



Land adjoining 4 Brookfield Providence Hill, Bursledon, Hampshire

Extended Phase 1 Habitat Survey Report
Vested Outsourcing Partners

October 2021

Document Control

Document:	Extended Phase 1 Habitat Survey Report
Project:	Land adjoining 4 Brookfield Providence Hill, Bursledon, Hampshire
Client:	Vested Outsourcing Partners
Job number:	0393
Date of issue:	October 2021
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Document checking

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Executive Summary

Background

Aven Ecology Ltd was commissioned in August 2021 by Vested Outsourcing Partners (The Client) to produce an Extended Phase 1 Habitat Survey Report for Land nr Providence Hill, near Bursledon in Hampshire. The survey was required to inform and accompany a pre-application and outline planning application to the Local Planning Authority for a proposal for a Mixed-Use development at the Site, comprising a Veterinary Practice and 16 Residential units. This report is based on an update Extended Phase 1 Habitat Survey (including a Preliminary Bat Roost Assessment and a Great Crested Newt Habitat Suitability Assessment) carried out previously by Aven Ecology at the Site in March 2021.

Aven Ecology previously undertook ecological surveys at this Site during 2016/2017 in relation to different development proposals by another developer (Outline Planning Application Ref.: O/17/80899: granted by Eastleigh Borough Council (EBC) in July 2018 but withdrawn by the developer in October 2020).

The Site

The Site is situated to the north of Bursledon and comprises a mix of managed and unmanaged grassland, scattered trees, tree lines and agricultural/horticultural outbuildings in a rural setting. At least two residential developments have recently been completed on land adjacent/nearby to the north/northeast.

Previous Ecology Surveys

The 2016/2017 ecological surveys undertaken by Aven Ecology on the Site found:

- Suitable terrestrial habitat within the Site for GCN, as well as a suitable pond for GCN breeding within 250m of the Site, but found no evidence to confirm presence of GCN;
- A small population of slow worms within the western half of the Site;
- Suitable bat roosting habitat within the outbuildings and boundary trees;
- Foraging/commuting activity by at least six species of bats;
- Evidence of a common pipistrelle possibly roosting within one of the southern boundary trees;
- Small stands of non-native invasive species (Rhododendron sp. and cherry laurel).

As these surveys are now 4-5 years old, an update survey was required to assess the current ecological condition of the Site, and to determine the need or otherwise for any further ecological survey/mitigation recommendations. This update includes a Site walkover survey and a detailed Desk Study, as well as a Preliminary Bat Roost Assessment (of affected outbuildings) and a great crested newt (GCN) Habitat Suitability Index (HSI) assessment of a single pond located within 250m of the Site boundary).

Desk Study

The Desk Study identified several statutory designated sites for nature conservation within 2km of the Site; the Site was found to fall within the 'Impact Risk Zone' (for certain types of development, including residential) of several SSSIs. The Site is linked hydrologically to the Solent/Southampton

SAC/SPA/Ramsar by way of the Badnam Creek, which forms the northern boundary of the Site. The desk study also identified Windmill Woods non-statutory SINC close to the northern boundary of the Site. In addition, a number of protected species were found within 2km of the Site, including bats, barn owls, great crested newts, reptiles, badgers and dormice.

Site Survey

The extended Phase 1 Habitat survey confirmed the continued presence of a mix of semi-natural and man-made habitats on/near Site typical in this part of rural Hampshire, including: scattered trees/tree-lines; scrub; semi-improved/amenity grasslands; and minor agricultural/horticultural buildings. These were broadly the same as at the time of the 2016 survey; lack of management in the intervening five years has meant that the western half of the Site was colonised more with dense scrub; the outbuildings were deteriorating; and there was substantially more fly-tipped/clearance debris on the Site. Potential bat roosting habitat continued to be present within the outbuildings and boundary trees. The Site remained suitable for slow worms (assumed to still be present at a similar level as in 2016). The Site and the offsite pond also remained suitable for GCN; however, as in 2016, this species is considered unlikely to be present within/near the Site (based on Desk Study information on its history/distribution in the area, and the negative eDNA sample taken in 2016).

Recommendations

It is recommended that potential impacts of the proposals on the Solent/Southampton SAC/SPA/Ramsar (and associated mitigation/compensation approaches) addressed in accordance with EBC's Strategic Habitats Regulations Assessment framework. Potential impacts on the SSSI require consultation by the Local Planning Authority with Natural England. Potential isolation impacts in the SINC would be managed by ensuring an adequate buffer of biodiversity-enhanced soft landscaping between the northern boundary and the hard-built areas of the development.

Recommendations have been made for the bat survey to be updated in the active season of 2022, prior to commencement of any works on the Site and for completion of a ground level tree assessment of any trees scheduled for removal/work. Development in consultation with the Local Planning Authority of an appropriate Reptile Mitigation Strategy, and incorporation of biodiversity protection/enhancement measures into a Construction Environmental Management Plan and Biodiversity Enhancement and Management Plan, are also recommended

Conclusions

It is considered that the proposed development and its associated impacts on biodiversity and the opportunities for biodiversity enhancement, as well as the mitigation strategy required to address these, is of a similar scale to those of the proposals previously consented in 2018. As such, subject to implementation of the recommendations set out in this report, it is not considered that any of the ecological constraints associated with the Site would prevent the granting of consent for the proposals and the development from progressing.

1.0 Introduction

1.1 Introduction

In August 2021, Aven Ecology Ltd was commissioned by Vested Outsourcing Partners (The Client) to produce an Extended Phase 1 Habitat Survey Report for Land nr Providence Hill, near Bursledon in Hampshire, to inform development proposals at the Site. This report is based on an update Extended Phase 1 Habitat Survey (including a Preliminary Bat Roost Assessment and a Great Crested Newt Habitat Suitability Assessment) carried out previously by Aven Ecology at the Site in March 2021.

In 2016/2017, Aven Ecology undertook ecological surveys at this Site in relation to different development proposals by another developer (Outline Planning Application Ref.: O/17/80899: granted by Eastleigh Borough Council in July 2018 but withdrawn by the developer in October 2020); these surveys are detailed in three reports: Extended Phase 1 Habitat Survey Report 2016; Reptile and Great Crested Newt Survey Report 2017; and Bat Survey Report 2017. The 'Limitations' section of each of the three previous reports advises that:

"The details within this report will remain valid for a period of 24 months; beyond that date it is advised that a review of ecological conditions is undertaken."

Given that 4-5 years has elapsed since the previous ecological surveys, the need for an updated ecological assessment of the Site was identified in the course of preparing a pre-application.

1.2 Previous Aven Ecology Ecological Surveys/Consultation (2016/2017)

Ecological surveys undertaken by Aven Ecology in 2016/2017 in respect of the previous planning application included the following (see the original reports submitted for O/17/80899 for full details of the methods, limitations, findings and recommendations arising):

- Desk Study and Extended Phase 1 Habitat Survey (April 2016)
- Participation in Consultation with Eastleigh Borough Council (including the Biodiversity Officer and Senior Planning Officer) (September 2016-December 2017)
- Preliminary Bat Roost Assessment (August 2016):
 - Building Inspections (11 out-buildings)
 - Ground Level Tree Assessments (4 immature trees were scheduled for removal in the previous application; it is understood that no trees are scheduled for removal in the current application)
- Three Bat Dusk Activity Transect surveys (August 2016; September 2016; and May 2017)
- Three Bat Automated Static Detector surveys (August 2016; September 2016; and May 2017)
- A Reptile Survey comprising seven visits (August/September 2016)
- A GCN Habitat Suitability Assessment of Bursledon Windmill Pond P1 (August 2016)
- A GCN eDNA survey of Bursledon Windmill Pond P1 (August 2016)

Extended Phase 1 Habitat Survey and Desk Study (April 2016)

The Desk Study identified no statutory/non-statutory sites designated for ecological interest within the Site boundary, but did identify the statutory SAC/SPA/Ramsar/SSSI sites associated within the Solent/Southampton, as well as the non-statutory Windmill Woods SINC nearby. The Desk Study also identified protected species records within the wider area, as well as habitats in the vicinity of the Site with the potential to support these species.

The Extended Phase 1 Habitat Survey found the Site to comprise a mix of semi-natural and man-made habitats typical of rural Hampshire, including: scattered trees/tree lines; defunct hedgerows; semi-improved and amenity grasslands and scrub, as well as, horticultural and agricultural buildings; bare ground and hardstanding. The combination of habitats on Site and in the surrounding area were considered to have the potential to support a number of protected species, including:

- Bats
- Nesting birds
- Great crested newts
- Reptiles
- Badgers
- Hazel dormouse

Consultation with EBC

Preparation of the original pre-application for planning included consultation with EBC, including the Biodiversity Officer (D. Salmon) and Senior Planning Officer (K. Budden), on the scope, findings, and recommendations arising from Ecological Surveys. These included:

- Pre-application Consultation Response from the Biodiversity Officer (see Ecology Comments document, 06/09/2016)
- Telephone/email correspondence with the Biodiversity Officer (9th February 2017: and
- Meeting between the Ecologist, Planning Team, and Senior Planning Officer at EBC offices 18th December 2017);
- Ecologist/Planning Team's response to the Biodiversity Officer (see Response to Ecology Comments document, 22nd December 2017)

The consultation identified risks of impacts on the Solent and Southampton Water Special Protection Area (SPA) and Ramsar (through the Local Plan Strategic Habitats Regulations Assessment process) and the Solent Maritime Special Area of Conservation (SAC) arising from contamination via the adjacent Badnum Creek, as well as increased public recreational pressure. These were to be addressed through the design/implementation of a combination of:

- Construction Environmental Management Plan (CEMP)
- Sustainable Urban Drainage;
- A per-unit financial contribution

The consultation also identified potential isolation impacts on the SINC. These were to be addressed by incorporating an adequate buffer between the hard development and the SINC and to enhance the habitats therein.

Through the consultation process it was agreed that further surveys in respect of bats, reptiles, and GCN were required (these had already been initiated in August 2016, prior to receipt of the September 2016 consultation response). It was also agreed that surveys for dormouse could be scoped out as surveys for this species had recently been carried out on the adjacent site (including its southern boundary which it shared with the northern boundary of this Site) and none were recorded. Potential risks in terms of badgers and nesting birds were to be managed by pre-works checks and careful scheduling of works. Risks arising from invasive species were to be managed by careful clearance under an approved Method Statement.

The mitigation/compensation measures identified through this process were later made the subject of various planning conditions attached to the original planning consent (see Planning Committee Report, EBC 19/07/2018).

Bat Surveys (August 2016-May 2017)

The Preliminary Roost Assessments identified two of the 11 buildings assessed as having 'Low' potential to support roosting bats, with the rest categorised as 'Negligible'. The ground level tree assessment of the four trees scheduled for removal under the 2018 planning application categorised the group as 'Negligible', however, several of the other boundary trees (scheduled at the time for retention/protection) did have potential to support bat roosts.

A suite of three Bat Activity Transect Survey and Automated Static Monitoring surveys was recommended, with a focus on the two low potential buildings. The Activity Transect Survey and Automated Static Monitoring surveys found six species of bat using the Site for foraging/commuting:

- Common pipistrelle;
- Soprano pipistrelle;
- Noctule;
- Myotis sp.;
- Brown long-eared bat; and
- Nathusius' pipistrelle

The surveys found no evidence of roosting in the buildings, but did indicate a high likelihood of a common pipistrelle roosting within one of the mature trees on the southern boundary.

Reptile Survey (August/September 2016)

A seven-visit reptile survey confirmed the presence of a small population of slow worms within the Site, mainly across the scrub/rough grassland of the western half.

GCN Survey (HSI and eDNA; August 2016)

Of the two ponds identified from the 2016 desk-study as being located within 250m of the Site, only one pond (P1) could be accessed in 2016 in order carry out a GCN HSI assessment and take an eDNA sample. Surveyor access to the second pond (P2, located on the adjacent development site) was requested by the client team but was refused (26th July 2016); requested information on the persistence or otherwise of P2 was also declined (it is understood that this pond has since been lost to the adjacent development). Consultation with the Biodiversity Officer (received on 6th

September, after completion of the HSI/eDNA site visit) identified a third pond located within a residential garden within 500m of the adjacent development site (it is understood that surveyor access to this pond had previously been refused). A subsequent telephone conversation (9th February 2017) between the Biodiversity Officer and Kevin Hume confirmed that this third pond, as well as a fourth pond, was located more than 250m to the south/west of the Site and was separated from it by the main A27 road and housing. Although GCN are known to range more than 1km from their breeding ponds and guidance recommends surveying ponds located within a radius of up to 500m, focussing on ponds within a 250m radius was considered sufficient in this case, given that:

- GCN more typically move between ponds/terrestrial habitats within a 250m radius;
- Those ponds located within the 250-500m range of the Site were also largely separated from it by physical barriers to GCN movement, including the A27 road and residential housing; and
- The GCN population known to occur within the wider Bursledon area is understood to have been introduced rather than endemic, such that the species is unlikely to be widespread in the area.

The HSI assessed the Windmill Lane Pond (P1) as being of 'good' quality in terms of its suitability to support GCN; however, the eDNA survey did not identify the presence of the species.

1.3 Site Location and Description

Land nr Providence Hill, hereafter referred to as 'the Site', is situated to the north of the village of Bursledon (approximate OS grid reference: SU48312 10636; see Site Location plan, Figure 1, Appendix 1), and measures approximately 1 ha as defined by the redline boundary (see Figure 2, Appendix 1). The Site is situated to the north of Bursledon and comprises a mix of managed and unmanaged grassland, scattered and lined trees and agricultural/horticultural outbuildings in a rural setting.

1.4 Development Proposals

The proposal is for a Mixed-Use development at the Site, comprising a Veterinary Practice and 16 Residential Unit, as well as associated access, carparking, landscaping, and an attenuation pond (The Project). The proposals will require the clearance of most of the vegetation within the Site boundary, as well as the outbuildings. At the time of the update survey (March 2021) and draft reporting (September 2021), no confirmation had been received regarding the extent of any tree removal required. Since then, in October 2021, a draft Arboricultural Impact Assessment has been issued, which indicates the removal of six trees associated with the southern boundary, as well as groups of trees/shrubs near the eastern boundary; these include the group of four southern boundary trees scheduled for removal under the 2018 planning application and two additional trees.

1.5 Study Aims and Objectives

The aims of the study were to:

- Evaluate the conservation status of the Site and its surrounds in terms of nature conservation designations and protected species in the area;
- Undertake an assessment of the habitat and floristic composition of the Site;

- Undertake a protected species audit that evaluates the likelihood of protected or otherwise notable species, occurring in the Site;
- Assess the potential ecological constraints and implications regarding the proposed works in terms of material planning considerations and legal compliance; and
- Assess the potential requirement for further survey and mitigation in order to comply with planning requirements and wildlife legislation.

The objectives of the study included:

- Completion of a desk-study to identify nature conservation designations and protected species records within/near the Site;
- Completion of an extended Phase 1 Habitat survey to produce a map of habitats within the Site and to assess their potential nature conservation value;
- Review of legislation relating to ecology and development (see Appendix 2);
- Identify potential ecological constraints to works based on survey findings.

1.6 Quality Assurance

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

2.0 Methodology

2.1 Introduction

The extended Phase 1 habitat survey was undertaken with reference to the Institute of Environmental Assessment's Guidelines for Baseline Ecological Assessment (IEA, 1997) and comprised a desk study and walkover field survey.

2.2 Desk Study

The aim of the desk study was to inform and supplement the field survey by collating and reviewing existing ecological information relevant to the Site and the local area.

2.2.1 Statutory and Non-Statutory Designated Sites

The desk-study component comprised consultation with statutory and non-statutory nature conservation organisations including Defra's 'Magic' interactive map, as well as Hampshire/Eastleigh Local Plan (including the Eastleigh Borough Council – Biodiversity: Supplementary Planning Document), as well as procurement and review of Biodiversity Records from Hampshire Biodiversity Information Centre (HBIC Ref: 9702; March 2021) to identify statutory and non-statutory sites of importance for nature conservation, e.g. Sites of Special Scientific Interest (SSSI) and Local Wildlife Sites (LWS), from within a radius of up to 2km from the Site boundary; this was extended to 10km in the case of Special Areas of Conservation (SACs) in respect of bats.

2.2.2 Protected and Notable Species/Habitats

Previous ecology survey reports relating to the Site (produced by Aven Ecology), as well as reports relating to planning applications for sites adjacent to the Site (and available in the public domain through the Eastleigh Borough Council website) were reviewed to gain a good understanding of the ecological condition of the Site and its immediate surrounds in the recent past.

Recent records of protected and notable species/habitats were obtained from the Hampshire Biodiversity Information Centre (HBIC Ref: 9702; March 2021). Defra's 'Magic' interactive map was checked for statutory sites designated for their bat interest, and for European Protected Species licences relating to bats and great crested newts, from within approximately 5km of the site, covering the period 2000-2021. Magic was also searched for ponds confirmed as supporting great crested newts (GCN).

Freely available online aerial photography was accessed to search for potential bat foraging habitat within the vicinity of the Site and connected by commuting routes such as treelines and open spaces.

2.3 Extended Phase 1 Habitat Survey

A walkover field survey of the entire Site as defined by the redline boundary (Figure 2, Appendix 1) was conducted on 26th March 2021 by Dr Kevin Hume MCIEEM. Kevin has worked in the ecology

consultancy sector for over 15 years. As a member of the Chartered Institute of Ecology and Environmental Management (CIEEM), Kevin has signed up to their professional code of conduct. During the survey, dominant plant species were recorded and habitats were classified according to their vegetation types, as identified in the 'Handbook for Phase 1 Habitat Survey - Technique for Environmental Audit' (JNCC 2010). Target notes (TN) were taken to denote species and habitats of conservation interest and to describe the vegetation in areas that were too small to map. Evidence of any species protected by law was recorded, where appropriate.

The results are presented in the standard Phase 1 habitat survey format with habitat descriptions and a habitat map (see Figure 2, Appendix 1). The presence (if any) of noxious and invasive species such as Japanese knotweed *Fallopia japonica* was also investigated during the field survey.

In 2016, a pond located at Bursledon Windmill (approximately 200m to the north of the Site), was subjected to a Habitat Suitability Assessment and eDNA survey in respect of great crested newts; this pond was revisited in the course of the March 2021 survey to determine whether the condition of the pond had changed in the intervening 5 years.

2.4 Preliminary Bat Roost Assessment (Buildings)

The preliminary roost assessment was undertaken with reference to the methods set out in published guidance (Collins, 2016)¹ and comprised external and (where appropriate/safe) internal inspections of buildings/structures within the Site boundary and categorisation in terms of suitability for roosting (see Table 1 below).

Table 1: Guidelines for assessing the potential suitability of roosting habitats (buildings/trees)

Suitability	Description
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potential for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

The exterior and interior walls and roofs of the buildings were viewed from ground level and features providing potential bat access or roosting places were noted. The internal inspection also comprised a thorough search of the buildings for evidence indicative of past or present use by

¹ Collins (2016) Bat Surveys: Good Practice Guidelines, 3rd edition, Bat Conservation Trust

roosting bats. Table 2 below summarises typical features/evidence searched for during the inspection.

Areas where bat droppings may accumulate, such as on the ground, ledges, window sills and walls, were also inspected. Any features that may potentially be used by bats were identified and any bat roosting features or evidence of bat activity as listed below were noted.

Table 2: Typical features/evidence assessed during external/internal bat inspection

External Inspection	Internal Inspection
Gaps between roof tiles or ridge tiles	Live bats or bat corpses;
Gaps under the eaves	Droppings/feeding remains (discarded insect wings)
Cracks and crevices in the external cladding (wood, asbestos etc)	Bat sounds
Gaps around windows	Potential access points
Gaps under the external fittings/fixture	Potential roosting sites
Potential access points	Clean, cobweb free gaps around potential entrance points

2.5 Great Crested Newt Habitat Suitability Assessment

On 26th March 2021, the Bursledon Windmill Pond (identified as 'P1' in the 2017 Reptile and Amphibian Survey Report by Aven Ecology) was revisited by Kevin Hume and subjected to a Habitat Suitability Index (HSI) assessment in respect of its suitability to support great crested newts (GCN). The HSI is a numerical index between 0 and 1 that gives an indication of habitat suitability for great crested newts (GCN) based on ten criteria. According to the HSI, a score of 1 represents optimal conditions whilst a score of 0 represents unsuitable conditions. The ten suitability criteria are all variables known to influence the presence of GCN:

- Geographic location;
- Pond area;
- Permanence;
- Water quality;
- Shade;
- Presence/absence of waterfowl;
- Presence/absence of fish;
- Pond count;
- Terrestrial habitat; and
- Macrophyte cover.

The resulting HSI score is used to define a waterbody's suitability for GCN using the scores shown in Table 3 below. Typically, ponds with below average, average, good or excellent suitability should be subject to further investigation if GCN habitats within 250m are likely to be impacted.

Table 3: HSI scores used to define a waterbody's suitability for GCN

HSI Score	Rating
<0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

2.6 Limitations

The comprehensiveness of any ecological assessment will be limited by the season in which the survey is undertaken. To confirm the presence or absence of protected species usually requires multiple visits at different times of the year and this initial survey can only assess the *potential* of the Site to support the species of note (i.e. those considered to be of principal importance for the conservation of biodiversity and those protected under British or European legislation).

According to the Institute for Environmental Assessment (IEA, 1995), Phase 1 surveys can be undertaken all year round. Whilst certain protected species surveys need to be undertaken during particular months of seasons, it is possible, through a Phase 1 habitat survey, to identify any habitats on site where protected species may potentially be present. In the event that suitable habitats are identified, it may be necessary to undertake further seasonal surveys to fully investigate the potential for protected species. In the event that no suitable habitats or features are identified, a Phase 1 habitat survey is sufficient to determine the potential impacts associated with a proposed development.

The absence of signs of bats within a structure does not confirm absence of bats. Signs may deteriorate over time and/or be located within areas that are not accessible to surveyors (for example, within the space between roofing tiles and the roof lining). The interiors of some of the minor outbuildings were not directly/safely accessible to the surveyor. It is not considered that these limitations would have significantly constrained the assessment of the buildings' suitability to support bat roosts.

A HSI assessment provides a measure of habitat suitability for GCN; however, this method does not confirm presence/likely absence of the species.

The details within this report will remain valid for a period of 24 months; beyond that date it is advised that a review of ecological conditions is undertaken.

3.0 Results

3.1 Desk-Study

3.1.1 Statutory and Non-Statutory Designated Sites

No records of statutory designated sites for nature conservation were found within the Site, but several were recorded offsite within 2km of its boundary. These are summarised in Table 4.

The Site is located within the 'Impact Risk Zone' (IRZ) of several Sites of Special Scientific Interest (SSSI) located both within and beyond 2km; however, it was not clear from the Magic mapping information exactly which SSSI this referred to (as there are several overlapping IRZ boundaries in this area). Proposed developments within the IRZ for which Natural England recommends the Local Planning Authorities consult further include the following:

- Any residential developments with a total net gain in residential units;
- Any residential developments outside of existing settlements/urban areas with a total net gain in residential units.

No Special Areas of Conservation (SAC), designated for bat interest, were found within 10km of the Site.

A patch of woodland located adjacent to the northeast corner of the Site, known as Windmill Field Wood, is designated as a Site of Importance for Nature Conservation (SINC), which is a local non-statutory designation.

Table 4: Statutory Designated sites for Nature Conservation within 2km of the Site

Site Name	Designation*	Distance/ Direction	Summary
<i>Solent & Southampton Water</i>	<i>Ramsar</i>	<i>890 NE</i>	The site comprises of estuaries and adjacent coastal habitats including intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland, and grazing marsh. The diversity of habitats supports internationally important numbers of wintering waterfowl, important breeding gull and tern populations and an important assemblage of rare invertebrates and plants. Ramsar Criterion 1 The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs. Ramsar Criterion 2 The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. Ramsar Criterion 5 - Assemblages of international importance Species with peak counts in winter: 51343 waterfowl Ramsar Criterion 6 – Species/populations occurring at levels of international importance. Species with peak counts in spring/autumn: Ringed plover <i>Charadrius hiaticula</i>, Europe/Northwest Africa (1.2% of the GB population) Species with peak counts in winter: Dark-bellied brent goose <i>Branta bernicla bernicla</i> (3% of the population) Eurasian teal <i>Anas crecca</i>, NW Europe (1.3% of the population) Black-tailed godwit <i>Limosa limosa islandica</i>, Iceland/W Europe (3.5% of the population)

Site Name	Designation*	Distance/ Direction	Summary
<i>Solent & Southampton Water</i>	<i>SPA</i>	<i>890 NE</i>	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: <i>Larus melanocephalus</i> 15.4% of the GB breeding population 5 year peak mean, 1994-1998 <i>Sterna albifrons</i> (Eastern Atlantic - breeding) 2% of the GB breeding population 5 year peak mean, 1993-1997 <i>Sterna dougallii</i> (Europe breeding) 3.1% of the GB breeding population 5 year peak mean, 1993-1997 <i>Sterna hirundo</i> (Northern/Eastern Europe - breeding) 2.2% of the GB breeding population 5 year peak mean, 1993-1997 <i>Sterna sandvicensis</i> (Western Europe/Western Africa) 1.7% of the GB breeding population 5 year peak mean, 1993-1997 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: <i>Anas crecca</i> (North-western Europe) 1.1% of the population 5 year peak mean, 1992/3-1996/7 <i>Branta bernicla bernicla</i> (Western Siberia/Western Europe) 2.5% of the population 5 year peak mean, 1992/3-1996/7 <i>Charadrius hiaticula</i> (Europe/Northern Africa - wintering) 1.2% of the population 5 year peak mean, 1992/3-1996/7 <i>Limosa limosa islandica</i> (Iceland - breeding) 1.7% of the population 5 year peak mean, 1992/3-1996/7 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 51361 waterfowl (5 year peak mean 1991/92-1995/96) Including: <i>Branta bernicla bernicla</i> , <i>Anas crecca</i> , <i>Charadrius hiaticula</i> , <i>Limosa limosa islandica</i>

Site Name	Designation*	Distance/ Direction	Summary
<i>Solent Maritime</i>	<i>SAC</i>	<i>1,140 SE</i>	Annex I habitats that are a primary reason for selection of this site <i>Estuaries</i> The site is the only one in the series to contain more than one physiographic sub-type of estuary and is the only cluster site. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four tides each day, and for the complexity of the marine and estuarine habitats present within the area. Solent Maritime is the only site for smooth cord-grass <i>Spartina alterniflora</i> in the UK and is one of only two sites where significant amounts of small cord-grass <i>S. maritima</i> are found. It is also one of the few remaining sites for Townsend's cord-grass <i>S. x townsendii</i> and holds extensive areas of common cord-grass <i>Spartina anglica</i>, all four taxa thus occurring here in close proximity. <i>Atlantic salt meadows (Glauco-Puccinellietalia maritimae)</i> The Solent contains the second-largest aggregation of Atlantic salt meadows in south and south-west England. Solent Maritime is a composite site composed of a large number of separate areas of saltmarsh. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons * Priority feature Annual vegetation of drift lines Perennial vegetation of stony banks Salicornia and other annuals colonizing mud and sand Shifting dunes along the shoreline with <i>Ammophila arenaria</i> Annex II species present as a qualifying feature, but not a primary reason for site selection Desmoulin's whorl snail <i>Vertigo moulinsiana</i>

Site Name	Designation*	Distance/ Direction	Summary
<i>Upper Hamble Estuary and Woods</i>	<i>SSSI</i>	<i>890 NE</i>	Twelve types of ancient broad-leaved woodland occur in the SSSI and collectively comprise one of the most ecologically diverse woodland areas in central southern England. The diversity of woodland types has given rise to an exceptionally species-rich ground flora. 186 species have been recorded in Catland, Dock, Fosters, Hoe Moor, Vantage and Bottom Copses. They support at least 62 species indicative of a long continuity of woodland cover making this woodland complex one of the richest sites for ancient woodland vascular plants in Hampshire. The variety of species and structure provides ideal conditions for a rich invertebrate fauna including the purple emperor <i>Apatura iris</i> and the rare leaf beetle <i>Orsodacne lineola</i> .
<i>Lincegrove and Hackett's Marshes</i>	<i>SSSI</i>	<i>1,470 S</i>	Mature saltmarsh on the west bank of the River Hamble estuary. The saltmarsh vegetation is dominated by sea purslane <i>Halimione portulacoides</i> and common cord-grass <i>Spartina anglica</i> . Structurally the marshes are one of the best examples of mature saltmarsh on the south coast. They are one of only eight extensive saltmarshes on the central south coast between Poole in Dorset and Pagham in West Sussex
<i>Hackett's Marsh</i>	<i>LNR</i>	<i>1,300 SE</i>	Species-rich meadows, supporting large hybrid heath spotted orchid populations, meadow thistle, corky fruited water dropwort, devils-bit scabious and sneezewort. Saltmarsh vegetation is dominated by cord grass and saltmarsh grass with sea purslane, glasswort, sea lavender, thrift, sea aster, sea rush and sea club-rush. The reserve is of particular importance for a wide range of insects (some nationally rare), and forms an important feeding area and high-water roost for waders, (especially lapwing, golden plover, black-tailed godwit, curlew, greenshank and redshank), wildfowl and herons.
<i>Manor Farm</i>	<i>LNR</i>	<i>860 NE</i>	Abundant wildlife from roe deer in the woods to curlews along the river and skylarks in the fields, plus an amazing array of wildflowers, insects and reptiles
<i>Netley Common</i>	<i>LNR</i>	<i>930 N</i>	It is the city's last remaining piece of open heathland including grassland with islands of scrub and gorse, surrounded by a mixed woodland fringe. Heathland is particularly rare and remnant fragments of heathland are of national biodiversity importance and are host to a variety of wildlife.

*SPA: Special Protection Area; SAC: Special Area of Conservation; SSSI: Site of Special Scientific Interest; LNR: Local Nature Reserve

3.1.2 Protected and Notable Habitats/Species

A review of OS maps and aerial photography revealed that the Site was set within a patchwork of agricultural fields, bound by hedgerows/tree-lines and linked to pockets of deciduous woodland in the wider area. Defra's 'Magic' interactive map/HBIC records identified the northern and southern Site boundaries, together with an offsite patch of woodland located adjacent to the northeast corner of the Site, as Natural England 'Priority Habitat Inventory – Lowland Deciduous Woodland'. The western half of the Site was designated as 'Broad Habitat - Broadleaved, mixed, and yew woodland'; however, the 2016 Extended Phase 1 Ecology Survey Report by Aven Ecology noted that all trees from this area had previously been removed, with the exception of those associated with the northern and southern boundaries. At least one pond was located within 250m of the Site (P1, at Bursledon Windmill, approximately 200m to the north); it is understood that P2 was lost as a result of the adjacent development.

A number of protected species have been recorded within approximately 2km of the Site since the year 2000; those considered of potential relevance to the Site are summarised below:

- Bats: at least 12 of the UK's 18 resident species (see Table 5 below)
- Badger *Meles meles*
- Hazel dormouse *Muscardinus avellanarius*
- Water vole *Arvicola amphibius*
- Otter *Lutra lutra*
- Eurasian water shrew *Neomys fodiens*
- Great crested newt *Triturus cristatus*
- Widespread reptile species:
 - Slow worm *Anguis fragilis*
 - Grass snake *Natrix natrix*
 - Adder *Vipera berus*
 - Common lizard *Zootoca vivipara*
- Barn owl *Tyto tyto*

Table 5. Bat species recorded within ca. 2km of the Site since 2000

Common name	Scientific name
Serotine	<i>Eptesicus serotinus</i>
Bechstein's bat	<i>Myotis bechsteinii</i>
Daubenton's bat	<i>Myotis daubentonii</i>
Brandt's bat	<i>Myotis brandtii</i>
Whiskered bat	<i>Myotis mystacinus</i>
Natterer's bat	<i>Myotis nattereri</i>
Noctule	<i>Nyctalus noctula</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>

Common name	Scientific name
Brown long-eared	<i>Plecotus auritus</i>
Western barbastelle	<i>Barbastella barbastellus</i>

As part of the 2016 and 2021 Desk Studies, Aven Ecology undertook a review of documents publicly available on the Eastleigh Borough Council planning website regarding the suite of ecological surveys that was undertaken within areas of land near/adjacent to the northern boundary of the Land nr Providence Hill Site in relation to separate proposed developments (see planning references: C/14/74932; and O/17/81166). Protected species surveys undertaken in 2014 by Ecological Support, Management and Solutions included bats, GCN, reptiles and badgers (these were updated variously between 2016 and 2018). Although these surveys did not focus on the Site itself (with the exception of the 2018 Dormouse Survey), their findings were considered of value to the current study owing to their proximity to the Site; the findings are summarised below:

- Bat surveys: identified foraging/commuting activity by three species of bats: common and soprano pipistrelles and serotines.
- GCN surveys: focused on the Bursledon Windmill Pond (located 200m north of the Site), as well as an unmapped ephemeral pool located near to the northeast boundary of the Site. No GCN were recorded; smooth newts were found to be present.
- Reptile surveys: confirmed the presence of slow worms and grass snakes.
- Badger survey: confirmed signs of foraging but did not identify any setts.
- Dormouse survey: included the three boundaries of the Site; no evidence of dormouse was found.

3.2 Extended Phase 1 Habitat Survey

3.2.1 Site Description

The approximately 1.2 ha, triangular Site comprised mix of minor agricultural and horticultural outbuildings set in intensively managed amenity grassland (to the east) and less managed semi-improved grassland (to the west), bounded by lines of trees. This was largely similar to the findings of the 2016 survey; however, the main changes included:

- The colonisation of much of the semi-improved grassland and bare ground habitats in the western half of the Site by scrub and ruderal species (often including ornamental/garden escapes);
- The expansion and creation of more spoil heaps as an apparent consequence of fly-tipping and/or clearance.

To the north of the Site is a recently completed residential development (see planning reference: C/14/74932), beyond which runs the M27 motorway. To the south of the Site runs the A27 road, on the opposite side of which lies the main residential village of Bursledon; to the southeast is a pair of detached two-storey residential buildings, backed onto by a larger industrial building; and to the northeast is a block of deciduous woodland. Approximately 1 km to the southeast of the Site the River Hamble flows southward into the Southampton Water estuary.

3.2.2 Habitats on Site

Within the Site boundary, the Phase 1 Habitat survey identified a mix of semi-natural and man-made habitats typical of rural Hampshire, including: scattered trees/tree lines; defunct hedgerows; semi-improved and amenity grasslands; and scrub; as well as horticultural and agricultural buildings; and hardstanding (see Phase 1 Habitat Map in Figure 2 and the accompanying table of Target Notes, Appendix 1). These are described below, with photographs provided in Appendix 3.

Scattered Trees/Tree Lines

The northern, southern and eastern boundaries of the Site were lined with mature trees. Species along the eastern boundary included pedunculate oak *Quercus robur* and horse chestnut *Aesculus hippocastanum*, with an understorey of holly *Ilex aquifolium*, hawthorn *Crataegus monogyna*, cherry laurel and elder *Sambucus nigra*.

The eastern end of the northern boundary included pedunculate oak, beech *Fagus sylvatica*, with occasional scots pine *Pinus nigra* and yew *Taxus baccata*; the understorey comprised holly, hawthorn, cherry laurel and elder (which included a defunct hedge); the western end of the northern boundary comprised silver birch *Betula pendula*, sycamore *Acer platanus* and willow *Salix* sp., with the understorey including gorse *Ulex europaeus* and broom *Cytisus scoparius*. The northern boundary tree-line was associated with a small drainage ditch, which lay just outside the Site boundary.

The southern boundary, which faced onto the A27 road, comprised mainly pedunculate oak and sycamore.

Scrub

Dense and scattered bramble scrub *Rubus fruticosus*, formerly associated mainly with the tree-line along the southern boundary of the Site, had colonised much of the western half of the Site (formerly dominated by semi-improved grassland, and bare ground arising from tree removal).

Semi-Improved Grassland

The western portion of the Site supported semi-improved grassland, supporting such species as perennial rye-grass *Lolium perenne*, cocksfoot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus*, as well as creeping buttercup *Ranunculus repens* and daisy *Bellis perennis*.

A strip of the grassland was enclosed within a barbed wire and post fence. In addition to the species associated with the larger area of semi-improved grassland to the west, this smaller patch included ruderal species, such as broadleaved dock *Rumex obtusifolia*, teasel *Dipsacus fullonum*, hogweed *Heracleum sphondylium* and nettle *Urtica dioica*.

Amenity Grassland

The eastern portion of the Site comprised mainly closely mown amenity grass. This was dominated by a short sward of perennial rye-grass, as well as broadleaved dock, creeping buttercup and daisy. Set within the eastern end of this part of the Site were more formal gardens, which in addition to amenity grassland lawns, also included ornamental shrub planting and horticultural outbuildings.

Spoil

Formerly small piles of spoil/brash and rubble associated with agricultural/horticultural activities were scattered around the Site, these had more recently given way to much larger piles of debris (possibly fly-tipping and/or clearance). In the northeast corner of the Site was a mound of compacted brash/grass cuttings and garden debris, partially vegetated with coltsfoot and nettles. Near the centre of the Site, situated to the rear of one of the outbuildings, was a pile of rubble, including some large concrete blocks, which appeared to have arisen from the demolition of a small building.

Buildings/Structures and Hardstanding

The Site supported 11 minor agricultural/horticultural structures in various states of repair and constructed from a range of materials, including wood, glass, corrugated asbestos sheets and polythene. The southeast corner of the Site included a hardstanding carpark area associated with the (offsite) residential properties to the southeast. By the time of the 2021 survey, many of these buildings were in a poorer state of repair/maintenance than in 2016.

Boundaries: Hedgerows, Walls and Fences

Wire and post fencing enclosed most of the Site along the northern, southern and eastern boundaries. The northern boundary of the Site also supported a defunct hedgerow, associated with the tree-line, comprising holly, hawthorn and elder. The parking area in the southeast of the Site was bordered along its northern extent by a concrete block retaining wall; to the west of this, a low wall, of similar concrete block construction (and unknown function), was located close to the southern boundary.

3.2.3 Habitats adjacent to Site

Semi-natural Broadleaved Woodland

Adjacent to the northeast corner of the Site, and contiguous with the northern boundary tree-line/defunct hedgerow, was a block of broadleaved woodland (identified in the desk-study as a 'Priority Habitat Inventory – Deciduous Woodland', and as a SINC).

Watercourse

A small watercourse (Badnam Creek), flowing west to east, was associated offsite with the northern boundary tree-line. No aquatic/marginal vegetation was apparent within the ditch. The offsite northern bank of the ditch was vegetated with patchy bramble scrub.

Buildings

Off-site to the east of the south-eastern corner was a row of two-storey residential buildings, constructed from brick with pitched, clay-tiled roofs. Adjacent to the eastern boundary of the Site was a large industrial building, constructed from brick, with a double pitched felt roof and vertical hanging clay tiles cladding the southern elevation.

Hedgerows/Tree-Lines

Off-site to the north and east, hedgerows and tree-lines connect the Site to blocks of woodland and the wider hedgerow network.

3.2.4 Protected Species

The combination of habitats on Site and in the surrounding area were still considered suitable for a number of protected species, including:

- Bats
- Nesting birds
- Great crested newts
- Reptiles
- Badgers
- Hazel dormouse

Bats

The tree-lines/hedges and ditch associated with the boundaries of the Site and the on-site rough grassland habitats, as well as the off-site hedgerows and scrub/grassland habitats offered bat foraging opportunities.

Many of the mature trees located along the boundaries of the Site supported potential bat roosting features, including rot holes and ivy-cladding. Although nine of the on-site outbuildings were largely unsuitable for roosting (including three which had collapsed/been removed since 2017), two of these offered at least 'low' (i.e. non-negligible) potential to support bat roosts, with a further four classed as 'very low' (i.e. having minor potential for use as a night-time feeding perch by long-eared bats); please refer to Section 3.3 below. By contrast, the adjacent off-site buildings offered better opportunities for roosting bats.

Nesting Birds

The trees, shrubs, hedgerows and scrub habitats on-site offered potential nesting (as well as foraging) opportunities for common bird species. The buildings on-site also offered nesting opportunities (albeit limited) for birds. No active bird nests were observed on Site in the course of the survey; however, as bird nests are often cryptically located within dense scrub, hedges, tree canopies, etc., they are not always easily visible.

Ground nesting birds, such as lapwing and skylark are less likely to breed within the Site owing to the relatively small size of the suitable habitats available and likely levels of disturbance thereabouts.

Great Crested Newt

The combination of woodland, scrub, hedges and grassland habitats within/near the Site offered suitable foraging, shelter and dispersal opportunities for GCN during their terrestrial phase. The brash and rubble piles offered potential hibernation habitats.

Although the northern boundary creek was unlikely to support breeding populations of GCN, owing to the presence of flowing water and the absence of aquatic/marginal vegetation therein, there was a pond located 200m to the north of the Site at Bursledon Windmill (P1). In 2016, good terrestrial connectivity between the pond and the Site was provided by woodland and hedgerows, with no substantive barriers to amphibian movement; however, since then the land to the immediate north of the Site has been the site of a residential construction project, only recently

completed. As such, the disturbance and alteration of the landscape is likely to have represented more of a barrier to amphibian movement. In 2016, the pond was assessed as being of 'good' quality as a potential GCN habitat (with a HSI score of 0.75); in 2021, the condition and quality of the pond was considered to be largely similar to 2016, with a score of 0.72 (the minor reduction being mainly accounted for by the loss of one of the other ponds (P2) to the adjacent development); please refer to Section 3.4 for the full calculation.

Reptiles

The combination of woodland, scrub, hedges and grassland habitats within/near the Site offered suitable foraging, shelter and dispersal opportunities for common/widespread reptile species known to occur in the area. The brash and rubble piles also offered potential hibernation habitats. Overall, the suitability of the Site in 2021 in term of reptile habitat was considered to be largely similar to that in 2016/2017.

It is understood that, as part of the development projects in the sites to the north/northeast of the Site, a reptile translocation programme was designed and implemented, with proposed receptor sites located to the northeast and northwest, separated from the Site by the new developments. Locations of the proposed reptile receptor sites are available on the EBC Planning website (see planning references: C/14/74932; and O/17/81166). Aven Ecology is not aware of the outcome of the translocation program.

Badger

The combination of woodland, scrub, hedges and grassland habitats in this rural setting, as well as the surrounding gardens, offered potential foraging opportunities for badgers, which have been recorded in the wider area. In 2021, no badger setts were recorded within the Site, nor were any signs of badger activity noted; however, signs of badger activity were recorded in 2016 including badger hairs trapped on the barbed wire fence along the northern boundary.

Hazel Dormouse

The boundary tree-lines/hedges and associated scrub/understorey, as well adjacent off-site woodlands and hedgerows to the north and northeast offered potential foraging and shelter opportunities for hazel dormice in 2016 and 2021. Although dormice have been recorded in the wider area, including approximately 200m to the north-west, in 2007, none were found during the survey carried out in 2016 (see planning ref O/17/81166) which included, not just the offsite areas to the north, but also the three boundaries of the Site itself.

3.2.5 Invasive Species

Two small clumps of the invasive shrub species *Rhododendron* *Rhododendron* sp. were recorded along the northern boundary of the Site (Target Note 1). Patches of cherry laurel *Prunus laurocerasus* – also known to be invasive – were recorded in the understorey of the northern boundary.

3.3 External and Internal Building Inspection Survey

The Site formerly supported 11 small, single-storey buildings/structures (see Table 6 below for descriptions and Figure 2 for locations); however, in 2021 only eight of these remained standing (B1 could not be found; B2 had collapsed; and only the base of B11 remained). These were largely little more than agricultural/horticultural and leisure/amenity sheds, constructed from a mix of wood, glass, corrugated metal/asbestos/onduline and/or polythene sheeting. Six of the remaining eight structures were considered to offer 'Negligible' potential to support bat roosts. Two of the buildings (B6 and B7), were considered to offer 'Low' potential (see Table 7 for potential bat access/roosting features).

Table 6: Assessments of Buildings within the Site Boundary

Building Ref.	Description	Bat Roost Potential	Photograph
B1	Former small, dilapidated wooden shed with corrugated metal roof and single-skinned walls – not found (possibly collapsed/subsumed by scrub)	N/A	 Photo from 2016
B2	Former small, wooden shed with corrugated metal roof, single-skinned walls, and loosely-fitted door (no windows) – now collapsed and only replacement onduline roof visible	N/A	
B3	Small, wooden animal shelter with plastic roof, single-skinned wooden back wall (open on other three sides). Fully accessible to surveyor for thorough inspection. No signs of bat presence.	Very Low (i.e. minor potential for use as a night-time feeding perch by long-eared bats)	

Building Ref.	Description	Bat Roost Potential	Photograph
B4	Wooden shed with corrugated onduline roof, single-skinned walls on three sides (open to the front), and one plastic window. No. No signs of bat presence. Now filled with clearance debris.	Very Low (i.e. minor potential for use as a night-time feeding perch by long-eared bats)	
B5	Small, dilapidated shed constructed from corrugated asbestos on a metal frame, with a corrugated asbestos roof. Fully accessible to surveyor for thorough inspection. No signs of bat presence. Now filled with clearance debris.	Negligible	
B6	Shed complex constructed from a mix of wooden and corrugated metal/plastic cladding (single skin) on a timber frame. Open to the east, with missing windows to the west. Fully accessible to surveyor for thorough inspection. No signs of bat presence.	Low	

Building Ref.	Description	Bat Roost Potential	Photograph
B7	Small shed constructed from a mix of wooden and corrugated asbestos cladding (single skin) on a timber frame. Broken/missing windows to the north and west. Interior not fully accessible to surveyor for thorough inspection. No signs of bat presence.	Low	
B8	Horticultural glass-house on metal frame. Fully accessible to surveyor for thorough inspection. No signs of bat presence.	Negligible	
B9	Horticultural poly-tunnel with wooden/onduline clad back-wall. Fully accessible to surveyor for thorough inspection. No signs of bat presence.	Negligible	

Building Ref.	Description	Bat Roost Potential	Photograph
B10	Small, wooden clad amenity shed, with a flat roof. Well-sealed exterior (interior not accessed).	Very Low (i.e. minor potential for use as a night-time feeding perch by long-eared bats)	
B11	Only base of former wooden clad amenity hut remaining.	Negligible	

Table 7. Examples of potential bat access/roosting features within the 'Low' potential buildings B6 and B7

Building Ref.	Photographs	Feature	Potential bat access/roosting
B6		Gaps between bargeboards and corrugated metal skin Open elevation to east	Potential bat roosting feature Potential bat access point to interior

Building Ref.	Photographs	Feature	Potential bat access/roosting
B7		Gaps between the wooden clad skin and the door and asbestos skin/roof Open window & door	Potential roosting location for crevice-dwelling bats Potential bat access points to the interior
B7		Gaps between the unglazed window frame and interior wooden cladded	Potential bat roosting feature and access to interior

Building Ref.	Photographs	Feature	Potential bat access/roosting
B7		Interior of building	Potential night-roosting/feeding perch location for brown long-eared bats

3.4 Great Crested Newt Habitat Suitability Assessment

The scrub and rough grassland habitats on Site, as well as the boundary tree-line/hedges offered suitable foraging, commuting and shelter habitats for GCN. The spoil, brash and rubble piles on Site also offered potential hibernation opportunities. The Site was well connected to similar suitable habitats off-site in the wider area by the surrounding network of hedgerows and patches of woodland. The absence of any ponds within the Site boundary means that breeding opportunities for GCN were restricted to off-site ponds.

The HSI assessment of pond P1 generated a score of 0.72, which corresponds with a pond suitability category of 'good'; the detail of the HSI calculation is presented in Table 8 below, with a photograph of the pond.

Table 8: P1 HSI Assessment Results

Suitability Indices	Categories	Observed Category	Score
SI1 Geographic location	Zone A (Optimal) Zone B (Marginal) Zone C (Unsuitable)	Zone A	1.00
SI2 Pond area	surface area at high-level	90m ²	0.18
SI3 Desiccation rate	never/rarely/sometimes/frequently	Rarely	1.00
SI4 Water quality	good/moderate/poor/bad	Moderate	0.67
SI5 Shading	% of margin shaded 1m from bank	0	1
SI6 Waterfowl	absent/major/minor	Absent	1
SI7 Fish population	absent/possible/minor/major	Possible	0.67
SI8 Pond density	number of ponds within 1km	2	0.59
SI9 Terrestrial habitat	good/moderate/poor/isolated	Good	1.00
SI10 Macrophyte cover	% of pond surface area	50%	0.81
Total/Average	SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10)^{1/10}		0.72



Photograph of P1

4.0 Discussion and Recommendations

4.1 Discussion

4.1.1 Proposals

The proposals to develop the Site include the construction of a Veterinary Practice and 16 residential buildings, with associated access, carparking, landscaping, and attenuation pond. This would likely require the clearance of some of the grassland/scrub habitats for the building footprints and construction zones, as well as the removal of the spoil heaps and on-site agricultural/horticultural buildings. At the time of survey and draft reporting, no confirmation had been received regarding the extent of any tree removal required. Since then, in October 2021, a draft Arboricultural Impact Assessment has been issued, which indicates the removal of six trees associated with the southern boundary, as well as groups of trees/shrubs near the eastern boundary; these include the group of four southern boundary trees scheduled for removal under the 2018 planning application, and two additional trees.

4.1.2 Statutory and Non-Statutory Designated Sites

Several statutory sites for nature conservation were recorded within 2km of the Site (see Table 4). The Site is located within the 'Impact Risk Zone' (IRZ) of several SSSIs, with 'residential developments' cited as warranting further consultation by the Local Planning Authority with Natural England.

One SINCS – a patch of deciduous woodland, known as 'Windmill Fields Wood' – is located immediately adjacent to the northeast corner of the Site. This woodland SINCS is also contiguous with the tree-lined northern boundary of the Site, connecting it to the western portion of the Site to form the 'Priority Habitats Inventory – Deciduous Woodland' habitat.

Potential impacts from the proposals on statutory and non-statutory designated sites could include direct effects of site clearance/construction adjacent to the designated sites and/or increased levels of noise/light/public disturbance, as well as potential contamination via the adjacent creek. Potential impacts, as well as mitigation approaches have previously been addressed through consultation with EBC/Natural England, including reference to the Strategic Habitats Regulations Assessment.

4.1.3 Protected and Notable Habitats/Species

The tree-lined northern boundary of the Site and the western portion of the Site were identified on Defra's 'Magic' map as 'Priority Habitat Inventory – Deciduous Woodland', and were contiguous with another block of semi-ancient deciduous woodland to the northeast of the Site, which is also designated as a SINCS. The tree-lines, hedgerows, scrub and grassland habitats, as well as the buildings/structures within/near the Site have the potential to support a range of protected species and other wildlife. Protected species known to occur on or near the Site include: bats, nesting birds, and reptiles. Species occurring in the wider area (and that could arrive on the Site in the future) include GCN, badgers and dormice.

Development of the Site has the potential, through both construction and operation, to impact negatively on protected and notable habitats and species. Impacts may be direct (for example, through habitat loss/fragmentation and/or killing/injury), or indirect (for example, through noise/light disturbance). There is also a risk of the spread of non-native invasive species, such as *Rhododendron* and cherry laurel through construction activity.

It is understood that most of the boundaries, including almost all the mature trees, are to be retained and protected; six trees associated with the southern boundary are identified in the October 2021 Arboricultural Impact Assessment as scheduled for removal: in terms of bat roost potential, four of these were assessed in 2017 as 'Negligible' and two were not previously assessed (as they were not previously scheduled for removal).

with proposals to design biodiversity enhancement/connectivity along the northern boundary. The proposed creation of a new attenuation pond in particular has the potential to provide an increase in botanical/invertebrate interest within the Site, as well as improved foraging opportunities for (among others) bats and reptiles/amphibians; in particular, grass snakes, which are known to occur nearby, may be attracted to the new waterbody to hunt. Provided the key ecological interest within the Site can be protected during the clearance and construction phases, the proposals offer opportunities to deliver biodiversity gains.

Recommendations for further survey/mitigation are set out below in order to minimise the risk of impacts on protected sites/species and to fulfil the requirements of planning and legislation.

4.2 Recommendations

4.2.1 Statutory and Non-Statutory Sites

Further consultation with the Local Planning Authority and Natural England is recommended in order to assess the likelihood of the proposals to result in impacts on statutory and non-statutory sites designated for nature conservation and to develop an appropriate mitigation strategy. Part of the mitigation strategy (based on consultations in respect of the previous application) is likely to involve the establishment of a soft-landscaped buffer along the northern boundary, with a SuDS attenuation pond.

4.2.2 Protected and Notable Species/Habitats

It is recommended that the proposed development is designed to retain and safeguard ecologically valuable habitats as far as is practicable.

A Construction Environmental Management Plan (CEMP), should detail procedures and working methods to minimise/mitigate potential impacts on protected sites/species and sensitive habitats, to include avoiding the spread of invasive non-native species. A Biodiversity Enhancement and Management Plan should detail specific enhancement measures and management prescriptions for the Site post-construction. Ecological input to any soft-landscaping design may offer opportunities for delivering biodiversity gains through the inclusion of native species planting appropriate to the area, as well as biodiversity enhancement features targeting protected/notable species potentially occurring on/near the site. This is particularly relevant along the northern boundary, including the proposed attenuation pond.

Where potential impacts on protected species and their habitats cannot be designed out, outline recommendations for survey/mitigation in respect of each species/species group is set out below.

Bats

In accordance with best practice guidance published by the Bat Conservation Trust (Collins et al 2013), it is recommended that the 2016 bat surveys are updated in 2022 to include a single dusk and dawn bat emergence/re-entry and activity transect survey under suitable weather conditions; the emergence/re-entry element should include particular focus on the two 'low' potential outbuildings B6 and B7 (as well as consideration of the 'very low' potential outbuildings). The findings of this should be used to determine whether or not a more detailed update, including further/repeat dusk/dawn visits, is required; for example, if substantially higher levels of activity/species diversity are recorded – particularly in the vicinity of the buildings and/or close to the typical emergence/re-entry times of the species in question

Depending on the findings of the survey(s), further mitigation, compensation and/or precautionary measures may be required in order to safeguard bats and maintain their use of the Site for the purposes of roosting, foraging and/or commuting. Consideration as to whether or not a licence from Natural England would be required for the proposed works to proceed lawfully would also be necessary.

Trees identified in the recent Arboricultural Impact Assessment as scheduled for removal/disturbance should be subject to a ground level tree assessment in respect of their potential to support bat roosts; trees categorised as having Moderate/High potential would require further bat dusk/dawn roosting surveys.

Subject to the further surveys recommended above confirming likely absence of roosts, it is considered that the recommendations of the Aven Ecology Bat Report (2017) remain broadly relevant; these included:

- Implementation of a pre-demolition check of buildings by a licensed bat-worker;
- Implementation soft-strip/demolition methodologies for buildings B6 and B7 as a minimum;
- Incorporation of bat roosting features into the new buildings; and
- Protection/enhancement of commuting/foraging habitats through sensitive lighting and landscape design.

Nesting Birds

To avoid killing/injury of nesting birds and/or damage/destruction of their nests, it is recommended that demolition/vegetation clearance works are scheduled outside of the bird nesting season (which typically runs from March to August inclusive). Should clearance be scheduled during the nesting season, an ecologist should be appointed to undertake a bird nesting check immediately prior to works; supervision by the ecologist during the works may also be required. In the event that any active nest is found, an exclusion zone must be observed around the nest until the young have fledged (depending on the species, this can typically take 4-6 weeks).

Great Crested Newt

No further survey in respect of GCN is considered necessary for the purposes of the current planning application; however, it is recommended that an update eDNA survey of P1 is carried

out in the next active season (April-June 2022) if works have not yet commenced. Liaison with EBC Biodiversity Officer has been recommended in this regard. For now, it is considered that the recommendations of the 2017 reptile and GCN report remain relevant.

Reptiles

Conditions in terms of suitability for reptiles are considered to be largely the same as in 2016. It is anticipated that the reptile population on Site is represented by low numbers of slow worms associated with the rough grassland/scrub across the west of the Site, as well as the various spoil/debris; therefore, it is considered that the recommendations of the 2017 reptile and GCN report remain relevant. Liaison with the EBC Biodiversity Officer is recommended and a detailed Reptile Mitigation Strategy report needs to be produced, to include details of the proposed capture/translocation program and the establishment of a reptile receptor site onsite or offsite.

Badger

Although no setts were found within the Site, the tree-lined boundaries offer potential locations for a sett which badgers could exploit at any time in the future. Substantial intrusion into the tree-lined boundaries of the Site should be avoided/minimised where practicable. An update badger survey of impacted areas should be carried out immediately prior to commencement of works to ensure that no setts have been created in the intervening period. Any update badger survey should ideally be undertaken during the winter months (November to February) when vegetation has died back to allow the surveyor to assess the hedgerows and dense scrub areas thoroughly. In the event that a badger sett would be affected by the works, consideration as to whether or not a licence from Natural England would be required for the proposed works to proceed lawfully would also be necessary.

Dormouse

In the event that the development proposals include significant intrusion into the bordering woodland/hedgerow habitats AND commencement of works are delayed into the 2022 season, further consultation with the EBC Biodiversity Officer is recommended regarding the potential requirement to update the surveys for dormouse following The Dormouse Conservation Handbook (Bright et al. 2006) are recommended to assess their potential migration into the area from the wider vicinity. Dormouse surveys use nest tubes placed in suitable habitat across the woodland, scrub and hedgerow habitats. The tubes and boxes are then checked each month between April and October in order to meet a minimum search effort score as detailed in best practice guidance.

4.2.3 Invasive Species

Further spread of non-native invasive species (including Rhododendron and cherry laurel) should be avoided during site-clearance, construction and post-construction. This may require the removal of existing stands of these species by specialist contractors. The use of non-native invasive species should be avoided in any soft-landscaping proposals.

4.3 Conclusion

It is considered that the proposed development and its associated impacts on biodiversity and the opportunities for biodiversity enhancement, as well as the mitigation strategy required to address these, is of a similar scale to those of the proposals previously consented in 2018. As such, subject to implementation of the recommendations set out above, it is not considered that any of the ecological constraints associated with the Site would prevent the granting of consent for the proposals and the development from progressing.

5.0 References

- Aven Ecology (2016) Land adjoining 4 Brookfield, Providence Hill, Bursledon, Hampshire – Extended Phase 1 Habitat Survey Report
- Aven Ecology (2017) Land adjoining 4 Brookfield, Providence Hill, Bursledon, Hampshire – Reptile and Great Crested Newt Survey Report
- Aven Ecology (2017) Land adjoining 4 Brookfield, Providence Hill, Bursledon, Hampshire - Bat Survey Report
- Bright, P. Morris, P. & Mitchell Jones, T. (2006) The Dormouse Conservation Handbook (2nd edition) Peterborough, English Nature
- Bursledon Parish Plan, Bursledon Parish Council, December 2014
- Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, (3rd edn). The Bat Conservation Trust, London
- Defra – <http://magic.defra.gov.uk/website/magic/> [Accessed: 13/05/2016]
- Eastleigh Borough Council Local Plan - <http://gis.eastleigh.gov.uk/> [Accessed: 13/05/2016]
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- Ecological Support, Management and Solutions (2015) Land at and around Orchard Lodge Providence Hill Bursledon - Ecological Assessment (from Eastleigh Borough Council planning website; planning ref.: C/14/74932).
- English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature. Peterborough.
- HMSO (1981) The Wildlife and Countryside Act (as amended); London
- HMSO (2010) The Conservation of Habitats and Species Regulations (as amended); London
- HMSO (1992) The Protection of Badgers Act; London
- Oldham, R.S.; Keeble, J.; Swan, M.J.S. & Jeffcote, M. (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*); *Herpetological Journal* 10 (4): 143-155

Appendices

Appendix 1 – Figures

Figure 1: Proposals Plan

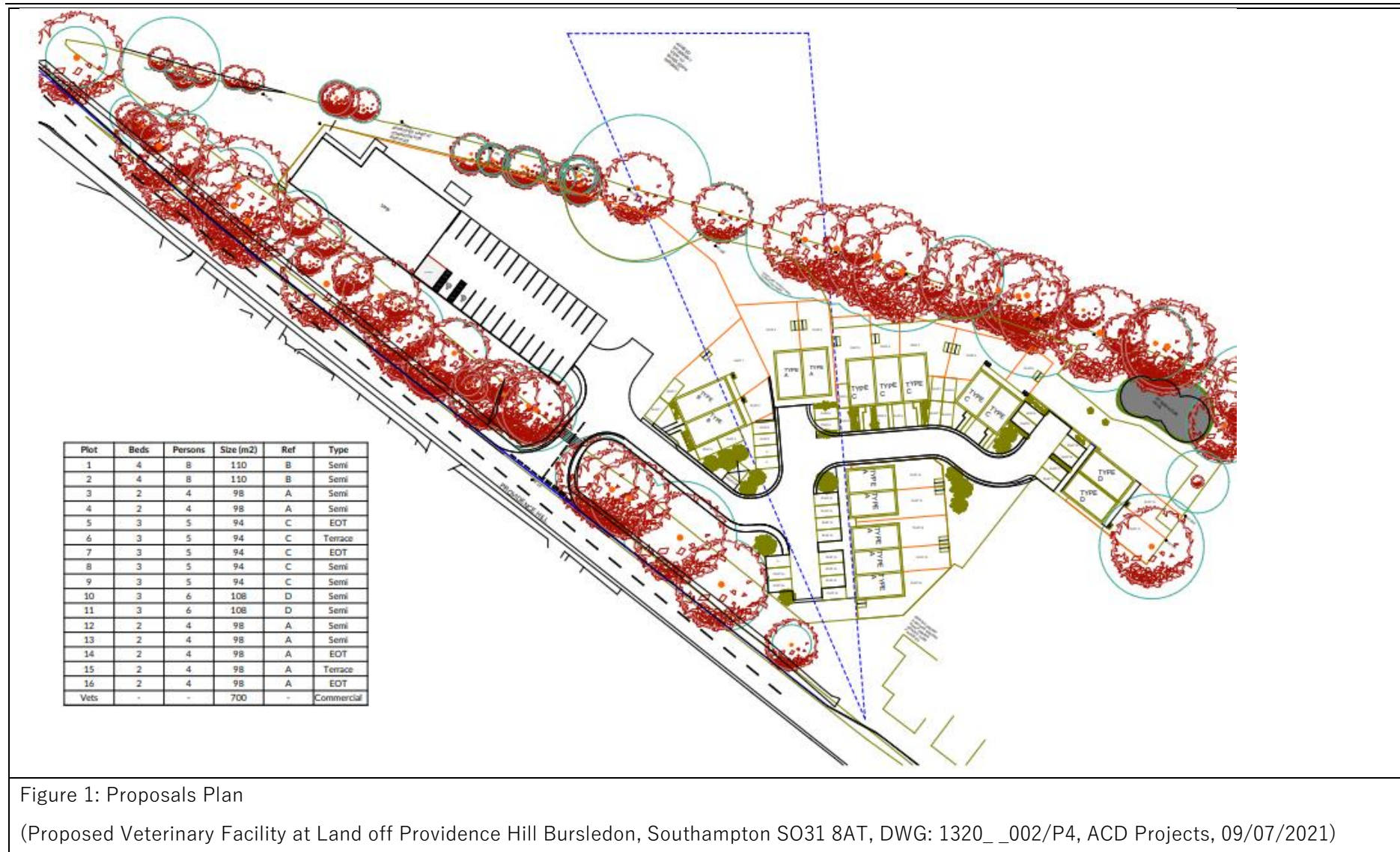
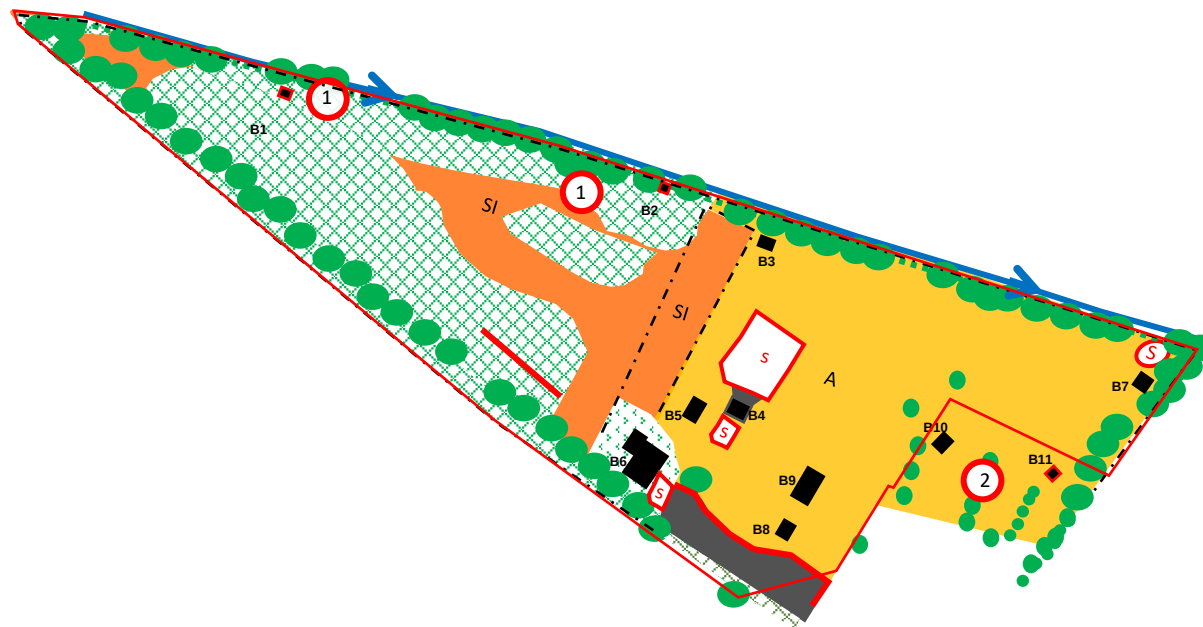


Figure 2: Extended Phase 1 Habitat Map (with Target Notes table)



Key

Scattered trees	
Dense scrub	
Scattered Scrub	
Semi-improved grassland	
Amenity grassland	
Spoil	
Flowing water (creek)	
Buildings (present in 2021)	
Buildings (gone since 2017)	
Hardstanding	
Defunct species-poor hedgerow	
Fence	
Wall	
Bare ground	
Target Note	
Study Area Boundary (indicative)	

Scale	Not to Scale		
Client	Vested Outsourcing Partners		
Project	Land nr Providence Hill		
Title	Phase 1 Habitat Map		
Date	09/09/2021		
Figure	2	Version	1
Drawn	KH	Checked	AM

Phase 1 Habitat Map Target Notes

Target Note Reference	Description
1	Two stands of Rhododendron along the along the northern boundary.
2	Residential gardens, including ornamental shrub and flower planting.

Appendix 2 – Relevant Legislation

Bats

All species of bat found in the UK are listed under Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended) and are afforded protection under Section 9(1), Section 9(4)(b&c) and Section 9(5) of the Act. Under this legislation, a person is guilty of an offence if he intentionally or recklessly:

- Kills or injures any bat;
- Disturbs any bat while it is occupying a structure or place which it uses for shelter or protection;
or
- Obstructs access to any structure or place which any bat uses for shelter or protection.

Bats are afforded additional protection through their inclusion on Schedule 2 of *The Conservation of Species and Habitats Regulations 2010* (as amended). Under Part 3 of this legislation, a person is guilty of an offence if he:

- Deliberately captures, injures or kills a bat;
- Deliberately disturbs a bat; or
- Damages or destroys a bat breeding site or resting place.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, breed or reproduce, rear or nurture their young, migrate or hibernate. It also includes any disturbance likely to affect significantly the local distribution or abundance of the species. Consequently, attention should be given to dealing with the modification or development of an area if aspects of it are deemed important to bats, such as flight corridors and foraging areas.

Nesting Birds

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

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

Schedule 1 Birds

Birds listed under Schedule 1 of *The Wildlife and Countryside Act 1981* (as amended), such as Barn Owl *Tyto alba*, in addition to the protection afforded all wild birds, their nests and eggs are afforded further protection from intentional and reckless disturbance at, on or near an 'active' nest. Those listed under Schedule 1, Part I are afforded the further protection throughout the year and those listed under Schedule 1, Part II are provided the further protection during the close season (1st February – 31st August).

Great Crested Newts

Great crested newts (GCN) *Triturus cristatus* are listed under Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended) and are afforded protection under Section 9(1), Section

9(4)(b&c) and Section 9(5) of the Act. Under this legislation, a person is guilty of an offence if he intentionally or recklessly:

- Kills or injures a GCN;
- Disturbs any GCN while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructs access to any structure or place which any GCN uses for shelter or protection.

GCN are afforded additional protection through their inclusion on Schedule 2 of *The Conservation of Species and Habitats Regulations 2010* (as amended). Under Part 3 of this legislation, a person is guilty of an offence if he:

- Deliberately captures, injures or kills a GCN;
- Deliberately disturbs a GCN;
- Deliberately takes or destroys the eggs of a GCN; or
- Damages or destroys a GCN breeding site or resting place.

This legislation covers all life stages and includes both aquatic and terrestrial habitats.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, breed or reproduce, rear or nurture their young, migrate or hibernate. It also includes any disturbance likely to affect significantly the local distribution or abundance of the species.

Other Amphibian Species

The smooth (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helveticus*), common frog (*Rana temporaria*) and common toad (*Bufo bufo*) are protected by Section 9(5) of the Wildlife and Countryside Act 1981. This means that the protection for wild animals extends only as far as prohibiting sale, transporting or advertising for sale. A licence is not required for works which may affect these species.

Reptiles

The four more widespread reptile species (adder *Vipera berus*, common lizard *Zootoca vivipara*, grass snake *Natrix natrix*, slow worm *Anguis fragilis*) are listed under Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended) and are afforded protection under Section 9(5) of the Act. Under this legislation, a person is guilty of an offence if he:

- Intentionally or recklessly kills or injures any reptile.

This legislation applies to all life stages.

Badgers

Badgers *Meles meles* are protected under *The Protection of Badgers Act 1992*. Under this legislation a person is guilty of an offence if they kill injure or take a badger or interfere with a badger sett. Interference to a badger sett includes:

- Damage to a badger sett or any part of it;
- The destruction of a badger sett;
- Obstruction of the access to, or any entrance of, a badger sett;
- Disturbance to a badger whilst occupying a sett.

The term 'badger sett' is usually defined as the system of tunnels and chambers in which badgers live, including their entrances and immediate surrounds. The 1992 Act specifically defines a sett as "*any structure or place that displays signs indicating current use by a badger*". Natural England takes this to mean seasonally used setts and consequently any sett that has been occupied at any point during the previous twelve months.

Dormouse

The hazel dormouse *Muscardinus avellanarius* is listed under Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended) and is afforded protection under Section 9(1), Section 9(4)(b&c) and Section 9(5) of the Act. Under this legislation, a person is guilty of an offence if he intentionally or recklessly:

- Kills or injures a dormouse;
- Disturbs any dormouse while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructs access to any structure or place which any dormouse uses for shelter or protection.

Dormice are afforded additional protection through their inclusion on Schedule 2 of *The Conservation of Species and Habitats Regulations 2010* (as amended). Under Part 3 of this legislation, a person is guilty of an offence if he:

- Deliberately captures, injures or kills a dormouse;
- Deliberately disturbs a dormouse; or
- Damages or destroys a dormouse breeding site or resting place.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, breed or reproduce, rear or nurture their young, migrate or hibernate. It also includes any disturbance likely to affect significantly the local distribution or abundance of the species. A licence is required under this legislation in order to carry out habitat management where dormice are present and also where dormouse habitat is destroyed for the purposes of development.

Appendix 3 – Photographs



Photograph 1a & 1b: Eastern (managed) half of Site and Western (unmanaged) half of Site



Photograph 2: Recolonising scrub (formerly bare ground in 2016) and retaining wall (southwest)

Photograph 3: Scrub over former semi-improved grassland (west)



Photograph 4: Northern boundary tree-line and amenity grassland (east)

Photograph 5: Southern boundary tree-line and A27 road



Photograph 6: Residential buildings (offsite), amenity grassland, ornamental shrubs and horticultural outbuilding (southeast)



Photograph 7: Semi-improved grassland/scrub(central area of Site)



Photograph 8: Large area of fly-tipping (formerly isolated patch of unmanaged grassland)



Photograph 9: Badnam along the outside of northern boundary (new residential development to north visible in upper-right of photograph)



Photograph 10: Vegetated spoil/brash pile (northeast corner)



Photograph 11: Rubble pile near south/central area of the Site



Photograph 12: Amenity outbuilding



Photograph 13: Amenity outbuilding



Photograph 14: Amenity outbuilding



Photograph 15: Amenity outbuilding



Photograph 16: Example of a mature tree with potential bat roosting feature



Photograph 17: Close-up of potential bat roosting feature (tear-out on underside of leaning stem)



Photograph 18: Small stand of Rhododendron (northern boundary)



Photograph 19: Recently completed residential development outside northern boundary