harrislamb
PROPERTY CONSULTANCY

clearthinking
COMMERCIAL PROPERTY ADVICE

Preliminary Ecological Appraisal

Land at Cam, Stroud

On Behalf Of:
BSL Strategic Limited

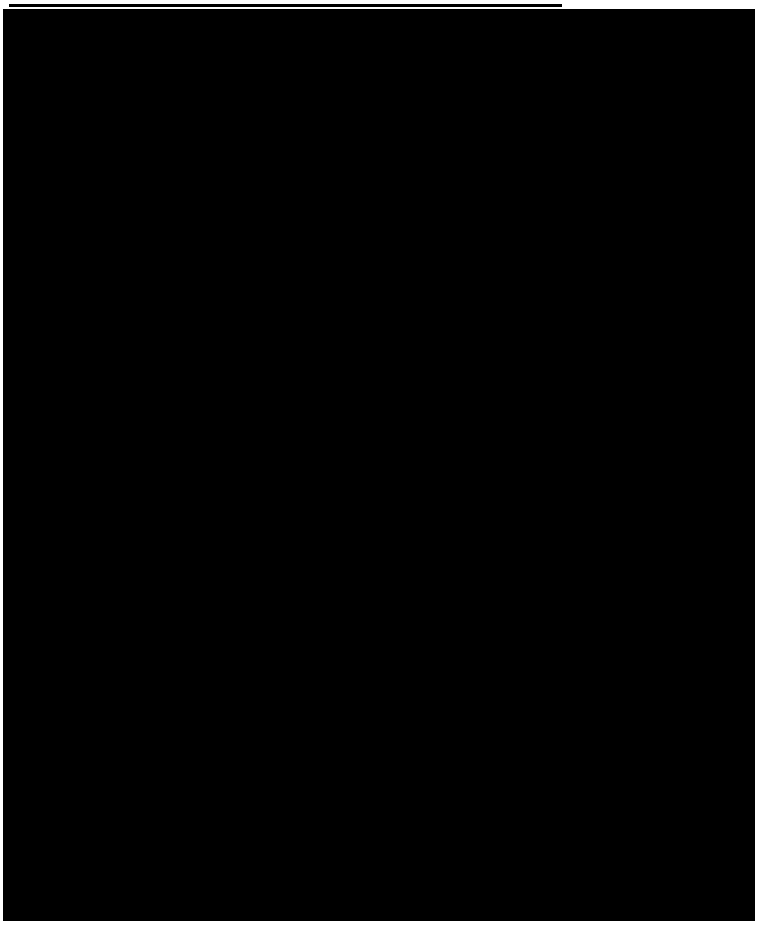
Prepared By:
Harris Lamb | Grosvenor House | 75-76 Francis Road | Edgbaston | Birmingham B16 8SP
Telephone: E-mail:

Job Ref: PE0225 Date: July 2021

Preliminary Ecological Appraisal

Land at Cam, Stroud

Main Contributors



CONTENTS

EXECUTIVE SUMMARY

Harris Lamb Property Consultancy (HLPC) was commissioned by BSL Strategic Limited to undertake a Preliminary Ecological Appraisal (PEA) at land in Cam, Stroud. The site comprises of a mosaic of arable land accompanied by hedgerows scattered broadleaved trees. The river cam lies to the west of site, just outside the boundary.

Further survey is recommended for arboricultural assessment, foraging and roosting bats, reptiles, breeding birds and great crested newt. An update survey for badge is also recommended due to the high mobility of this species.

Suggestions have been put forward for suitable habitats to be installed as part of the design to incorporate biodiversity for the future scheme.

Provided the measures within this report for further survey and mitigation can be adopted for, a development could be designed to mitigate impacts to protected species and habitats and provide ecological enhancements. It is, therefore, anticipated that a design could be brought forward for this site that would be compliant with current local and national biodiversity planning policy.

1.0 INTRODUCTION

1.1 Terms of reference

1.1.1 Harris Lamb Property Consultancy (HLPC) was commissioned by BSL Strategic Limited to undertake a Preliminary Ecological Appraisal (PEA) at Land at Cam, Stroud, GL11 (national grid reference SO 75348 00474), hereafter termed the 'site' (see Figure 1 below).

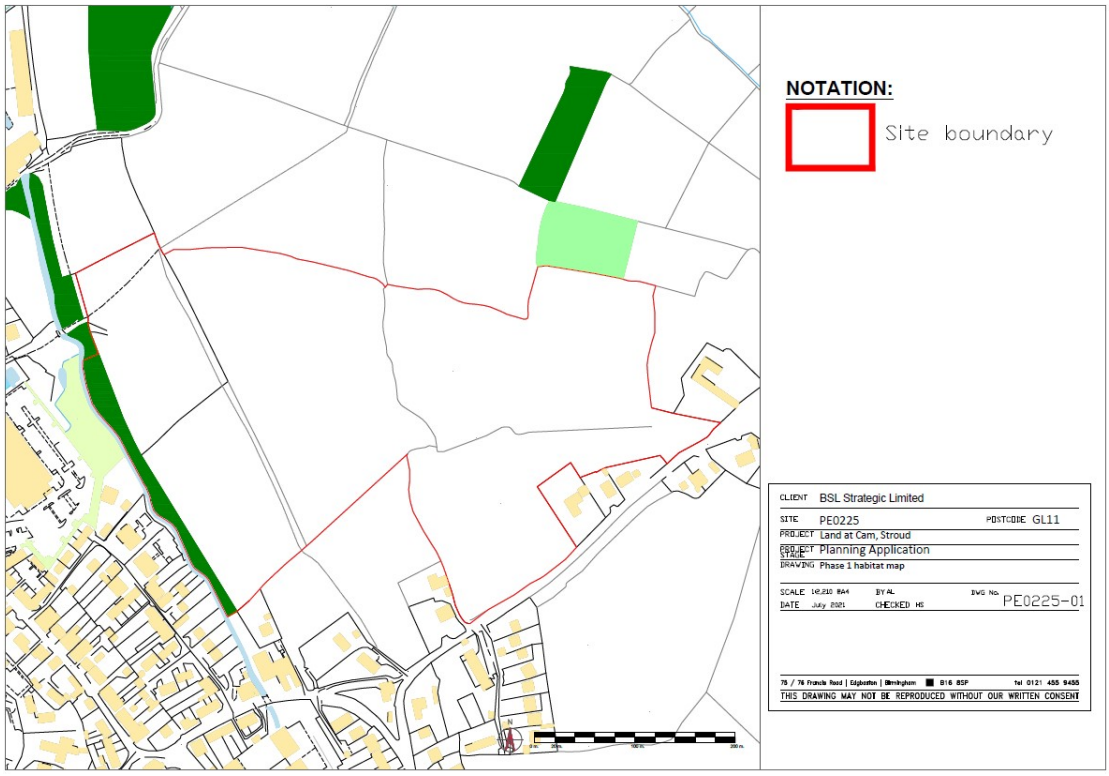


Figure 1: Site location. Not to scale.

1.2 Site location

1.2.1 The site is located to the north-east of Cam, near Stroud in Gloucestershire, and is surrounded by arable land to the north and residential dwellings to the east, south and west. The entirety of the site comprises of arable fields with sileage crop of rye grass, separated with hedgerows and scattered broadleaved trees.

1.3 Scope of work

1.3.1 This report has been produced with reference to current guidelines for PEA[1], which involves the evaluation of potential ecological receptors based on Extended Phase I Habitat Survey[2] data and background desk study.

1.3.2 It is understood that the client is promoting the site through the Local Plan and an initial illustrative masterplan has been put forward for the site. The purpose of this PEA is to identify the potential ecological constraints within, or near the site, that should be considered within the scheme design should it be taken forward.

[1] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

[2] Joint Nature Conservation Committee (2010) Handbook for Phase 1 Habitat Survey. A Technique for Environmental Audit.

2.0 PLANNING CONTEXT

2.1 National Planning Policy Framework (NPPF)

2.1.1 National Planning Policy Framework (NPPF)[3] is the top tier of planning policy. The Framework provides guidance to local authorities and other agencies on planning policy and the operation of the planning system. Section 15 relates to 'Conserving and enhancing the natural environment'.

2.1.2 Relevant policies in relation to planning application include Paragraph 170:

"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, 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.

[3] National Planning Policy Framework (June 2019) Ministry of Housing Communities and Local Government

174. 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.

175. 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 reasons58 and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be

encouraged, especially where this can secure measurable net gains for biodiversity."

2.2 Relevant local planning policy

2.2.1 Identified relevant local planning policy is summarised in Table 1 below.

Table 1: Summary of relevant biodiversity local planning policy

Policy	Description
Stroud District Local Plan	
Delivery Policy ES6 - Providing for biodiversity and geodiversity	Development proposals shall provide a net gain in biodiversity through enhancement and creation of ecological networks within and connecting with those beyond the district by: 1. Incorporating and enhancing existing and creating new biodiversity features within their design; and 2. Maximising opportunities to enhance and create links between ecological networks and habitats of principal importance. Links should be created both on-site and, where possible, with nearby features; and 3. Biodiversity within a development needs to be managed, monitored, and maintained; and 4. Development proposals within, or in close proximity to, an ecological network corridor should enhance the functionality and connectivity of the corridor. Development that would impact on the strategic ecological network causing fragmentation or otherwise prejudice its effectiveness will not be permitted. Development proposals shall also demonstrate that the mitigation hierarchy has been followed sequentially in accordance with the principles of: i. avoid ii. reduce, moderate, minimise iii. rescue e.g. translocation iv. repair, reinstate, restore, compensate, or offset. Where development is considered necessary, adequate mitigation measures or, exceptionally, compensatory measures, will be required, with the aim of providing an overall improvement in local biodiversity and/or geodiversity. Where development proposals are likely either alone or in combination with other plans and projects, to cause harm to the nature conservation or geological interest of Internationally important sites, they will not be permitted unless: a. There is no suitable alternative to the development; and b. There are imperative reasons of overriding public interest; and c. Appropriate compensatory provision can be secured to

Policy	Description
	ensure that the overall coherence of the site(s) is protected and enhanced. Other important habitats and sites of geological and geomorphological interest will be protected, managed, and enhanced. Up to date, comprehensive ecological surveys undertaken in accordance with industry guidelines and standards will be required to support and inform development proposals that would affect sites for nature conservation, protected species, or species or habitats of importance. Development that will adversely affect the following designations shall not be considered sustainable development and will not be permitted: □ National SSSIs and NNRs □ International or Nationally protected species, or species and habitats of principal importance. It will be important to consider the future conservation status of the relevant species in their natural range. Development should not adversely affect: □ Local Wildlife Sites, □ Local Nature Reserves, □ Local Geological or Geomorphological Sites, □ Local ecological or Green Infrastructure networks The assessment of adverse impacts will apply to potentially damaging development proposals that may affect a designated area and will include the consideration of adverse cumulative effects with other existing or proposed development.
Delivery Policy ES8 - Trees, hedgerows, and woodlands	Development should seek where appropriate to enhance and expand the District's tree, hedgerow, and woodland resource. Development that would result in the unacceptable loss of, or damage to, or threaten the continued well-being of locally valued and/or protected trees, hedgerows, community orchards, veteran trees or woodland will not be permitted. Where the loss of trees and/or hedgerows is considered acceptable, adequate replacement provision will be required that utilise species that are in sympathy with the character of the existing tree or hedge species in the locality and the site. Tree surgery work requiring consent must be undertaken in accordance with arboricultural best practice. Development proposals shall provide soft landscaping details, including tree, hedge, and wood planting where appropriate. Landscaping schemes should take account of local landscape character, ecological interests (including green infrastructure networks) and should include the planting of indigenous species where appropriate. The Council will seek long-term maintenance and management plans to accompany the soft landscaping proposals where

Policy	Description
	appropriate.
Delivery Policy DES2 - Green Infrastructure	All development proposals should, where possible, and appropriate to their nature and scale: 1. protect existing green infrastructure and the functions this performs. 2. increase the functionality of existing and planned green infrastructure especially where this helps to mitigate the causes of and addresses the impacts of climate change. 3. improve the quality of existing green infrastructure, including local networks and corridors, specifically to increase its attractiveness as a recreation opportunity and its value as a habitat for biodiversity. 4. protect and improve access to and connectivity between existing and planned green infrastructure to develop a continuous right of way and greenway network and integrated ecological system/network. 5. secure new green infrastructure in order to cater for anticipated increases in demand arising from development particularly in areas where there are existing deficiencies assessed against standards contained within this Plan; and 6. provide long-term management arrangements for new and enhanced green infrastructure within development sites. Where a loss of, or negative impact on green infrastructure functionality or ecological system/network is unavoidable, development proposals should demonstrate what mitigation measures are proposed and/or replacement green infrastructure will be provided. Any replacement or mitigation measure should seek to secure a net gain in biodiversity and be deployed as closely as possible to the affected green infrastructure asset. Development that is demonstrably harmful to an identified strategic green infrastructure asset, or adversely affects the functioning and/or implementation of approved strategic green infrastructure projects, will not be permitted.

2.3 Natural Environment and Rural Communities Act

2.3.1 In Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act, which came into force on 1st Oct 2006 requires the Secretary of State to publish "*a list of habitats and species which are of principal importance for the conservation of biodiversity in England*". This list guides decision-makers such as councils and statutory undertakers, as to their duty under Section 40 of the NERC Act, to "*have regard to the conservation of biodiversity in England*" in day-to-day decisions.

2.3.2 There are currently 56 habitats of principal importance and 943 species of principal importance included on the S41 list. The habitats recorded were considered against the list of species likely in the site's geographical area and supporting habitats.

3.0 METHODOLOGY

3.1 Study area

3.1.1 The study area is the site boundary shown on Figure 1. The study area was extended beyond the site where appropriate to undertake species-specific appraisals as detailed below.

3.2 Desk study

3.2.1 The desktop study was undertaken in July 2021 and included:

- Gloucestershire Centre for Environmental Records (GCER),
- Multi Agency Geographic Information for the Countryside (MAGIC) website[4],
- Ordnance Survey (OS)[5], and
- Aerial imagery[6].

3.2.2 The geographical extent of the search area for biodiversity information was related to the significance of sites and species and potential zones of influence which might arise from development within the site. For this site the following search areas were considered to be appropriate:

- 10km around the site boundary for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site));
- 2km around the site boundary for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI)), protected or otherwise notable species and non-statutory designated sites of County Importance (e.g. Local Wildlife Sites (LWS);
- 1km for ancient woodland, and
- 2km for biological records.

[4] www.magic.gov.uk accessed July 2021
[5] www.bing.co.uk accessed July 2021
[6] www.bing.co.uk accessed July 2021

3.2.3 No pre-application consultation relating to ecology was undertaken at the time of writing this report. No previous ecological information relating to the site was identified.

3.3 Field survey

Flora

3.3.1 HLPC carried out an Extended Phase 1 Habitat Survey of the site in June 2021. The survey was carried out by an experienced and suitably qualified ecologist and a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The survey was undertaken in accordance with 'Extended Phase 1' methodology[7].

3.3.2 Specific habitat features were mapped using Target Notes (TN) to record ecological features of particular note where necessary.

Fauna

3.3.3 The fauna included within this assessment is based on the habitats present, data from the desk-based searches, and the following legislation[8]:

- Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Conservation of Habitats and Species Regulations 2019 (as amended);
- The NERC Act 2006 – S41 Species of Principal Importance (SPI) for the conservation of biodiversity, and
- The Countryside Rights of Way Act 2000

Amphibians

3.3.4 Waterbodies within 250m of the site boundary were identified using online Ordnance Survey maps and aerial imagery[9] and were assessed if necessary, for their suitability to support great-crested newt *Triturus cristatus* using a Habitat Suitability Index (HSI). The HSI is a numerical index,

[7] Joint Nature Conservation Committee (2010) Handbook for Phase 1 Habitat Survey. A Technique for Environmental Audit.
[8] See www.legislation.gov.uk
[9] www.bing.com/maps accessed July 2021

between 0 and 1. Values close to 0 indicate unsuitable habitat, 1 represents optimal habitat (Oldham *et al*., 2000)[10].

Reptiles

3.3.5 An assessment of the suitability of the habitats present to support common reptile species was undertaken. In accordance with current guidance, this assessment involved a review of habitats and habitat structure for suitable shelter for reptiles such as areas of scrub and woodpiles, grassland with well-developed and varied structure, areas suitable for basking, large tussocks etc.

Birds

3.3.6 Bird species identified at the time of survey were noted and nesting birds recorded as seen. An assessment of habitats was undertaken to determine the likely value to breeding and foraging birds.

Bats

3.3.7 Trees and buildings were assessed externally from ground level with the use of torch and binoculars, where required. During the survey Potential Roosting Features (PRF) for bats following current best practice[11],[12],[13] were recorded.

3.3.8 The potential for the site and immediate surrounds to support foraging and commuting bats was also assessed, with particular regard given to the presence of continuous treelines providing good connectivity in the landscape, and the presence of varied habitat such as scrub, woodland, grassland in the vicinity.

Badgers

3.3.9 Signs of badger *Meles meles* survey within the site, and where accessible up to 30m from the site boundary, was undertaken during the walkover.

[10] Oldham *et al*., 2000. Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10, 143-155

[11] Bat Conservation Trust (BCT) 2016. Bat Surveys for Professional Ecologists, Good Practice Guidelines, 3rd Edition

[12] Mitchell-Jones, A.J, & McLeish, A.P. Ed. 2004. Bat Workers' Manual 3rd Edition

[13] BCT (2015) Surveying for Bats in Trees and Woodland – Guide

Areas of suitable habitat were surveyed for evidence of badger activity, such as mammal paths, setts, snuffle holes or latrines.

Riparian mammals

3.3.10 The watercourse was appraised for its suitability to support water vole *Arvicola amphibius*, and otters *Lutra lutra* and any signs of activity seen recorded from bankside access using binoculars.

Hazel dormice

3.3.11 An assessment of the habitat on and adjacent to the site for suitability to support hazel dormice *Muscardinus avellanarius* was undertaken.

White-clawed crayfish

3.3.12 The watercourse was appraised for its suitability to support white clawed crayfish *Austropotamobius pallipes* and any signs of activity seen recorded from bankside access using binoculars.

Other notable species

3.3.13 Signs of other notable species were recorded as seen.

Legally controlled species

3.3.14 Evidence of species listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended were recorded as seen.

3.4 Assessment limitations

3.4.1 Ecological surveys are limited by factors that affect the presence of plants and animals, such as the time of year, weather, migration patterns and behaviour. The initial survey was undertaken in June, which is optimal season for habitat categorisation and vegetation identification.

3.4.2 Any absence of desk study records cannot be relied upon to infer absence of a species/habitat as the absence of records may be a result of under-recording within the given search area.

3.4.3 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for one to two years, assuming no significant considerable changes to the site conditions.

3.4.4 Phase 1 Habitat survey aimed to characterise the habitat on site and is not intended to give a complete list of plant species present.

4.0 RESULTS

4.1 Ecological designations

Internationally designated sites for nature conservation

4.1.1 No internationally designated sites for nature conservation were identified within 10km of the site.

Nationally designated sites for nature conservation designation

4.1.2 One nationally designated site for nature conservation were recorded within 2km of the site. Stinchcombe Hill Site of Special Scientific Interest (SSSI) is located c. 1.7km southwest of the site and is designated for its biological interest. It lies immediately west of Dursley and forms part of the Jurassic limestone scarp of the Cotswolds. The site is one of the series representing the semi-natural calcareous grasslands and associated scrub habitats of the Cotswolds. It consists of three discrete areas on the steep slopes of the Hill of varying height and aspect. These largely unmanaged areas support unimproved herb-rich grassland and scrub habitats with their associated fauna and flora. A number of rare and uncommon species are present.

Non-statutorily designated sites for nature conservation designation

4.1.3 Two non-statutorily designated sites were identified within 2km of the site. Sheep Path, Westfield & Bownace Woods Local Wildlife Site LWS is located c. 1.4km from site and is designated for its Ancient semi-natural broad-leaved woodland larger than 2 ha. Cam Peak and Long Down LWS is located c. 1.7km from site and is designated for its unimproved calcareous grasslands.

Ancient woodland

4.1.4 No ancient woodlands were identified within 2km of the site boundary.

4.2 Habitats

4.2.1 All habitats recorded within the site are described below and are shown on Figure 2 overleaf.

Arable

4.2.2 Arable fields, with sileage crop of rye grass, encompass the entirety of the site boundary. The fields are separated by hedgerows and scattered broadleaved trees.

4.2.3 Species recorded along the field margins include Yorkshire fog *Holcus lanatus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, bramble *Rubus fruticosus* agg., creeping thistle *Cirsium arvense,* meadow buttercup *Ranunculus acris,* white campion *Silene latifolia,* cocks foot *Dactylis glomerata,* false oat grass *Arrhenatherum elatius,* scarlet pimpernel *Anagallis arvensis,* drug fumitory *Fumaria officinalis* and common mouse-ear *Cerastium fontanum.*

4.2.4 This habitat is considered species poor and widespread both locally and nationally and is not considered to be of value to nature conservation at greater than a site level.

Species poor hedgerows

4.2.5 Species-poor hedgerows are located throughout the boundaries of the site. The hedgerows are partially managed and an approximate height of 2 - 5m.

4.2.6 Species composition was dominated by hawthorn *Crataegus monogyna* with less frequently recorded species including field maple *Acer campestre*, elder *Sambucus nigra*, English oak *Quercus robur*, ash *Fraxinus excelsior*, blackthorn *Prunus spinosa*, guelder rose *Viburnum opulus*, holly *Ilex aquifolium* and hazel *Corylus avellana*.

4.2.7 Due to dominanace of hawthorn the hedgerows were not considered to have the required species diversity within 30m sections required by the Hedgerow regulations 1997 to qualify as important under the wildlife and landscape criteria.

4.2.8 As the hedgerows were comprised of 80% of one or more native species, they qualify as habitats of principal importance under Section 41 of the NERC Act (2006). Species-poor hedgerows provide habitat connectivity to the wider landscape and are considered to qualify as Priority Habitat. Collectively they are considered to be of local level of importance to nature conservation.

Scattered broadleaved trees

4.2.9 The site contained numerous hedgerow boundaries that included a number of semi-mature and mature trees. Species recorded include hawthorn *Crataegus monogyna*, English oak *Quercus robur* and ash *Fraxinus excelsior.*

4.2.10 Scattered trees are considered to be of site to local value for nature conservation.

Ditches

4.2.11 One ditch was present as shown on Figure 2. Ditches present were typical of agricultural boundary ditches being mostly dry with some vegetative growth.

4.2.12 The ditches were considered to be limited in structural diversity and did not hold water. They provide some habitat connectivity across and outside the site and are considered to be of site level importance to nature conservation.

River Cam

4.2.13 The river Cam flows just outside the site boundary on the western edge. The river is constrained and has been previously realigned in association with historic farming and the urban setting on the western bank. Substrates included silt with cobble. Banks were approximately 2m high and consisted of earth substrate. Flows were run dominated. The river corridor was heavily shaded by bankside trees.

4.2.14 Aquatic plants recorded included the algae Cladophora glomerata, common water starwort *Callitriche stagnalis*, reed canary grass *Phalaris arundinacea*, the moss *Brachathecium rivulare*, the liverwort *Marchantia polymorpha*, sedges *Carex* spp., brooklime *Veronica beccabunga*, water mint *Mentha aquatica*, and the invasive non-native plant Himalayan balsam *Impatiens glandulifera*.

4.2.15 The riverine habitats off site would be important to nature conservation at the local level and provide an important wildlife corridor.

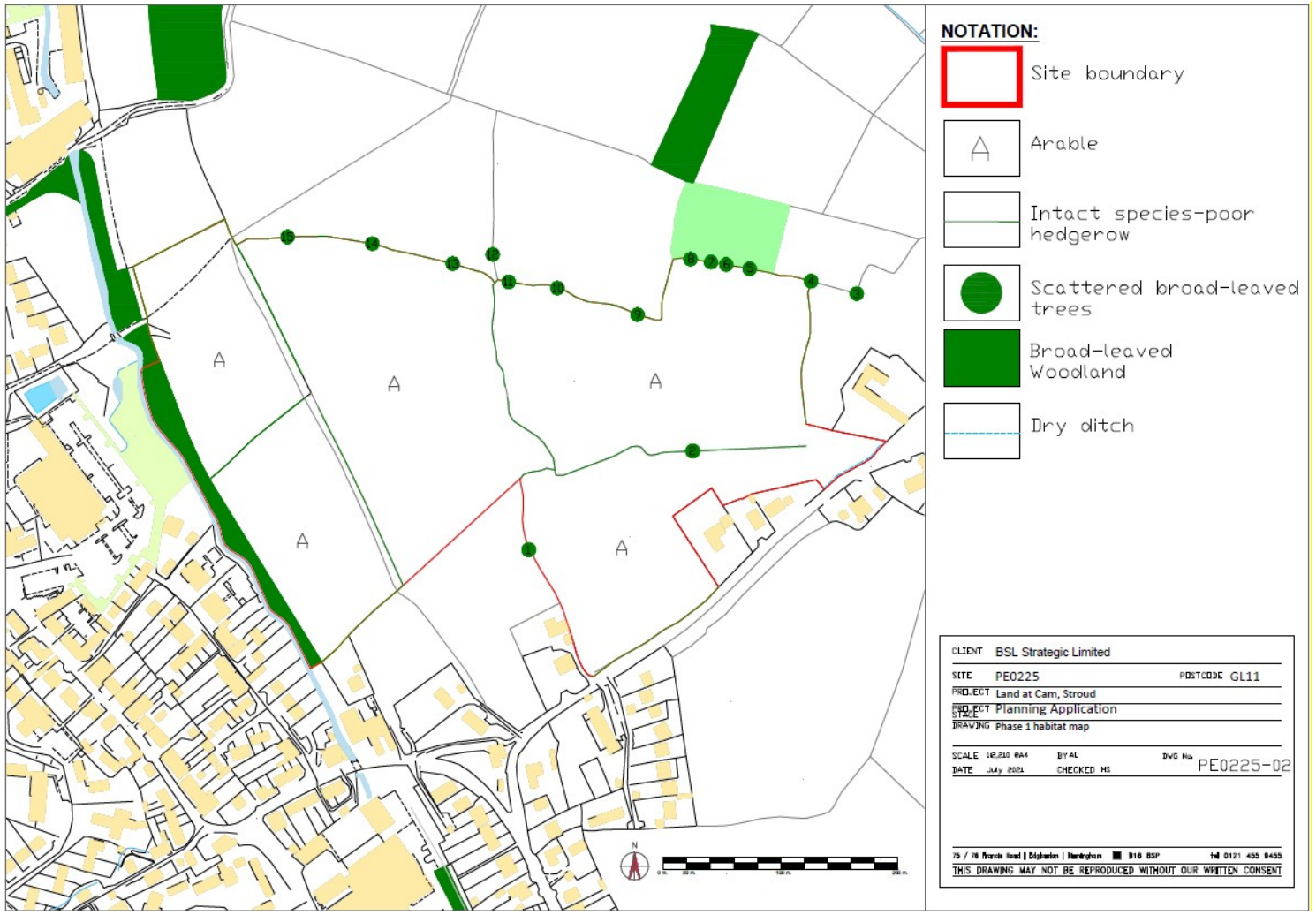


Figure 2: Phase 1 habitat map and badger sett locations (not to scale)

4.3 Species

Amphibians

4.3.1 Several records of great crested newts and common amphibian species within 2km of the site were provided by GCER.

4.3.2 Five ponds were located within 250 m of the site boundary, but no ponds are located within the site boundary. Two of the ponds were separated from the site by the separation of the River Cam and therefore not assessed further for great crested newt potential. The remaining three ponds are located in association with properties to the east and south of the site around Upthorpe. In addition, other garden ponds may be present within private gardens, that have not been identified through mapping resources.

4.3.3 The most recent record of great-crested newt was identified in 2019 in a residential garden pond c. 100m south of the site boundary.

4.3.4 Due to the number of ponds present and the records provided by GCER, great-crested newts could be a potential receptor for a future scheme.

Reptiles

4.3.5 Eight records of grass snake *Natrix helvetica* were provided within 2km of the site.

4.3.6 The most recent record of grass snake was identified in 2019 in a residential garden c. 100m south of the site boundary.

4.3.7 The habitats on site are considered to be suitable for supporting populations of reptiles. The site is connected to wider environs for reptiles through the ditch and hedgerow network. Taken together with the known records of reptiles within 2km of the site, reptile species may be a receptor for a future scheme.

Birds

4.3.8 Multiple records of bird species within 2km of the site were provided by GCER.

4.3.9 Records of bird include barn owl *Tyto alba*, red kite *Milvus milvus*, hobby *Falco subbuteo*, peregrine *Falco peregrinus,* kingfisher *Alcedo atthis,*

redwing *Turdus iliacus,* brambling *Fringilla montifringilla* and fieldfare *Turdus pilaris.*

4.3.10 The habitats on site are likely to provide suitable foraging and nesting habitat for a range of bird species particularly along the river course and along the hedgerow and scattered mature trees.

4.3.11 Foraging and nesting birds could be a potential receptor for a future scheme.

Bats

4.3.12 Bat species reported within 2km of the site included common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctule*, brown long eared *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat *Rhinolophus hipposideros*, natterer's bat *Myotis nattereri*, serotine *Eptesicus serotinus*, western barbastelle *Barbastella barbastellus* and some unidentified species.

4.3.13 Two records were returned of a lesser horseshoe bat roost from 2018 and 2019, located within the loft void of a residential house, located 100m beyond the southern boundary of the site.

4.3.14 A number of trees were identified to provide potential bat roost potential, these trees are as follows (see Table 2 and Figure 2 for location):

Table 2: Trees with bat roost potential

T1	Mature oak tree with moderate BRP
T2	Mature oak tree with moderate BRP
T3	Mature oak tree with moderate BRP
T4	Mature oak tree with moderate BRP
T5	Mature oak tree with moderate BRP
T6	Mature oak tree with moderate BRP
T7	Mature oak tree with moderate BRP
T8	Mature oak tree with moderate BRP
T9	Mature oak tree with moderate BRP

T10	Mature oak tree with moderate BRP
T11	Mature oak tree with moderate BRP
T12	Mature oak tree with moderate BRP
T13	Mature oak tree with moderate BRP
T14	Mature oak tree with moderate BRP
T15	Mature oak tree with moderate BRP

4.3.15 The habitats on site are considered suitable for foraging/commuting bat species due to the watercourse and hedgerow corridors.

4.3.16 Foraging and roosting bats could be a potential receptor with respect to for a future scheme.

Badger

4.3.17 Eleven badger records within 2km of the site were provided by GCER. Most notably, one record from July 2018 identified badger activity within the site boundary. However, this record could not be found during the site walkover.

4.3.18 The habitats on site were suitable for supporting foraging, sheltering, and commuting badgers.

4.3.19 No setts were recorded during the site visit in 2021, but numerous mammal paths likely from badger were noted transecting the site. Due to historic records and observed commuting/foraging activity, badgers are likely to be a receptor for a future scheme.

Dormouse

4.3.20 No records of dormouse were retuned by GCER. Despite the presence of hedgerows on site, the hedgerow structure was species poor and therefore suboptimal for supporting dormouse populations. The lack of optimal habitat alongside the absence of local records means that dormouse are unlikely to be a receptor for the scheme.

Otter and water vole

4.3.21 Three records of water vole and twenty-two records, provided by the GCER, of otter were located within 2km of the site.

4.3.22 The ditches within the site boundary were not considered to provide suitable habitat for water vole or otter to occur, due to the minimal water and lack of suitable food vegetation on the banks.

4.3.23 However, all records of otter and water vole were located in the River Cam, approximately 100m from the site boundary. Given the habitat suitability of the River Cam and the historic records nearby, otters and water voles are likely to be a receptor for a future scheme.

Other notable species

4.3.24 Hedgehogs have been recorded within 2km of the site. The habitats on the site are suitable for supporting this species and hedgehogs are considered a potential receptor for a future scheme.

4.3.25 White clawed crayfish are not considered to be a receptor for future schemes due to records of signal crayfish with 2km of site and poor suitability for the ditches on site for this species.

Invasive non-native species.

4.3.26 Himalayan Balsam was identified during the site visit on the banks of the River Cam. In addition, records of the invasive Japanese knotweed *Fallopia japonica* and least duckweed *Lemna minuta* have been identified within 2km of the site.

5.0 ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

5.1 Potential constraints & opportunities for ecological gain

5.1.1 The following ecological constraints/opportunities to future development of the site have been identified (Table 3).

Table 3: Ecological constraints and potential for biodiversity gain

Habitat/ Species	Constraints identified	Further Survey required and timing	Design Considerations	Biodiversity gain
Designated Sites	Stinchcombe Hill SSSI	No further survey anticipated. Due to distance and separation of the sites, and lack of similar habitats, no survey is anticipated to be required.	Consideration of creation of species rich grassland on site. Areas of POS to encourage recreational use on site and minimise recreational impacts to the SSSI.	Consideration of creation of species rich grassland on site.
	Cam Peak and Long Down LWS	None anticipated.	Consider enhancing planting and connectivity to compliment this site.	Consideration of creation of similar habitats to the LWS.
	Sheep Path, Westfield & Bownace Woods LWS	None anticipated.	Consider enhancing planting and connectivity to compliment this site.	Consideration of creation of similar habitats to the LWS.
	Ancient Woodland	No further survey anticipated. Due to distance and separation of the sites, and lack of similar habitats, no survey/mitigation is anticipated to be required.	NA	NA
Hedgerows and trees	Hedgerows and trees may require land take.	An arboricultural survey is recommended for trees to establish root protection zones.	Retain hedgerows and scattered trees where possible. Replacement planting with native species mix to enhance the site and contribute to habitat connectivity and BNG.	Enhancement/mitigation could be achieved through additional native tree and hedgerow planting the latter to strengthen habitat

Habitat/ Species	Constraints identified	Further Survey required and timing	Design Considerations	Biodiversity gain
			Root protection zones for retained trees will need to be marked out on site.	connectivity.
Reptiles	Potential for reptiles to be present on site.	A reptile presence/absence survey may be requested by LPA between April/May or September.	Retain a minimum 8m buffer from ditches where possible. Consider enhancement within the 8m corridor through purpose-built hibernacula and planting for reptiles. Maintain habitat connectivity especially along the railway corridor.	Landscaping can be designed to incorporate features for reptiles such as log piles.
Great-crested newts (GCN)	The data search identified that GCN are within the area of the site, the site with the number of ponds is considered suitable for GCN.	eDNA survey recommended for ponds within 250m of the site to determine presence absence of GCN. This can be undertaken between mid-April and the end of June. Depending on timing of development proposals a District Level Licensing Scheme may be available.	Consideration for SuDS ponds/wildlife ponds designed for the benefit of amphibians and maximising terrestrial habitat for amphibians through scrub and grassland planting and inclusion of log piles as refuge. Creation/enhancing wetland habitat for biodiversity will support BNG.	If possible, the SuDS design on site could include habitat creation that would have a positive impact on amphibian species. Additional wildlife ponds could be included within the design to support BNG.
Birds	Potential for breeding birds. Constraint on removing vegetation between March and August.	If tree and scrub removal is required, then this should be undertaken outside of the breeding bird season (birds typically breed March to August inclusive). A breeding bird survey is recommended to determine	Retention of trees and hedgerows on site and replacement planting to mitigate net loss.	Installation of bird boxes on buildings and/or retained trees.

Habitat/ Species	Constraints identified	Further Survey required and timing	Design Considerations	Biodiversity gain
		the value of the site for birds. This can be undertaken between March and July with monthly visits.		
Bats (roosting)	Potential for bats to roost in trees along the boundary of the site.	If to be felled, assess for bat roost potential and if needed undertaken bat survey to determine presence/absence. Emergence surveys to determine presence/absence only between May and August. Tree climbing for direct inspection possible all year around if trees are structurally sound for climbing.	Retention of trees along the boundary of the site and replacement planting to mitigate net loss. If bat roosts are found, then licensing with Natural England will be required post planning consent. A sensitive lighting scheme (<1 Lux) will likely be required along the watercourse corridor	Installation of bat boxes on suitable retained trees and/or new buildings.
Bats (foraging)	Potential disruption to foraging habitat and commuting routes.	Three bat transect surveys (spring, summer & autumn) may be requested by LPA to determine value of the site for foraging bats, given the number of trees around the site which have bat roost potential.	Retention/enhance of boundary trees and hedgerows to maintain commuting routes for bats. A sensitive lighting scheme (<1 Lux) will likely be required along the watercourse corridor	Enhance structural diversity of landscape areas to enhance invertebrate assemblage and value to foraging bats.
Badgers	Biological records identify badger activity within the site boundary.	Update survey to be undertaken following 12 months from this survey and as a pre construction check to ensure badgers are not actively using the site at that time.	Retain habitat connectivity and maintain a 30 m buffer from any setts found if possible. Identify an area where badgers could be moved to if needed within the layout.	Enhance structural diversity of landscape areas to benefit badger.
Hedgehogs	None anticipated	None anticipated	Boundary treatments should allow adequate gaps to allow hedgehog to	Creation of gaps in boundary treatment to

Habitat/ Species	Constraints identified	Further Survey required and timing	Design Considerations	Biodiversity gain
			move across the site. These can be marked with signs so that they are not blocked off in the future (https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/).	allow movement of hedgehogs across the site.
Invasive species	Himalayan balsam was identified along the banks of the River Cam just off site.	None anticipated	Biosecurity practices should be incorporated into the construction planning to avoid spreading this species.	Opportunity exists for improving riverine habitats through implementation of an invasive species control programme.

5.2 Achieving Measurable Biodiversity Net Gain

5.2.1 The illustrative masterplan has been designed taking the key consideration set out in Table 3 into consideration and DEFRAs beta2 Biodiversity Metric Calculator to support a masterplan which could potentially deliver at least 10% biodiversity net gain. The key principles to this are:

- The site is dominated by arable (rye-grass crop) and considered to be 'modified grassland' and 'poor' condition.
- Hedgerows have been retained where possible with a net increase in species rich hedgerows can be incorporated into the design.
- Attenuation basins could be designed to introduce aquatic habitat into the scheme with appropriate basin design and planting.
- The masterplan has retained a wildlife corridor along the River Cam corridor to strengthen habitat connectivity with the potential for riparian and species-rich planting.

6.0 CONCLUSIONS

6.1.1 Provided the measures within this report for further survey and mitigation can be adopted for, a development could be designed to mitigate impacts to protected species and habitats and provide ecological enhancements. It is, therefore, anticipated that a design could be brought forward for this site that would be compliant with current local and national biodiversity planning policy.