



LIZARD

Landscape Design and Ecology

ECOLOGICAL IMPACT ASSESSMENT

Boweries, Barnham Road, Eastergate

On Behalf of: Domusea Developments Ltd

Draft Issue

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The Old Bank, 34 South Street, Tarring, Worthing, West Sussex, BN14 7LN

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SUMMARY

Lizard Landscape Design and Ecology has been commissioned to undertake an Ecological Impact Assessment of land and buildings proposed for development at Boweries, Barnham Road, Eastergate (*Grid Reference: SU 950 051 – hereafter referred to as 'the site'*).

A Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment of the site was undertaken on 22nd February 2018, to appraise the existing ecological resource within the land and the surrounding area. Subsequent bat emergence / re-entry survey of the property and reptile survey of the surrounding land was undertaken during the summer of 2019. A full Ecological Impact Assessment was then undertaken using this baseline data.

The site comprises a detached house with associated access paths and driveway, garage and outbuildings; a block of horse stables; large gardens; and several grassland paddocks. The plant species on site were common and widespread species; no rare or unusual species were recorded. The entirety of the site is generally well maintained, limiting its potential overall to support protected species. Overall, the site is of **low ecological value**.

A single bat emergence survey was undertaken on 17th June 2019 of the one existing building (B1) that had been assessed as providing 'low' bat roost suitability. No bats were seen to emerge from the building during the survey and only common and soprano pipistrelle bats were recorded within the wider landscape.

Marginal habitats and scattered scrub provide opportunities for foraging, breeding, and hibernation for protected species of reptile over small areas of the site. Paddocks also provide temporary foraging habitat whilst not being heavily grazed or mown. A full detailed phase 2 reptile survey was completed over June-August 2019, which identified an 'exceptional' population of slow-worms with 34 adults recorded on the site. Given the levels of disturbance created by the proposals, there is a high likelihood of a negative impact on reptiles at the site level.

Given the levels of disturbance proposed within the site, retention of the reptiles within the main body of the site during construction is considered unfeasible. It is proposed to translocate the reptiles to the Green Infrastructure area to the north of the site. The area would be enhanced to become more suitable reptile habitat and to support greater numbers of reptiles prior to translocation. The proposals are considered overall to represent a '*neutral*' impact upon reptiles.

The terrestrial habitat offers '*moderate*' potential for amphibians; amphibian surveys within the local area in the recent past have not identified the presence of great crested newts. The mitigation for reptiles is considered to adequately protect amphibians in the unlikely event that great crested newts are discovered during the works. Vegetation and piles of logs and debris shall be removed in a sensitive manner to minimise the risk of harm to other amphibians potentially using the site.

The trees, hedges and shrubs all offer potential for bird nesting. Vegetation clearance should take place outside the bird nesting season (*bird nesting season: March – August inclusive*) or following inspection by the *Suitably Qualified Ecologist*.

Once avoidance and mitigation measures have been taken into account, the impacts of the planned development upon biodiversity will be **negligible, non-significant**.

1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned to undertake an Ecological Impact Assessment of land and buildings proposed for development at Boweries, Barnham Road, Eastergate (*Grid Reference: SU 950 051 – hereafter referred to as ‘the site’*).
- 1.2 A Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment of the site was undertaken on 22nd February 2018, to appraise the existing ecological resource within the land and the surrounding area.
- 1.3 Building *B1* was assessed as offering ‘low’ bat roost suitability therefore a further single bat survey was undertaken on 17th June 2019. Habitats on site were identified to have suitability for reptiles therefore a detailed reptile survey was undertaken. A full Ecological Impact Assessment was then undertaken using this data.
- 1.4 A summary of the results of these surveys, potential impacts of the proposals, and details of avoidance, mitigation and compensation measures have been detailed within this report. This report has been prepared by George Sayer (*PgDip, BSc, Project Ecologist; Lizard Landscape Design and Ecology*) and reviewed by Catherine O’Reilly (*MCIEEM, Senior Ecologist; Lizard Landscape Design and Ecology*).

Site Information

- 1.5 The site is a narrow rectangular plot, perpendicular to the Barnham Road. The site comprises a detached house of a chalet-style, with associated access paths and driveway, garage and outbuildings; a block of horse stables; large gardens and several grassland paddocks. The boundaries are lined with deciduous and coniferous treelines, hedges, scrub, and fences. The site is approximately 0.82 hectares (ha) in size and is approximately 11.9 metres (m) above sea level. The site is located within the linear village of Eastergate. Soils on site are described as *freely draining slightly acid loamy soils*.

Surrounding Landscape

- 1.6 The surrounding landscape is of mixed use. The site is within the linear village of Eastergate, which is relatively contiguous with the villages of Westergate and Barnham. The wider surroundings are largely under arable cultivation, with the largest urban settlement, the town of Bognor Regis beginning at 3.7 km to the south. The A27 dual carriageway is 1.9 km to the north. The nearest woodland is 131.0 m to the north-west of the site; this is designated as *Traditional Orchard*, however parts now appear to resemble scrub and deciduous woodland. The nearest patch of *Ancient Woodland* is situated 1015.0 m to the east; *Ancient Woodland* is generally limited in extent until north of the A27 and within the *South Downs National Park*.
- 1.7 Several water bodies are present within 500.0 m of the site. These include several drainage channels; a ditch which widens to a pond 207.0 m to the south-east; a nursery reservoir 123.0 m to the south-east; and a small pond or wide ditch 252.0 m to the west.

Development Proposals

- 1.8 The proposals include the construction of approximately 27 no. new build 3 / 4-bedroom dwellings; the dwellings will be accompanied by garages; access road; access paths; gardens and open / amenity space. It is determined that the majority of the boundary vegetation will be retained within the final development scheme and reinforced where appropriate. The other vegetation and habitats within the site would require removal.

Survey Aims

- 1.9 The aim of this ecological appraisal survey has been:
- *To identify habitats and protected species present, and any other features of ecological value;*
 - *Identify any potential ecological constraints;*
 - *Identify impacts of the proposed development and set out appropriate avoidance, mitigation and compensation measures;*
 - *To provide suggestions for enhancements to be incorporated into the scheme.*

2.0 PLANNING POLICY AND LEGISLATION

Legislation

2.1 Legislation relating to wildlife and biodiversity of particular relevance to this EclA includes:

- *The Conservation of Habitats and Species Regulations 2017;*
- *The Wildlife and Countryside Act 1981 (as amended);*
- *The Natural Environment and Rural Communities (NERC) Act 2006.*

2.2 This above legislation has been addressed, as appropriate, in the production of this report.

National Planning Policy

2.3 The National Planning Policy Framework (NPPF) 2019 sets out the government planning policies for England and how they should be applied. 'Chapter 15: *Conserving and Enhancing the Natural Environment*' states that development should be '*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*'

2.4 The Government Circular 06/2005, which is referred to by the NPPF, provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

Local Planning Policy

- 2.5 Arun District Local Plan 2011 – 2031, the Arun District Planning Framework Policy SP1 & DM5 (*Natural Environment*) states:
- *Arun District Council will encourage and promote the preservation, restoration and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of both designated and non-designated sites;*
 - *Where possible it shall also promote the creation of new areas for habitats and species;*
 - *In relation to designated sites, development will be permitted where it protects sites that are recognised for the species and habitats contained within them;*
 - *Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designated or not);*
 - *Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement.*
- 2.6 The current development proposals comply with all national and local planning policy with regards biodiversity.

3.0 METHODOLOGY

3.1 Desk Study

- 3.1.1 A desk study, consisting of searches of the Multi-Agency Geographic Information for the Countryside (MAGIC) GIS mapping website was undertaken in combination with a search carried out by the Sussex Biodiversity Records Centre (SxBRC). This search focussed on an area of influence of 2.0 km around the proposal site, and considered statutory and non-statutory protected sites, priority habitats and priority species. The desk search was conducted on 6th March 2018.

3.2 Field Survey

- 3.2.1 A preliminary ecological appraisal was undertaken on 22nd February 2018, and the site subjected to an ecology survey using guidelines set out in the *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit (JNCC, 2003)*.
- 3.2.2 Habitats within the site were classified and the presence, or potential presence, of certain protected and / or notable species of flora and fauna were identified. A summary description of the habitat within the site following the *Phase 1 Habitat Survey Methodology* is presented in Section 4.0. This involved identifying features that may be used by protected species, potential foraging areas and other signs of use. Water bodies were recorded wherever possible, within 500 metres of the proposed development site.
- 3.2.3 The results are summarised and accompanied in large part by photographic evidence contained in *Appendix A – Site Photographs*. Recommendations for further investigation and survey are made in the following report.

3.3 Preliminary Bat Roost Assessment

3.3.1 A Preliminary Bat Roost Assessment of buildings on site was undertaken on 22nd February 2018 by an experienced bat surveyor who undertook an internal and external examination of the existing building and trees. The bat surveyors assessed the existing building and structures visually and searched for evidence such as;

- *Staining beneath or around a hole caused by natural oils in bat fur;*
- *Bat droppings beneath a hole, roost or resting area;*
- *Bat droppings and / or insect remains beneath a feeding area;*
- *Audible squeaking from within a hole;*
- *Insects (especially flies) around a hole;*
- *Dead bats.*

- 3.3.2 An external investigation assessed the fabric of the building to determine whether there were access points readily available for bats to utilise. Gaps / crevices identified within the structure were examined using a Clulite CB2 torch, ladder and endoscope where appropriate.
- 3.3.3 Trees were visually identified from the ground, using binoculars where necessary, for features that could be used by bats such as:
- *Woodpecker Holes;*
 - *Knot Holes;*
 - *Tear-outs;*
 - *Flush Cuts;*
 - *Double Leaders.*
- 3.3.4 Once features had been assessed the trees and buildings were then categorised in accordance with *Table 4.1 of the Bat Conservation Trust's Good Survey Guidelines (2016) (shown below):*

Table No. 01 – Bat Roost Suitability Guidelines (BCT, 2016)

Category	Buildings	Trees
<i>Negligible</i>	<i>No suitable features identified.</i>	<i>No suitable features identified.</i>
<i>Low</i>	<i>A structure which could be used opportunistically, however, are not likely to be used on a regular basis / by a large number of bats.</i>	<i>Tree of sufficient size / age to support bat roost features; but with none identified from the ground.</i>
<i>Moderate</i>	<i>A building with features which, could be used regularly by a small number of bats.</i>	<i>Tree with features which, may support a bat roost of low conservation status.</i>
<i>High</i>	<i>A building with features suitable for use by a large number of bats on a regular basis.</i>	<i>A tree with several potential bat roost sites that are suitable for use by a large number of bats.</i>

3.4 Bat Emergence Survey

- 3.4.1 A single survey visit was undertaken on 17th June 2019 in accordance with guidelines outlined in *Bat Surveys for Professional Ecologists: Good Practice Guidelines (BCT 2016)*. Each bat surveyor was assigned a survey point within the site area so as to best observe and record the level of bat usage of the habitat and features believed to be most relevant to the development proposals.
- 3.4.2 Two survey points were utilised during the survey visit. **Survey Point SP01** was located to east of building B1. **Survey Point SP02** was located to the south west of building B1.
- 3.4.3 Dusk surveys start 15 minutes before sunset and terminate 1.5 hours after. Bats were identified using heterodyne and frequency division bat detectors *Anabat SD2* and *Echo Meter Touch 2*, and sound analysis was undertaken using *AnalogW* and *Kaleidoscope Viewer*. Table No. 02 shows the details of the bat survey:

Table No. 02 – Bat Survey Details

Date	17/06/2019
Survey Type	Dusk Emergence
Surveyors	Louise Barker Will Mills
Weather Conditions	14°C; 10% cloud; Wind F2; Dry.
Sunset / Sunrise	21:19
Start Time	21:04
Finish Time	22:49

3.5 Reptile Presence / Absence Surveys

- 3.5.1 40 no. artificial reptile refugia (*roofing felt; 0.50 x 1.0 m²*) were laid out around the area on 17th June 2019 and allowed to settle for 9 days prior to commencement of the survey. This resulted in a survey density of approximately 49 refugia per hectare. The locations of artificial reptile refugia are detailed within *Figure No. 02*.
- 3.5.2 07 no. site visits were conducted, where the number, species, age and sex of the reptile's present were recorded. Debris piles on-site considered suitable as reptile refugia were checked during the surveys, and repeated walkovers of the site were used to search for active reptiles.
- 3.5.3 Surveys were undertaken during recommended times (*08:00–11:00 and 16:00–18:30*) with suitable weather conditions for surveying reptiles wherever possible (*guidelines recommend temperatures 9–18°C with intermittent or hazy sunshine during warm days*). Weather conditions recorded at each survey visit are shown in Table No. 3 below.

Table No. 3 - Details of Weather Conditions during the Reptile Surveys

Survey	Date of Visit	Time	Weather	Temperature
01	1/7/2019	16:00	Clear & Sunny	19°C
02	9/7/2019	19:00	Clear & Sunny	18°C
03	12/7/2019	09:00	Light Cloud	18°C
04	15/7/2019	10:00	Overcast	16°C
05	17/7/2019	11:00	Light Cloud	20°C
06	7/8/2019	09:45	Light Rain	18°C
07	14/8/2019	12:00	Light Cloud	18°C

3.6 Habitat Suitability Index (HSI) for Great Crested Newts

3.6.1 Ponds on-site were assessed using the Habitat Suitability Index (*HSI*). The HSI was developed by *Oldham et al. (2000)* as a way to evaluate habitat quality and quantity, allowing a direct comparison to be made between different water bodies. This index assesses ponds against ten different criteria, each of which, have a bearing on the likelihood of great crested newts and amphibians being present in the pond. The ponds within the site were assessed against this index.

3.6.2 The HSI index results in a score between 1 and 0; with 1 being optimal conditions and 0 being unlikely to support a population. However, the index merely gives an indication as to whether a pond has the potential to support GCN's and is not a substitute for more detailed amphibian presence / absence surveys.

3.6.3 The ten attributes against which ponds are assessed include:

- *Geographic location;*
- *Pond area (at its highest level);*
- *Permanence;*
- *Water quality;*
- *Perimeter shading;*
- *Numbers of wildfowl;*
- *Numbers of fish present;*
- *Pond count (within a 1.0 km radius);*
- *Terrestrial habitat (within 250.0 m);*
- *Macrophyte coverage.*

Limitations

3.6.4 An HSI assessment is not a substitute for detailed newt surveys involving torching and bottle trapping. Although, ponds with high HSI scores are more likely to support GCN's than those with low scores, the system is not precise enough to definitively indicate presence or absence. However, a HSI assessment can help to identify the need for more detailed presence / absence surveys for amphibians and has been provided within this report.

3.7 Evaluation

3.7.1 The methodology for Ecological Impact Assessment (*EclA*) follows best practice guidelines set by the Chartered Institute of Ecology & Environmental Management (*CIEEM*): 'Guidelines for Ecological Impact Assessment' (*CIEEM, 2018*). This includes identifying the baseline conditions on the site and subsequently rating the potential effects of the development based on the sensitivity and value of the resource affected, combined with the magnitude, duration and scale of the impact (*or change*). This is initially assessed without mitigation measures, and then assessed again after allowing for the proposed mitigation measures; this provides the residual effects. The assessment is divided into construction effects and longer-term operational effects.

3.7.2 Each ecological feature within the site has been considered within a defined Geographic context such as:

- *International and European;*
- *National;*
- *Regional;*
- *County;*
- *District;*
- *Local;*
- *Site Level;*
- *Negligible.*

3.7.3 Based upon CIEEM guidance, value was determined with reference to the following factors:

- *Its inclusion as a Designated Site or other protected area;*
- *The presence of habitat types of conservation significance, e.g. Habitats of Principal Importance (NERC 2006);*
- *The presence (or potential presence) of species of conservation significance e.g. Species of Principal Importance (NERC 2006);*
- *The presence of other protected species e.g. those protected under The Wildlife and Countryside Act 1981;*
- *The sites social and economic value.*

- 3.7.4 The ecological impacts resulting from the proposals were then described according to a defined set of characteristics as defined within ‘*Guidelines for Ecological Impact Assessment in the UK and Ireland*’ (CIEEM, 2018). This assessment considers residual impacts (once all mitigation has been taken into account), with any significant effects highlighted. A significant effect is defined as “*an effect which either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general*”.
- 3.7.5 The confidence that a certain activity will result in a significant adverse effect has been ranked as follows:
- *Highly probable;*
 - *Probable;*
 - *Unlikely;*
 - *Highly unlikely.*
- 3.7.6 Where initial impacts have been identified as significant, avoidance, mitigation and compensation measures have been proposed to avoid, prevent or offset such effects. Enhancement has been proposed to ensure that the development represents a net gain in biodiversity in accordance with National Policy.

4.0 BASELINE ECOLOGICAL CONDITIONS

4.1 Designated Sites

Statutory Protected Sites

- 4.1.1 There are no statutory protected sites within 2.0 km of the site; the nearest site is shown in *Table No. 03* below:

Table No. 04 – Statutory Protected Sites

Site	Description	Location
<i>South Downs National Park.</i>	A vast area of land characterised by rolling chalk hills, which supports a varied flora and fauna.	2.04 km N

- 4.1.2 The site is located within the *Impact Risk Zone* of *Fairmile Bottom SSSI*. The proposed development does not appear to fall into a category which would require consultation with Natural England. The existing site is largely within residential use, with several horse paddocks. The proposed development may slightly increase indirect pressures upon local designated sites.

Non-Statutory Protected Areas

- 4.1.3 Local Wildlife Sites - LWSs are designations applied to the most important non-statutory nature conservation sites. They are recognised by the *National Planning Policy Framework (2012)* and as such are material considerations when assessing planning applications. A single LWS is noted within 2.0 km of the site; the *Fontwell Park Racecourse*. Part of the racecourse grassland is managed as hay meadow. As a result, the grassland is species-rich and contains notable and scarce plant species. The site is well isolated from the racecourse and impacts upon this LWS (*which is likely already heavily-managed*) are very unlikely. A notable road verge is also present further to the west of the site; these again are already likely to be managed and impacts upon the road verge are unlikely.

- 4.1.4 The site is situated within the Eastergate Parish Council *Green Infrastructure Network*. The proposals must therefore seek to protect and enhance aspects of green infrastructure, in line with the *Arun Local Plan 2011-2031*. Within the site, the assets of relevance would include the deciduous treelines and hedges, as well as open grassland. The proposals should therefore seek to retain boundary vegetation and reinforce this to provide vegetative corridors, whilst also providing some form of open amenity area, ideally of grassland.
- 4.1.5 The site is approximately 690.0 m to the west of the *Lidsey Rife Biodiversity Opportunity Area (BOA)*. The area is noted as areas of floodplain grazing marsh with arable grassland, of particular note for birds. The site is slightly different from these habitats, however consideration should be given to the potential for birds associated with this BOA to be present on-site or within adjacent properties.

4.2 Habitats

- 4.2.1 Within 2.0 km of the site there are *Priority Habitats* of *Chalk Stream, Lowland Meadows, Coastal and Floodplain Grazing Marsh, Lowland Fen, Lowland Calcareous Grassland, Ancient and Semi-Natural Woodland, Deciduous Woodland, Woodpasture and Parkland* and *Traditional Orchard*. The site itself does not contain any *Priority Habitat*; there are however areas of *deciduous woodland* and *traditional orchard* within the local area. The site is not well-linked to these habitats. The proposals would not seek to alter or impact *Priority Habitats*.

4.2.2 Habitats within and adjacent to the site include:

- *Buildings;*
- *Amenity Grassland;*
- *Tall Ruderal;*
- *Hard / Bare Ground;*
- *Dense Scrub;*
- *Compost / Debris / Manure Piles;*
- *Introduced Shrubs;*
- *Deciduous Treeline;*
- *Coniferous Treeline / Hedge;*
- *Native Species-Poor Hedge;*
- *Hedge with Trees;*
- *Scattered Trees;*
- *Improved Grassland;*
- *Ornamental Ponds.*

Buildings

- 4.2.3 The buildings are a focal point of the site, and consist of the residential dwelling, ancillary buildings to the dwelling, and a stable block. The buildings are discussed further in the *Preliminary Bat Roost Assessment*.

Amenity Grassland

- 4.2.4 Amenity grassland are present to the verge at the site entrance, and the large garden. The amenity grassland is relatively well-maintained, dominated by perennial rye-grass (*Lolium perenne*) with other common species such as cleavers (*Galium aparine*) and black medick (*Medicago lupulina*) present. The damp nature of the location is evidenced by the frequency of moss within the sward (Refer to Photograph No. 01 – Appendix A). The habitat is of **negligible** value.

Tall Ruderal

- 4.2.5 There are several, distinct patches of tall ruderal vegetation within the site. To the west of the site, are patches of bare ground, which are dominated in summer by common nettle (*Urtica dioica*) and cleavers (*Galium aperiens*) (Refer to Photograph No. 02 – Appendix A). To the north-west of the site, behind introduced shrubs and among scattered trees is a patch of vegetation dominated by ivy (*Hedera helix*) with other ruderal species such as lords and ladies (*Arum maculatum*) (Refer to Photograph No. 03 – Appendix A). The habitat is of **site** value.

Hard / Bare Ground

- 4.2.6 Three distinct types of hard and bare ground are present within the site; concrete and tarmac hardstanding; bare ground and mud tracks; and a sand horse-riding school. These areas are of negligible ecological value, being largely devoid of vegetation (Refer to Photograph No. 04 – Appendix A). The habitat is of **negligible** value.

Dense Scrub

- 4.2.7 Several areas of dense scrub are present, beneath the deciduous treelines and hedge with trees. The scrub was dominated by bramble (*Rubus fruticosus*) and ivy (*Hedera helix*) with abundant common elder (*Sambucus nigra*) (Refer to Photograph No. 05 – Appendix A). The habitat is of **site** value.

Compost / Debris / Manure Piles

- 4.2.8 Within the site are several piles of logs and brash, to the edges of introduced shrubs and hedges. Several large piles of debris (*mostly road signs and bollards*) are noted to the west of the site. To the north-west and south-west of the site, horse manure has been heaped up against hedges and behind introduced shrubs. Mammal holes are noted within the manure. (Refer to Photographs Nos. 06-07 – Appendix A). The habitat is of **site** value.

Introduced Shrubs

- 4.2.9 Introduced shrubs are present within the site, in the form of garden borders and ornamental hedges. The shrubs are dominated by common architectural species such as Japanese spindle (*Euonymus japonicus*); cherry laurel (*Prunus laurocerasus*); Portuguese laurel (*Prunus lusitanica*); and Rhododendron (*Rhododendron ponticum*). The shrubs offer ecological value mainly for nesting birds, with some potential for invertebrates (*Refer to Photograph No. 08 – Appendix A*). The habitat is of **negligible** value.

Deciduous Treelines

- 4.2.10 The western boundary of the site is lined with deciduous trees. Several discrete treelines are noted; of silver birch (*Betula pendula*); sycamore (*Acer pseudoplatanus*); and beech (*Fagus sylvatica*). The treelines contain dense scrub and dense ivy growth and are good boundary features (*Refer to Photograph No. 09 – Appendix A*). The habitat is of **site** value.

Coniferous Treelines / Hedge

- 4.2.11 The site contains a number of vigorous coniferous hedges and treelines, mostly dominated by species of cypress (*Cupressus sp.*). To the north of the site entrance is an old line of Monterey cypress (*Cupressus macrocarpa*), which are in severe decline with a large number of dead and leaning stems. The treelines generally provide strong boundary features, but little ecological value (*Refer to Photographs Nos. 10-11 – Appendix A*). The habitat is of **negligible** value.

Native Species-Poor Hedge

- 4.2.12 Along the south-western boundary is a section of hedge dividing the improved grassland paddock from other horse paddocks. The hedge is dominated by bramble (*Rubus fruticosus*) and common elder (*Sambucus nigra*). The vegetation is scrubby and uneven; however, it provides some screening and a refuge for wildlife (*Refer to Photograph No. 12 – Appendix A*). The habitat is of **site** value.

Hedge with Trees

- 4.2.13 To the southern boundary of the site, is a scrubby hedge with large emergent trees of sycamore (*Acer pseudoplatanus*) and poplar (*Populus sp.*). The hedge was formed of elm (*Ulmus sp.*) and common hawthorn (*Crataegus monogyna*) (Refer to Photograph No. 13 – Appendix A). The habitat is of **site/local** value.

Scattered Trees

- 4.2.14 Within the garden and planting beds are a number of scattered trees. These included self-seeded ash (*Fraxinus excelsior*) and other native species such as common hawthorn (*Crataegus monogyna*) as well as ornamental species such as Japanese maple (*Acer palmatum*) and holm oak (*Quercus ilex*). The trees have some value to invertebrates and nesting birds (Refer to Photograph No. 14 – Appendix A). The trees are of **site** value.

Improved Grassland

- 4.2.15 to the northern and southern ends of the site, are horse paddocks formed of improved grassland. The grassland was cropped short and heavily poached in places. The sward contained common species such as Yorkshire fog (*Holcus lanatus*) and creeping buttercup (*Ranunculus repens*). The grassland margins contained patches of bare ground and tall ruderal vegetation. (Refer to Photograph No. 15 – Appendix A). The habitat is of **site** value.

Ornamental Ponds

- 4.2.16 There are 2 no. ornamental ponds noted within the site. The first (**Pond P1**) is a preformed plastic pond of approximately 3.5m², surrounded by introduced shrubs and gravel. The pond contained some macrophytes, however its suitability for amphibians is greatly reduced by a number of goldfish noted within the pond (Refer to Photograph No. 16 – Appendix A).
- 4.2.17 The second pond (**Pond P2**) is a raised bathtub pond of approximately 1m², containing lots of aquatic macrophytes. The water quality and habitat within the pond appeared favourable to amphibians, however the vertical walls and overhanging lip of the bath make it almost impossible for newts to gain entry (Refer to Photograph No. 17 – Appendix A).

- 4.2.18 A HSI score, based on criteria outlined in *ARG Advice Note 5* is assigned according to each category with a total score given between 1 and 0 ($HSI = SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10}$)^{1/10}; pond suitability is then determined according to the scale below.

Table No. 05: Pond Suitability Based on HSI Score

HSI Score	Suitability
<0.5	'poor'
0.5 - 0.59	'below average'
0.6 - 0.69	'average'
0.7 - 0.79	'good'
>0.8	'excellent'

- 4.2.19 **Ponds P1 and P2** were both assessed as having a 'poor' suitability for GCN. The ponds are of **site** value only. Full results of the HSI index for these ponds are indicated in Table No. 06 below.

Table No. 06: Full Results of HSI Assessment Undertaken of Ponds

Criteria	P1	P2
SI1:Location	1.00	1.000
SI2:Pond Area	0.007	0.002
SI3:Pond Drying	0.900	0.900
SI4:Water Quality	0.670	0.670
SI5:Shade	1.000	1.000
SI6:Fowl	1.000	1.000
SI7:Fish	0.010	1.000
SI8:Ponds	0.720	0.720
SI9:Terrestrial Habitat	0.670	0.330
SI10:Macrophytes	0.650	0.900
Score	0.33	0.44
Result	Poor	Poor

4.3 Protected Species

- 4.3.1 The following species assessment is based upon protected species records returned from desk study and the field study of the site. Those species for which no suitable habitat exists on site have been screened out of the assessment.

Bats

Desk Study

- 4.3.2 11 no. species of bat have been recorded within 2.0 km of the site. Bats relevant to the site such as common pipistrelle bats (*Pipistrellus pipistrellus*); soprano pipistrelle bats (*Pipistrellus pygmaeus*) and brown long-eared bats (*Plecotus auritus*) have been recorded within the local area. Records of a pipistrelle feeding roost are noted at the Eastergate CE Primary School, 657.0 m west of the site. A dead pipistrelle was found in 2010, 510.0 m north-west of the site.

Site Assessment - Buildings

- 4.3.3 **Building B1** is the dwelling on-site. The dwelling is of chalet-style, with brick walls and a clay-tile roof. The building is approximately 100 years old. A flat-roofed extension is present to the north-east; to the north-west is a large dormer-balcony. A large veranda is present to the south and west. The soffits are of wood and appeared generally of good fit. The tiles are small flat clay tiles. The tiles were generally well-fitted, however several missing tiles were noted. The dormer-balcony was sealed with lead flashing, and timber sarking was noted to the underside of the roof. Several large chimneys were noted, again with lead flashings (*Refer to Photograph No. 18 – Appendix A*).
- 4.3.4 Internally, the loft void was small. Several under-eave spaces were noted as well-insulated and providing little potential for bats. The loft was felted in the recent past, although a piece of missing felt reveals timber sarking beneath. The apex of the loft was heavily cobwebbed. A skylight has been installed into the loft space, making it very light. No bat droppings or feeding remains were noted within the loft or under-eave spaces (*Refer to Photograph No. 19 - 20 – Appendix A*).
- 4.3.5 The building was considered to offer 'low' bat roost potential and was therefore subject to a single emergence survey on 17th June 2019. The survey did not reveal any bats utilising the building.

- 4.3.6 The garage (**Building B2**) was of brick and timber construction, with a single-skin felt roof. The building was open to the roof. A window was noted to one end of the building. The building was considered unsuitable for bats due to its construction and internal lightspill. **Building B2** offers ‘negligible’ bat roost potential (*Refer to Photograph No. 21 – Appendix A*).
- 4.3.7 **Building B3** and **Building B4** consist of a store and a boiler room. The buildings are of brick traditional construction with clay roof tiles and chimney. The windows into the buildings are shuttered. Small gaps were noted under the several tiles, around the chimney flashing and where the boiler flue enters. The buildings are open full-height; multiple cobwebs were noted, however no bat droppings or feeding remains were found. The buildings have several potential access gaps, however due to their size and the lack of evidence are considered to offer ‘negligible’ bat roost potential (*Refer to Photograph No. 22 – Appendix A*).
- 4.3.8 **Building B5** consists of a timber stable with a brick base. The roof is of felt construction and the building is open full-height. Each bay within the stable has a window, making the building too light for bat roosting. The building is considered to offer ‘negligible’ bat roost potential (*Refer to Photograph No. 23 – Appendix A*).
- 4.3.9 **Building B6** consists of a traditional brick stable. The roof is of tiled construction, supported on wooden beams. The building is open full-height. At the time of survey, the door was open, and several windows allowed light in although the main window was almost obscured by a hay-pile. The roof showed very heavy, historic cobwebbing and several swallow nests. The building is relatively light, draughty and small, and is considered to offer ‘negligible’ bat roost potential (*Refer to Photograph No. 24 – Appendix A*).
- 4.3.10 **Building B7** consists of a timber stable. The roof is corrugated with plastic roof lights. The building is light and draughty, offering ‘negligible’ bat roost potential (*Refer to Photograph No. 25 – Appendix A*).

- 4.3.11 **Building B8** consists of a timber stable. The roof is constructed of timber and felt. Several birds' nests are noted within the roof. Several grilled windows are present. The building is light and draughty, offering '*negligible*' bat roost potential (*Refer to Photograph No. 26 – Appendix A*).

Existing Trees

- 4.3.12 The existing trees were assessed for their potential to support roosting bats. The following table describes the tree present on site with bat roost potential.

Table No. 07 – Trees with Bat Roost Potential

Tree ID	Description of Features	Bat Roost Potential
T 01	Over-mature Monterey cypress trees, several of which are failing. The trees exhibit small cracks and fissures which may be opportunistically used by small numbers of bats.	Low

- 4.3.13 The hedge, trees and scrub which run continuously along the southern boundary are a potential commuting and foraging feature for bats, in particular due to the presence of a ditch and its connectivity to other treelines. The property to the west is well-tree'd in comparison to other local properties. The treelines and hedge to the western boundary may also form foraging and commuting habitat for bats. The bat emergence survey undertaken on 17th June 2019 revealed low numbers of common and soprano pipistrelles commuting and foraging along the treelines. The habitats are of significance to bats at the **site** level.

Reptiles*Desk Study*

- 4.3.14 Dormice have been recorded within 2.0km of the site.

Site Assessment

- 4.3.15 The tall ruderal, dense scrub, field margins and log / debris piles offer potential habitat for amphibians and reptiles. The vegetation is limited in extent but connected; some of the habitat is proposed for removal. The deciduous treelines, hedge and dense scrub offer some hibernation potential for reptiles and amphibians.
- 4.3.16 Detailed reptile surveys undertaken between June-August 2019 recorded an 'exceptional' population of slow worms within marginal vegetation on the site. The site is of **local** value to reptiles.

Amphibians*Desk Study*

- 4.3.17 There are 5 no. records of great crested newts (*Triturus cristatus*) within 2.0 km of the site. These are generally noted in small numbers.

Site Assessment

- 4.3.18 The ponds on the site offers no potential for great crested newts and limited potential for common amphibians. Previous amphibian surveys in the local area by Lizard Landscape Design and Ecology in 2011 did not discover any newt species within the ditch to the south-east of the site. The surveys were undertaken in 2011; however, it is considered unlikely that great crested newts would subsequently be present within the ditch. There is some suitable terrestrial habitat for amphibians within the site. The habitats are of **site** value to amphibians.

Badger*Desk Study*

- 4.3.19 Records of badgers (*Meles meles*) are not available within 2.0 km of the site, however they are likely to be present locally.

Site Assessment

- 4.3.20 A number of mammal holes were noted within the site; however; none of these were of a size indicative of a badger sett. The site would offer foraging potential for badgers. The habitats are of **site** value to badgers.

Birds*Desk Study*

- 4.3.21 Numerous bird species are present in the local area, including ground nesting farmland birds such as skylark (*Alauda arvensis*) and migrant birds associated with the local harbours.

Site Assessment

- 4.3.22 The scattered trees, treelines, hedges and introduced shrubs on site provide suitable nesting habitat for birds. A number of common bird species were noted within the site. The improved grassland habitat might also offer limited potential for grassland birds such as skylark (*Alauda arvensis*); the grassland is quite heavily disturbed by horses and as such breeding grassland birds are considered unlikely. The habitats are of **site** value to birds.

Others

- 4.3.23 No suitable habitat for any other protected species was recorded on site. There is no suitable habitat for otters, water voles or dormice on the site.

4.4 Survey Constraints / Considerations

- 4.4.1 No major constraints which would cast doubt on these results were encountered, full access was available to all areas of the site.
- 4.4.2 Several survey visits for the detailed reptile survey were undertaken during weather which was slightly warmer than optimal; however, given that an 'exceptional' population was recorded, this is not considered to have affected the survey results in a negative way.

5.0 ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

5.1 Designated Sites

Potential Impacts

- 5.1.1 The site is located within the Impact Risk Zone of *Fairmile Bottom SSSI*. However, given the intervening distances, differences in habitats and existing use and proposed plans for the site, no impacts are likely to occur.

Mitigation and Compensation

- 5.1.2 None required.

Residual Impacts

- 5.1.3 **No likely significant effect** upon any designated sites is predicted as a result of the proposed development.

5.2 Habitats

Potential Impacts

- 5.2.1 The majority of habitats proposed for modification consist of amenity grassland; improved grassland; introduced shrubs and hard / bare ground. These habitats are of low ecological value overall. The plant species on site were generally common and widespread species, and diversity was low; no rare or unusual species were recorded. The habitats which are to be directly affected by the development proposals are of value within the **site area** only.

Mitigation and Compensation

- 5.2.2 Deciduous treelines and native hedges to the boundaries will be retained and protected within the scheme proposals. The current plans for the site do not impact upon these areas. New areas of garden and public open space (including tree and hedge planting) shall replace lost areas of habitat. New habitat suitable for reptiles shall be created within an off-site receptor zone as detailed within the reptile mitigation section.

Residual Impacts

- 5.2.3 Residual impacts after mitigation will be negligible and **non-significant**.

5.3 Bats*Potential Impacts*

- 5.3.1 Given the very low levels of bat activity recorded in the vicinity, impact would be of very minor magnitude but may include disturbance of bats commuting along treelines.

Mitigation and Compensation

- 5.3.2 A sensitive lighting scheme will be employed with lighting kept to the minimum levels and angled down and away from surrounding trees and hedge lines. Deciduous treelines and native hedges to the boundaries will be retained and protected within the scheme proposals.

Residual Impacts

- 5.3.3 The overall impact of the scheme will be **non-significant**.

5.3 Bats*Potential Impacts*

- 5.3.1 Given the very low levels of bat activity recorded in the vicinity, impact would be of very minor magnitude but may include disturbance of bats commuting along treelines.

Mitigation and Compensation

- 5.3.2 A sensitive lighting scheme will be employed with lighting kept to the minimum levels and angled down and away from surrounding trees and hedge lines. Deciduous treelines and native hedges to the boundaries will be retained and protected within the scheme proposals.

Residual Impacts

- 5.3.3 The overall impact of the scheme will be **non-significant**.

5.4 Reptiles

Potential Impacts

- 5.4.1 Impacts would include killing and injuring of slow worms, and loss of slow-worm habitat. The slow-worms were generally found in marginal habitat connected to adjacent habitats off-site and therefore impacts might be relatively limited.

Mitigation and Compensation

- 5.4.2 A full translocation exercise will be undertaken to protect slow-worms and provide compensatory habitat. Temporary reptile / amphibian exclusion fencing would be installed around the construction zone to prevent movement of reptiles into this area. The reptile exclusion fencing will be 750 mm in height, and constructed using 1000-gauge UV-treated polythene fixed to 50 x 50 mm stakes and buried 100 mm underground. A trench will be excavated to a depth of approximately 250 mm; the fence sheet laid around the edge and the trench back filled.
- 5.4.3 The above works would be conducted under the supervision of a suitably qualified ecologist to ensure the welfare of any reptile / amphibian species that may otherwise be adversely affected. The fencing would be maintained for the duration of the construction period and until all works have been completed on site. Fencing would be checked on a regular basis and repaired where necessary as soon as possible.
- 5.4.4 Following the erection of fencing a translocation exercise would be conducted of all reptiles / amphibians within the construction zone prior to commencement of any site clearance / construction. Additional reptile refugia would be deployed within the construction zone and site visits undertaken in suitable weather conditions during the reptile active season (*March-September inclusive*). Any reptiles encountered would be stored in cloth bags and translocated to a suitable receptor site.

- 5.4.5 Given the levels of disturbance proposed within the site, retention of the reptiles within the main body of the site during construction is considered unfeasible. It is proposed to translocate the reptiles to the Green Infrastructure area to the north of the site. The area would be enhanced to become more suitable reptile habitat and to support greater numbers of reptiles. This area shall be enhanced with compost and log piles, with any vegetation allowed to grow long and cutting completed on a rotational basis to ensure habitat on site remains suitable. The reptile habitat lost is considered to cover c.150m². The proposed receptor area is c.800m² of which c. 400m² shall be dedicated as optimal reptile habitat. The details of the proposed reptile translocation are provided within the Ecosupport document *Ecology Addendum (revised reptile mitigation proposal) Rev2b (See Appendix E)*.
- 5.4.6 The translocation exercise would continue until 5 no. visits have been completed under optimum survey conditions in which no reptiles are identified. Following this, a destructive search of the site would take place to ensure the site is clear of all reptiles and to render the site unsuitable for re-colonisation.
- 5.4.7 All logs / rubble / compost piles are to be removed by hand while vegetation will be cleared in a staggered fashion. The initial cut will reduce the vegetation to a height of approx. 15cm with subsequent cuts reducing vegetation to a height of <5cm. All vegetation removal will be supervised by a suitably qualified ecologist and will be undertaken during the reptile active season (*March-September inclusive*).
- 5.4.8 Should there be a delay between the destructive search and commencement of construction activities, it is essential that any vegetation on site be kept short (< 5cm) and the integrity of the temporary reptile fencing be maintained.
- 5.4.9 The above mitigation strategy is considered to be proportionate to the development proposals while ensuring the avoidance of any amphibian / reptiles which may be present on the site.

Residual Impacts

- 5.4.10 The overall impact of the scheme will be **non-significant**.

5.5 Amphibians

Potential Impacts

- 5.5.1 Impacts would include killing and injuring of common amphibians. The likelihood of disturbing or harming great crested newts is extremely low.

Mitigation and Compensation

- 5.5.2 The full translocation exercise proposed for reptiles would also adequately protect amphibians.

Residual Impacts

- 5.5.3 The overall impact of the scheme will be **non-significant**.

5.6 Breeding Birds

Potential Impacts

- 5.6.1 In the absence of avoidance / mitigation, the development could result in the damage / destruction of a bird nest.

Mitigation and Compensation

- 5.6.2 Any dense vegetation shall be removed/demolished outside the nesting season (*season: March-August, although pigeons may nest all year*) or should be checked prior to removal by a suitably qualified person. Integrated bird boxes will be installed into the new buildings and existing trees. New tree and hedge planting shall compensate for lost nesting and foraging habitat.

Residual Impacts

- 5.6.3 The overall impact of the scheme will be **negligible, non-significant**.

6.0 ECOLOGICAL ENHANCEMENTS

6.1 The design of the proposed development includes ecological enhancements for the benefit of wildlife in line with the *National Planning Policy Framework* and *Local Planning Policy*. Ecological enhancements which will be included as part of development proposals include;

- *The use of flowering plants as listed within the RHS 'Plants for Pollinators' plant list to provide year-round interest for invertebrates;*
- *The provision of nesting boxes in buildings and trees around the site for a variety of bird species, in particular Biodiversity Action Plan (BAP) species such as House Sparrow and Starling;*
- *The planting of new native trees and hedges, within open spaces and along garden boundaries;*
- *The use of bug hotels such as NHBS Bee and Bug Biome to provide additional habitat for invertebrates;*
- *Installation of bat boxes to the southern aspect of houses and mature trees to the boundary of the site.*

7.0 CONCLUSIONS

7.1 The site is formed of existing buildings surrounded by common habitats. The site itself is of **low ecological value** with no habitats of interest noted.

7.2 The site was found to be of **site/local** value to reptiles; and **site** value to roosting bats, badgers, common amphibians and nesting birds. A series of mitigation / avoidance measures have been devised to ensure the development does not contravene any UK or European legislation.

7.3 Once avoidance and mitigation measures have been taken into account, the impacts of the planned development upon biodiversity will be **negligible, non-significant** with proposed ecological enhancements resulting in **no net loss of** biodiversity in line with national planning policy guidance.

8.0 REFERENCES

JNCC: Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit; (2003);

Collins J (ed): Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.) The Bat Conservation Trust (2016);

Mitchell-Jones and McLeish: Bat Workers Manual; JNCC, 3rd Edition (2004);

Streeter, D.: The Most Complete Guide to the Flowers of Britain and Ireland; Harper Collins, London (2010);

www.magic.gov.uk.

Table No. 08 – Species List for Habitat Parcels**Amenity Grassland**

Common Name	Scientific Name	DAFOR
Black Medick	<i>Medicago lupulina</i>	O
Catsear	<i>Hypochaeris radicata</i>	R
Cleavers	<i>Galium aperine</i>	O
Common Nettle	<i>Urtica dioica</i>	R
Creeping Buttercup	<i>Ranunculus repens</i>	F
Ground Ivy	<i>Glechoma hederacea</i>	O
Lord and Ladies	<i>Arum maculatum</i>	O
Mosses	<i>Mosses sp.</i>	LF
Mouse-Ear Chickweed	<i>Cerastium fontanum</i>	R
Perennial Rye-Grass	<i>Lolium perenne</i>	D
Red Dead-Nettle	<i>Lamium purpureum</i>	R
Selfheal	<i>Prunella vulgaris</i>	O
Thistle	<i>Cirsium sp.</i>	O
Yarrow	<i>Achillea millefolium</i>	R
Yorkshire Fog	<i>Holcus lanatus</i>	R

Improved Grassland

Common Name	Scientific Name	DAFOR
Bristly Oxtongue	<i>Helminthotheca echioides</i>	O
Broad-Leaved Dock	<i>Rumex obtusifolius</i>	O
Cleavers	<i>Galium aperine</i>	LA
Common Nettle	<i>Urtica dioica</i>	LA
Creeping Buttercup	<i>Ranunculus repens</i>	LA
Creeping Cinquefoil	<i>Potentilla reptans</i>	R
Daffodil	<i>Narcissus sp.</i>	R
Dandelion	<i>Taraxacum agg.</i>	O
Hairy Bittercress	<i>Cardamine hirsutum</i>	LF
Mosses	<i>Mosses sp.</i>	LF
Perennial Rye-Grass	<i>Lolium perenne</i>	LD
Ribwort plantain	<i>Plantago lanceolata</i>	O
Thistle	<i>Cirsium sp.</i>	R
Yorkshire Fog	<i>Holcus lanatus</i>	LD

D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare; L – Locally

Dense Scrub

Common Name	Scientific Name	DAFOR
Bramble	<i>Rubus fruticosus</i>	LD
Common Elder	<i>Sambucus nigra</i>	LA
Common Nettle	<i>Urtica dioica</i>	LA
Foxglove	<i>Digitalis purpurea</i>	R
Ivy	<i>Hedera helix</i>	LD
Pendulous Sedge	<i>Carex pendula</i>	R
St John's Wort	<i>Hypericum sp.</i>	O

Tall Ruderal

Common Name	Scientific Name	DAFOR
Bluebell	<i>Hyacinthoides non-scripta</i>	O
Bramble	<i>Rubus fruticosus</i>	F
Bristly Oxtongue	<i>Helminthotheca echioides</i>	R
Cleavers	<i>Galium aparine</i>	LA
Cocksfoot Grass	<i>Dactylis glomerata</i>	F
Common Nettle	<i>Urtica dioica</i>	LD
Creeping Buttercup	<i>Ranunculus repens</i>	LA
Daffodil	<i>Narcissus sp.</i>	O
Ivy	<i>Hedera helix</i>	LA
Lord and Ladies	<i>Arum maculatum</i>	LF
Pendulous Sedge	<i>Carex pendula</i>	LF
Red Dead-Nettle	<i>Lamium purpureum</i>	LA
Stinking Iris	<i>Iris foetidissima</i>	LF
Thistle	<i>Cirsium sp.</i>	O
White Dead-Nettle	<i>Lamium album</i>	F
Yorkshire Fog	<i>Holcus lanatus</i>	F

D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare; L – Locally

Scattered Trees, Treelines and Hedges

Common Name	Scientific Name	DAFOR
Ash	<i>Fraxinus excelsior</i>	LF
Beech	<i>Fagus sylvatica</i>	LF
Poplar	<i>Populus sp.</i>	R
Silver Birch	<i>Betula pendula</i>	LA
Common Hawthorn	<i>Crataegus monogyna</i>	LA
Cypress	<i>Cupressus sp.</i>	LD
Elder	<i>Sambucus nigra</i>	LA
Elm sp.	<i>Ulmus sp.</i>	O
Yew	<i>Taxus baccata</i>	O
Horse Chestnut	<i>Aesculus hippocastanum</i>	O
Holm Oak	<i>Quercus ilex</i>	O
Monterey Cypress	<i>Cupressus macrocarpa</i>	LF
Pyracantha	<i>Pyracantha sp.</i>	R
Willow sp.	<i>Salix sp.</i>	O
Portuguese Laurel	<i>Prunus lusitanica</i>	LA
Pine	<i>Pinus sp.</i>	O
Spruce	<i>Picea sp.</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	LA

D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare; L – Locally

Introduced Shrubs

Common Name	Scientific Name	DAFOR
Bamboo	<i>Subfamily: Bambusoideae</i>	LD
Butcher's Broom	<i>Ruscus aculeatus</i>	R
Cabbage Palm	<i>Cordyline australis</i>	R
Cherry Laurel	<i>Prunus laurocerasus</i>	LD
Chusan Palm	<i>Trachycarpus fortunei</i>	R
Conical Spruce	<i>Picea glauca</i> 'Conica'	R
Cotoneaster	<i>Cotoneaster sp.</i>	R
Cypress sp.	<i>Cupressus sp.</i>	O
Ebbing's Silverberry	<i>Elaeagnus x ebbingei</i>	LF
Escallonia	<i>Escallonia sp.</i>	O
Eucalyptus	<i>Eucalyptus sp.</i>	R
European Olive	<i>Olea europaea</i>	O
Forsythia	<i>Forsythia sp.</i>	LF
Geranium	<i>Geranium sp.</i>	O
Holly	<i>Ilex aquifolium</i>	F
Hydrangea	<i>Hydrangea sp.</i>	R
Ice Plant	<i>Sedum sp.</i>	LF
Japanese Spindle	<i>Euonymus japonicus</i>	LD
Juniper sp.	<i>Juniperus sp.</i>	O
Ladies' Mantle	<i>Alchemilla mollis</i>	O
New Zealand Flax	<i>Phormium tenax</i>	O
Ornamental Daffodil	<i>Narcissus sp.</i>	F
Pyracantha	<i>Pyracantha sp.</i>	R
Rhododendron	<i>Rhododendron ponticum</i>	LA
Shrub Honeysuckle	<i>Lonicera nitida</i>	LF
Spurge	<i>Euphorbia sp.</i>	O
Stag's Horn Sumac	<i>Rhus typhina</i>	R
Yucca	<i>Yucca sp.</i>	R

D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare; L – Locally

Table No. 09 – Target Notes for Protected Species

No.	Feature	Description
TN01	Compost Piles.	Piles of logs and debris which provide some habitat for reptiles, amphibians and invertebrates.
TN02	Tall Ruderal, Field Margins and Dense Scrub Vegetation.	Taller vegetation which provides some habitat for reptiles and amphibians.
TN03	Mammal Holes.	Evidence of Mammals, determined to be rabbits.

APPENDICES:**Appendix A – Site Photographs****Appendix B – Full Bat Survey Data****Appendix C – Full Reptile Survey Data****Appendix D – Sussex Biodiversity Records Centre Summary Report****Appendix E – Ecology Addendum (revised reptile mitigation proposal)**

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 1 - The amenity grassland garden with the dwelling in the rear.



Photograph No. 2 - A patch of tall ruderal yet to grow up this year.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 3 - Patches of tall ruderal emerging behind scattered trees and introduced shrubs.



Photograph No. 4 - Various hard and bare surfaces were present, including this sand horse-riding school.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 5 - Dense scrub patches to the edges of treelines.



Photograph No. 6 - Manure piled against the species-poor hedge.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 7 - Large logs and debris piles, providing invertebrate habitat, and some potential for reptiles and amphibians.



Photograph No. 8 - Introduced shrubs formed into hedges within the site.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 9 - The deciduous treeline to the west of the site.



Photograph No. 10 - Coniferous treeline within the site.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 11 - The over-mature Monterey cypress treeline at the site entrance.



Photograph No. 12 - The species-poor hedge to the south-western site boundary.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 13 - The hedge with trees to the south of the site.



Photograph No. 14 - Scattered trees within the garden.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 15 - Improved grassland paddocks.



Photograph No. 16 - Pond P1 is considered of '*poor*' potential for great crested newts.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 17 - Pond P2 is considered of '*poor*' potential for great crested newts.

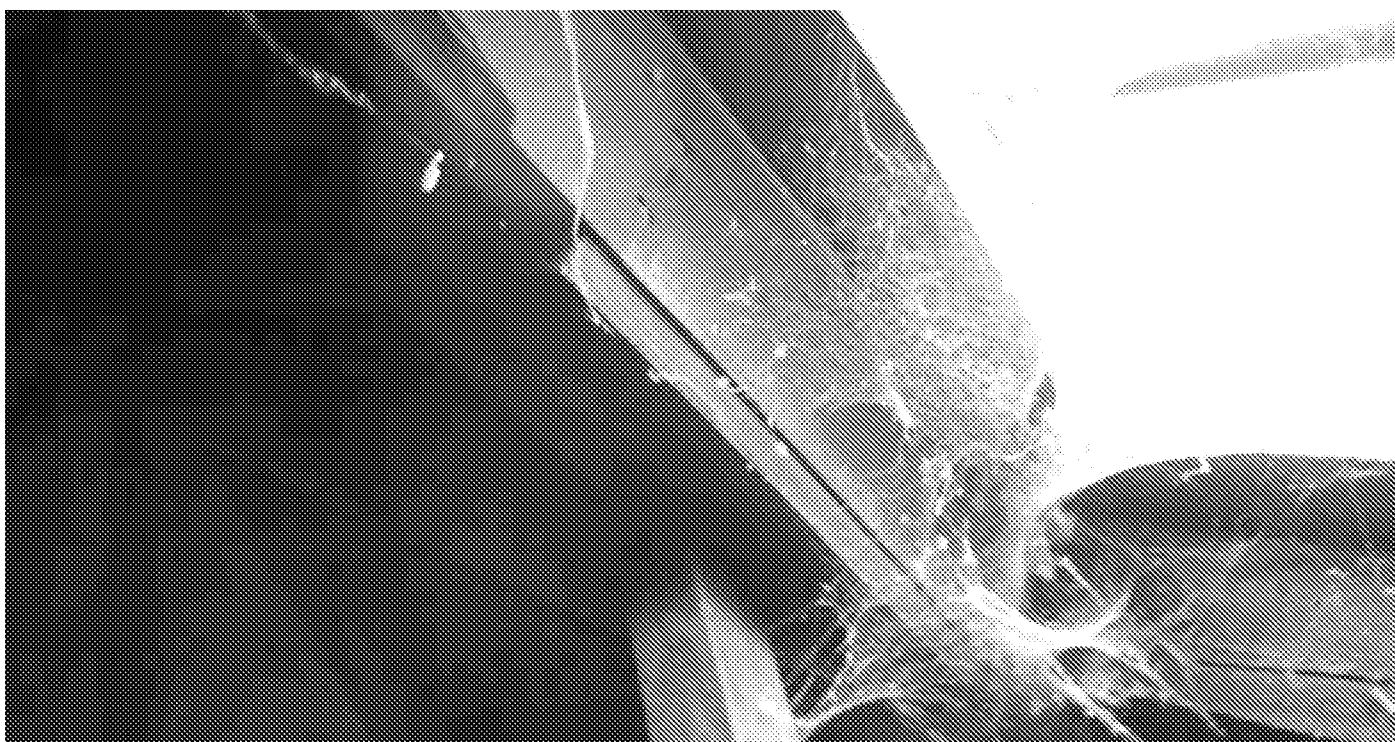


Photograph No. 18 - The dwelling on the site - Building B1.

APPENDIX A - SITE PHOTOGRAPHS

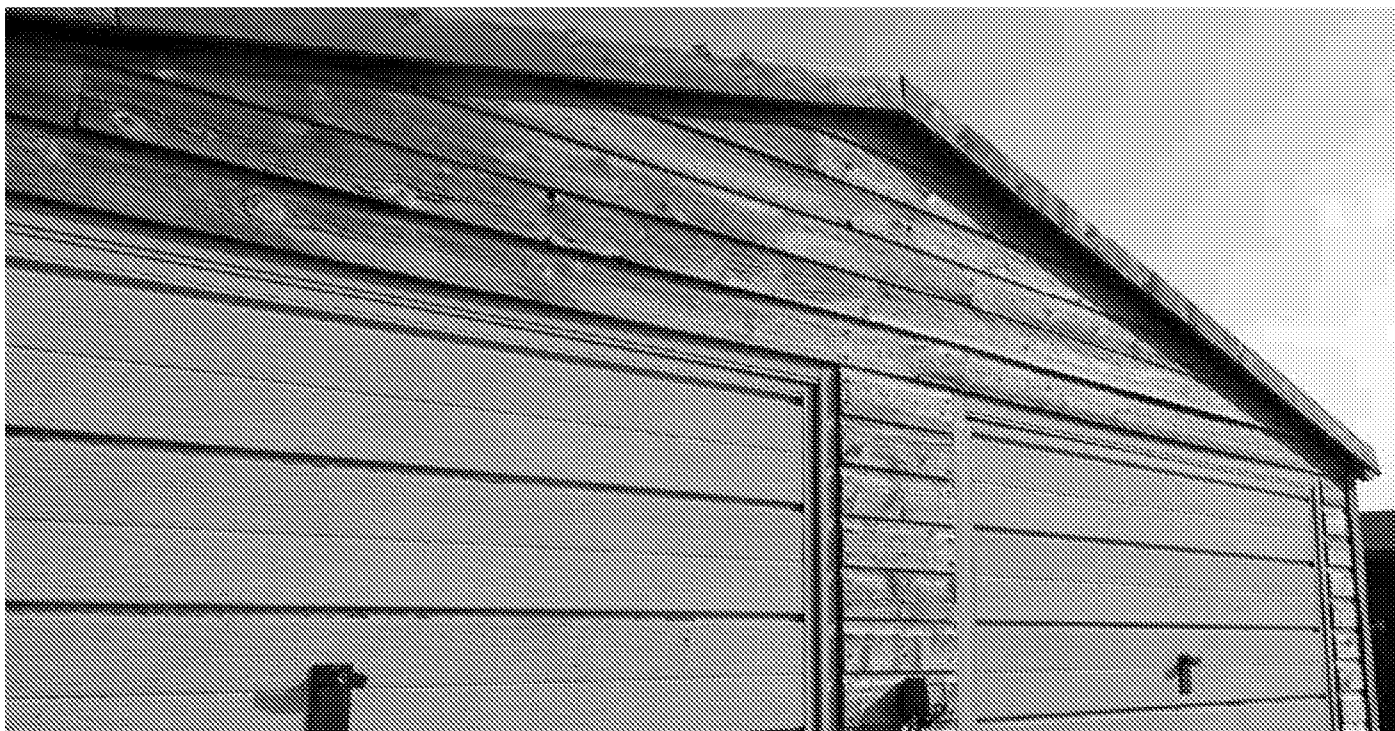


Photograph No. 19 - The loft void of Building B1, with timber sarking visible below the felt.



Photograph No. 20 - Heavy cobwebbing and skylight within the loft void of Building B1.

APPENDIX A - SITE PHOTOGRAPHS

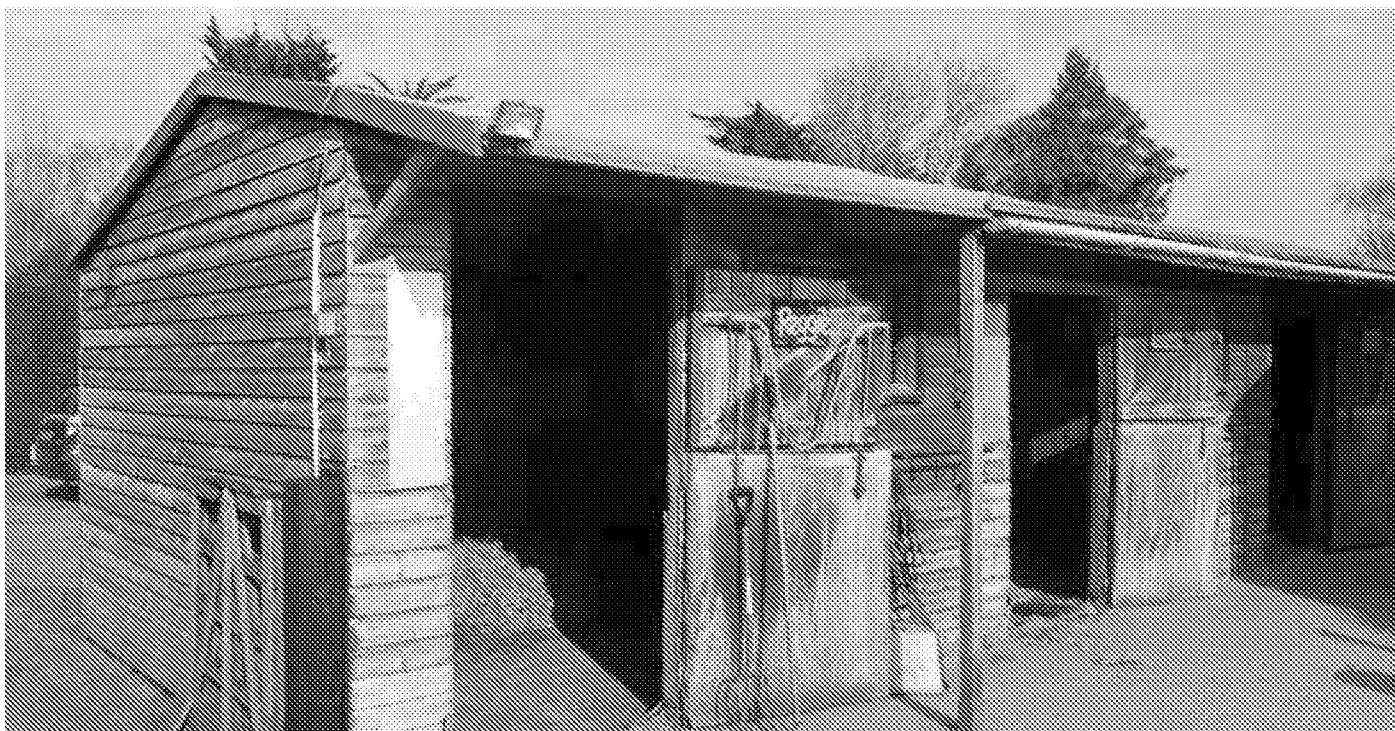


Photograph No. 21 - Building B2 - The garage.



Photograph No. 22 - Buildings B3 and B4 - the store and boiler rooms.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 23 - The stable Building B5.



Photograph No. 24 - The traditional stable Building B6.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 25 - The stable Building B7.

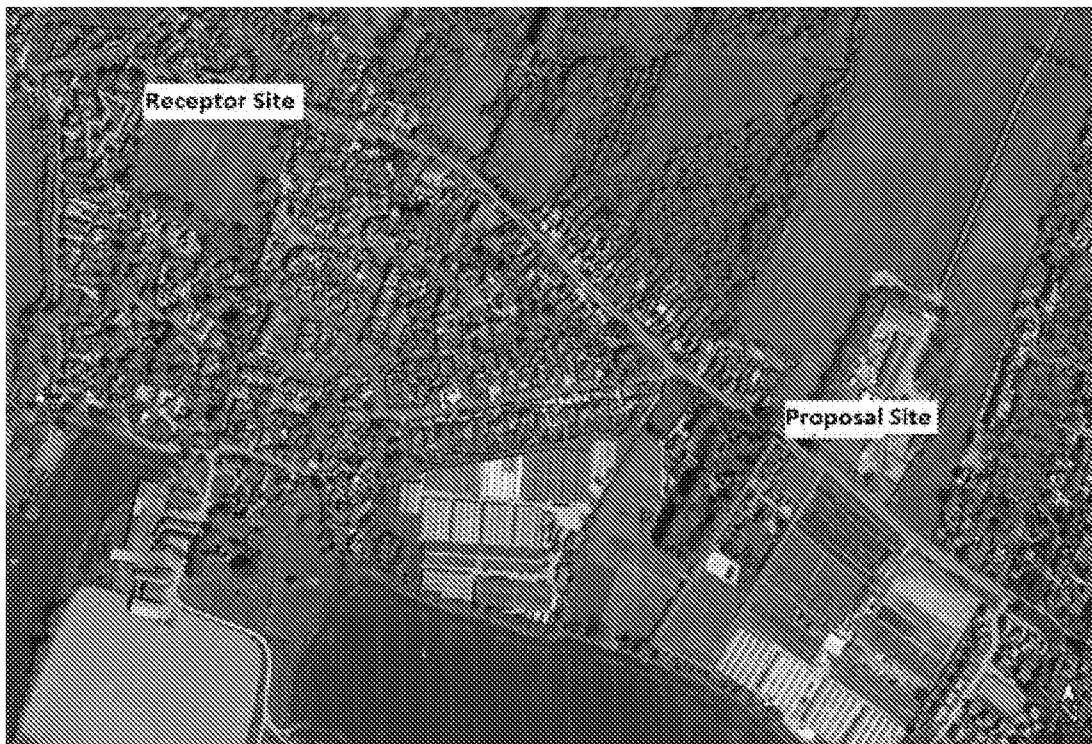


Photograph No. 26 - The stable Building B8.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 27 - Aerial photograph of the proposed reptile receptor site.



Photograph No. 27 - Aerial photograph of the proposed reptile receptor site in relation to the proposal site.

Date	17/06/19
Survey Type	Dusk
Sunrise / Sunset	21:19
Start Time	21:04
End Time	22:49
Temperature	16 °C
Wind	1
Weather	Scattered Cloud

Surveyor	Louise Barker		
Point	SE Corner/Aspect of main house (rear garden w/DUET)		
Time	Species	Behaviour	Notes
21:50 - 22:02	C-Pip	Foraging	Constant foraging along garden hedgerows
22:16 - 22:26	S-Pip	Foraging	Around main house

Surveyor	Will Mills		
Point	Front garden by roundabout		
Time	Species	Behaviour	Notes
21:48	CPip	Foraging	Within gardens and along treeline
21:51	CPip	Commuting	Within gardens and along treeline
21:52	CPip	Commuting	Within gardens and along treeline
21:53	CPip	Foraging	Within gardens and along treeline
21:56	CPip	Commuting	Within gardens and along treeline
21:57	CPip	Foraging	Within gardens and along treeline
22:00	CPip	Foraging	Within gardens and along treeline
22:01	CPip	Commuting	Within gardens and along treeline
22:02	CPip	Commuting	Within gardens and along treeline
22:08	CPip	Commuting	Within gardens and along treeline
22:10	CPip	Commuting	Within gardens and along treeline
22:11	CPip	Foraging	Within gardens and along treeline
22:12	CPip	Commuting	Within gardens and along treeline
22:13	CPip	Foraging	Within gardens and along treeline
22:14	CPip	Commuting	Within gardens and along treeline
22:20	CPip	Commuting	Within gardens and along treeline
22:24	CPip	Foraging	Within gardens and along treeline
22:16	SPip	Foraging	Within gardens and along treeline
22:18	SPip	Foraging	Within gardens and along treeline
22:19	SPip	Foraging	Within gardens and along treeline
22:26	SPip	Foraging	Within gardens and along treeline

Visit No. 1

Surveyor	Will Mills			
Date	01/07/19			
Time	16:00			
Temperature	19°C			
Wind	1			
Weather	Clear & Sunny			
Tile No.	Species	Ad/J	Sex	Notes
15	Slow Worm	Juvenile	Unknown	
15	Slow Worm	Juvenile	Unknown	
16	Slow Worm	Adult	Male	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
18	Slow Worm	Adult	Female	
19	Slow Worm	Adult	Female	
19	Slow Worm	Adult	Female	
20	Slow Worm	Adult	Female	
20	Slow Worm	Adult	Female	
21	Slow Worm	Juvenile	Unknown	
21	Slow Worm	Juvenile	Unknown	
22	Slow Worm	Juvenile	Unknown	
23	Slow Worm	Adult	Female	

Visit No. 2

Surveyor	George Sayer			
Date	09/07/2019			
Time	19:00			
Temperature	18°C			
Wind	0			
Weather	Clear & Sunny			
Tile No.	Species	Ad/J	Sex	Notes
None Found				

Visit No. 3

Surveyor	George Sayer			
Date	12/07/2019			
Time	09:00			
Temperature	18°C			
Wind	1			
Weather	Light Cloud			
Tile No	Species	Ad/J	Sex	Notes
6	Slow Worm	Adult	Female	
6	Slow Worm	Adult	Female	
16	Slow Worm	Adult	Female	
16	Slow Worm	Adult	Male	
16	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Adult	Female	
17	Slow Worm	Adult	Female	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
18	Slow Worm	Juvenile	Unknown	
18	Slow Worm	Juvenile	Unknown	
18	Slow Worm	Juvenile	Unknown	
20	Slow Worm	Adult	Female	
20	Slow Worm	Juvenile	Unknown	
21	Slow Worm	Adult	Male	
22	Slow Worm	Adult	Female	
24	Slow Worm	Adult	Female	
31	Slow Worm	Adult	Male	
35	Slow Worm	Adult	Female	

Visit No. 4

Surveyor	George Sayer			
Date	15/07/19			
Time	10:00			
Temperature	16°C			
Wind	1			
Weather	Overcast			
Tile No	Species	Ad/J	Sex	Notes
6	Slow Worm	Adult	Female	
6	Slow Worm	Adult	Female	
15	Slow Worm	Juvenile	Unknown	
15	Slow Worm	Juvenile	Unknown	
16	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
18	Slow Worm	Juvenile	Unknown	
19	Slow Worm	Juvenile	Unknown	
19	Slow Worm	Juvenile	Unknown	
20	Slow Worm	Adult	Female	
20	Slow Worm	Adult	Female	
20	Slow Worm	Juvenile	Unknown	
21	Slow Worm	Juvenile	Unknown	
21	Slow Worm	Juvenile	Unknown	
21	Slow Worm	Juvenile	Unknown	
22	Slow Worm	Adult	Female	
23	Slow Worm	Adult	Female	
23	Slow Worm	Juvenile	Unknown	
23	Slow Worm	Juvenile	Unknown	
23	Slow Worm	Juvenile	Unknown	
27	Slow Worm	Juvenile	Unknown	
27	Slow Worm	Adult	Male	
27	Slow Worm	Adult	Female	
28	Slow Worm	Juvenile	Unknown	
30	Slow Worm	Adult	Male	
35	Slow Worm	Adult	Female	
35	Slow Worm	Adult	Female	
35	Slow Worm	Juvenile	Unknown	
36	Slow Worm	Adult	Female	
38	Slow Worm	Adult	Male	
39	Slow Worm	Adult	Female	
39	Slow Worm	Adult	Female	
39	Slow Worm	Adult	Female	

Visit No. 5

Surveyor	Will Mills			
Date	17/07/19			
Time	11:00			
Temperature	20°C			
Wind	2			
Weather	Light Cloud			
Tile No	Species	Ad/J	Sex	Notes
16	Slow Worm	Adult	Male	
21	Slow Worm	Adult	Female	
27	Slow Worm	Adult	Female	
27	Slow Worm	Juvenile	Unknown	
28	Slow Worm	Juvenile	Unknown	
36	Slow Worm	Adult	Male	

Visit No. 6

Surveyor	Louise Barker			
Date	07/08/2019			
Time	09:45			
Temperature	18°C			
Wind	1			
Weather	Light Rain			
Tile No	Species	Ad/J	Sex	Notes
3	Slow Worm	Juvenile	Unknown	
3	Slow Worm	Juvenile	Unknown	
6	Slow Worm	Adult	Female	
15	Slow Worm	Adult	Male	
15	Slow Worm	Adult	Female	
16	Slow Worm	Adult	Female	
16	Slow Worm	Adult	Female	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Juvenile	Unknown	
17	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
18	Slow Worm	Adult	Female	
19	Slow Worm	Adult	Female	
19	Slow Worm	Adult	Female	
20	Slow Worm	Juvenile	Female	
21	Slow Worm	Adult	Female	
21	Slow Worm	Adult	Female	
21	Slow Worm	Adult	Female	
21	Slow Worm	Adult	Female	
21	Slow Worm	Adult	Female	
21	Slow Worm	Adult	Female	
22	Slow Worm	Adult	Male	
23	Slow Worm	Adult	Female	
23	Slow Worm	Adult	Female	
24	Slow Worm	Juvenile	Unknown	
24	Slow Worm	Juvenile	Unknown	
24	Slow Worm	Adult	Female	
24	Slow Worm	Adult	Female	
25	Slow Worm	Adult	Female	
25	Slow Worm	Adult	Female	
26	Slow Worm	Juvenile	Female	
29	Slow Worm	Juvenile	Unknown	
29	Slow Worm	Juvenile	Unknown	
31	Slow Worm	Adult	Male	
31	Slow Worm	Adult	Female	
32	Slow Worm	Adult	Female	
32	Slow Worm	Adult	Female	
32	Slow Worm	Adult	Female	
34	Slow Worm	Adult	Male	
36	Slow Worm	Juvenile	Unknown	
36	Slow Worm	Adult	Female	
36	Slow Worm	Adult	Female	

Visit No. 7

Surveyor	Niall Walkden			
Date	14/08/19			
Time	12.00			
Temperature	18°C			
Wind	wf2			
Weather	Light Cloud			
Tile No	Species	Ad/J	Sex	Notes
15	Slow Worm	Adult	Male	
14	Slow Worm	Adult	Female	
29	Slow Worm	Juvenile	Unknown	
29	Slow Worm	Juvenile	Unknown	

Summary

Visit No	SW	GS	CL	A
1	15	0	0	0
2	0	0	0	0
3	20	0	0	0
4	38	0	0	0
5	6	0	0	0
6	46	0	0	0
7	4	0	0	0
Peak Count	46	0	0	0

low Worm, GS= Grass Snake, CL= Common Lizard, A=

Ecological Data Search SxBRC/17/778 - Summary Report

An ecological data search was carried out for land at Boweries, Barnham Road, Eastergate on behalf of George Sayer (Lizard Landscape Design and Ecology) on 06/03/2018.

The following datasets were consulted for this report:

	Requested	Radius/buffer size
Designated sites, habitats & ownership maps	Yes	2km
Protected, designated and invasive species	Yes	2km

Summary of results

Sites and habitats

Statutory sites	None present
Non-statutory sites	1 LWS / 1 Notable Road Verge
Section 41 habitats	7 habitats
Ancient and/or ghyll woodland	Present

Protected and designated species

International designations	38 species	278 records
National designations	113 species	2,000 records
Other designations	184 species	2,669 records
Total	208 species	2,953 records
Invasive non-native	28 species	123 records

The report is compiled using data held by Sussex Biodiversity Record Centre (SxBRC) at the time of the request. SxBRC does not hold comprehensive species data for all areas. Even where data are held, a lack of records for a species in a defined geographical area does not necessarily mean that the species does not occur there – the area may simply not have been surveyed.

This summary page may be published.
The full report and maps may not be published or otherwise shared.

The data search report is valid until 06/03/2019 for the site named above.



Ecology Addendum (revised reptile mitigation proposal), Boweries, Eastergate, PO20 3RT (BN/135/20/PL)

Introduction

Following the granting of planning permission of the Boweries site located off Barnham Road, Eastergate, PO20 3RT (centred on OS grid reference SU949 051) (**Fig 1**), a planning condition was placed on the permission outlining the requirement to adhere to the following:

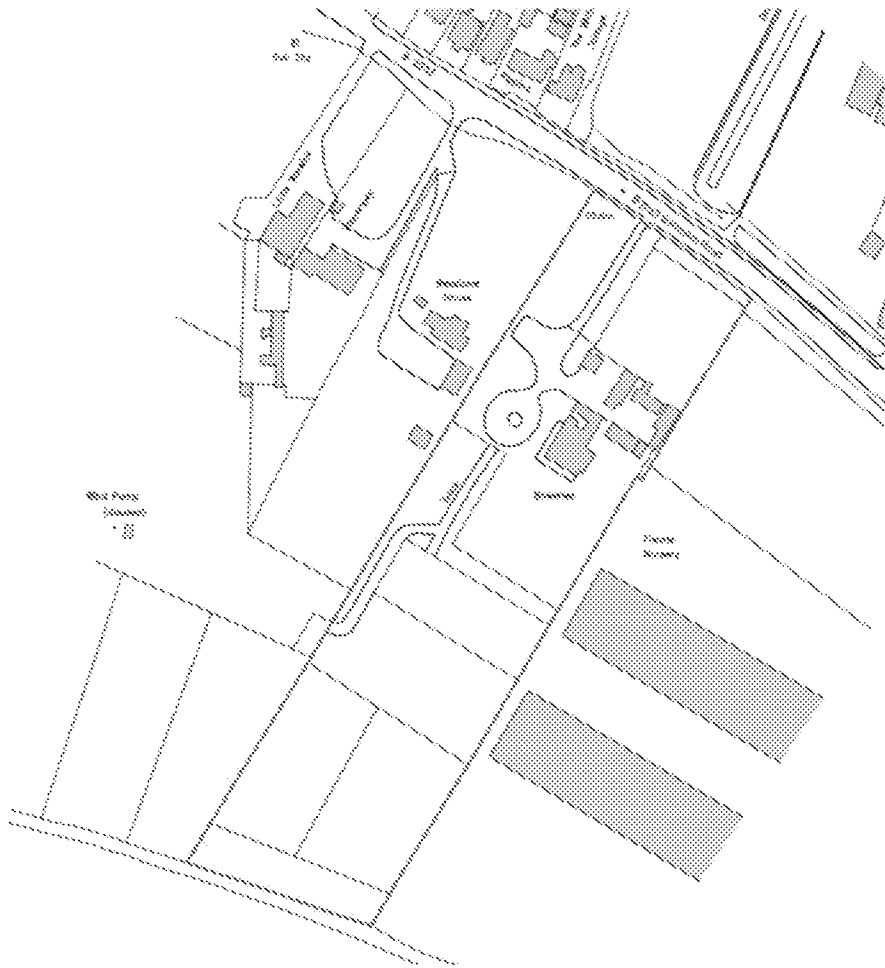
29. The development shall be undertaken in accordance with the mitigation measures set out in the Lizard Landscape Design and Ecology Preliminary Ecological Appraisal Survey and Preliminary Protected Species and Bat Roost Assessment Survey dated 28 March 2018 and maintained in perpetuity, where required, at all times thereafter.

Reason: To protect local wildlife and protected species, in accordance with the relevant legislation and policy ENV DM5 of the Arun Local Plan.

Lizard Landscape and Design produced an Ecological Impact Assessment (EIA) dated 11th September 2019, Paragraph 5.4 dealt specifically with mitigation for Reptiles or more specifically slow worms. This EIA was considered and agreed as part of the original planning application.

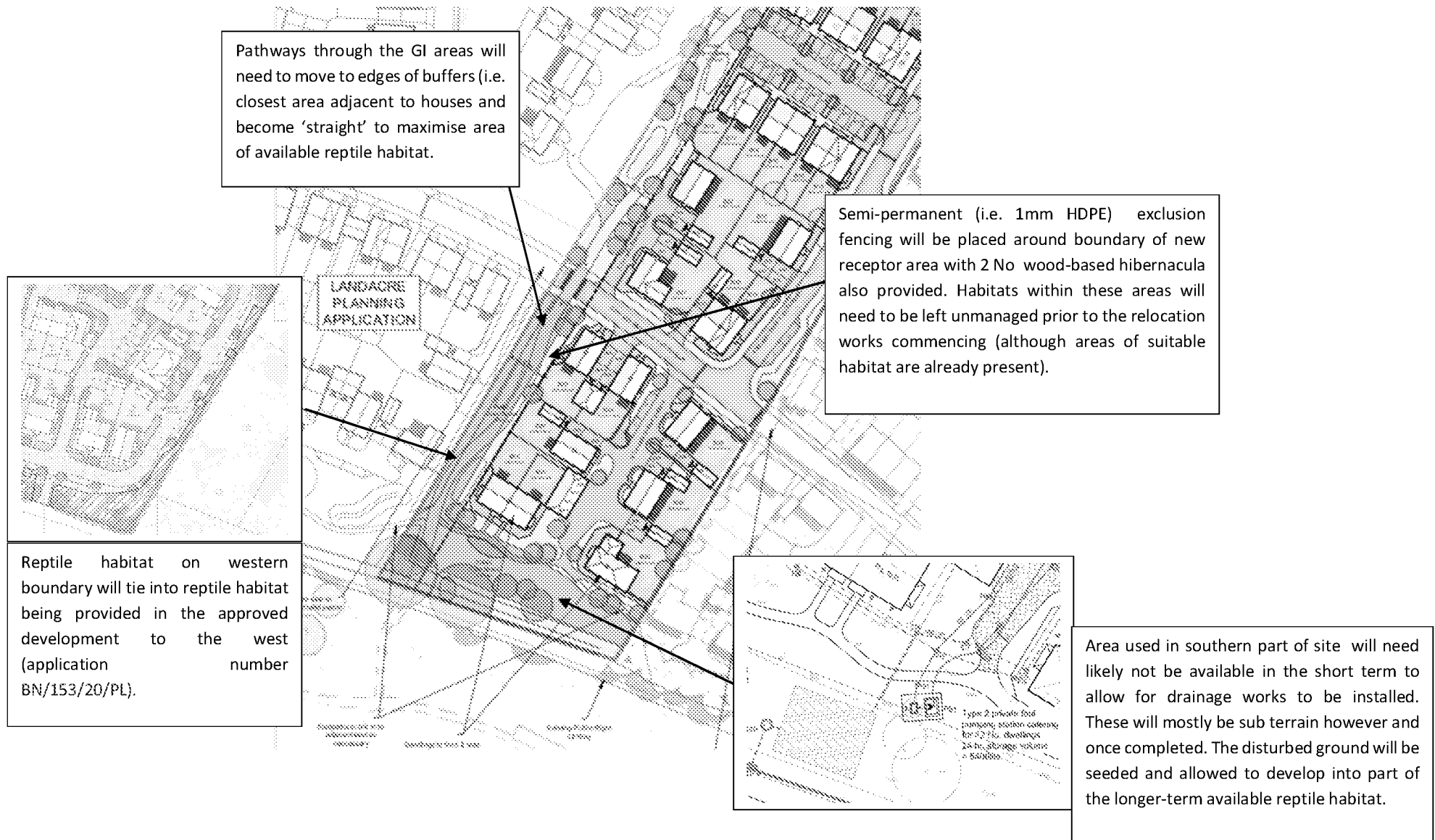
Within this report, the Slow Worm (*Anguis fragilis*) population identified on site was proposed to be translocated to a garden associated within a residential property (Flint Cottage). Following some investigations into the potential feasibility of this option and the concerns about relocating reptiles into a private residence (where it will be difficult to ensure the long-term management remains suitable for reptiles), a new mitigation strategy is being proposed whereby the reptiles will be retained within the area propose for Green Infrastructure (GI) on site.

Figure 1. Redline location plan of the site.



New Receptor Site Proposal

Following a meeting on-site, a review of the current extent of suitable habitats (with the majority of the site formed by managed grassland used as horse pasture), and the layout, it is considered a more appropriate and secure means of mitigating for the impacts of Slow Worms would be to provide an on-site reptile receptor. This will make use of the GI strips being retained along the south western and southern boundaries of the site as outlined in **Fig 2** below and will tie into the reptile receptor being used on the adjacent approved site (information provided within *EDNA and Reptile Survey Report, Warwick Nursery, Eastergate Lane, Barnham*, Lizard, 2020). This will require some changes to the pathways shown in these areas to increase the amount of available reptile habitat (although it is assumed these changes can be made through the discharging of condition 12 relating to hard and soft landscaping details and condition 21 relating to details being provided on the Green Link).



The actual capture works themselves (i.e. methods and capture effort will remain the same as outlined within the existing approved ecology report Ecological Impact Assessment (Lizard, 2019). Post development monitoring would also be undertaken at years 1 and 2 post translocation in order to assess the efficacy of the works and if any remedial management action would be required.

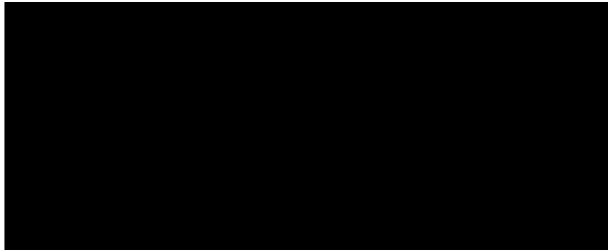
The management of these areas would fall under the responsibility of a (yet to be appointed) management company and further details on this would be provided as part of the works to discharge condition 31 (relating to biodiversity enhancement measures) and in updated landscape plans (***NB it is considered likely a wooden knee rail or similar would be necessary to provide a distinction between the unmanaged reptile habitat and other areas and an interpretation board would also be beneficial to provide information to the new residents***).

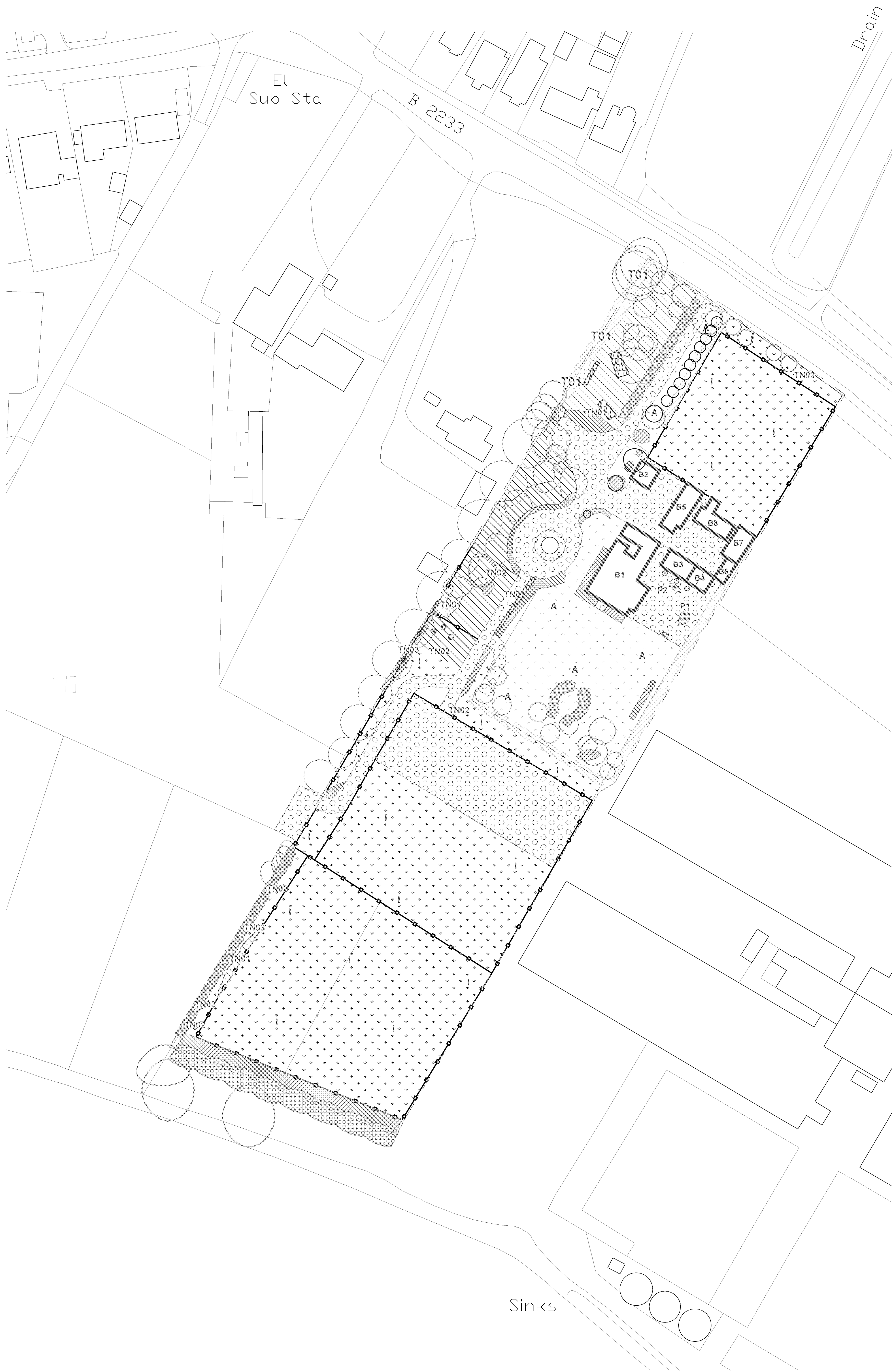
Should you have any further queries please don't hesitate to get in touch



Adam Jessop BSc (Hons) MSc ACIEEM

Director





Legend

- Site Survey Boundary.
- Existing Buildings and Walls.
- Target Notes.
- Trees with Bat Roost Potential.
- Fence.
- Amenity Grassland.
- Improved Grassland.
- Intact Species-Poor Hedge.
- Coniferous Tree Line / Hedge.
- Hedge with Trees.
- Deciduous Treeline.
- Hard / Bare Ground.
- Tall Ruderal Vegetation.
- Manure Piles.
- Dense/Continuous Scrub.
- Introduced Shrub Planting.
- Pond/Lake.
- Logpile.
- Scattered Trees.

PLANNING ISSUE

Rev	Description	Date	Initials
01	Planning Issue	11.09.19	GS
00	Planning Issue	28.03.18	LB

**LIZARD**
Landscape Design and Ecology

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Project Title and Location
Boweries, Barnham Road, Eastergate
Client
Domusea Developments

Drawing Title
Figure No.1 - Site Habitat Plan

Scale
1:500@A1

Drawn
LB
Approved
JJ

Date
28.03.18

Drawing No
LLD1387-ECO-FIG-001-SHP
CAD Filename
LLD1387/CAD/ECO

Revision
01

Figure No.1 - Site Habitat Plan
Boweries, Barnham Road, Eastergate





Legend

Site Survey Boundary.

1

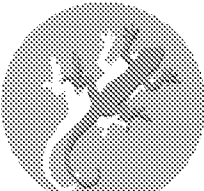
Location of Artificial Reptile Refugia.

1

Location of Artificial Reptile Refugia - Protection Species of Slow Worm recorded.

PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	11.09.19	LB



LIZARD
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Project Title and Location

Boweries, Barnham Road, Eastergate

Client

Domusea Developments

Drawing Title

Figure No.2- Location of Artificial Refugia

Scale

1:250@A1

Drawn

LB

Approved

JJ

Date

11.09.19

Drawing No

LLD1387-ECO-FIG-002

CAD Filename

LLD1387/CAD/ECO

Revision

00

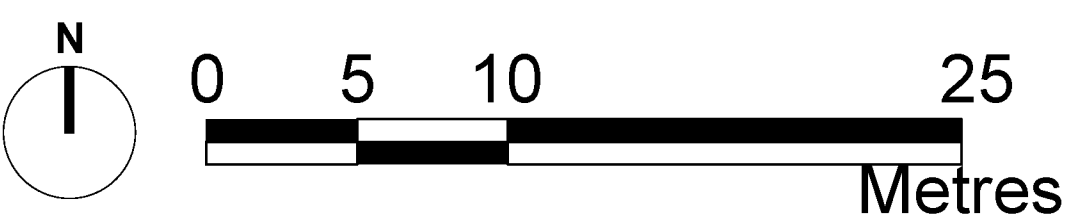


Figure No.2 - Location of Artificial Refugia (Sheet 1 of 2)
Boweries, Barnham Road, Eastergate

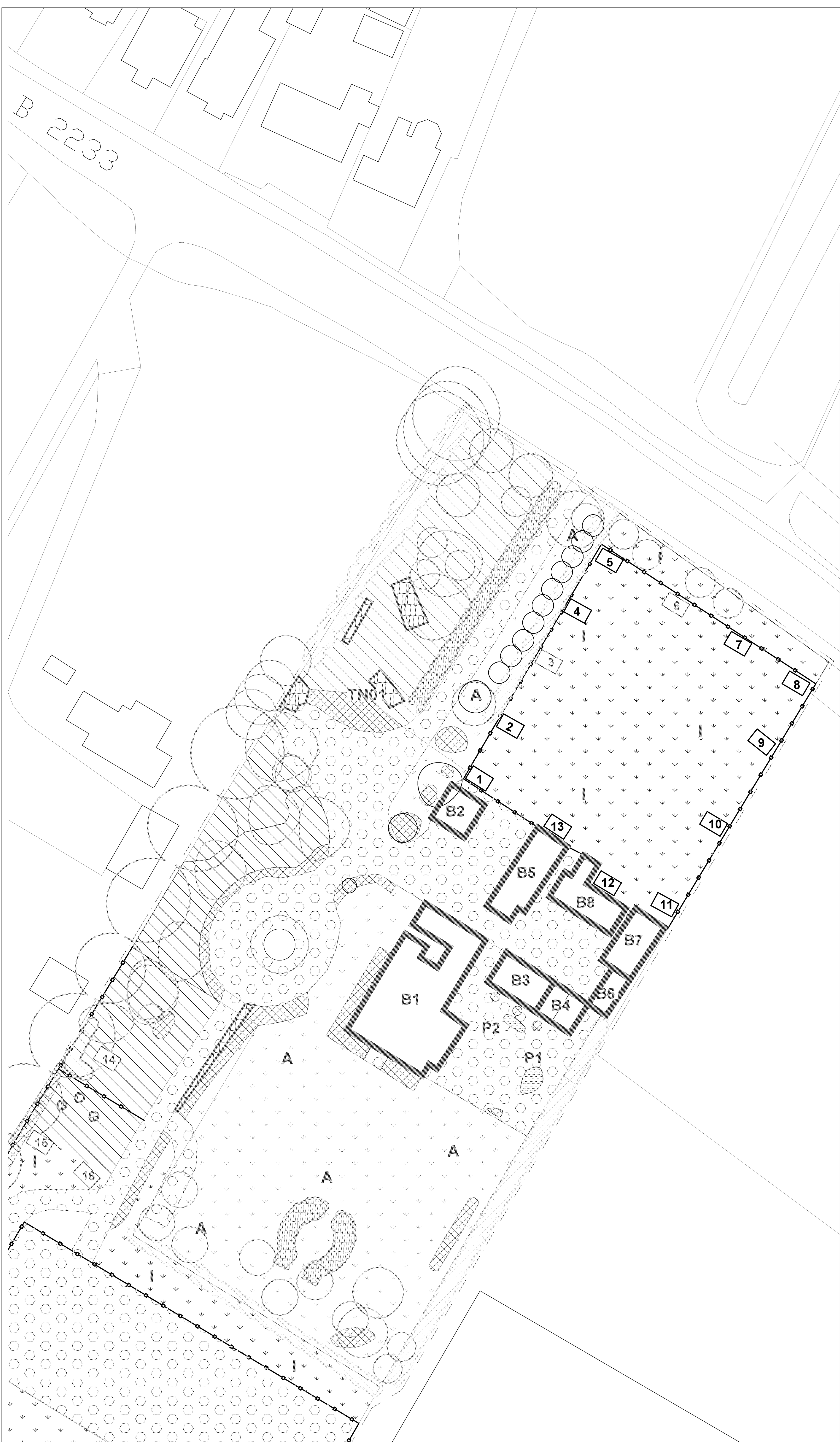


Figure No.2 - Location of Artificial Refugia (Sheet 2 of 2)
Boweries, Barnham Road, Eastergate

Legend

- Site Survey Boundary.
- Location of Artificial Reptile Refugia.
- Location of Artificial Reptile Refugia - Protection Species of Slow Worm recorded.

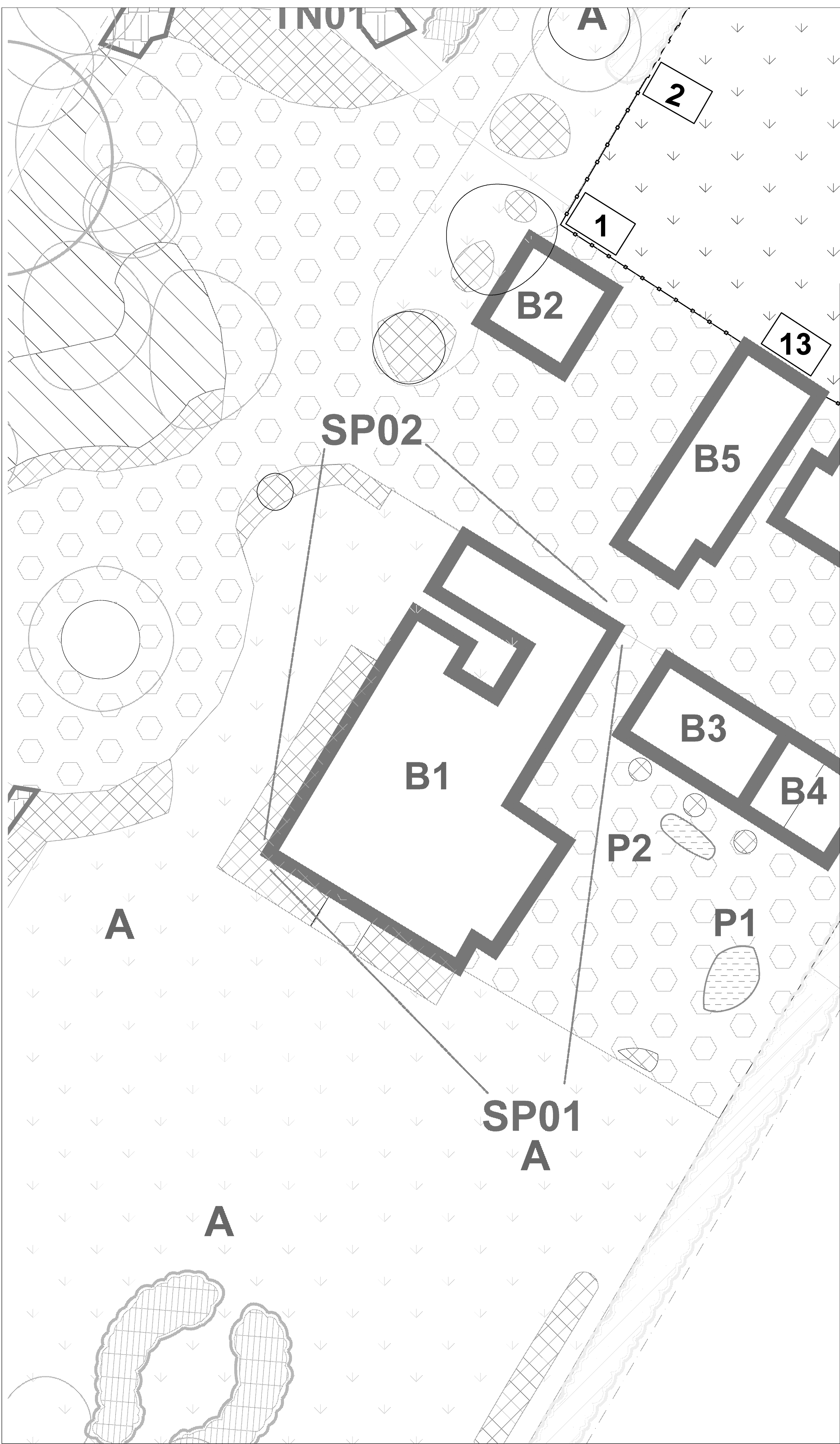
PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	11.09.19	LB



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Project Title and Location Boweries, Barnham Road, Eastergate Client Domusea Developments		
Drawing Title Figure No.2- Location of Artificial Refugia		
Scale 1:250@A1	Drawn LB Approved JJ	Date 11.09.19
Drawing No. LLD1387-ECO-FIG-002 CAD Filename LLD1387/CAD/ECO		Revision 00



Site Survey Boundary.

B1

Building Number.

Survey Point (with Sight Lines).

PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	11.09.19	LB

LIZARD

Landscape Design and Ecology

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Project Title and Location

Boweries, Barnham Road, Eastergate
Client
Domusea Developments

Drawing Title

Figure No.3 - Location of Bat Survey Points

Scale

1:100@A1

Drawn

LB

Approved

JJ

Date

11.09.19

Drawing No

LLD1387-ECO-FIG-003

CAD Filename

LLD1387/CAD/ECO

Revision

00

Figure No.3 - Location of Bat Survey Points
Boweries, Barnham Road, Eastergate

ARUN DISTRICT COUNCIL, EN/64/22/28/6A