

## **PRELIMINARY ECOLOGICAL APPRAISAL**

**FOR**

**LANGLEY PARK HOUSE,  
LANGLEY, KENT**

<b>Date of report</b>	<b>12<sup>th</sup> January 2023</b>
<b>Date of survey</b>	<b>20<sup>th</sup> December 2022</b>
<b>Author</b>	<b>Melissa Randall</b>
<b>Reviewer</b>	<b>Paul Spencer</b>
<b>Approved</b>	
<b>Client name</b>	<b>Paul Carter</b>
<b>Corylus reference</b>	<b>22135</b>

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## SUMMARY

- A Preliminary Ecological Appraisal was undertaken at Langley Park House, Langley, on 20<sup>th</sup> December 2022. The survey area measures 0.054ha and comprises of previous ragstone quarry ground which is understood to have been covered over two years ago, now mostly covered in semi-improved grassland. Detailed proposals include building a single dwelling with associated landscaping and parking on the site.
- There are no invasive species, rare plants or habitats present. To maintain the biodiversity interest of the Site, it is recommended that some new fruit trees are planted and the trees there are retained in the proposed development.
- There is suitable habitat for foraging bats in the surrounding area. No further activity surveys are recommended, however generous native planting and a sensitive lighting strategy are recommended.
- Some suitable habitat for reptiles has been identified. Due to the small size of the Site and the amount of suitable habitat, surveys have not been recommended, instead a mitigation strategy to include vegetation management to prevent the Site becoming more suitable for reptiles has been suggested.
- The suitability of the Site for amphibians is fairly poor, therefore, no further surveys are recommended.
- The suitability of the Site for dormice is poor. Dormouse surveys are not recommended.
- There is evidence of badgers in Site and in the surrounding area, with a sett in the main garden approximately 25m from the proposed building Site. It is recommended that an update badger survey should take place within three to six months of works commencing.
- Regarding breeding birds, recommendations have been made in relation to the timing of any clearance work; this should be undertaken outside of the breeding bird season, limiting this work to between 1<sup>st</sup> September and 1<sup>st</sup> March.
- Recommendations for enhancing the ecological value of the proposed Site under the National Planning Policy Framework have been suggested. These include native planting of trees, hedgerows, herbaceous plants and species-specific measures for birds.

**CORYLUS ECOLOGY**

**Unit A3 Speldhurst Business Park, Langton Road, Speldhurst, Tunbridge Wells, Kent. TN3 0NR**

**Telephone: 01892 861868 Email: [info@corylus-ecology.co.uk](mailto:info@corylus-ecology.co.uk)**

*Director: H G Wrigley (née Lucking) BSc. MIEEM, CIEEM*

Corylus Ecology Ltd Registered in England No 5005553

Registered Office: Henwood House, Henwood, Ashford Kent TN24 8DH

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## 1.0 INTRODUCTION

- 1.1 Corylus Ecology has undertaken a Preliminary Ecological Appraisal (PEA) of a section of garden at Langley Park House in Langley, Maidstone, hereinafter referred to as the 'Site'.
- 1.2 The Site is located in Langley, Maidstone at OS grid reference TQ 80010 51730. The survey area measures 0.054 ha and comprises of former ragstone quarry which is understood to have been covered over two years ago. The Site is located in the far north eastern corner of the garden of Langley Park House whose grounds lie to the south and west, with a large new housing development to the north and arable land to the east. The proposals are understood to involve the building of a single dwelling on the Site with associated garage and landscaping, including the planting of a hedgerow on the boundary.
- 1.3 The Preliminary Ecological Appraisal included a Phase 1 Habitat Survey and Protected Species Assessment, including checking trees for potential to support bat roosts. The Phase 1 Habitat Survey provides information relating to the habitats within the Site and identifies potential for and, if apparent, evidence of use by protected species. In addition, it provides recommendations for further surveys if required.
- 1.4 The objectives of the surveys were to:
- classify and map the habitats within the Site according to those within the Phase 1 manual;
  - determine the potential for protected species, including bats, to occur within the Site;
  - identify key ecological constraints to allow early avoidance or minimisation of ecological effects through appropriate design; and
  - suggest appropriate further surveys.
- 1.5 This report has been prepared for the exclusive use of Paul Carter. No part of this report should be considered as legal advice.

## 2.0 METHODOLOGY

### 2.1 Preliminary Desk Study

2.1.1 A desk study was carried out in order to identify the types of habitat within the surrounding area and any statutory or non-statutory designated sites within 3km of the Site. In addition, information regarding European Protected Species Mitigation licences and Priority Habitats were searched for within 3km of the Site by using Natural England's mapping website ([www.MAGIC.gov.uk](http://www.MAGIC.gov.uk)). No biological records were obtained from the Kent and Medway Biological Records centre due to the size of the Site and potential impacts of the scheme.

### 2.2 Phase 1 Habitat Survey

2.2.1 The Site was subject to a Phase 1 Habitat Survey on 20<sup>th</sup> December 2022. The habitats present on the Site were mapped in accordance with the 'Handbook for Phase 1 Habitat Survey' (JNCC, 2003). Habitat areas and features of topographical and/or ecological interest were described in the form of target notes. These were later used to create botanical species lists by target note area, and also to create a colour coded Phase 1 Habitat map. All nomenclature follows Stace (2019). Non-native or invasive species were also identified and mapped where appropriate.

#### *Survey Constraints*

2.2.2 The PEA survey also includes the mapping of invasive botanical species listed under Schedule 9 of the Wildlife and Countryside Act 1981, as well as those classed as rare or declining. However, some species are seasonally constrained, and therefore may not be visible on a single Site visit. Likewise, the presence of densely vegetated habitats may, in some cases, restrict access and non-native botanical species may not be recorded in these areas.

### 2.3 Protected Species Assessment

2.3.1 The survey included an assessment of the potential for the Site to support protected species. This type of survey assesses the potential for protected species to occur due to the habitats present; it does not include any species-specific survey methods that are designed to demonstrate whether the Site is in fact used by such species. Any holes or scrapes likely to be used by or indicate the presence of badger *Meles meles* were searched for, together with any other field signs associated with this species, including latrines, pushes and hairs.

### 3.0 RESULTS

#### 3.1 Preliminary Desk Study

##### *Sites of Special Scientific Interest*

- 3.1.1 Spot Lane Quarry Site of Special Scientific Interest (SSSI) is located approximately 2.5km north of the Site and covers an area of 0.1ha. The site is designated for being of interest as one of the few areas where loess fauna can be studied, as these are usually unfossilised, the site is considered to be a key Pleistocene area to inform studies of periglacial mass movement and paleoenvironmental studies.

##### *Ancient Woodland*

- 3.1.2 The nearest area of Ancient Woodland is approximately 958m to the north and east, which covers an area of 3.44ha. It is called Bicknor Woods and comprises ancient semi-natural woodland as well as priority deciduous woodland. A large area of woodland called Abbey/Broomfield Woods are 1.5km to the east of Site and cover 9.55ha, comprising partly of ancient replanted woodland as well as deciduous woodland. Ancient woodland is well represented in the 3km search area.

##### *Priority Habitats*

- 3.1.3 There is good representation of deciduous woodland in the 3km search radius and the nearest is 539m to the north west and covers 0.83ha. Some of the deciduous woodland lies in areas of the ancient woodlands within the search area.
- 3.1.4 There are multiple traditional orchards within the 3km search area. The nearest is approximately 375m to the north of the Site and this covers an area of 0.26ha. There are also three Wood Pasture and Parkland areas laying towards the edge of the 3km search area. The closest is 2.5km north of the Site.

##### *EPS Licences*

- 3.1.5 Four European Protected Species Mitigation (EPSM) bat mitigation licences have been granted by Natural England within 3km of the Site. The nearest was 1.98km to the northeast near Leeds, granted for destruction of a resting place of common pipistrelle *Pipistrellus pipistrellus*, brown long-eared bats *Plecotus auritus* and Leisler's bats *Nyctalus leisleri* from May 2020 to May 2025. The next closest was 2.1km to the northeast and was granted for the impacts to brown long-eared bats including the destruction of a resting place, the licence was granted in 2017 and covered just one month November-December. The other licences were destructive of common pipistrelle and soprano pipistrelle *Pipistrellus pygmaeus* resting places.
- 3.1.6 There are no dormouse *Muscardinus avellanarius* EPSM licences within the search area. The nearest licence granted lies 5.5km to the north and dates from 2015.

- 3.1.7 There are no great crested newt (GCN) *Triturus cristatus* licences within 3km of the site. The nearest amphibian licence was 5.3km to the north of the Site, and nearest GCN class survey licence 3.9km to the north of Site.

## 3.2 Phase 1 Habitat Survey

- 3.2.1 The habitats present on Site are shown within Figure 1, with further detail provided by way of specific target notes which are denoted by the letters 'TN'. Photographs of selected target notes are provided in Figure 2.

### *Scattered Trees*

- 3.2.2 There are semi- mature trees TN4 in the north eastern corner of the Site amongst the ruderal habitat of TN2. This comprises of several semi-mature fruit trees *Prunus spp.* (likely bullace) and elder *Sambucus nigra*. A line of blackthorn *Prunus spinosa* also runs roughly half way along the eastern boundary.

### *Ruderal*

- 3.2.3 There is ruderal vegetation TN2 covering the north eastern corner and along most of the eastern boundary of the Site. This is dominated by common nettles *Urtica dioica*. Other species across TN2 include cleavers *Galium aparine* and bramble *Rubus fruticosus*, hogweed *Heracleum sphondylium*, creeping thistle *Cirsium arvense* and broad-leaved dock *Rumex obtusifolius*. A few planted hornbeam *Carpinus betulus* saplings approximately 1m tall, with their tree guards on are also present along the eastern boundary and are a continuation of planting from the main garden of Langley Park House.

### *Bare Ground*

- 3.2.4 There is an area of bare ground TN3 off the northern boundary close to the north western corner, which is roughly six by four metres in size. There is very little vegetative cover in this area, with common nettles, some Yorkshire fog *Holcus lanatus* and creeping buttercup *Ranunculus repens* present.

### 3.2.5 *Semi-Improved Grassland*

The majority of the Site is semi-improved grassland TN1, which has small, scattered bare ground patches. Diversity of species within the grassland is quite low. The dominant grass species was Yorkshire fog, no other types of grass were recorded at the time. The other commonly occurring species were broad-leaved dock, cleavers and creeping buttercup. Other species occurring in the grassland were less frequent and included, creeping thistle, common sorrel *Rumex acetosa*, meadow buttercup *Ranunculus acris*, dandelion *Taraxacum officinale*, spear thistle *Cirsium vulgare*, common field speedwell *Veronica persica*, common mallow *Malva sylvestris* and creeping cinquefoil *Potentilla reptans*. A single mature Douglas Fir *Pseudotsuga menziesii* tree T1, approximately 8m tall is situated in the grassland towards the eastern boundary.



*Spoil*

- 3.2.6 There is a single spoil pile S1 near the southern boundary of the Site. The spoil pile is made up of woodchips and is approximately six metres by three metres. There were signs of digging and snuffling within the woodchip pile, these are most likely made by badgers due to the size of the holes.

**3.3 Protected Species Assessment***Bat Tree Roosts and Bat Habitat*

- 3.3.1 The Site measures 0.054ha and has some suitable foraging habitat for bats; there are a few trees, part of a hedgerow and some disturbed ground.

*Amphibians*

- 3.3.2 There are no mapped ponds within a 500m radius of the Site. Langley Loch and the attenuation basins for the new development lie within the 500m radius, as well as a lake over the A274. The loch is 244m to the south of Site and the attenuation basins are 195m and 236m to the east of Site respectively. However, due to the residential surroundings, it is noted that unmapped garden ponds are likely to be present. The terrestrial habitat on Site is suitable, with an area of refuge under the spoil pile as well as the ruderal vegetation on the eastern boundary. The surrounding habitat is of varying quality for amphibians.

*Reptiles*

- 3.3.3 There is suitable habitat for reptiles particularly around the eastern margin and the refuge areas in the wood chip pile. The habitat is considered suitable for supporting populations of slow worm *Anguis fragilis* in particular. The connectivity in the wider landscape is limited due to the extent of housing and neighbouring farmland, however, some areas of the main Langley Park House garden may be suitable for reptiles.

*Dormice*

- 3.3.4 There is no suitable habitat for dormice on the Site, and limited to no connectivity to surrounding areas that may have potential for dormouse.

*Badger and fox*

- 3.3.5 A badger sett is present in the main garden approximately 15m from the entrance gate to the Site. An entrance hole approximately 20cm wide by 25cm high can be seen below a tree and fresh footprints were seen in the earth by the hole. There was evidence of a push beneath the gate entering the Site and signs of digging or snuffling in the spoil pile S1. No clear evidence of foxes was found on the Site.

*Breeding Birds*

3.3.6 The scattered trees and taller ruderal vegetation in the north eastern side of the Site have the potential to support breeding birds.

## 4.0 EVALUATION & RECOMMENDATIONS

### 4.1 Preliminary Desk Study

4.1.1 The Site is within the Impact Risk Zone of Spot Lane Quarry SSSI, as the proposals are for residential development below 500 dwellings, no consultation with the LPA or Natural England is required.

4.1.2 No invasive species were noted within the Site.

4.1.3 Due to the small size of the Site and the development of a single property, the impacts on the designated sites mentioned in the desk study will be negligible and no further assessment is required.

### 4.2 Protected Species

#### *Bat Tree Roosts and Bat Habitat*

4.2.1 No trees with potential bat roost features were noted, therefore, no bat surveys are required.

4.2.2 There is suitable habitat for foraging bats on the eastern boundary of the Site and in the main garden of Langley Park House. Due to the small Site area, it is unlikely that the development will have any detrimental impact on bats within the landscape and therefore no further surveys are required. However, the following mitigation measures are recommended:

- Retain vegetation around the eastern boundary, including trees and hedgerow.
- Adopt a sensitive lighting strategy to ensure that there is no increase in artificial lighting, see Appendix 3.
- Any planting should be of native trees and fruit trees and use hedgerows as boundary treatments.

#### *Amphibians*

4.2.3 The Site has some suitable habitat for common amphibians such as common toad *Bufo bufo* and common frog *Rana temporaria*, however, the overall site area is small. With regard to GCN, the local pond network is poor with no mapped ponds within 500m. Langley Loch and the attenuation basin are within 250m of the Site. Due to the small Site area and the distribution of ponds in the local area it is considered unlikely that GCN will be found within the scheme and therefore no further surveys are required.

#### *Reptiles*

4.2.4 There is suitable habitat for slow worm around the areas of ruderal and a little refugia including the wood chip pile. However, the Site has poor connectivity to other areas of suitable reptile habitat in the wider landscape but there is suitable reptile habitat within the adjacent garden. The proposals for the Site involve the removal of the spoil pile within the Site, and therefore precautions to prevent the rest of the Site from becoming more suitable for reptiles are recommended. This will include routine management of the

grassland to ensure a low tight sward is maintained. This should occur on a regular basis until groundworks to clear the Site commence.

4.2.5 Under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to intentionally kill or injure a reptile. To avoid committing an offence under the Act, precautions must be put in place to reduce threats to reptile species but also to mitigate against the effects of development. Mitigation for the more common British reptile species does not require a licence from Natural England, and provided the grassland is managed in accordance with the recommendations made in paragraph 4.2.4 then no further strategy would be required.

#### 4.2.6 *Dormice*

The suitability of the Site for dormice is poor with little to no connection to suitable habitat. In this instance, presence/likely absence surveys or further mitigation are not considered necessary.

#### *Badger*

4.2.7 There were no confirmed badger setts in the proposed Site, but a sett was found approximately 25m away from the Site entrance in the main garden of Langley Park House. Signs of badger foraging and a push under the gate were found in the Site, and mammal paths were found the other side of the eastern boundary. It is concluded that this is a single outlier sett and no evidence of a main sett was recorded.

4.2.8 In terms of impacts on badgers, the Protection of Badgers Act 1992 defines a sett as: “*any structure or place which displays signs indicating current use by a badger.*” With this in mind, it is recommended that an update badger survey is undertaken within three to six months of work on-site commencing. This survey will determine if the sett has moved closer to the main works areas or has increased in size and sett status. Should a badger sett be impacted upon by the scheme then it should be noted that it will need to be closed under licence from Natural England. Badger setts can only be closed between 1<sup>st</sup> July and 30<sup>th</sup> November so this needs to be factored into the project timeline.

#### *Fox*

4.2.9 There were no clear signs of foxes using the site, but a few mammal paths were found the other side of the eastern boundary, although these are most likely badger, fox use cannot be ruled out. Foxes are protected from unnecessary harm or injury under the Wildlife and Countryside Act 1981. Therefore, the site clearance should proceed with due caution to prevent unnecessary harm.

#### *Breeding Birds*

4.2.10 With regard to breeding birds, the scattered trees have the potential to support breeding birds. All wild birds, including eggs and chicks, are protected against injury or killing and their nests are protected against

damage or destruction when in use by the Wildlife and Countryside Act (1981). It is therefore, recommended that any clearance work is undertaken outside of the core bird breeding season, limiting this work to the period 1<sup>st</sup> September to 1<sup>st</sup> March.

- 4.2.11 If these dates do not coincide with clearance work, then it is recommended that the vegetation is checked by a suitably experienced ecologist before the works commence. If any breeding birds are noted, works in the vicinity of the nest would have to cease until fledging has occurred.

*Recommendations with regard to NPPF*

- 4.2.12 The National Planning Policy Framework (NPPF) sets out planning policies on the protection of biodiversity and geological conservation through the planning system. Section 11 sets out the Government's current planning policy in relation to conserving and enhancing the natural environment. The NPPF states that "the planning system should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, geological conservation interests and soils;
- Recognising wider benefits of ecosystem services;
- Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".

*Tree Planting*

- 4.2.13 Regarding NPPF it is recommended that native trees are planted on Site, particularly around the boundaries, to enhance biodiversity and maintain connectivity for wildlife. The trees selected for ornamental and landscape planting should include a selection of the native and fruit-bearing trees species, such as:

- Pedunculate oak *Quercus robur*
- Field maple *Acer campestre*
- Hazel *Corylus avellana*
- Silver birch *Betula pendula*
- Rowan *Sorbus aucuparia*
- Plum *Prunus sp.*
- Crab apple *Malus sylvestris*
- Cherry *Prunus avium*
- Apple *Malus domestica*

*Native Hedgerows*

4.2.14 A double-row, species-rich hedgerow should be planted around the boundaries of the Site. Suitable species would include hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, blackthorn *Prunus spinosa*, guelder rose *Viburnum opulus*, holly *Ilex aquifolium*, field maple *Acer campestre* and dog rose *Rosa canina*.

#### *Herbaceous Planting*

4.2.15 It is recommended that a range of nectar-rich plants are also considered for any landscape planting and flowering plants should be made available for as long as possible through the year by planting a combination of plants which flower during spring, summer and late summer. Climbing plants and green roofs can be used to maximise biodiversity in the proposed development.

#### *Species Measures - Birds*

4.2.16 As bird nesting sites are likely to be affected by the proposals it is recommended that nesting boxes are provided. The boxes should be installed at a minimum height of 3m height, preferably in a sheltered location close to the vegetated boundaries of the Site. The following boxes are recommended:

- One open-fronted nest box with smaller entrance holes of 28mm favoured by goldfinches *Carduelis carduelis* and smaller birds (e.g. *Schwegler 2H Robin box*).











## 5.0 CONCLUSION

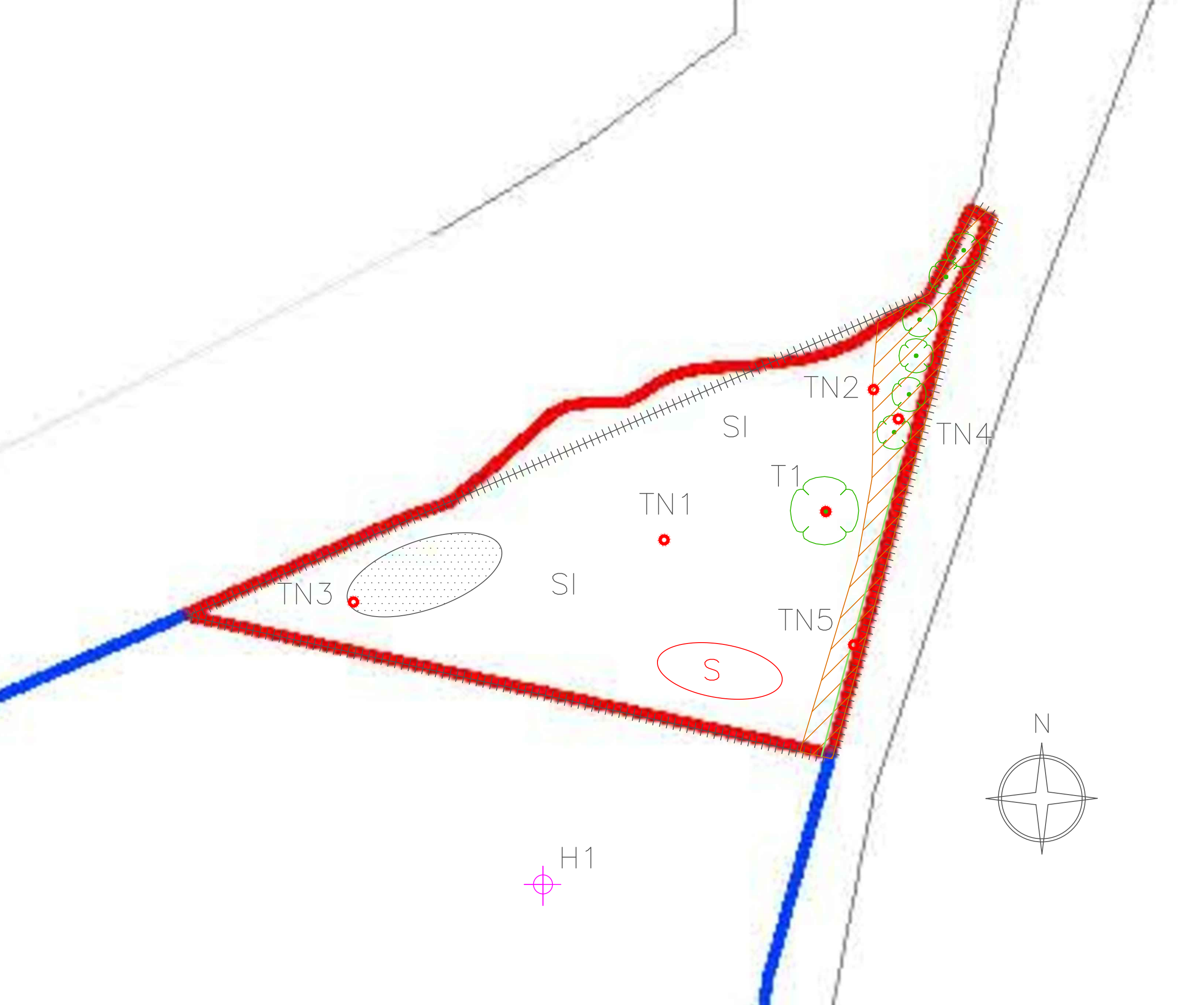
- 5.1 The Site is within the Impact Risk Zone of Spot Lane Quarry SSSI. However, no further consultation with the LPA or Natural England is required as the proposals are for a single dwelling within an existing settlement.
- 5.2 No rare or nationally scarce botanical species were identified on Site. To maintain or improve biodiversity interest associated with the Site, it is recommended that seeding of lawns or grassland areas is undertaken with a locally-sourced, species-rich meadow seed mix.
- 5.3 There is a small amount of suitable habitat for foraging bats. No further activity surveys are recommended however, any planting should be of native species and a sensitive lighting strategy is required to ensure bats still use the Site.
- 5.4 Regarding amphibians including great crested newts, the pond network in the landscape is poor and there are no known ponds within 500m. Part of Langley Loch and the attenuation basin are within 250m of the Site, however, due to the small scale of the development and the localised nature of the impacts, the risk of encountering GCN during the works is low and therefore, no further surveys or mitigation are required.
- 5.5 Suitable habitat for reptiles has been identified. Surveys to determine the presence or likely absence of reptiles (March – September) have not been recommended, but a mitigation strategy to protect any reptiles present and prevent more of the Site from becoming suitable for them has been advised.
- 5.6 The suitability of the Site for dormice is poor and there is poor connection to suitable habitat in the surrounding area. Dormouse surveys are therefore, not recommended.
- 5.7 There was evidence of badgers and a sett approximately 25m from the Site. An update survey has been recommended prior to site clearance and a mitigation strategy may be required once that survey is complete. This survey should be undertaken with sufficient time to apply for a badger licence should one be required.
- 5.8 Regarding breeding birds, recommendations have been made in relation to the timing of the clearance work; this should be undertaken outside of the breeding bird season, limiting this work to between 1<sup>st</sup> September and 1<sup>st</sup> March.
- 5.9 Recommendations for enhancing the ecological value of the proposed Site under the National Planning Policy Framework have been suggested. These include native planting of trees, hedgerows, herbaceous plants and species-specific measures for birds.

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- Key
-  Survey Area
  -  Tree
  -  Semi-Improved Grassland
  -  Tall Ruderal
  -  Spoil
  -  Species-Poor Hedge
  -  Bare Ground
  -  Fence
  -  Target Note 1
  -  Badger Hole 1



revision	description	date	checked by

Corylus Ecology Ltd, Unit A3, Speldhurst Business Park, Went Farm, Langton Road, Speldhurst, Kent TN3 0NR  
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Project:  
22135 Langley Park House

Title:  
Phase 1 Habitat Plan

status		drawing no. Figure 1		
scale	size	date	drawn	checked
NTS	A3	22.12.22	JP	MR

CAD filename  
Figure\_1.dwg





Photo showing TN1, which makes up most of the Site



TN2, the ruderal vegetation running from the north eastern corner



The semi-mature trees of TN4



Another image showing TN1, from the north western corner



TN3, the bare ground on the northern boundary



The douglas fir T1



## Appendix 1 – Bat Legislation

All British bat species receive legal protection in the United Kingdom. The Wildlife and Countryside Act 1981 (WCA) (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The 1981 Act was recently amended by the Countryside and Rights of Way (CROW) Act 2000 and the more recent Habitats Regulations amendments (2017). All British bat species are listed under Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which makes it an offence to:

- Intentionally kill, injure or take a bat [Section 9(1)];
- Possess or control any live or dead specimen or anything derived from a bat [Section 9(2)]
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection [Section 9(4)(b)];
- Intentionally or recklessly obstructs access to any structure or place which a bat uses for shelter or protection [Section 9(4)(c)]
- Sell, offer for sale, possess or transport for the purpose of sale or publish advertisements to buy or sell a bat [section 9(5)]

Bats are also included on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the Habitats Directive). As a result of the UK ratifying this directive, all British bats are protected under The Conservation of Habitats and Species Regulations 2017 (The Conservation Regulations). Annex IV of the Habitats Directive requires member states to construct a system of protection as outlined in Article 12, this is done through Part 3 of the Regulations whereby Regulation 41 makes it an offence to:

- Deliberately capture, kill or injure a bat [Regulation 41(1)(a)];
- Deliberately disturb bats in such a way as to be likely to significantly affect i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, OR  
ii) the local distribution of that species. [Regulation 41(1)(b) and 41(2)];
- Damage or destroy a breeding site or resting place of a bat [Regulation 41(1)(d)].

Under the law, a roost is any structure or place used for shelter or protection. This could be any structure, for example, any building or mature tree. Bats use many roost sites and feeding areas throughout the year. These vary according to bat age, condition, gender and species, as well as season and weather. Since bats tend to re-use the same roosts for generations, the roost is protected whether the bats are present or not.

In addition, four species, the two horseshoes, barbastelle and Bechstein's are included within Annex II of the Habitats Directive for which Member States are required to designate Special Areas for Conservation (SAC's) for their protection.

The UK is a signatory to the Agreement on the Conservation of Bats in Europe, established under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

## **Appendix 2 - Reptile Legislation**

All British reptiles are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) largely as a consequence of a national decline in numbers due to habitat loss. Under the terms of the Act, it is an offence to intentionally kill or injure a reptile and accordingly in order to avoid committing an offence under the Act, appropriate mitigation techniques need to be incorporated for reptiles occurring within development sites. Mitigation methods for reptiles may include trapping and relocation of animals to a suitable receptor site, combined with the exclusion of the development site through the use of reptile fencing. Measures to enhance habitats for reptiles include the provision of hibernacula and appropriate management to improve foraging areas may also be required.

Mitigation for the more common British reptiles and amphibians does not require a licence from Natural England but would typically be agreed in consultation with the local planning authority.

Despite the range of their distribution and the diversity of habitats in which they may be found, the national status of the slow worm is not considered favourable. The slow worm is considered to have undergone a long term decline since the 1930's. Currently the largest threat has been identified as loss of habitat, in particular, due to a shift in planning policy towards the development of brown field sites (English Nature, 2004).

## Appendix 3 - Technical Guidance on Artificial Lighting and Bats

From: Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT). 2018. *Guidance Note 8: Bats and Artificial Lighting*.

Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700 Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Low level or bollard lighting can often cause unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition. Therefore the use of specialist bollard or low-level downward directional luminaires should only be considered if their use is directed by a lighting professional.
- The height of columns should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1 minute) timers.
- As a last resort to minimise, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

## Appendix 4 CIEEM Advice Note on the Lifespan of Ecological Reports and Surveys (April 2019)

Age of Survey Data	Report/Survey Validity
Less than 12 months	Likely to be valid in most cases.
12-18 months	<p>Likely to be valid in most cases with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Where a site may offer existing or new features which could be utilised by a mobile species within a short timeframe (see scenario 1 example);</li> <li>• Where a mobile species is present on site or in the wider area, and can create new features of relevance to the assessment (see scenario 2 example);</li> <li>• Where country-specific or species-specific guidance dictates otherwise. Report authors should highlight where they consider it likely to be necessary to update surveys within a timeframe of less than 18 months.</li> </ul>
18 months to 3 years	<p>A professional ecologist will need to undertake a site visit and may also need to update desk study information (effectively updating the Preliminary Ecological Appraisal) and then review the validity of the report, based on the factors listed below. Some or all of the other ecological surveys may need to be updated. The professional ecologist will need to issue a clear statement, with appropriate justification, on:</p> <ul style="list-style-type: none"> <li>• The validity of the report;</li> <li>• Which, if any, of the surveys need to be updated; and</li> <li>• The appropriate scope, timing and methods for the update survey(s). The likelihood of surveys needing to be updated increases with time, and is greater for mobile species or in circumstances where the habitat or its management has changed significantly since the surveys were undertaken. Factors to be considered include (but are not limited to):</li> <li>• Whether the site supports, or may support, a mobile species which could have moved on to site, or changed its distribution within a site (see scenario 1&amp;2 examples);</li> <li>• Whether there have been significant changes to the habitats present (and/or the ecological conditions/functions/ecosystem functioning upon which they are dependent) since the surveys were undertaken, including through changes to site management (see scenario 3 example);</li> <li>• Whether the local distribution of a species in the wider area around a site has changed (or knowledge of it increased), increasing the likelihood of its presence (see scenario 4 example).</li> </ul>
More than 3 years	The report is unlikely to still be valid and most, if not all, of the surveys are likely to need to be updated (subject to an assessment by a professional ecologist, as described above).

Chartered Institute of Ecology and Environmental Management (2019). *Advice Note On the Lifespan of Ecological Reports and Surveys*