automated detector survey.

4 EVALUATION

4.1 Bat roosting habitat

4.1.1 A confirmed roost for two Common Pipistrelle was recorded within B1. The survey results indicate that B1 supports non-breeding day roosts supporting up to two Common Pipistrelles. The low number of bats recorded roosting within the building indicates that these are small low-status non-breeding roosts which may be used by male or non-breeding female bats. Common Pipistrelle are a relatively common and widespread species and therefore the roosts recorded within B1 are unlikely to be of more than low local interest.

4.1.2 No bat roosting activity was recorded during the Phase 2 emergence surveys of B2 or Trees 16, 17, 18 or 19 therefore no bat roosts are expected to have been present within these features at the time of survey.

4.1.3 Notwithstanding the low status of the bat roosts recorded, in the event that planning permission is granted for development of the site which includes the demolition of B1 it will not be possible to retain the identified roosts. Proposals subsequently have the potential to conflict with the nature conservation legislation afforded to bats (set out in *Section 1.2*). In view of this either: i) a full European Protected Species (EPS) licence would need to be applied for from Natural England, and granted, prior to the development works taking place; or ii) the work would need to be carried out under a Low Impact Licence under the supervision of an appropriately registered bat ecologist⁴.

4.1.4 Whichever licensing route is taken, measures to protect bats would need to be implemented during development works and roosting opportunities for bats should be maintained at the site in accordance with the 2021 National Planning Policy Framework (NPPF) and 2006 NERC Act. Suitable outline measures to achieve these requirements within the scheme and ensure that the favourable conservation status of the local bat population is maintained are therefore provided in *Section 5* of this report.

4.2 Bat foraging habitat

4.2.1 At least eleven species of bat were recorded using the site for foraging and commuting, with varying levels of activity observed throughout the surveys. The plan in *Appendix B* provides an overview of bat activity recorded during the transect surveys.

4.2.2 The majority of activity recorded during the transect surveys related to Common Pipistrelle bats, with up to 7 Common Pipistrelle bats considered to be using the site at any one time. The majority of Common Pipistrelle activity was associated with boundary

⁴ Note that bat licences can usually only be applied for once planning permission has been granted and conditions relating to wildlife discharged. Natural England have a determination period of 30 working days for an EPS licence and 15 working days for a Low Impact Licence following registration.

hedgerows and woodland copse within the site. Soprano Pipistrelle and Noctule were also recorded on a regular, though less frequent, basis with up to 2 bats of each species considered to be using the site at any one time. The majority of Soprano Pipistrelle and Noctule activity was also associated with boundary hedgerows and woodland copse within the site. *Myotis* sp. bat and Serotine bat were also recorded from similar habitats on a less frequent basis, suggesting the site supports only individuals of these species and/or forms only a small part of a much wider foraging territory for individuals of these species. In addition, Greater Horseshoe, Leisler's, Nathusius' Pipistrelle, Barbastelle, Lesser Horseshoe and Serotine bat were recorded using the site during the automated detector surveys.

4.2.3 During the automated surveys, a high number of Greater Horseshoe bats were recorded over a three night period at Location D. With the exception of this period, recorded Greater Horseshoe activity was limited to three passes at Location F. Notwithstanding the high level of Greater Horseshoe bat activity recorded at Location D (which is anticipated relates to high levels of foraging activity by an individual/small number of bats); overall the relatively limited use of the site by Greater Horseshoe bats, the small size of the site and the distance of the site from the Bath and Bradford on Avon Bats Special Area of Conservation (SAC) for which this species is a designated feature, it is considered unlikely that the site provides a significant area of supportive habitat for this species with respect to this designated area⁵.

4.2.4 Despite the large number of species recorded and the overall number of bats expected to have been present within the site at any one time, overall the level of bat activity recorded was generally considered to be moderate, relative to the size of the site, and similar foraging and commuting opportunities are relatively widespread in the wider area. As a whole the site is therefore considered to be of moderate local interest for foraging bats.

4.2.5 Notwithstanding this, in addition to implementing measures to mitigate any negative effects on roosting bats, in accordance with nature conservation legislation, development proposals should also seek to maintain and enhance opportunities for foraging and commuting bats within the site and its surrounds in accordance with planning policy and the 2006 NERC Act. These measures are further discussed in *Section 5* below.

5 RECOMMENDATIONS

5.1 This section identifies measures to be implemented during development of the site in order to avoid, mitigate and compensate potential impacts on bats, and to maintain the

⁵ The 106.45ha Bath and Bradford on Avon Bats SAC, which is designated in part of for its hibernation colonies of Greater Horseshoe bats, lies approximately 16.5km west of the site. The *Bat Special Area of Conservation (SAC): Planning Guidance for Wiltshire* (Natural England and Wiltshire Council, 2015) identifies a 'Core Area' around the SAC for foraging and commuting Greater Horseshoe bats of 4km.

favourable conservation status of the local bat population. In addition, recommendations for enhancement of the site for roosting and foraging bats are included in accordance with 2021 NPPF and the 2006 NERC Act.

5.2 Roosting bats

5.2.1 The Phase 2 bat roost surveys confirmed the presence of low status roosts for two Common Pipistrelle bats within B1. The recorded roosts are considered to be small low-status non-breeding roosts used by male and/or non-breeding female bats.

5.2.2 Development proposals for the site will result in the loss of the roost sites identified in B1. As such, a European Protected Species (EPS) licence would need to be obtained from Natural England prior to the commencement of any works affecting any of the roosts recorded at the site. All works affecting the bat roosts should be supported by a detailed method statement describing how the favourable conservation status of bats at the site would be maintained, including information on how the loss of the roost sites would be compensated and timing of works to minimise impacts on bats. Mitigation would centre on:

- Creation of appropriately designed and sited new roosting opportunities for bats, proportionate to that being lost; and
- Implementation of works affecting roost sites at a time of year when bats are least vulnerable to disturbance/likely to be present, employing sensitive working practices.

Measures by which this can be achieved are given below. These should be implemented unless otherwise agreed with the local planning authority or Natural England.

Replacement of roost sites

5.2.3 A strategy for mitigating the loss of the identified roost sites is described below. The provision of replacement roosting opportunities should be reviewed at an appropriate stage in light of detailed design and/ or the findings of updated surveys if appropriate to ensure mitigation is proportionate to the status of bats in B1 at the time of works.

Short-term roost replacement: bat boxes

5.2.4 Since the proposed works involve the demolition of B1, it will not be possible to retain the identified bat roosts during the proposed works and suitable replacement roosting opportunities should therefore be provided during the demolition phase, prior to new roosting opportunities being created within retained/new buildings. Common Pipistrelle recorded roosting are known to roost in both trees and bat boxes (University of Bristol, 2010), with records of bat boxes having been used for the successful breeding of this species.

5.2.5 To provide replacement opportunities for bats associated with the identified roost sites prior to works commencing, two bat boxes should be installed on suitable retained buildings or trees in the vicinity of the roosts to be lost. These should be located within areas away from the proposed demolition works. The precise position should be determined through consultation with an appropriately qualified ecologist but will need to integrate the location of suitable retained buildings/ trees and habitat connections with avoidance of areas with the highest potential future lightspill. Suitable locations exist on the retained trees in the proposed greenspace to the north and east of B1. Specifically, replacement roost mitigation should consist of two Greenwoods Ecohabitat Two Crevice Bat Boxes (or similar) as advised by a suitably qualified ecologist.

5.2.6 To provide the opportunity for bats to find and utilise new roost sites prior to development, bat boxes should be put in place at an appropriate stage in advance of demolition works commencing.

Long-term roost replacement: Crevices

5.2.7 The bat boxes described above should be retained on completion of demolition works in order to mitigate for the loss of bat roosting opportunities. Measures to ensure the long-term availability of roost sites following the proposed works are described below.

5.2.8 Common Pipistrelles are considered to be primarily crevice or hole-dwelling species (Mitchell-Jones, 2004). To provide replacement roost sites and maintain opportunities for these bats and deliver enhancements to the long-term roosting potential of the site, a number of features suitable for crevice-dwelling bats should be incorporated into the proposed buildings in the vicinity of the building to be lost. A minimum of three dedicated features should be provided in a variety of locations on the new/retained buildings around the site. These could include a selection of:

- Provision of gaps in weatherboarding to allow access by bats into spaces behind weatherboarding;
- Schwegler 1FR Bat Tubes or 'Habibat' type boxes incorporated into south- to west-facing elevations of proposed buildings;
- Provision of 20mm x100mm gaps beneath roof and ridge tiles with bitumen felt lining beneath, providing crevice features between tiles and the underfelt below. Alternatively, dedicated bat access tiles could be installed to perform a similar function; and/or
- Provision of soffit bat boxes below roof eaves.

5.2.9 Where any features for roosting bats are provided in association with roofs of buildings, bitumastic (traditional) roofing felt should be used to avoid entanglement of bats.

- 5.2.10 All replacement roost sites should be located away from areas most affected by construction and operational phase noise and lighting. The precise position of replacement roost sites should be determined through consultation with an appropriately qualified and experienced ecologist at the detailed design stage, but would in any case need to integrate the location of suitable retained trees and habitat connections with avoidance of areas subject to significant levels of light spill (See *Section 5.3* for further detail).

Approach and timing of works

- 5.2.11 Works on B1 affecting the confirmed roosts should ideally be carried out at a time of year when bats are least likely to be present. Although the findings of the survey suggest that only non-breeding roosts are present, a degree of uncertainty always exists in relation to the exact status of a summer roost. Furthermore, the presence of hibernating bats using the buildings during the winter period cannot be completely ruled out. Unless future surveys demonstrate otherwise, stripping/demolition works affecting B1 should avoid the period of June-August inclusive when dependent young may be present and should ideally avoid the winter period of November-February inclusive when bats are likely to be torpid or hibernating and most at risk if disturbed. It is therefore recommended that any works affecting the identified bat roost sites are carried out between March and May and/or September and October.
- 5.2.12 In the event that building stripping/demolition is required outside of the timeframe described above, then works to B1 potentially affecting roosting bats should be either: (i) preceded by an updated survey to confirm the continued absence of a breeding roost (for demolition works between June and August); or (ii) be carried out during periods of mild weather when bats are active with minimum night time temperatures exceeding 7°C for five consecutive nights (for demolition works between November and February).
- 5.2.13 As identified above, bat boxes on retained trees should be provided in advance of loss of any roost in order to provide alternative roost sites prior to works commencing.
- 5.2.14 All demolition/stripping involving the removal of features from B1 with the potential to conceal roosting bats should be overseen by a licensed bat worker under an Ecological Watching Brief. Potential features on B1 include gaps under the eaves and around flashing. Suitable features should be inspected prior to demolition/stripping, and a cautious approach should be employed, particularly in the vicinity of the known roosts, with key features removed by hand where appropriate.
- 5.2.15 Should any bat be encountered during these works, it should be moved by the licensed bat worker to one of the pre-installed bat boxes described in *Section 5.2.5*.

- 5.2.16 By providing a variety of roosting opportunities in different locations and orientations across the site, a range of roost spaces with varied microclimates will be provided by the site which would offer roosting opportunities for bats throughout the year and maintain the future long-term potential of the site to support roosting bats.

Works to trees

- 5.2.17 All trees containing features suitable for use by roosting bats should be retained wherever possible in order to maximise the current and future value of the site for bats. It is also recommended that the opportunities provided by these trees are maintained through sensitive use of lighting and maintenance of connective habitat as described in *Section 5.3* below.

- 5.2.18 Where retention of trees identified as providing opportunities for roosting bats is not possible within the proposed development, due to the transitory nature with which bats may use roost sites in trees, it is recommended that felling works are carried out in accordance with the following procedure:

1. Trees suitable for climbing inspections should first be climbed by a licensed bat worker to inspect potential roost sites for bats. In the event that no bats are encountered during an exhaustive search then any features should be 'soft stopped' to prevent re-occupation prior to felling. If a bat roost is encountered during survey of a tree, then felling/works to this tree should be delayed until an EPS licence has been obtained from Natural England. Where bat roosts are present within any tree subject to felling, the tree should be 'soft felled' in accordance with the methodology described under point 4 below.
2. Trees with 'high' potential, for which an exhaustive climbed inspection is not possible or practical should be subject to three emergence/re-entry surveys following BCT best practice guidelines to confirm the absence of roosting bats prior to any works affecting the tree commencing.
3. Trees with 'moderate' potential, for which an exhaustive climbed inspection is not possible or practical should be subject to two emergence/re-entry surveys following BCT best practice guidelines to confirm the absence of roosting bats prior to any works affecting the tree commencing.
4. 'Low' potential trees that are unsuitable for climbing inspections should be subject to a single emergence/re-entry survey or 'soft felled' under the supervision of a suitably qualified ecologist. Soft felling involves progressive removal of the tree, using ropes to gently lower sections of the tree potentially supporting roosting bats to the ground for inspection by a suitably qualified ecologist. Where appropriate, features should be left on the ground overnight before clearing to allow any bats present to escape.

5.2.19 In the event that a roosting bat is discovered during any of the above works, trimming/felling works must cease and Natural England contacted to agree to an appropriate course of action. A licence may need to be applied for and approved before works can continue.

5.2.20 All trees requiring felling or pruning during future management of the site should first be inspected for any potential bat roosts present. Should works be proposed to any trees with the potential to support bat roosts, these should first be subject to survey to determine the presence/likely absence of roosting bats in line with the procedure outlined in *Section 5.2.18* above.

Further survey

5.2.21 Bats may occupy roost sites on a seasonal or temporary basis, and old roost sites may be abandoned and new roosts occupied within relatively short periods of time. Where appropriate, Phase 2 bat roost surveys of buildings and trees to be affected by the proposed development should be updated in advance of development commencing. The guidance of a suitably qualified ecologist should be sought to determine if and when surveys should be updated with regard to the development programme. This would ensure that up-to-date information is available to inform the extent of any mitigation and licensing requirements relating to bats.

Protection and enhancement of roosting opportunities

5.2.22 The integrity of retained roosting opportunities and replacement roost sites should be secured in the long-term through the maintenance of connections to commuting and foraging habitat and sensitive use of lighting throughout the construction and operational phases (see *Section 5.3* below).

5.2.23 In addition, all trees with the potential to support roosting bats should be retained and their ability to support roosting bats maintained where possible. If significant loss of future roosting opportunities arises, this should be offset through alternative roost provisions elsewhere within the site.

5.2.24 Development of the site could in fact provide opportunities to enhance its current value for roosting bats in accordance with planning policy and the 2006 NERC Act through the provision of a range of additional new bat roosting features. The detailed design and location of such features should be determined at an appropriate stage prior to construction, but could include a selection of the following:

- Erection of additional bat boxes on existing mature trees on the boundaries of the site or within areas of informal open space; and

- Creation of additional bat roosting opportunities on new buildings within the site e.g. through the use of bat bricks within the external walls of buildings, raised tiles etc. such as these described in *Section 5.2.8* above.

As with the replacement roost features described above, these additional roosting features should be located where good connections exist to suitable foraging and commuting habitat such as on the site boundaries, sustainable drainage features and proposed open greenspace in the east of the site.

5.3 Foraging and commuting bats

5.3.1 The site is considered as a whole to be of moderate local importance for foraging bats. The site is expected to comprise a proportion of foraging habitat for moderate numbers of Common Pipistrelle bats. The site also provides foraging habitat for low numbers of at least ten other species/species groups on a more occasional or infrequent basis.

5.3.2 A number of the bat species identified (Barbastelle, Soprano Pipistrelle, Noctule and Brown Long-eared, Greater Horseshoe and Lesser Horseshoe bats) are listed as Species of Principal Importance under Section 41 of the 2006 NERC Act and therefore the effects of development on foraging and commuting habitat are a material consideration in the planning process. Development proposals should therefore seek to maintain and enhance the current opportunities for commuting and foraging bats. This could be achieved through implementation of the following measures:

- Linear features such as hedgerows and treelines should be retained wherever possible and enhanced through infilling of gaps or provision of complementary scrub and tree planting. Where loss is unavoidable, for example at road or footpath access points, loss should be minimised and compensatory habitat provided at an appropriate location elsewhere.
- Where possible, new linear features such as hedgerows and treelines should be created to improve connectivity between areas of suitable roosting and foraging habitat within the site and the wider area.
- Landscape proposals within areas of open space across the site should seek to include high quality habitat for foraging bats. This might include shrub planting, creation of areas of rough and meadow grassland, orchard, woodland and marginal vegetation and/or use of native species-rich hedgerows and treelines along boundaries.
- Maintenance of standing deadwood and decaying trees/branches where safe to do so in order to maintain and encourage future natural opportunities for roosting bats.
- Creation of new wetland habitats including reedbeds, ponds and drains either as stand-alone features or as part of the surface water drainage strategy. These

habitats are capable of supporting large numbers of invertebrates, providing a valuable foraging resource for bats.

- Formal planting schemes in residential areas should seek to include pollen and nectar-rich species in order to encourage invertebrate prey for bats.
- Securing the long-term integrity of high-quality habitats through inclusion within a long-term management strategy.

5.3.3 The emerging development proposals (Turley, 2023) show that the proposed development area is focussed on the centre and west of the site, and involves the retention of the majority of boundary hedgerow, woodland copse and mature tree habitats, including the woodland copse from which high levels of Greater Horseshoe activity was recorded. Furthermore the development proposals involve the enhancement and creation of a large area of habitat in the east of the site, including wildflower meadow, orchard, woodland copse planting and wetland habitats. In addition, the surface water drainage scheme and areas of public open space proposed in the east of the site provide opportunity for establishment of a mosaic of habitats of high value for foraging bats. It is considered that these measures have potential to enhance the current value of the site for foraging and commuting bats.

5.3.4 The site is currently subject to moderate light spill, which is restricted to that from off-site residential areas and roads bordering the site, notably on the western and southern site boundaries. The integrity of retained and new foraging and commuting habitat, both within the proposed development areas and their surrounds, should be conserved through the sensitive use of lighting throughout the construction and operational phases of the proposed development. In accordance with the Bat Conservation Trust and Institute of Lighting Professionals guidance (BCT and ILP, 2018) this could be achieved through employment of a selection of the following measures in the vicinity of retained/newly created areas of suitable foraging habitat and in the vicinity of trees and buildings providing opportunities for roosting bats:

- Use of only the minimum amount of light required for safety and amenity, and minimise upward reflected light.
- Avoidance of bare bulbs or upward-pointing lights. The spread of light should be kept near to or below the horizontal.
- Use of narrow spectrum bulbs with a warm-white (<2700k) and low UV output where safe to do so.
- Avoidance of light-spill into adjacent areas through luminaire design or with accessories, such as hoods, cowls, louvres and shields to direct the light.
- Minimisation of the height of lighting columns.
- For pedestrian lighting, use of low level lighting that is as directional as possible and below 3 lux at ground level.

- Where necessary, use of embedded road lights to illuminate roadways and light only high-risk stretches of roads such as crossings and merges.
- Limiting the times that lights are on to provide some dark periods for wildlife through use of timers and/or use automatic dimmers to reduce lighting outside times of peak use.

5.3.5 It is recommended that all detailed external lighting proposals are reviewed at appropriate design stages by a suitably qualified ecologist. This could be secured via a condition of planning consent.

6 CONCLUSION

6.1 The bat survey work at the site recorded low-status day roosts for low numbers of Common Pipistrelle within B1 which would be lost to the proposed development.

6.2 Although the roosts to be affected by the proposed development works are considered to be of no more than low local value, the proposed works must have due regard to the legal protection afforded to all bats, which protects both individual bats and the conservation status of populations.

6.3 Measures to ensure the protection of individual bats during construction works and maintenance of opportunities for roosting bats in the long-term, including the provision of a range of new bat roosting opportunities and suitable timing of activities, are described in *Section 5* of this report. The measures described should form the basis of a detailed Method Statement which would accompany an application to Natural England for a licence to permit development works affecting bats.

6.4 Measures are also given for the maintenance of current opportunities provided by the site for foraging and commuting bats. These include sensitive lighting design and habitat creation and management works to maximise opportunities across the site for foraging and commuting bats.

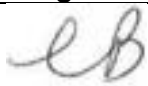
6.5 Subject to the implementation of the recommendations given in *Section 5*, it is considered that the favourable conservation status of local bat populations would be maintained and, through long-term provision of higher quality roosting and foraging habitat at the site, potentially enhanced. This would ensure compliance with the nature conservation objectives of the 2017 Conservation of Habitats and Species Regulations (as amended), the 2006 NERC Act and the guidance underpinning the 2021 National Planning Policy Framework.

REFERENCES

- Altringham, J. (2003) *The New Naturalist: British Bats*. Harper Collins Publishers, London.
- Bat Conservation Trust (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. Bat Conservation Trust, London.
- HDA (2023) Penn Hill: *Ecological Assessment*. Hankinson Duckett Associates, Wallingford.
- Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (version 7 July 2006). <http://www.ieem.org.uk/ecia/index.html>.
- Mathew *et al.* (2018) *Natural England Joint Publication JP025: A Review of the Population and Conservation Status of British Mammals: Technical Summary*. Natural England, June 2018.
- Ministry of Housing, Communities & Local Government (2021) *National Planning Policy Framework*. Sited on <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
- Mitchell-Jones, A. J. (2004) *Bat Mitigation Guidelines*. English Nature.
- Mitchell-Jones, A. J. and McLeish, A. P. (eds.) (2004) *Bat Workers' Manual (3rd Edition)*. Joint Nature Conservation Committee.
- Natural England and Wiltshire Council (2015) *Bat Special Areas of Conservation (SAC) Planning Guidance for Wiltshire*. Wiltshire Council, Trowbridge.
- Natural Environment and Rural Communities Act (2006) sited on <http://www.legislation.gov.uk/ukpga/2006/16/contents/enacted>.
- Russ, J. (1999) *The Bats of Britain and Ireland: Echolocation Calls, Sound Analysis and Species Identification*. Alana Ecology.
- Turley (2023) *Land at Penn Hill Calne, Framework Masterplan, DWG no. 3001*, Turley.

HDA Document Control and Quality Assurance Record

Project Title: Land at Penn Hill
Project Reference: 1071.1
Document Title: Bat Survey Report
Commissioning Party: Castlewood Commercial Properties

Issue	Description	Date of Issue	Signed
1	Bat Survey Report	August 2023	

	Personnel	Position
Author	Nick Chambers	Assistant Ecologist
Approved for issue	Clare Bird MCIEEM	Associate Ecologist

© Hankinson Duckett Associates. All rights reserved

No part of this report may be copied or reproduced by any means without prior written permission from Hankinson Duckett Associates. If you have received this report in error, please destroy all copies in your possession or control and notify Hankinson Duckett Associates.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Hankinson Duckett Associates no other party may use, make use of or rely on the contents of the report. No liability is accepted by Hankinson Duckett Associates for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Hankinson Duckett Associates using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Hankinson Duckett Associates has been made.

APPENDIX A

Bat Roost Survey Summary Plan



KEY

Site boundary

Bat Roost Survey Results *

BUILDINGS

Confirmed bat roost
 Low bat roost potential
 Negligible bat roost potential

TREES **

High bat roost potential
 Moderate bat roost potential
 Low bat roost potential

EMERGENCE/RE-ENTRY SURVEY RESULTS

Common Pipistrelle

* Categories relate to roost potential in accordance with BCT 2016 guidelines.

** All other trees within the site are regarded as having negligible potential to support roosting bats.

CLIENT:
Castlewood Commercial Properties
 PROJECT:
Land at Penn Hill
 TITLE:
Bat Roost Survey Summary Plan
 SCALE AT A3: 1:5000
 DATE: August 2023

1071.1/4

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
 Licence no. A2187372

© hankinson duckett associates
 The Stables, Howbery Park, Benson Lane, Watlington, OX10 8BA
 t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
 Masterplanning
 Ecology



APPENDIX B

Bat Activity Survey Summary Plan



KEY



Site boundary



Automated detector

Bat foraging and commuting activity

Common Pipistrelle



Single bat pass



Occasional bat pass/foraging

Soprano Pipistrelle



Single bat pass



Occasional bat pass/foraging

Noctule



Single bat pass



Occasional bat pass/foraging

Myotis species bat



Single bat pass



Occasional bat pass/foraging

Serotine Bat



Single bat pass

CLIENT:
Castlewood Commercial Properties

PROJECT:
Land at Penn Hill

TITLE:
Bat Activity Survey Summary Plan

SCALE AT A3:
NTS

DATE:
August 2023

1071.1/7

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. AR187372

© hankinson duckett associates

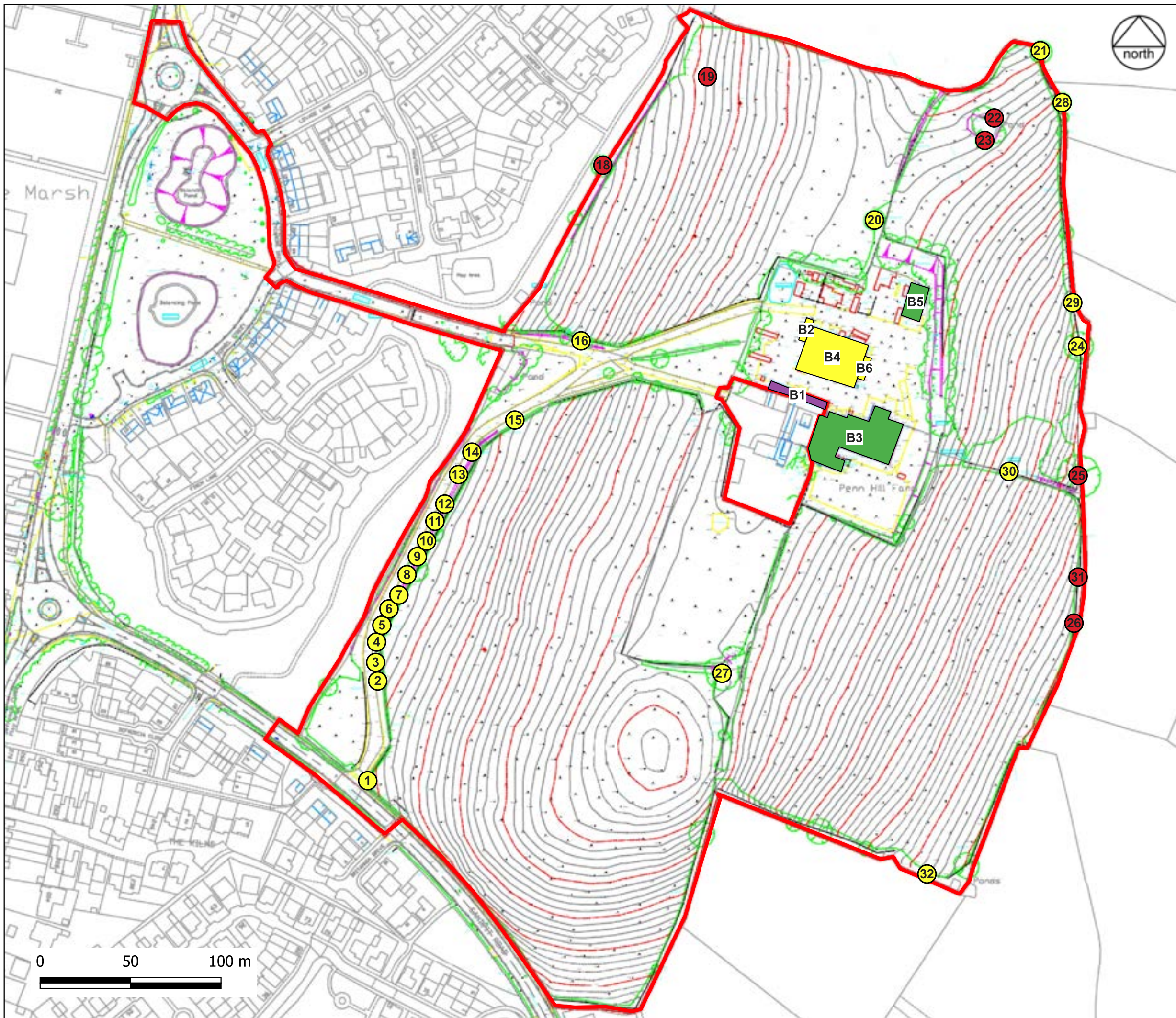
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX Ca

Updated Bat Survey findings



KEY

Site boundary

Buildings

Confirmed roost

Low potential for roosting bats

Negligible potential for roosting bats

Trees

Low potential for roosting bats (PRF - I)

Moderate potential or higher for roosting bats (PRF - M)

*Categories relate to roost potential in accordance with the BCT 2023 guidelines.

**All other trees onwithin the site were regarded as having negligible potential to support roosting bats

CLIENT:
Castlewood Ltd

PROJECT:
Land at Penn Hill

TITLE:
Phase 1 Bat Scoping Survey Plan

SCALE AT A3:
See scale bar

DATE:
October 2025

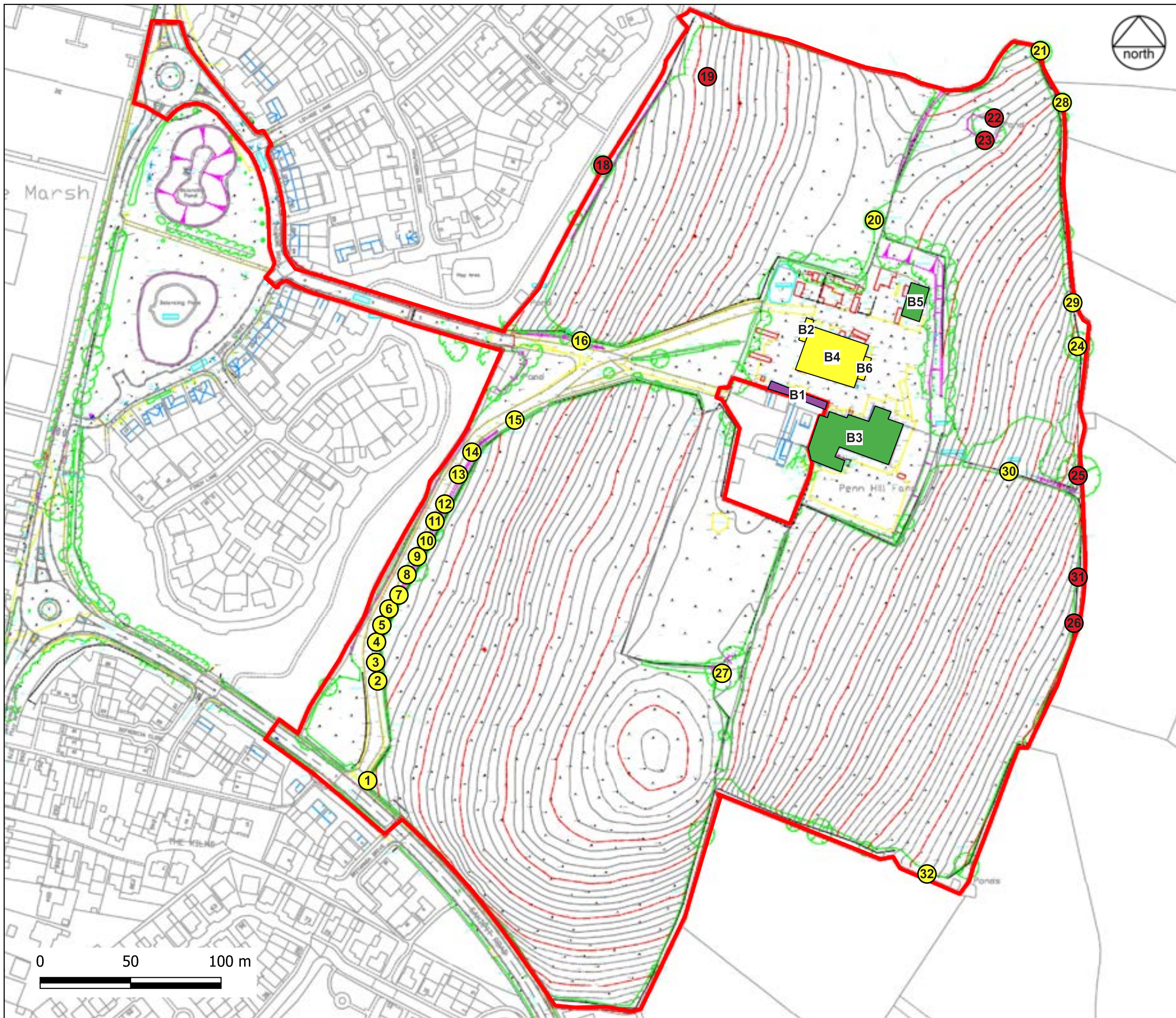
1071.1 / 02a

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology





KEY

Site boundary

Buildings

Confirmed roost

Low potential for roosting bats

Negligible potential for roosting bats

Trees

Low potential for roosting bats (PRF - I)

Moderate potential or higher for roosting bats (PRF - M)

*Categories relate to roost potential in accordance with the BCT 2023 guidelines.

**All other trees onwithin the site were regarded as having negligible potential to support roosting bats

CLIENT:
Castlewood Ltd

PROJECT:
Land at Penn Hill

TITLE:
Bat Survey Summary Plan

SCALE AT A3:
See scale bar

DATE:
October 2025

1071.1 / 04a

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX D

Badger Survey Report

LAND AT PENN HILL

BADGER SURVEY REPORT

Prepared for Castlewood Commercial Properties

by

Hankinson Duckett Associates

HDA ref: 1071.1

March 2023

hankinson duckett associates

† 01491 838175 † 01491 838997 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

The Stables, Howbery Park, Benson Lane, Wallingford, Oxfordshire, OX10 8BA

Hankinson Duckett Associates Limited Registered in England & Wales 3462810 Registered Office: The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA

CONTENTS

	Page
1 Introduction	1
2 Methodology	2
3 Results	3
4 Assessment and recommendations	3
5 Conclusion	5
6 References	5

HDA Document Control and Quality Assurance Record

APPENDICES

- A Badger survey summary plan
- B Badger sett type definitions

1 INTRODUCTION

1.1 Site location and summary description

1.1.1 This report describes a Badger survey of approximately 14.99ha of Land at Penn Hill, Calne, Wiltshire, hereinafter referred to as the site. The site centre is located by National Grid Reference SU 00827 72087. The study was commissioned by Castlewood Commercial Properties in February 2022.

1.1.2 The site is located on the north-eastern edge of Calne and is dominated by semi-improved grassland fields bordered by hedgerows, with small areas of scrub, woodland and small seasonal ponds. In the centre of the site is an area of hardstanding and warehouse buildings comprising industrial units and storage areas for vehicles. The site is bordered by residential development to the south and west and agricultural land to the north and east.

1.1.3 The location and boundary of the site are shown in *Appendix A* and a more detailed description of the habitats within the site is provided by the *Ecological Assessment* (HDA, 2023).

1.2 Development proposals

1.2.1 Development proposals for the site are for up to 205 residential dwellings and 0.75ha of employment land and ancillary uses, open space, vehicular and pedestrian accesses, landscaping, drainage measures and all other associated works including the demolition of existing buildings and structures.

1.3 Legislative context

1.3.1 Badgers and their setts are protected under the 1992 Protection of Badgers Act (HMSO, 1992). Unless permitted under a licence issued by Natural England this makes it an offence to:

- Kill, injure or capture a Badger;
- Damage, destroy or obstruct access to a Badger sett displaying signs of current use; or
- Disturb Badgers while they are occupying a sett.

1.4 Scope and purpose of the report

1.4.1 Grassland habitats suitable for foraging Badgers are found across the site, and potential sett-building habitat is present within scrub and woodland areas and hedgerow bases. In addition, Wiltshire and Swindon Biological Records Centre (WSBRC) provided 63 records of Badger for the desk study area, with the closest record to the site being a sett recorded in 2015 situated approximately 50m to the east of the site, the precise location of which

was not disclosed. The next closest record related to a foraging Badger recorded on a roadside verge approximately 185m to the west of the site.

1.4.2 In recognition of the potential for Badgers to be present at the site, and within the legislative context set out in *Section 1.3*, a Badger survey was undertaken by HDA in August 2022 to identify any use of the site by Badgers.

1.4.3 Specifically, the aims of this study are:

- i) To establish the presence/probable absence of active Badger setts within or adjacent to the site;
- ii) To assess the relative importance of different parts of the site for Badgers; and
- iii) To predict likely impacts potentially arising from development of the site on Badgers and give recommendations for impact avoidance, minimisation and mitigation.

2 METHODOLOGY

2.1 A detailed walkover survey of the site and, where possible, adjacent land within 30m of the site boundary was undertaken on the 9th August 2022 by Nick Chambers of HDA. The survey involved walking around the site looking for evidence of Badger activity including setts and other field signs such as footprints, latrines, feeding scrapes and hairs. All holes and scrapes were examined to assess what species was using or had dug them. For each confirmed Badger sett a recording card was completed detailing the type of sett, number of entrances and level of activity (from disused to well-used). Descriptions of the sett type classifications used are given in *Appendix B*.

2.2 A subjective assessment of the foraging potential of the habitats within the site and wider survey area was also made, based on the availability of potential food sources:

- Good foraging habitat: provides Badgers with a variety of foraging opportunities through the year (e.g. agriculturally improved pasture, hedgerows and gardens).
- Moderate foraging habitat: foraging opportunities can be limited by season and management regime (e.g. cereal crops, rough grassland, woodland and scrub).
- Poor foraging habitat: areas that provide few foraging opportunities for Badgers (e.g. heathland, moorland and wetlands).

2.3 Limitations

2.3.1 As is often the case with Badger surveys, a minority of land outside the site, but within 30m of the site boundary, could not be accessed or viewed adequately to confirm the absence of Badgers, including private land adjacent to the eastern and western site boundaries. It is possible that Badgers may be present within these inaccessible areas due to the presence of suitable hedgerow habitats.

2.3.3 These limitations are factored into the evaluation and recommendations provided in *Section 4* which take a precautionary approach to address this.

2.3.4 Notwithstanding the above, the findings of the field survey conducted in support of this study are considered sufficient to inform an assessment of the likely effects of the proposed development on Badgers and to inform the recommendations provided in *Section 4* of this report.

3 RESULTS

3.1 Setts

3.1.1 No Badger setts were recorded within or immediately adjacent to the site during the survey.

3.2 Other signs of Badger activity

3.2.1 Two Badger latrines were recorded during the Badger survey, one in an area of rough grassland adjoining dense scrub in the west of the site, and one adjacent to a species rich hedgerow in the east of the site. In addition, a Badger was seen moving through the west of the site during a bat survey conducted by HDA on 22 August 2022.

3.2.2 A number of well-used mammal paths were recorded within the site during the survey, particularly passing through hedgerows along the field edges. It is possible that these paths are used by Badgers, as well as Rabbits, Foxes and Deer. The mammal paths recorded during the survey are illustrated on the Badger Survey Summary Plan in *Appendix A*.

3.3 Foraging habitat

3.3.1 The semi-improved grassland, woodland, scrub and hedgerow bases occurring throughout the site provide good quality foraging habitat for Badgers. Similar habitats including areas of grassland, woodland and hedgerows are however abundant in the wider area to the north and east of the site.

4 ASSESSMENT AND RECOMMENDATIONS

4.1 Setts

4.1.1 No Badger setts were recorded within or adjacent to the site during the survey. As such, no Badger setts were considered to be present at the site at the time the survey was conducted.

Further survey

4.1.2 During the survey it was not possible to access land to the immediate east of the site to confirm the absence of Badger setts. The likelihood of high-status setts being present within this area is however considered minimal due to the low level of Badger activity recorded within the site despite the presence of suitable foraging habitat, and the limited number of

Badger paths leading in the direction of this off-site area. In addition, should any low status setts be present it is likely these will not be affected by the development as the emerging development proposals indicate that the east of the site will be retained as an area of open informal greenspace, including wildflower meadow, community orchard and a pond. As a precaution however it is recommended that, where possible, the areas within 30m of the site's eastern and western boundaries are subject to survey in advance of any development works in this area to confirm the absence of active Badger setts.

- 4.1.3 Badgers are very mobile animals and occasionally setts may be abandoned and new setts created elsewhere. In view of this it is recommended that the site be re-surveyed prior to commencement of development works to ensure that the status of Badgers has not changed and/or inform any need for avoidance, mitigation and licensing measures.

4.2 Foraging and connectivity

Maintenance of opportunities

- 4.2.1 The majority of the site comprises suitable foraging habitat for Badgers, and given the presence of Badger recorded during the surveys, it is considered likely that Badgers use the site for foraging on an occasional basis.

- 4.2.2 Although the development of the site will result in a loss of foraging habitat where built development takes the place of semi-improved grassland, habitats of similar quality to those existing within the site are abundant in the wider area. Notwithstanding this, where possible the proposed development should seek to maintain opportunities for Badgers at the site through the inclusion of grassland, scrub and woodland habitats, and through maintenance of links between habitat within the site and the wider area. Initial proposals for the site indicate that this will be achieved through the creation of public open space in the east of the site, including tree and shrub planting and the strengthening of links to off-site habitat (Turley, 2023). Planting schemes for the proposed development should also give consideration to increasing their value to foraging Badgers through the inclusion of fruit and nut bearing species.

Prevention of entrapment during construction

- 4.2.3 In addition to the above measures to maintain opportunities for foraging, to prevent entrapment of any Badgers and other wildlife moving around the site during the construction phase any steep sided holes left open overnight should be equipped with a mammal ladder (a reinforced plywood board >60cm wide set at an angle of no greater than 30° to the base of the pit) and temporarily open pipes with a diameter of >150mm plugged.

5 CONCLUSION

- 5.1 No Badger setts were recorded during the Badger survey, however evidence of Badgers using the site was recorded during the Badger survey and during the course of other fieldwork conducted by HDA in 2022, and it is considered likely that foraging Badgers use the site on an occasional basis.
- 5.2 Measures by which development proposals can protect individual foraging Badgers using the site during construction and maintain opportunities for foraging Badgers at the site following development are provided in *Section 4* above. Subject to the implementation of these measures it is unlikely that the proposed development would have any significant impact on the local Badger population.

6 REFERENCES

English Nature (2002) *Badgers and Development*. English Nature, Peterborough.

Harris S Cresswell P and Jefferies D (1989) *Surveying Badgers*. The Mammal Society, Bristol.

Harris S, Jefferies D, Cheeseman C, Booty C (1994) *Problems with Badgers* RSPCA, Horsham.

HDA (2023) *Land at Penn Hill: Ecological Assessment*. Hankinson Duckett Associates, Wallingford.

Natural England (2007) *Badgers and Development: A Guide to Best Practice and Licensing*. Natural England.

Natural England (2009a) *Guidance on 'Current Use' in the definition of a Badger Sett*. Natural England.

Natural England (2009b) *Interpretation of 'Disturbance' in relation to Badgers occupying a sett*. Natural England.

Turley (2023) *Land at Penn Hill Farm, Calne, Framework Masterplan (dwg no. CASS3002_3001_G)*. Turley.

HDA Document Control and Quality Assurance Record

Project Title: Land at Penn Hill
Project Reference: 1071.1
Document Title: Badger Survey Report
Commissioning Party: Castlewood Commercial Properties

Issue	Description	Date of Issue	Signed
1	Badger Survey Report	March 2023	

	Personnel	Position
Author	Nick Chambers	Assistant Ecologist
Reviewed by	Anna Senior MCIEEM	Principal Ecologist

© Hankinson Duckett Associates. All rights reserved

No part of this report may be copied or reproduced by any means without prior written permission from Hankinson Duckett Associates. If you have received this report in error, please destroy all copies in your possession or control and notify Hankinson Duckett Associates.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Hankinson Duckett Associates no other party may use, make use of or rely on the contents of the report. No liability is accepted by Hankinson Duckett Associates for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Hankinson Duckett Associates using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Hankinson Duckett Associates has been made.

APPENDIX A

Badger Survey Summary Plan



KEY

-  Site boundary
-  Badger latrine
-  Badger recorded crossing site
-  Mammal path

CLIENT:
Castlewood Commercial Properties
PROJECT:
Land at Penn Hill
TITLE:
Badger Survey Summary Plan
SCALE AT A3:
NTS
DATE:
March 2023

1071.1/5

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. AR187372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX B

Badger Sett Type Definitions

Badger Sett Type Definitions

From: Harris, S., Cresswell, P. and Jefferies, D. (1989) *Surveying Badgers*. The Mammal Society, Bristol.

In most cases each social group of Badgers has more than one sett in its territory, and these vary in status and level of use. Whenever there is a Badger problem in an area, it is essential to undertake a thorough survey to establish (i) how many social groups may be involved and (ii) the distribution and status of any setts being threatened. The extent of any problem depends on the type of sett under threat, and so the different types of Badger sett occupied by a single group of Badgers are described below.

Main setts: Normally each group of Badgers has only one main sett, and so by counting all the main setts in an area you can find out how many social groups of Badgers are present. Main setts usually have several holes with large spoil heaps, and the sett generally looks well used. There will be obvious paths to and from the sett and between sett entrances. In the British national Badger survey the average number of holes for a main sett was twelve, although main setts may be much smaller, even a single hole in exceptional circumstances. Although normally the breeding sett, and in continuous use, it is possible to find a main sett that has become disused due to excessive interference, illegal digging, tree felling or some other reason.

Annexe setts: these are often close to a main sett, normally less than 150 metres away, and are connected to the main sett by one or more obvious well worn paths. Usually they have several holes but may not be in use all the time, even if the main sett is very active. The average number of holes per annexe sett in the British survey was eight.

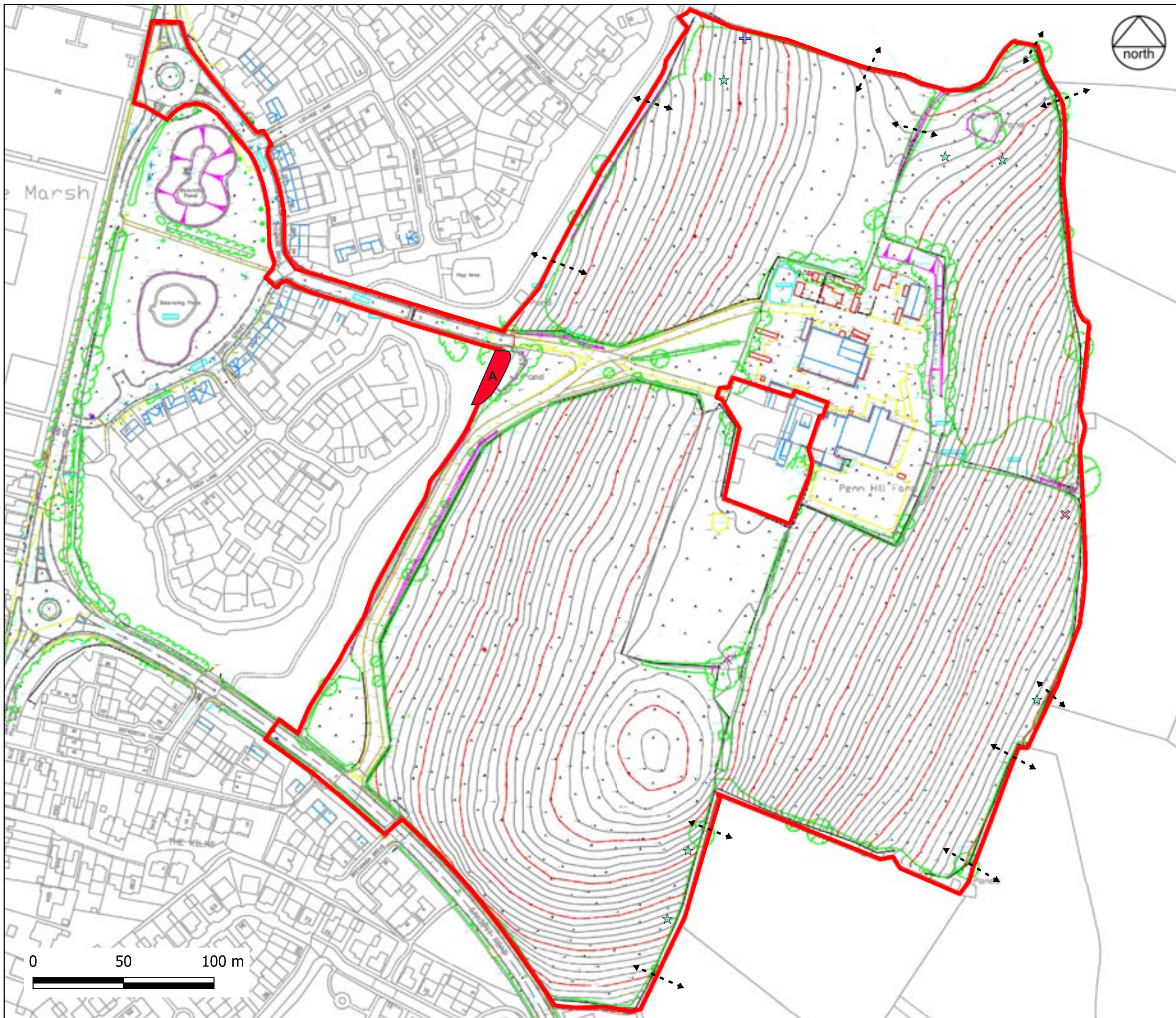
Subsidiary setts: These are usually at least 50 metres from a main sett, and do not have an obvious path connecting with another sett. They are not continuously active. The average number of holes per subsidiary sett in the British survey was four.

Outlying setts: These often have little spoil outside the holes, have no obvious path connecting them with another sett, and are only used sporadically. When not in use by Badgers, they are often taken over by foxes or even rabbits. However, they can still be recognised as Badger setts by the shape of the tunnel (not the actual entrance hole), which is at least 25 centimetres in diameter and rounded or a flattened oval shape (i.e. broader than high). Fox and Rabbit tunnels are smaller and often taller than broad. The average number of holes per outlying sett in the British survey was two.

Note: These sett definitions form part of a continuum, and setts do not always fit neatly into these categories.

APPENDIX Da

Updated Badger Survey findings



0 50 100 m

KEY

- Site boundary
- Main sett in 'current use'
- Field signs
 - Foraging
 - Badger hair
 - Latrine
 - Mammal paths

CLIENT:
Castlewood Ltd

PROJECT:
Land at Penn Hill

TITLE:
Badger Survey Summary Plan

SCALE AT A3:
See scale bar

DATE:
October 2025

1071.1 / 05a

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX E

Reptile Survey Report

LAND AT PENN HILL

REPTILE SURVEY REPORT

Prepared for Castlewood Commercial Properties

by

Hankinson Duckett Associates

HDA ref: 1071.1

March 2023

hankinson duckett associates

† 01491 838175 † 01491 838997 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

The Stables, Howbery Park, Benson Lane, Wallingford, Oxfordshire, OX10 8BA

Hankinson Duckett Associates Limited Registered in England & Wales 3462810 Registered Office: The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA

CONTENTS

Page

1	Introduction	1
2	Methodology	2
3	Results	4
4	Site Evaluation	4
5	Recommendations.....	6
6	Conclusion	8
7	References.....	8

HDA Document Control and Quality Assurance Record

APPENDICES

A Reptile Survey Summary Plan

1 INTRODUCTION

1.1 Site location and summary description

1.1.1 This report describes a reptile survey of approximately 14.99ha of Land at Penn Hill, Calne, Wiltshire, hereinafter referred to as the site. The site centre is located by National Grid Reference SU 00827 72087. The study was commissioned by Castlewood Commercial Properties in June 2022.

1.1.2 The site is located on the north-eastern edge of Calne and is dominated by semi-improved grassland fields bordered by hedgerows, with small areas of scrub, woodland and small seasonal ponds. In the centre of the site is an area of hardstanding and warehouse buildings comprising industrial units and storage areas for vehicles. The site is bordered by residential development to the south and west and agricultural land to the north and east. The location and boundary of the site are shown in *Appendix A*. A full description of the habitats within the site is provided in the *Ecological Assessment* (HDA, 2023).

1.2 Background and legislative context

1.2.1 Four species of reptile are widespread in England: Grass Snake *Natrix natrix*, Slow-worm *Anguis fragilis*, Common Lizard *Zootoca vivipara* and Adder *Vipera berus*. The Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* are restricted to certain sand dune and heathland sites.

1.2.2 Reptiles can be found in a range of habitats and typically require a mosaic of vegetation types. Habitat interfaces are important with reptiles requiring woodland, scrub or hedgerow for shelter, with adjacent longer vegetation for hunting and patches of sheltered short turf, bare ground or log piles for basking areas. Areas which catch the sun (i.e. those with a southerly aspect) are preferred over those where direct sunlight is absent for most of the day. In addition, Grass Snakes favour damp habitats such as those associated with still and running water, grazing marshes, mires etc.

1.2.3 All species of reptile are protected through Sections 9(1) and 9(5) of the 1981 Wildlife and Countryside Act (as amended). It is an offence to:

- Intentionally kill or injure any reptile; and
- Sell, offer for sale, possess or transport for the purposes of sale or publish advertisements to buy or sell any reptile.

Due to their rarity, Sand Lizards and Smooth Snakes have additional protection.

1.2.4 Reptiles across the UK have undergone significant declines in recent years and all native reptile species are listed as priority species on the UKBAP and identified as Species of Principal Importance under Section 41 of the 2006 Natural Environment and Rural

Communities (NERC) Act. Section 40 of the Act requires that these species are a material consideration in the planning process.

1.3 Development proposals

1.3.1 Development proposals for the site are for up to 205 residential dwellings and 0.75ha of employment land and ancillary uses, open space, vehicular and pedestrian accesses, landscaping, drainage measures and all other associated works including the demolition of existing buildings and structures.

1.4 Scope and purpose of the report

1.4.1 An extended Phase 1 habitat survey conducted as part of an Ecological Assessment of the site in 2022 (HDA, 2023) identified the presence of potentially suitable reptile habitat throughout the site in the form of scrub, rough grassland, hedgerow bases and ponds.

1.4.2 A desk study carried out as part of the Ecological Assessment identified 54 records of reptiles within 2km of the site relating to Grass Snake and Slow-worm. The closest of these was of a Grass Snake pertaining to a location approximately 0.02km to the east of the site, dating from 1977. More recent records in close proximity to the site include records of a total of 59 Slow-worms translocated from a site on Porte Marsh Road approximately 250m to the west of the site between 2001 and 2002.

1.4.3 In recognition of the potential for the site to support reptiles, a reptile survey was subsequently undertaken to inform an assessment of the likely effects of the proposed development of the site on reptiles and this is the subject of this report. The aims of this study are:

- i. To establish the presence/probable absence of reptiles at the site;
- ii. To assess the relative importance of different parts of the site for reptiles; and
- iii. To predict likely impacts potentially arising from the proposed development of the site on reptiles and give recommendations for impact avoidance, minimisation and mitigation.

2 METHODOLOGY

2.1 The survey methodology has been devised to accord with the requirements of all relevant legislation and good practice guidance, including the Herpetofauna Worker's Manual (JNCC, 1999) and Reptile Survey guidance (Froglife, 1999).

2.2 The site was surveyed on seven occasions by Filippo Faraone, Stephanie Smith, Gail Trevelyan, Nick Chambers and Fiona Muir of HDA. Surveys were generally carried out during optimum temperature and weather conditions (intermittent or hazy sunshine,

temperature between 9°C and 20°C and low winds). Dates of survey visits, with survey timings and weather conditions, are shown in *Table 1* below:

Table 1: Survey times and weather conditions

Survey visit	Date	Time of Visit	Weather conditions	Temp (°C)
1	17/08/2022	09:00-11:00	100% cloud cover, 2 BS, warm	16-18
2	22/08/2022	17:30-19:00	95% cloud cover, 2-4 BS, dry	21-20
3	25/08/2022	09:00-10:30	100% cloud cover, 0-1 BS, light to heavy rain towards end of survey	18
4	12/09/2022	10:30-11:45	90% cloud cover, 1 BS, humid and dry	24
5	19/09/2022	17:00-18:00	70% cloud cover, 2 BS, humid and dry	16
6	21/09/2022	10:30-11:45	5% cloud cover, 2 BS, warm with a light breeze	20-22
7	27/09/2022	10:30-11:30	100% cloud cover, 3 BS, breezy with light rain towards end of survey	21

BS = Wind force on Beaufort Scale

- 2.3 Two methods of surveying were used. Firstly, artificial refugia (squares of roofing felt 0.5m x 0.5m) were placed, in advance of the survey commencing, at potential basking areas throughout the site. A total of 75 refugia were placed across the site, giving a total density of approximately 5 refugia per hectare, within the recommended density of 5 to 10 refugia per hectare. Locations of refugia are shown on the map in *Appendix A*.
- 2.4 During each of the seven subsequent visits, each refugium was inspected for any reptiles basking on the upper side, then lifted and checked for sheltering animals before being carefully replaced. A different route was taken for each of the survey visits to ensure that there was no bias due to the time of survey.
- 2.5 The second survey method involved transect searches across suitable habitats within the site. This ensured that all areas were represented in the survey, and that the survey was not biased towards those reptiles more likely to use refugia. Transect searches involve walking slowly around the site, visually searching potential basking areas and marking the locations of any reptiles observed on a map. Potential reptile refuges already present on the site such as logs were also lifted to check for the presence of reptiles.
- 2.6 The following information was recorded for each reptile survey: species seen, number of animals seen, location (refugium number), date, start and finish times, temperature and weather.

Limitations

- 2.7 The reptile surveys were carried out at appropriate times of the year during suitable weather conditions for reptile activity. On two occasions the temperature during the surveys slightly exceeded 20°C but it has been HDA's experience that minor exceedances do not significantly change rates of detection, and in some instances may improve detection of reptiles. It is therefore considered that no significant limitations were encountered during the surveys and the survey findings allow a robust assessment of the likely effects of the proposed development on reptiles and basis for the recommendations provided in *Section 5* of this report.

3 RESULTS

3.1 Habitat assessment

- 3.1.1 The majority of the site comprises managed semi-improved grassland which is considered to provide sub optimal quality reptile habitat, however small areas of rough grassland, scrub, hedgerow bases and ponds found throughout the site provide moderate to good quality habitat for reptiles.

3.2 Refugia and visual searches

- 3.2.1 Two species of reptile were recorded during the survey: Slow-worm and Grass Snake. The results of the survey are summarised in *Table 2* below and the locations at which the animals were recorded are shown in *Appendix A*.

Table 2: Reptiles recorded

Survey visit	Reptiles observed
1	1 Slow-worm (Adult Male)
2	None
3	1 Slow-worm (Adult Male)
4	1 Grass Snake (Juvenile)
5	None
6	None
7	None

- 3.2.2 During the course of the survey maximum counts of 1 adult Slow-worm and 1 juvenile Grass Snake were recorded on any one visit. Two of the reptiles were recorded in an area of rough grassland located in the centre of the site with one reptile found along the eastern boundary.

4 SITE EVALUATION

- 4.1 A number of guidelines are used to evaluate the importance of a site for reptiles, based on both the population density and number of species present, in addition to historical factors.

- 4.2 The Guidelines for Biological Selection of SSSIs (JNCC, 2022) suggests that for the commoner species of reptile, the best localities in which three or more species occur should be selected as potential SSSIs.
- 4.3 The Herpetofauna Workers' Manual (JNCC, 2003) suggests that sites falling outside of the SSSI selection criteria should be designated as Sites of Importance for Nature Conservation (SINCs) if they meet the following criteria:
- Any site with a large population of a single species;
 - Any site with a moderate population of two species;
 - Any site at the edge of the geographical range of a species; and
 - Any site with a long documented history.
- 4.4 The Key Reptile Site register is a mechanism designed to promote the safeguard of important reptile sites. To qualify for the register, the site in question must meet at least one of the following criteria (Froglife, 1999):
- Supports three or more reptile species;
 - Supports two snake species;
 - Supports an exceptional population of at least one species (*Table 3*);
 - Supports an assemblage of species scoring at least 4 (*Table 3*); and
 - Does not satisfy the above criteria but is of particular regional importance due to local rarity (e.g. in the East Midlands, Adders are very rare so even "low" populations should be designated as Key Sites).
- 4.5 The criteria for scoring populations of the four common reptile species for the purposes of the Key Reptile Register are given in *Table 3* below.

Table 3: Population parameters for the Key Reptile Sites register

Reptile species	Low population Score 1	Good population Score 2	Exceptional population Score 3
Adder	<5	5-10	>10
Grass Snake	<5	5-10	>10
Common Lizard	<5	5-20	>20
Slow-worm	<5	5-20	>20

Figures in the table refer to maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare) by one person in one day.

- 4.6 Using these criteria, the site supports a 'low' population of Slow-worm with a maximum count of 1 adult. The single Grass Snake recorded during the survey was a juvenile and is therefore not considered in the Key Reptile Sites Register, however given the absence of

adult Grass Snakes recorded during the survey it is likely that the site supports no more than a very low population of Grass Snake.

4.7 With regard to the criteria described above the site would not qualify as a SSSI, SINCR or Key Reptile Site on the basis of its reptile assemblage. Common Lizards and Grass Snakes are a relatively common and widespread species and suitable habitat for these species is relatively abundant in the wider area. Furthermore, only a low population of Common Lizard and very low population of Grass Snake are present within the site and none of the species recorded are rare or at the edge of their geographical range.

4.8 Although the site is not considered to qualify either wholly or in part for designation on the basis of its reptile interest, the site is considered to be of at least local value for reptiles. In addition to affording reptiles present the protection provided under the 1981 Wildlife and Countryside Act (as amended), any development proposals for the site should therefore also seek to maintain and, where possible, enhance its current value for this group in accordance with the 2006 NERC Act and planning policy and guidance. Measures by which this can be achieved are provided in *Section 5* below.

5 RECOMMENDATIONS

5.1 The site is considered to support a low population of Slow-worm and very low population of Grass Snake. Although the site is not considered to qualify as a SSSI, SINCR or Key Reptile Site on the basis of its reptile interest, the suitable areas of habitat present are considered to be of at least local value for reptiles and the protection afforded to all native reptile species will apply.

5.2 It is recommended that where possible development proposals seek to avoid areas of suitable reptile habitat within the site. This includes woodland edges, such as the scrub ecotone between the two eastern semi-improved grassland fields where reptiles were recorded, as well as other areas of scrub, rough grassland, hedgerows and ponds within the site. Although the emerging development proposals suggest that the majority of these habitats will be retained within the site, where loss of suitable reptile habitat is unavoidable it will be necessary to employ suitable measures during development works to ensure the protection of any individual reptiles present together with the long-term maintenance of opportunities for reptiles at the site in accordance with the 2006 NERC Act.

5.3 Sensitive Approach to Site Clearance

5.3.1 Suitable measures for the protection of reptiles during the proposed development works are outlined below. Although Slow-worm and Grass Snake may be present within suitable habitat across the site, in view of the limited number and distribution of reptiles recorded, and assuming that the site management remains the same (and subsequently the

distribution and character of habitats on site does not change significantly prior to construction), a full reptile translocation exercise is not recommended in this instance prior to development commencing.

5.3.2 Instead, it is recommended that a controlled approach is taken to site clearance in those areas where potential reptile habitat is to be lost such as woodland edge, hedgerow bases, scrub or rough grassland in order to displace any reptiles present into areas of contiguous habitat within the site and wider area. This would require the following:

- Firstly, vegetation cover should be reduced to a minimum height of 150mm. This would ideally take place at a time avoiding the bird breeding season (typically between March and August inclusive) or otherwise be preceded by a check of suitable habitat for active nests immediately prior to commencement of works by a suitably qualified ecologist.
- Where potential for reptiles to be present remains, a minimum period of 5 days with daytime temperatures of $>12^{\circ}\text{C}$ should then be allowed to elapse prior to the second stage of vegetation clearance (see below).
- The second stage would involve clearance of all suitable vegetation to ground level (i.e. $<75\text{mm}$) by hand during mild temperatures ($>14^{\circ}\text{C}$) at a suitable time of year when reptiles are likely to be active (mid-March to early October inclusive). At this time any potential hibernacula or refugia encountered should be carefully dismantled by hand. This stage of clearance should be undertaken under the supervision of a suitably qualified ecologist who would capture and relocate any reptiles encountered to areas of retained habitat on the margins of the site.
- Where potential for reptiles to be present still remains, a further 5 days with daytime temperatures of $>12^{\circ}\text{C}$ should then be allowed to elapse to enable any remaining reptiles to disperse from the area of works, prior to carrying out a destructive search.
- Following clearance of vegetation to ground level and removal of any refugia by hand, no suitable reptile habitat would remain and it is expected that any remaining reptiles would disperse from the area of works into adjacent habitat on their own accord.
- In order to be certain that no reptiles are present within the area of works, where any potential for reptiles to be present remains a destructive search should be carried out. This will involve the progressive stripping of topsoil from the area of works under the supervision of a suitably qualified ecologist.
- In the event that the destructive search is delayed, vegetation should be maintained at ground level until the destructive search is carried out. Similarly, following the destructive search, the land should be maintained as unsuitable for the recolonisation of reptiles prior to and throughout the construction works.

5.3.3 It is recommended that the approach to mitigation is reviewed at an appropriate stage prior to works commencing in order to allow consideration of any changes to management of habitats within the site which may have affected their ability to support reptiles since this report was produced.

5.3.4 It is also recommended that the measures to protect and maintain the site's reptile population form the basis of a detailed Reptile Mitigation Method Statement to be agreed with Natural England and/or the Local Planning Authority at an appropriate stage.

5.4 Maintaining and Enhancing Opportunities for Reptiles

5.4.1 In accordance with the 2021 NPPF and 2006 NERC Act, development proposals should seek to maintain and where possible enhance opportunities for reptiles at the site. This could be achieved through the retention, enhancement and creation of reptile habitats as part of the landscape strategy for the site. Consideration should be given to:

- Enhancement of woodland edge habitats through creation of ecotones (a gradation from woodland to scrub to rough grassland habitats);
- Creation of new waterbodies in order to provide improved habitats favoured by Grass Snake;
- Maintenance and establishment other high quality reptile habitats within the landscape scheme such as rough and meadow grasslands and scrub;
- Provision of opportunities for hibernation and refuge through provision of log/ brash piles and purpose-built hibernaculum; and
- Securing the long-term integrity of new and retained reptile habitat through inclusion within a long-term management plan.

5.4.2 The emerging development proposals indicate that it will be possible to incorporate the above measures within the site, including retention of woodland edge and hedgerow habitats and opportunities for establishment of rough grassland, ponds, and creation of log or brash piles in the east of the site. Subject to detailed design and securing suitable management it is expected that these could maintain opportunities provided by the site for reptiles in the long-term.

6 CONCLUSION AND RECOMMENDATIONS

6.1 Subject to the implementation of the measures outlined above to protect reptiles and ensure that suitable habitat remains following development at the site, the proposed development is unlikely to result in adverse effects on the local reptile population. Furthermore, through habitat retention, enhancement, creation and management, development at the site could in fact provide opportunities to safeguard and enhance its value for reptiles in the long-term in accordance with the 2021 National Planning Policy Framework and the 2006 NERC Act.

REFERENCES

Beebee T. and Griffiths R. (2000). *Amphibians and Reptiles*. HarperCollins Publishers Ltd, London.

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

HDA (2023) *Land at Penn Hill: Ecological Assessment*. Hankinson Duckett Associates, Wallingford.

Joint Nature Conservation Committee (Gent, T & Gibson, S. Eds) (2003). *The Herpetofauna Worker's Manual*. JNCC, Peterborough.

Joint Nature Conservation Committee (Bernhard, T. et. al.) (2022). *Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 18 Reptiles and Amphibians*. JNCC, Peterborough.

HDA Document Control and Quality Assurance Record

Project Title: Land at Penn Hill
Project Reference: 1071.1
Document Title: Reptile Survey Report
Commissioning Party: Castlewood Commercial Properties

Issue	Description	Date of Issue	Signed
1	Reptile Survey Report	March 2023	

	Personnel	Position
Author	Filippo Faraone	Assistant Ecologist
Approved for issue	Anna Senior MCIEEM	Principal Ecologist

© Hankinson Duckett Associates. All rights reserved

No part of this report may be copied or reproduced by any means without prior written permission from Hankinson Duckett Associates. If you have received this report in error, please destroy all copies in your possession or control and notify Hankinson Duckett Associates.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Hankinson Duckett Associates no other party may use, make use of or rely on the contents of the report. No liability is accepted by Hankinson Duckett Associates for any use of this report, other than for the purposes for which it was originally prepared and provided.

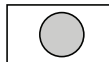
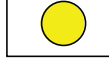
Opinions and information provided in the report are on the basis of Hankinson Duckett Associates using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Hankinson Duckett Associates has been made.

APPENDIX A

Reptile Survey Summary Plan



KEY

-  Site boundary
-  Reptile refugium
-  Slow-worm
-  Grass Snake

CLIENT:
Castlewood Commercial Properties
PROJECT:
Land at Penn Hill
TITLE:
Reptile Survey Summary Plan
SCALE AT A3:
NTS
DATE:
March 2023

1071.1 / 03

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. AR187372

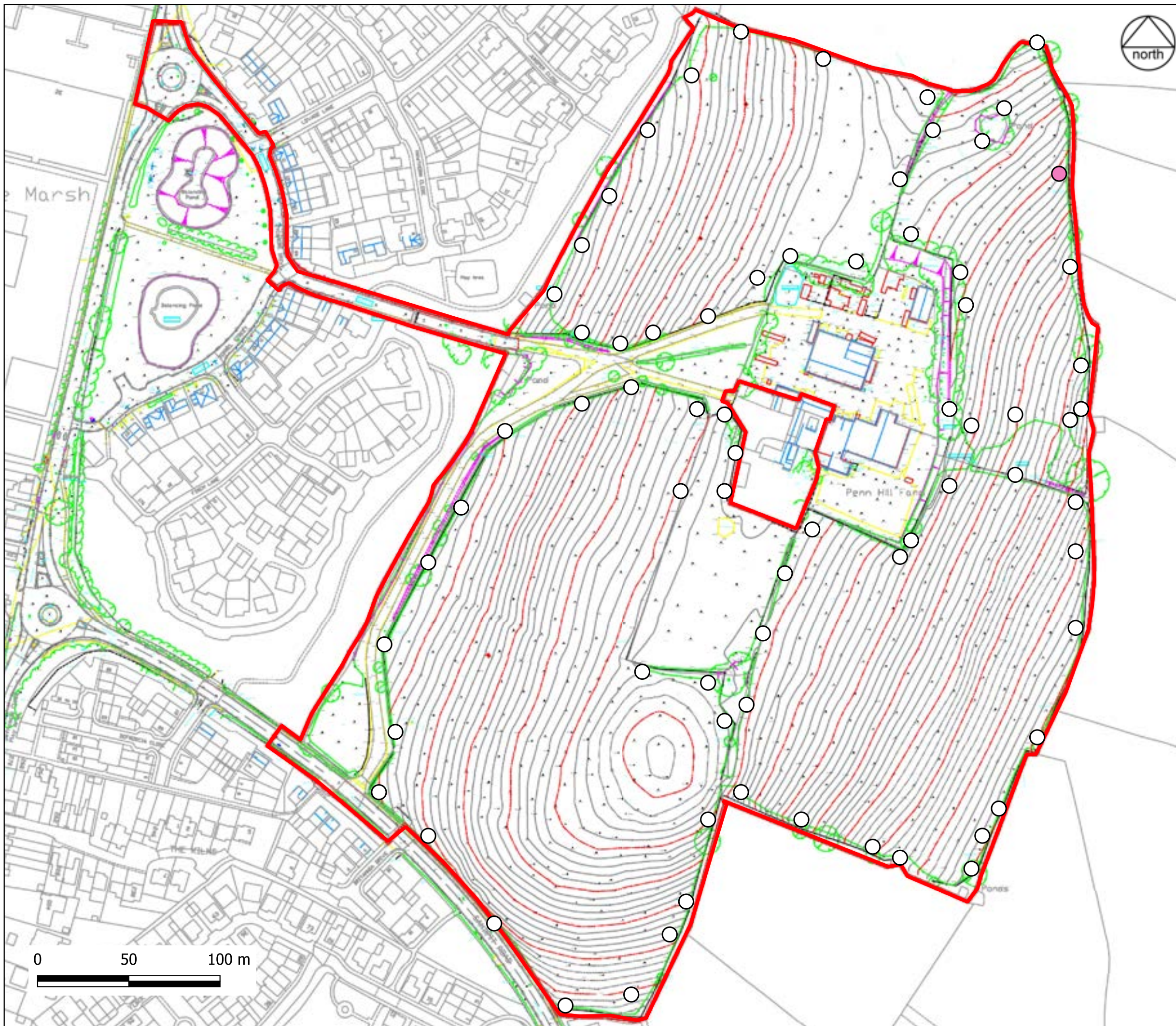
© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX Ea

Updated Reptile Survey findings



KEY

- Site boundary
- Slow-worm
- Refugia

CLIENT:
Castlewood Ltd

PROJECT:
Land at Penn Hill

TITLE:
Reptile Survey Summary Plan

SCALE AT A3:
See scale bar

DATE:
October 2025

1071.1 / 03a

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. A2183372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology



APPENDIX F

Great Crested Newt Survey Report

LAND AT PENN HILL

GREAT CRESTED NEWT HSI AND eDNA SURVEY

Prepared for Castlewood Commercial Properties

by

Hankinson Duckett Associates

HDA ref: 1071.1

March 2023

hankinson duckett associates

† 01491 838175 f 01491 838997 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

The Stables, Howbery Park, Benson Lane, Wallingford, Oxfordshire, OX10 8BA

Hankinson Duckett Associates Limited Registered in England & Wales 3462810 Registered Office: The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA

CONTENTS

	Page
1 Introduction	1
2 Methodology	3
3 Results	4
4 Summary and Recommendations	7
5 Conclusion	9
6 References	9

HDA Document Control and Quality Assurance Record

APPENDICES

A	Great Crested Newt HSI and eDNA survey summary plan
B	Full HSI assessment results
C	eDNA sampling analysis results
D	Waterbody photographs

1 INTRODUCTION

1.1 Site location and summary description

1.1.1 This report describes a Great Crested Newt Habitat Suitability Index (HSI) assessment and eDNA sampling survey of waterbodies located in the vicinity of approximately 14.99ha of Land at Penn Hill, Calne, Wiltshire, hereinafter referred to as the site. The site centre is located by National Grid Reference SU 00827 72087. The study was commissioned by Castlewood Commercial Properties in June 2022.

1.1.2 The site is located on the north-eastern edge of Calne and is dominated by semi-improved grassland fields bordered by hedgerows, with small areas of scrub, woodland and small seasonal ponds. In the centre of the site is an area of hardstanding and warehouse buildings comprising industrial units and storage areas for vehicles. The site is bordered by residential development to the south and west and agricultural land to the north and east. The location and boundary of the site are shown in *Appendix A*. A full description of the habitats within the site is provided in the *Ecological Assessment* (HDA, 2023).

1.2 Background and legislative context

1.2.1 Five species of amphibian are widespread in England: Common Frog *Rana temporaria*, Common Toad *Bufo bufo*; Smooth Newt *Lissotriton vulgaris*; Palmate Newt *Lissotriton helveticus*; and Great Crested Newt *Triturus cristatus*. A sixth species of amphibian, the Natterjack Toad *Bufo calamita*, also occurs in England but this species has special habitat requirements that limit its range to certain sand dune and heathland sites.

1.2.2 Amphibians require aquatic habitat within which to breed and suitable terrestrial habitat to forage and hibernate. Suitable breeding ponds are usually well vegetated with still, shallow water that is not heavily shaded or very exposed. Terrestrial habitat includes woodland, scrub, field edges and gardens. Hibernation can occur under stone or log piles, in crevices or leaf litter and under the soil. Occasionally amphibians may be found hibernating in their breeding pools.

1.2.3 Over the last few decades all amphibians have suffered a decline in numbers. This is due to a combination of many factors, which include habitat destruction and fragmentation, loss of breeding pools through unsympathetic management and neglect, introduction of fish (which eat amphibian larvae) and pollution.

1.2.4 The Great Crested Newt is protected as a 'European Protected Species' under the 2017 Conservation of Habitats and Species Regulations (as amended). In relation to European Protected Species (EPS), the 2017 Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS;

- Deliberately disturb wild animals of any such species, in particular any disturbance which is likely to: (i) impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or to hibernate or migrate; (ii) affect significantly the local distribution or abundance of the species to which they belong;
- Damage or destroy a breeding site or resting place of such an animal; and/or
- To (a) be in possession of, or to control; (b) to transport any live or dead animal or any part of an animal; (c) to sell or exchange or (d) offer for sale or exchange any live or dead animal or part of an animal of an EPS.

1.2.5 In addition, Great Crested Newts are protected under the 1981 Wildlife and Countryside Act (as amended). The Great Crested Newt is listed on Schedule 5 of the Act and is subject to the provisions of Sections 9.4b and 9.4c, which make it an offence to:

- Intentionally or recklessly disturb a Great Crested Newt while it is occupying a structure or place which it uses for shelter or protection; and/or
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by a Great Crested Newt.

1.2.6 Great Crested Newts and Common Toads are also identified as a Species of Principal Importance under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. Section 40 of the Act requires that these species are a material consideration in the planning process.

1.3 Development proposals

1.3.1 Development proposals for the site are for up to 205 residential dwellings and 0.75ha of employment land and ancillary uses, open space, vehicular and pedestrian accesses, landscaping, drainage measures and all other associated works including the demolition of existing buildings and structures.

1.4 Scope and purpose of the report

1.4.1 The site includes a number of waterbodies potentially suitable for breeding Great Crested Newts together with a range of woodland, scrub and grassland habitats which are suitable to support Great Crested Newts in their terrestrial phases. A review of the OS 1:10,000 scale map and aerial photographs of the site's surrounds indicated the presence of additional waterbodies within 300m of the site, the closest of which is located immediately adjacent to the western site boundary.

1.4.2 In view of the above it was considered possible that Great Crested Newts could use the site during aquatic and terrestrial phases and a series of Great Crested Newt surveys including a Habitat Suitability Index (HSI) assessment and Great Crested Newt presence/absence eDNA survey were subsequently undertaken in order to:

- i. Establish the suitability of waterbodies within 300m of the site for Great Crested Newts;

- ii. Establish the likely presence/absence of Great Crested Newts breeding in suitable waterbodies within 300m of the site;
- iii. Determine requirements for any further survey work to estimate the size of any Great Crested Newt population potentially associated with the site; and
- iv. Predict likely impacts of the proposed development on Great Crested Newts and give recommendations for impact avoidance, minimisation and/or mitigation.

2 METHODOLOGY

2.1 Great Crested Newt Habitat Suitability Index (HSI) Assessment

2.1.1 Habitat Suitability Index (HSI) assessments provide a mechanism by which the suitability of a pond to support Great Crested Newts can be objectively assessed in order to assist in the identification of ponds potentially supporting this species (Oldham *et al.*, 2000).

2.1.2 For the HSI assessment the locations of waterbodies within a 300m radius of the site were identified from online aerial photographs, a 1:10,000 scale Ordnance Survey map and from other waterbodies encountered during the survey. Where necessary, relevant landowners were contacted in advance of the survey in order to gain access to off-site waterbodies. Use of a 300m radius reflects the findings of studies into the movement of Great Crested Newts during terrestrial phases which indicate that the maximum routine migratory distance of Great Crested Newts away from breeding ponds during terrestrial phases is less than 250m (Cresswell and Whitworth, 2004).

2.1.3 The HSI assessment was conducted by Filippo Faraone of HDA on 29th June 2022. All accessible waterbodies identified within the survey area were visited and, where appropriate, assessed against each of the following ten suitability indices:

- i. Geographic location;
- ii. Pond area;
- iii. Pond permanence;
- iv. Water quality;
- v. Shading;
- vi. Presence of waterfowl;
- vii. Presence of fish;
- viii. Pond density in the area;
- ix. Terrestrial habitat quality; and
- x. Macrophyte cover in pond.

2.1.4 Details of the pond characteristics (depth, margin profile, etc.) and bankside, marginal and aquatic vegetation were also recorded during the assessment.

2.2 Great Crested Newt Environmental DNA (eDNA) Survey

- 2.2.1 Great Crested Newt eDNA sampling surveys were conducted on all accessible waterbodies that had been identified as having suitability to support Great Crested Newts during the HSI survey. The eDNA survey methodology is recognised by Natural England as a reliable technique for determining the presence/likely absence of Great Crested Newts within a pond through detection of traces of Great Crested Newt DNA within the water.
- 2.2.2 The eDNA sampling survey was conducted by Filippo Faraone of HDA on 29th June 2022. The field survey involved taking samples of pond water at each of the surveyed waterbodies in line with the recognised methodology established by Biggs *et. al.* (2014). The samples were then despatched to a recognised laboratory for polymerase chain reaction (qPCR) analysis.

3 RESULTS

- 3.1 Four waterbodies are located within the site and six waterbodies with potential to support Great Crested Newts were identified within the wider 300m survey area during the desk study. The locations of the waterbodies are shown in *Appendix A* and photographs are provided in *Appendix D*.
- 3.2 The results of the HSI assessment and eDNA survey, together with descriptions of the surveyed waterbodies and any limitations encountered, are provided below. Full findings of the HSI assessment and the laboratory results from the eDNA analysis are provided in *Appendices B* and *C* respectively.
- 3.3 Waterbody 1**
- Location: In the north-eastern corner of the site*
- HSI assessment: 0.398*
- 3.3.1 Waterbody 1 (*Photo 1*) comprises a small, enclosed pond located within dense scrub and trees in the north-east of the site surrounded by grassland. The waterbody is approximately 0.005ha in area with shallow banks and poor water quality. Macrophytes, waterfowl and fish were absent from the waterbody and although the pond is located in an area of moderate terrestrial habitat it is likely to dry out annually.
- 3.3.2 The HSI for Waterbody 1 was calculated as 0.398, which indicates that the pond has 'poor' suitability for Great Crested Newts.
- 3.3.3 An eDNA sampling survey of Waterbody 1 was subsequently carried out and the samples were sent to the Surescreen Scientifics laboratory for analysis. The analysis returned a negative result for Great Crested Newt eDNA which indicates that Great Crested Newts are

highly likely to have been absent from the waterbody at the time of survey. The results of the eDNA analysis are provided in *Appendix C*.

- 3.3.4 No limitations were encountered during the survey of Waterbody 1.

3.4 Waterbodies 2 & 3

Location: On the south-eastern site boundary

HSI assessment: N/A

- 3.4.1 Waterbodies 2 & 3 (*Photo 2*) comprise two very small adjoining ponds located within an area of dense scrub just within the south-eastern site boundary. Both waterbodies were found to be dry at the time of the survey. Terrestrial habitat immediately surrounding the ponds include dense scrub, hedgerows and grassland.

- 3.4.2 It was not possible to conduct HSI assessments or eDNA surveys on Waterbodies 2 & 3 due to the absence of water at the time of survey however these features may hold water during wetter periods.

3.5 Waterbody 4

Location: On the western site boundary

HSI assessment: N/A

- 3.5.1 Waterbody 4 (*Photo 3*) comprises a very small pond located within an area of dense scrub close to the western site boundary. Waterbody 4 was found to be dry at the time of the survey. Immediately surrounding terrestrial habitat includes dense scrub, hedgerows, hardstanding and grassland.

- 3.5.2 It was not possible to conduct a HSI assessment or eDNA survey on Waterbody 4 due to the absence of water at the time of survey however this feature may hold water during wetter periods.

3.6 Waterbody 5

Location: Adjacent to the western site boundary

HSI assessment: N/A

- 3.6.1 Waterbody 5 (*Photo 4*) comprises a very small pond located within an area of dense scrub adjacent to the western site boundary. Waterbody 5 was found to be dry at the time of the survey. Immediately surrounding terrestrial habitat includes dense scrub, hedgerows, hardstanding and grassland.

- 3.6.2 It was not possible to conduct a HSI assessment or eDNA survey on Waterbody 5 due to the absence of water at the time of survey however this feature may hold water during wetter periods.

3.7 Waterbody 6

Location: 180m to the west of the site

HSI assessment: 0.419

3.7.1 Waterbody 6 (*Photo 5*) comprises a recently constructed SuDs pond located within an area of recent development, surrounded by rough grassland and hardstanding. The waterbody is approximately 0.12ha in size with shallow banks and moderate water quality and the waterbody contained dense stands of Bullrush, no waterfowl, and no fish. The waterbody is located in an area of poor terrestrial habitat as the feature is bordered by roads on all sides.

3.7.2 The HSI for Waterbody 6 was calculated as 0.419, which indicates that the pond has 'poor' suitability for Great Crested Newts.

3.7.3 An eDNA sampling survey of Waterbody 6 was subsequently carried out and the samples were sent to the Surescreen Scientifics laboratory for analysis. The analysis returned a negative result for Great Crested Newt eDNA which indicates that Great Crested Newts are highly likely to have been absent from the waterbody at the time of survey. The results of the eDNA analysis are provided in *Appendix C*.

3.7.4 No limitations were encountered during the survey of Waterbody 6

3.8 Waterbody 7

Location: 140m to the northwest of the site

HSI assessment: N/A

3.8.1 Waterbody 7 (*Photo 6*) comprises a small pond located within an area of scrub. The pond was found to be dry at the time of the survey. Immediately surrounding terrestrial habitat includes scrub, hedgerows, hardstanding and grassland.

3.8.2 It was not possible to conduct a HSI assessment or eDNA survey on Waterbody 7 due to the absence of water although this feature may hold water during wetter periods.

3.9 Waterbody 8

Location: 140m to the north of the site

HSI assessment: N/A

3.9.1 Waterbody 8 (*Photo 7*) comprises a pond located within an area of dense scrub. The pond was inaccessible due to the high density of impenetrable scrub surrounding the pond at the time of the survey. Immediately surrounding terrestrial habitat includes scrub, hedgerows, and grassland.

- 3.9.2 It was not possible to conduct a HSI assessment or eDNA survey on Waterbody 8 due to the difficulties of gaining access to the pond.

3.10 Waterbodies 9 & 10

Location: 380m to the east of the site

HSI assessment: N/A

- 3.10.1 Waterbody's 9 & 10 (*Photos 8 & 9 respectively*) comprise two small adjoining ponds located within a hedgerow, with immediately surrounding terrestrial habitats including dense scrub, hedgerows, grassland and hardstanding. Both ponds were found to be dry at the time of the survey.

- 3.10.2 It was not possible to conduct HSI assessments or eDNA surveys on Waterbodies 9 & 10 due to the absence of water however these features may hold water during wetter periods.

3.11 Waterbody 11

- 3.11.1 *Location: On-site, approximately 20m north of the on-site industrial area*

HSI assessment: N/A

- 3.10.1 Waterbody 11 (*Photo 10*) comprises a small pond located beneath a mature Crack Willow and adjacent to a hedgerow, with the immediately surrounding terrestrial habitat comprising tall ruderal vegetation and grassland. The pond was found to be dry at the time of the survey.

- 3.10.2 It was not possible to conduct HSI assessments or eDNA surveys on Waterbody 11 due to the absence of water however this feature may hold water during wetter periods.

3.11 Waterbody 12

- 3.11.1 *Location: On-site, within a strip of scrub in the east of the site*

HSI assessment: N/A

- 3.10.1 Waterbody 12 comprises a small pond located beneath a mature Ash and Willow pollards, adjacent to a hedgerow, with the immediately surrounding terrestrial habitat comprising tall ruderal vegetation and mixed scrub. The pond was found to be dry at the time of the survey.

- 3.10.2 It was not possible to conduct HSI assessments or eDNA surveys on Waterbody 12 due to the absence of water however these features may hold water during wetter periods.

3.11 Other waterbodies

- 3.11.1 No other waterbodies were located within 300m of the site boundary.

4 SUMMARY AND RECOMMENDATIONS

- 4.1 The eDNA survey results indicate that Great Crested Newts were absent from Waterbody 1, located in the north of the site, and Waterbody 6, located 18m to the west of the site at the time of survey, despite their limited suitability for this species. The remaining accessible waterbodies (Waterbodies 2, 3, 4, 5, 7, 9, 10, 11 and 12) were all found to be dry and were not considered to provide suitable habitat for Great Crested Newts at the time of survey. Waterbodies that were not accessible for survey are considered below.
- 4.2 Although Waterbody 8, located approximately 140m to the north of the site, was not accessible for survey, it is considered highly unlikely that Great Crested Newts are present in this waterbody. Great Crested Newts usually exist in metapopulations, using clusters of ponds with cross dispersal of individuals between them¹. Due to the absence of breeding ponds in the area around Waterbody 8, and therefore the lack of a metapopulation, it is considered unlikely this waterbody supports Great Crested Newts.
- 4.3 With regard to the above it is considered highly unlikely that Great Crested Newts are present within any of the on-site or off-site ponds identified during the survey and Great Crested Newts are therefore highly unlikely to be present within the site during aquatic or terrestrial phases. Current knowledge therefore suggests no mitigation or licencing would be required in relation to the proposed development in relation to this species.
- 4.4 The site is currently dominated by semi-improved grassland fields with surrounding hedgerows and small areas of scrub which provide good opportunities for amphibians during terrestrial phases. In addition, the on-site ponds provide some breeding opportunities for amphibians. Emerging proposals indicate that all of the on-site ponds will be retained within the development scheme. In addition, proposals for the site should seek maintain and where possible enhance future opportunities for Great Crested Newts and other amphibians at the site in accordance with the 2021 NPPF and 2006 NERC Act. This could be achieved through implementing a selection of the following measures:
- Enhancement of retained ponds through re-profiling, selective clearance of overshading scrub, and establishment of native aquatic and marginal planting;
 - Creation of sympathetically designed new wetland habitats such as ponds and ditches, either as standalone features or as part of the site surface water drainage strategy (SuDS), complementing aquatic habitats in the wider area. These should be of wildlife friendly design including gently shelving margins and native aquatic/ marginal planting;

¹ This decreases the vulnerability of populations to habitat changes (e.g. individual ponds drying) thereby maintaining long-term population viability.

- Inclusion of areas of high value amphibian terrestrial habitat within areas of open space such as meadow and rough grassland, native species-rich scrub and woodland planting;
- Use of native species-rich hedgerow, scrub and tree planting to form new boundary features and/or complement existing boundary vegetation to enhance connective habitats across the site;
- Provision of opportunities for hibernation and refuge through provision of compost heaps, log/brush piles and purpose built hibernaculum; and
- Securing the long-term integrity of new and retained habitats through inclusion within a long-term management strategy.

4.5 The emerging development proposals shown on the *Framework Masterplan* (Turley, 2023) include the provision of a substantial area of open informal space within the east of the site, as well as other areas of informal open space within the site, together with a surface water drainage scheme including on-site attenuation. It is considered that subject to suitable design in accordance with the measures described above, these provide an opportunity to maintain and potentially enhance future opportunities at the site for Great Crested Newts and other amphibians.

5 CONCLUSION

5.1 Results of the surveys indicate that Great Crested Newts are highly likely to be absent from the site during either terrestrial or aquatic phases. Current knowledge suggests that no mitigation or licencing would be required for this species in relation to the proposed development.

5.2 Notwithstanding the above, in accordance with the 2021 NPPF and 2006 NERC Act, development proposals for the site should seek to provide opportunities for Great Crested Newts and other amphibian species within the site through creation, enhancement and long-term management of habitats as part of the landscape strategy for the proposed development. Measures by which this can be achieved are given in *Section 4 above*.

6 REFERENCES

- Beebee, T. and Griffiths, R. (2000) *Amphibians and Reptiles*. Harper Collins, London.
- 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.

Cresswell, W. and Whitworth, R. (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. English Nature, Peterborough.

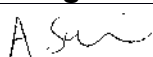
English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

Gent, T. and Gibson, S. (eds.) (1998) *Herpetofauna Workers' Manual*. JNCC, Peterborough.

HDA (2023) *Land at Penn Hill: Ecological Assessment*. Hankinson Duckett Associates, Wallingford.

HDA Document Control and Quality Assurance Record

Project Title: Land at Penn Hill
Project Reference: 1071.1
Document Title: Great Crested Newt HSI and eDNA Survey Report
Commissioning Party: Castlewood Commercial Properties

Issue	Description	Date of Issue	Signed
1	Great Crested Newt HSI and eDNA Survey Report	March 2023	

	Personnel	Position
Author	Filippo Faraone	Assistant Ecologist
Approved for issue	Anna Senior MCIEEM	Principal Ecologist

© Hankinson Duckett Associates. All rights reserved

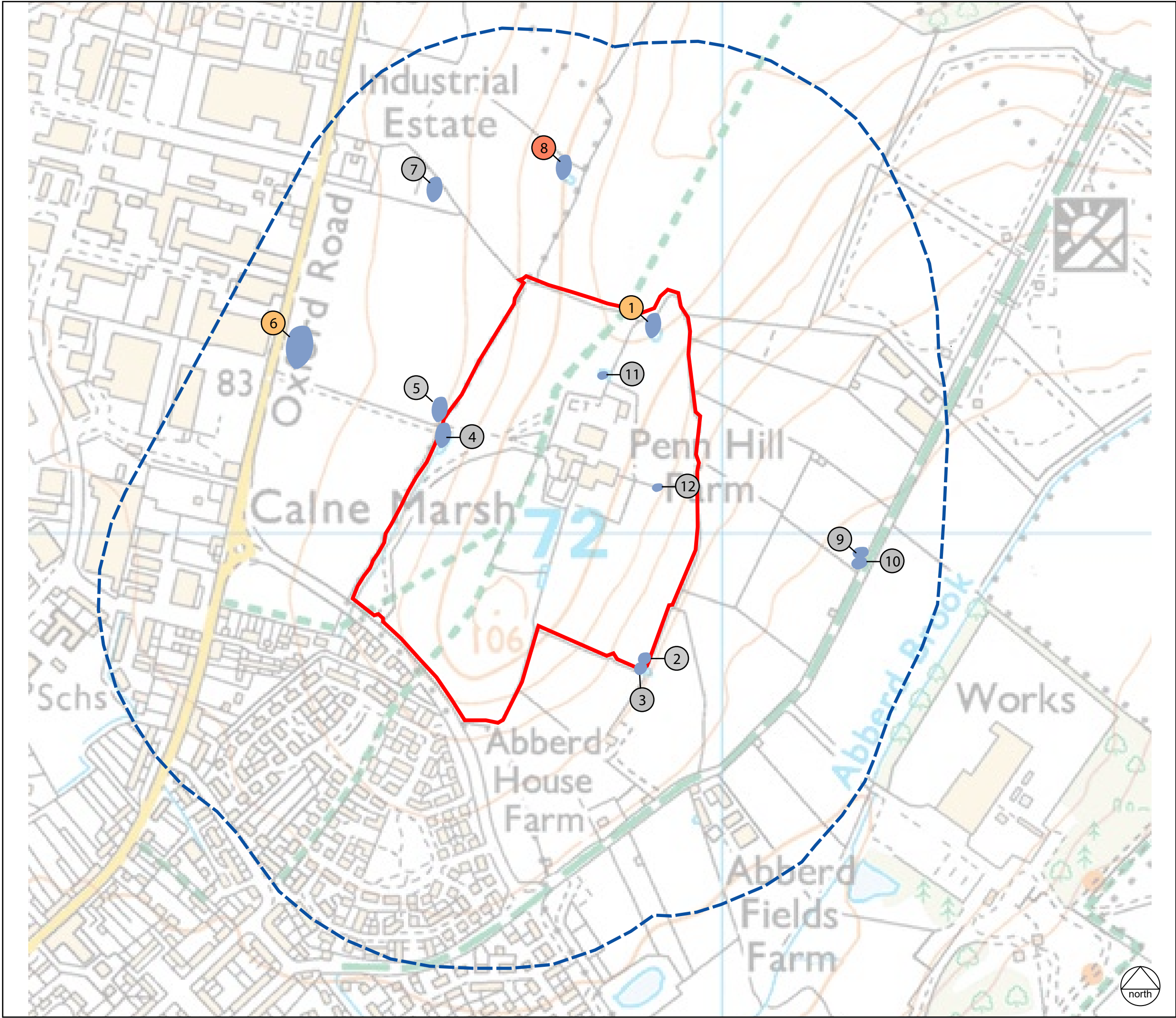
No part of this report may be copied or reproduced by any means without prior written permission from Hankinson Duckett Associates. If you have received this report in error, please destroy all copies in your possession or control and notify Hankinson Duckett Associates.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Hankinson Duckett Associates no other party may use, make use of or rely on the contents of the report. No liability is accepted by Hankinson Duckett Associates for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Hankinson Duckett Associates using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Hankinson Duckett Associates has been made.

APPENDIX A

Great Crested Newt HSI and eDNA survey summary plan



- KEY**
- Site boundary
 - 300m buffer
 - Waterbody
 - Waterbody reference
 - Great Crested Newts confirmed absent by eDNA analysis
 - Waterbody dry at time of survey
 - Waterbody inaccessible

CLIENT:
Castlewood Commercial Properties

PROJECT:
Land at Penn Hill

TITLE:
Great Crested Newt eDNA Survey Plan

SCALE AT A3:
NTS

DATE:
March 2023

1071.1 / 06

Based on Ordnance Survey mapping with permission of Her Majesty's Stationery Office
Licence no. AR187372

© hankinson duckett associates
The Stables, Howbery Park, Benson Lane, Wallingford, OX10 8BA
t 01491 838175 e consult@hda-enviro.co.uk w www.hda-enviro.co.uk

Landscape Architecture
Masterplanning
Ecology

hda

APPENDIX B

Full HSI assessment results

Pond ID		Waterbody 1		Waterbody 6	
SI Ref	Description of Index	Measure / Comment	SI score	Measure / Comment	SI score
SI1	Geographic location	A	1	A	1
SI2	Pond area m ²	50m ²	0.05	1200m ²	0.9
SI3	Pond permanence	Dries annually	0.1	Dries between 3 years in 10 to most years	0.5
SI4	Water quality	Poor	0.33	Moderate	0.67
SI5	Shading %	100%	0.2	0%	1
SI6	Presence of waterfowl	Absent	1	Absent	1
SI7	Presence of fish	Absent	1	Absent	1
SI8	Pond density in area	8.7 ponds	1	8.7 ponds	1
SI9	Terrestrial habitat quality	Good	1	None	0.01
SI10	Macrophyte cover in pond	0%	0.3	80%	1
HSI	Overall HSI for pond:	0.398		0.419	
	Comments:	Poor		Poor	

APPENDIX C

eDNA sampling analysis results

Folio No: E15009
Report No: 1
Purchase Order: 3781
Client: HDA
Contact: Filippo Faraone

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 07/07/2022
Date Reported: 21/07/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
5936	Pond 6, Penn Hill Farm	SU004847221 1	Pass	Pass	Pass	Negative	0
5943	Pond 1, Penn Hill Farm	SU009217224 9	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Gabriela Danickova

Approved by: Gabriela Danickova



METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

SIC: **Sample Integrity Check** [Pass/Fail]

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

DC: **Degradation Check** [Pass/Fail]

Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

IC: **Inhibition Check** [Pass/Fail]

The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: **Presence of GCN eDNA** [Positive/Negative/Inconclusive]

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



APPENDIX D

Waterbody photographs



Photo 1:
Waterbody 1



Photo 2:
Waterbodies
2 & 3



Photo 3:
Waterbody 4



Photo 4:
Waterbody 5



Photo 5:
Waterbody 6



Photo 6:
Waterbody 7



Photo 7:
Waterbody 8



Photo 8:
Waterbody 9



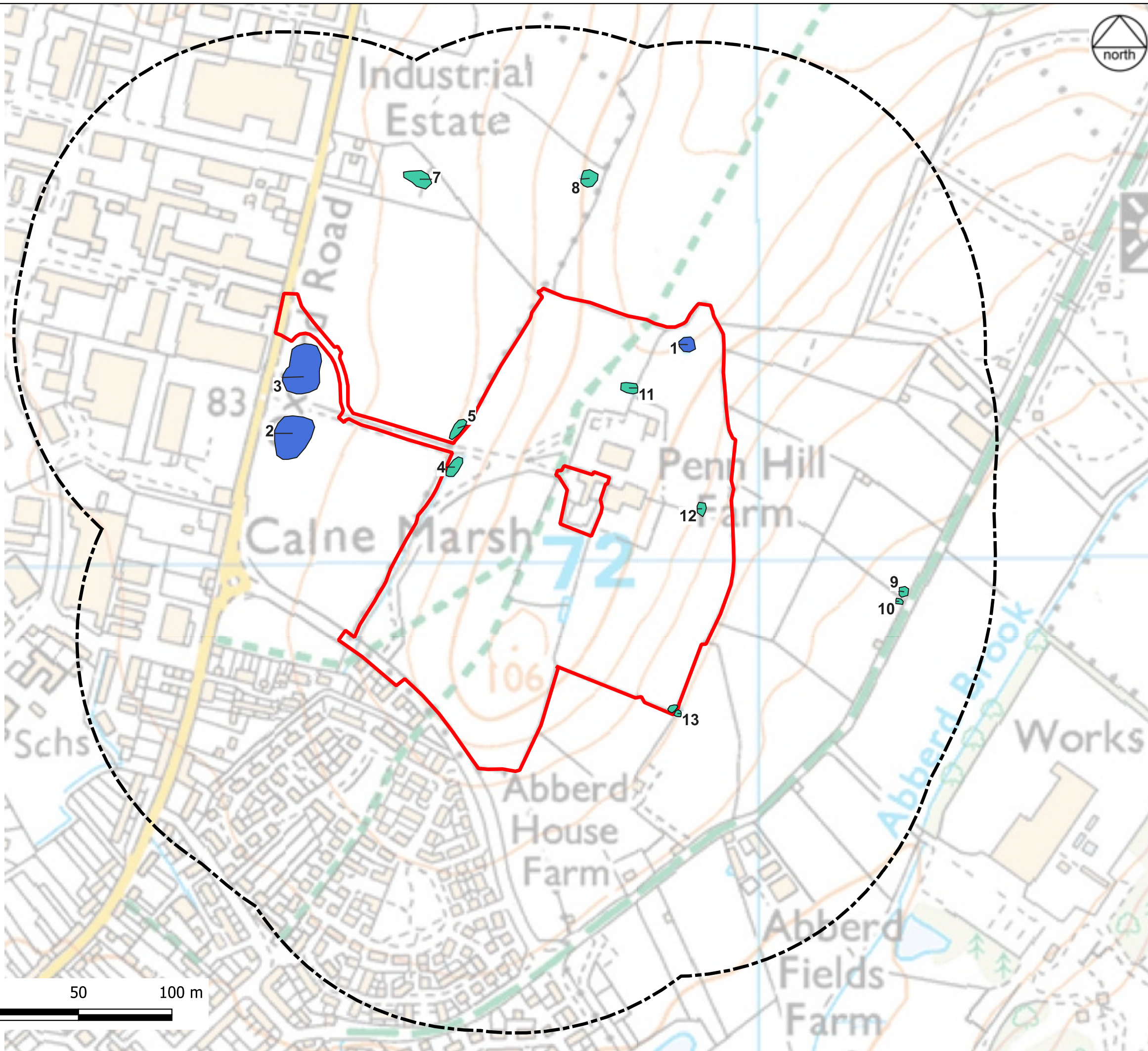
Photo 9:
Waterbody 10



Photo 10:
Waterbody 11

APPENDIX Fa

Updated Great Crested Newt eDNA Survey findings



- KEY**
- Site boundary
 - 300m Buffer
 - Waterbody dry at the time of survey
 - Great Crested Newts confirmed absent by eDNA analysis

CLIENT:
Castlewood Ltd

PROJECT:
Land at Penn Hill

TITLE:
Great Crested Newt eDNA Survey Summary
Plan

SCALE AT A3:
See scale bar

DATE:
October 2025

1071.1 / 06a

Folio No: 3600-2025
Purchase Order: 1071
Contact: Hankinson Duckett Associates
Issue Date: 18.07.2025
Received Date: 04.07.2025

GCN Report

Technical Report



SureScreen Scientifics

Folio No: 3600-2025
Purchase Order: 1071
Contact: Hankinson Duckett Associates
Issue Date: 18.07.2025
Received Date: 04.07.2025

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 1784	Penn Hill - P2	SU 00475 72150	Pass	Pass	Negative	0/12
GCN25 1789	Penn Hill - P1	SU 00921 72245	Pass	Pass	Negative	0/12
GCN25 1792	Penn Hill - P3	SU 00489 72216	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Consuela Sopronyi

Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

Interpretation of Results

Sample Integrity Check:

When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check:

Pass/Fail. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check:

Pass/Fail. The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result:

Presence of GCN eDNA (Positive/Negative/Inconclusive)

Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.

Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.



APPENDIX G

Evaluation criteria

Criteria used for the evaluation of ecological receptors (based on Ratcliffe, 1977; CIEEM, 2018)

Assigning value is relatively straightforward in the case of designated sites, and undesignated sites meeting designation criteria. However, in most cases evaluation of ecological resources is not straightforward and requires a degree of knowledge, experience and professional judgement (Usher, 1986; Spellerberg, 1992). Evaluation of an ecological receptor was based on a number of criteria (Ratcliffe, 1977; CIEEM, 2018) summarised below:

- Site designations; SPA, SAC, Ramsar, SSSI, NNR, LNR, SINCR or equivalent.
- Site designation criteria; e.g. Guidelines for the Selection of Biological SSIs, JNCC, 1989.
- Conservation status; whether a habitat or species is rare, declining or threatened at a given geographic scale.
- Geographic location; the value of a habitat or species may change depending on whether it is being assessed in the south of England or the north of Scotland.
- Distribution; habitats or species on the edge of their distribution, particularly where that distribution is changing as a result of global trends and climate change and endemic species or locally distinct sub-populations of a species are more valuable;
- Rarity; the presence of habitats, species, subspecies or varieties that are rare or uncommon at a given geographic scale.
- Diversity; of habitats, or species, particularly of vascular plants. Species-rich assemblages of plants or animals are likely to be important in terms of biodiversity;
- Naturalness; habitats least affected by human disturbance are normally of relatively higher importance.
- Size; larger areas are generally more valuable than lots of small ones. Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context may be important.
- Fragility; sensitivity to, and probability of, human impact.
- Typicalness; a good example of the type, particularly plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetation types, including examples of naturally species-poor communities.
- Potential value (if restored to favourable conservation status).
- Secondary or supporting value; value of a receptor in supporting the integrity or conservation status of another valued receptor.
- Ability to be recreated; the more difficult a habitat is to re-create, were it to be destroyed, the greater the importance usually attached to it.