

DOMUSEA DEVELOPMENTS

BOWERIES, BARNHAM ROAD, EASTERGATE

- Preliminary Ecological Appraisal Survey
- Preliminary Protected Species and Bat Roost Assessment Survey

Planning Issue

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Date	28 th March 2018
Document Reference	LLD1387-ECO-REP-001_PEA
Revision	00

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SUMMARY

Lizard Landscape Design and Ecology has been commissioned by Domusea Developments to undertake a Preliminary Ecological Appraisal Survey and Preliminary Protected Species Assessment Survey of land and buildings at Boweries, Barnham Road, Eastergate (*Grid Reference: SU 950 051 – hereafter referred to as 'the site'*). A preliminary ecological appraisal (PEA) of the site was undertaken on 22nd February 2018, to appraise the existing ecological resource within the site and the surrounding area.

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 following recommendations are made for the site, with regards to protected species:

Areas of vegetation, in particular field margins and areas of tall ruderal vegetation offer potential habitat for reptiles. A further reptile survey during suitable conditions is recommended to determine whether reptiles are present within the site, their numbers and their distribution in order to determine an appropriate mitigation plan if necessary.

The detached house is considered to offer '*low*' bat roost potential. A single emergence / re-entry survey is recommended to confirm that bats are not using the building. Other buildings on-site are determined to offer '*negligible*' bat roost potential, and do not require further survey. The boundary vegetation to the south is considered to offer '*moderate*' bat commuting and foraging potential; this vegetation should be retained to avoid negative impacts upon foraging and commuting bats.

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. Further survey for great crested newt is not considered necessary; 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*.

1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned by Domusea Developments to undertake a Preliminary Ecological Appraisal Survey and Preliminary Protected Species Assessment Survey of land and buildings at Boweries, Barnham Road, Eastergate (*Grid Reference: SU 950 051 – hereafter referred to as 'the site'*).
- 1.2 A preliminary ecological appraisal (*PEA*) was undertaken on 22nd February 2018, to appraise the existing ecological resource within the land and the surrounding area. The *PEA* comprised a baseline survey conforming broadly to the *JNCC Ecology Phase 1 Habitat Survey protocol*, to identify the existing habitats. In addition, a protected species assessment was undertaken to identify the potential for European and nationally protected species within and adjacent to the land.
- 1.3 The field survey data and analysis contained in this report were undertaken and prepared by George Sayer (*Project Ecologist; PgDip; BSc(Hons); Lizard Landscape Design and Ecology*). The report has been reviewed by Joe Jackson (*Principal; Landscape Architect BA (Hons) LA DipLA CMLI; Lizard Landscape Design and Ecology*).

Site Information

- 1.4 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.
- 1.5 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 28 no. new build 2 / 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.

2.0 SCOPE OF THE SURVEY

- 2.1 The aim of the preliminary ecological appraisal survey has been:
- *To identify and display the main habitat types and plant communities;*
 - *To provide a species list for the major habitats;*
 - *To identify habitats with potential for protected species;*
 - *To provide recommendations for surveys of protected species and / or ecological enhancement / compensation.*

- 2.2 This report establishes the potential ecological resource within the site and outlines where any ecological constraints may occur.

3.0 METHODOLOGY

- 3.1 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)*. This has resulted in a Site Habitat Plan (*Figure No. 01*); Species Lists for Habitat Parcels (*Table No. 05*) and Target Notes (*Table No. 06*) for each site area.
- 3.2 Habitats within the land 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 500.0 metres of the proposed development site.
- 3.3 Due to the field survey consisting of only one site visit, certain species, particularly some of the flowering plants, may not have been visible or may have been otherwise inconspicuous at the time of the survey and hence overlooked. These are accepted constraints associated with the standard *Phase 1 Habitat Survey Methodology*.
- 3.4 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.
- 3.5 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.

Preliminary Bat Roost Assessment Survey

- 3.6 A preliminary bat roost assessment survey was undertaken on 28th February 2018, by an experienced bat surveyor who undertook an internal and external examination of the existing buildings on site. The bat surveyor assessed the existing buildings 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.*

- 3.7 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;*
- *Dense Ivy Covering.*

- 3.8 Once features had been assessed, trees / buildings were then categorised in accordance with *Table 4.1 of the Bat Conservation Trust's Good Survey Guidelines (2016) (shown below)*:

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

Habitat Suitability Index (HSI)

- 3.9 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.
- 3.10 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.

3.11 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

- 3.12 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, an HSI assessment can help to identify the need for more detailed presence / absence surveys for amphibians and has been provided within this report.

4.0 RESULTS

4.1 Desk Study – Background Information

Designated Sites and Habitats

- 4.1.1 The following section outlines the ecological context of the land, describing any designated nature conservation sites in the vicinity of the land. The following designated sites and habitats are not necessarily representative of the existing site's ecology, but are indicative of the ecological context of the surrounding area; a factor that may be important when assessing the presence / absence potential of certain species groups.

Statutory Protected Sites

- 4.1.2 The following statutory protected site is located is just over 2.0 kilometres (*km*) from the proposed development sites:

Table No. 01 – 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

- 4.1.3 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

- 4.1.4 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.
- 4.1.5 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.

- 4.1.6 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.

UK Priority Habitats

- 4.1.7 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*.

UK Priority Species

- 4.1.8 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.
- 4.1.9 All species of bats and their roosts are protected under *The Conservation of Habitats and Species Regulations 2017*. It is an offence for anyone to intentionally kill or injure a bat; disturb a roosting bat; damage, destroy or obstruct access to any place used by bats for shelter; and / or to significantly alter the local distribution of bats.

- 4.1.10 There are multiple records of reptiles within 2.0 km of the site, including 37 no. records of common lizard (*Zootoca vivipara*); 2 no. records of adder (*Vipera berus*); 24 no. records of grass snake (*Natrix natrix*); and 57 no. records of slow worm (*Anguis fragilis*). Most of the records are related to recent housing developments. Widespread reptiles are likely to be present very locally. All species of UK reptile are protected against reckless or intentional killing or injuring under *The Wildlife and Countryside Act 1981 (as amended)*.
- 4.1.11 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. Great crested newts and their resting / breeding sites are protected under *The Conservation of Habitats and Species Regulations 2017* and *The Wildlife and Countryside Act 1981 (as amended)*.
- 4.1.12 There are 8 no. records of water voles (*Arvicola amphibious*) within 2.0 km of the site. These are generally associated with the *Lidsey Rife*. The water vole is fully protected under *Schedule 5 of The Wildlife and Countryside Act 1981 (as amended)*.
- 4.1.13 There are 2 no. records of hazel dormouse (*Muscardinus avellanarius*) within 2.0 km of the site; both records are from Wandleys Copse. The hazel dormouse is fully protected under *Schedules 5 & 6 of The Wildlife and Countryside Act 1981 (as amended)* and *Schedule 2 of The Conservation of Habitats and Species Regulations 2017*.
- 4.1.14 Records of badgers (*Meles meles*) are not available within 2.0 km of the site, however they are likely to be present locally. Badgers are protected under *The Protection of Badgers Act 1992*.
- 4.1.15 There are 49 no. records of Hedgehogs (*Erinaceus europaeus*) within 2.0 km of the site. Hedgehog numbers are declining, and they have been a *UK Biodiversity Action Plan (BAP)* species since 2007.

4.2 Field Survey

4.2.1 The following habitats and features were recorded within the land and the extended survey area. The general site character has been described along with a brief description of the habitat's physical characteristics. These are shown on the Site Habitat Plan in *Figure No. 01*. Species Lists for Habitat Parcels are listed in *Table No. 05*.

4.2.2 Habitats within and adjacent to the land 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.*

Site Description (Refer to Appendix A – Site Photographs)

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).

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 it is apparent are dominated in summer by common nettle (*Urtica dioica*) and cleavers (*Galium aparine*), which are yet to regrow this season (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)

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).

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).

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*).

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*).

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*).

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*).

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).

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).

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).

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).

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. 2: 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. Full results of the HSI index for these ponds are indicated in Table No. 03 below.

Table No. 03: 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

Fauna

- 4.2.20 A number of mammal holes were noted throughout the site and were generally considered to be from rabbits (*Oryctolagus cuniculus*) (Refer to Photograph No. 20 – Appendix A). A number of garden birds were present on the site, including house sparrow (*Passer domesticus*); blue tit (*Cyanistes caeruleus*); starling (*Sturnus vulgaris*); chaffinch (*Fringilla coelebs*); robin (*erithacus rubecula*) and blackbird (*Turdus merula*). A buzzard (*Buteo buteo*) was noted flying above the hedge with trees to the south of the site.

4.3 Preliminary Bat Roost Assessment

- 4.3.1 The existing buildings and trees within the site were assessed for their potential to support roosting, commuting and foraging bats.

Buildings

- 4.3.2 **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).
- 4.3.3 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).

- 4.3.4 Overall, there is limited potential for bats to be present within roof voids of **Building B1**. There is still potential for small numbers of bats to roost in gaps in tiles and flashings, and between tiles and sarking in the roof. As this cannot be ruled out at present, the building is considered to offer 'low' bat roost potential.
- 4.3.5 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*).
- 4.3.6 **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*).
- 4.3.4 **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*).
- 4.3.5 **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*).

4.3.5 **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).

4.3.5 **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

4.3.5 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. 04 – 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

4.3.6 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.

5.0 EVALUATION

- 5.1 The site and its surroundings comprise habitats of 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. 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.
- 5.2 The existing buildings and trees on site were assessed for their potential to support roosting bats. The dwelling on site (**Building B1**) offers 'low' bat roost potential. All other buildings (**Building B2 - Building B8**) offer 'negligible' bat roost potential. A line of trees on site offer 'low' bat roosting potential. The treelines and native hedge offer 'low-moderate' bat foraging and commuting potential.
- 5.3 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.
- 5.4 The tall ruderal, dense scrub, field margins and log / debris piles offer potential habitat for amphibians and reptiles. The habitat is relatively limited in extent; treelines and scrub do provide some connectivity however. This vegetation is likely to be partially removed. The deciduous treelines and log / debris piles offer some hibernation potential for reptiles and amphibians.
- 5.5 The ponds on the site offer no potential for amphibians; given the ponds' sizes, quality, presence of fish and difficulty to access it is considered highly unlikely that great crested newts would be using the ponds.

- 5.6 The site presents an opportunity for enhancing the biodiversity within the site and potential enhancement measures are outlined in Section 7.0.

6.0 PROTECTED SPECIES – CONCLUSIONS AND RECOMMENDATIONS

Bats

- 6.1 The dwelling **Building B1** offers '*low*' bat roost potential; the dwelling should be subject to 1 no. dusk emergence or dawn re-entry survey during the bat activity season, to confirm that bats are not using the property.
- 6.2 The other buildings **Building B2 – Building B8** offer '*negligible*' bat roost potential; no further surveys are recommended for these buildings.
- 6.3 The scattered trees, hedges and treelines on site were assessed as having a '*low-moderate*' potential for commuting and foraging bats. The trees and hedges are generally proposed for retention; however, a small treeline offering '*low*' bat roost potential due to their size are proposed for removal. No further survey of these trees is required; however, the tree surgeons should be aware of the potential for bats to be present. Trees should be removed in sections, with each section inspected by the tree surgeon prior to removal from site. Should bats be discovered within any section of tree, the section should carefully be placed out of harm's way and the ecologist consulted to determine the best course of action. The removal of this treeline should be compensated through the planting of a new treeline to the boundary.
- 6.4 The proposals would not significantly alter the commuting potential of the site. The loss of trees and shrubs within the site would create a very minor loss of foraging potential; this should be compensated through the planting of replacement native trees in appropriate locations, and the reinforcement of existing treelines and hedges. This shall be detailed within the development final landscape scheme.

Reptiles

- 6.5 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.
- 6.6 Previous surveys undertaken in the local area by Lizard Landscape Design and Ecology in 2011; discovered populations of slow worms, common lizards and a single grass snake. Reptiles are therefore likely to be present on the site. A detailed reptile survey is recommended to determine whether reptiles are present within the site, their species and numbers so that an appropriate mitigation plan can be put in place.

Amphibians

- 6.7 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 be present within the ditch. There is some suitable terrestrial habitat for amphibians within the site, however given the area proposed for removal or disturbance, and the distance to any other ponds, following the standing advice from Natural England any offence is considered '*highly unlikely*'. No further surveys are recommended for amphibians. Any clearance of patches of habitat suitable for amphibians shall be undertaken in a sensitive manner to minimise the risk of harm to individual amphibians, which could then disperse to other areas of the site.

Nesting Birds

- 6.8 All active birds' nests are protected against damage / destruction under *The Wildlife and Countryside Act 1981 (as amended)* therefore, it is advised that clearance of any trees / hedges / shrubs take place outside of the bird nesting season (*Season: March - August*) or after careful inspection by the *Suitably Qualified Ecologist* to ensure no active birds' nests are present.

Badgers

- 6.9 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. Badgers are protected under the *Protection of Badgers Act 1992*; should a sett be found during development, works should cease, and the ecologist be consulted to determine the appropriate course of action.

Others

- 6.10 No habitat suitable for supporting other protected species (*such as water vole, otter or dormouse*) was noted on site. No rare / unusual / protected flora was recorded on this site.

7.0 ECOLOGICAL ENHANCEMENTS

7.1 The design of any proposed development should consider ecological enhancements for the benefit of wildlife in line with the *National Planning Policy Framework* and *Local Planning Policy*. These enhancements should reflect the current state of the site and its surroundings, as well as the proposed use of the site. Recommendations for ecological enhancements that could be considered as part of development proposals could include:

- *The provision of nesting boxes for a variety of bird species within trees and walls within the site;*
- *The provision of roosting boxes for bats within trees to the south of the site;*
- *The planting of additional native trees and shrubs to reinforce boundary vegetation and improve habitat for birds and invertebrates;*
- *Use of native and local shrub and tree species with ecological value within planting schemes – this might include (for example) guelder rose (*Viburnum opulus*); pedunculate oak (*Quercus robur*); field maple (*Acer campestre*); wild privet (*Ligustrum ovalifolium*); common hawthorn (*Crataegus monogyna*); rowan (*Sorbus aucuparia*); whitebeam (*Sorbus aria*); wild service tree (*Sorbus torminalis*); wild cherry (*Prunus avium*); hornbeam (*Carpinus betulus*); common box (*Buxus sempervirens*); holly (*Ilex aquifolium*); alder (*Alnus glutinosa*); silver birch (*Betula pendula*);*
- *Use of a sympathetic lighting scheme across the site, with lighting angled down and away from tree lines;*
- *Retention or creation of an area of grassland, preferably with some connectivity to other habitats such as hedgerows or treelines to provide some reptile and amphibian habitat;*
- *Placement of bug hotels such as NHBS Bee and Bug Biome or similar to provide additional habitat for invertebrates;*
- *Reinforcement of existing compost and log piles and creation of new log piles to the edges of the site.*

8.0 REFERENCES

ARG UK: Advice Note 5: Great Crested Newt Habitat Suitability Index (2010);

English Nature: The Dormouse Conservation Handbook (2nd ed.) (2006);

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

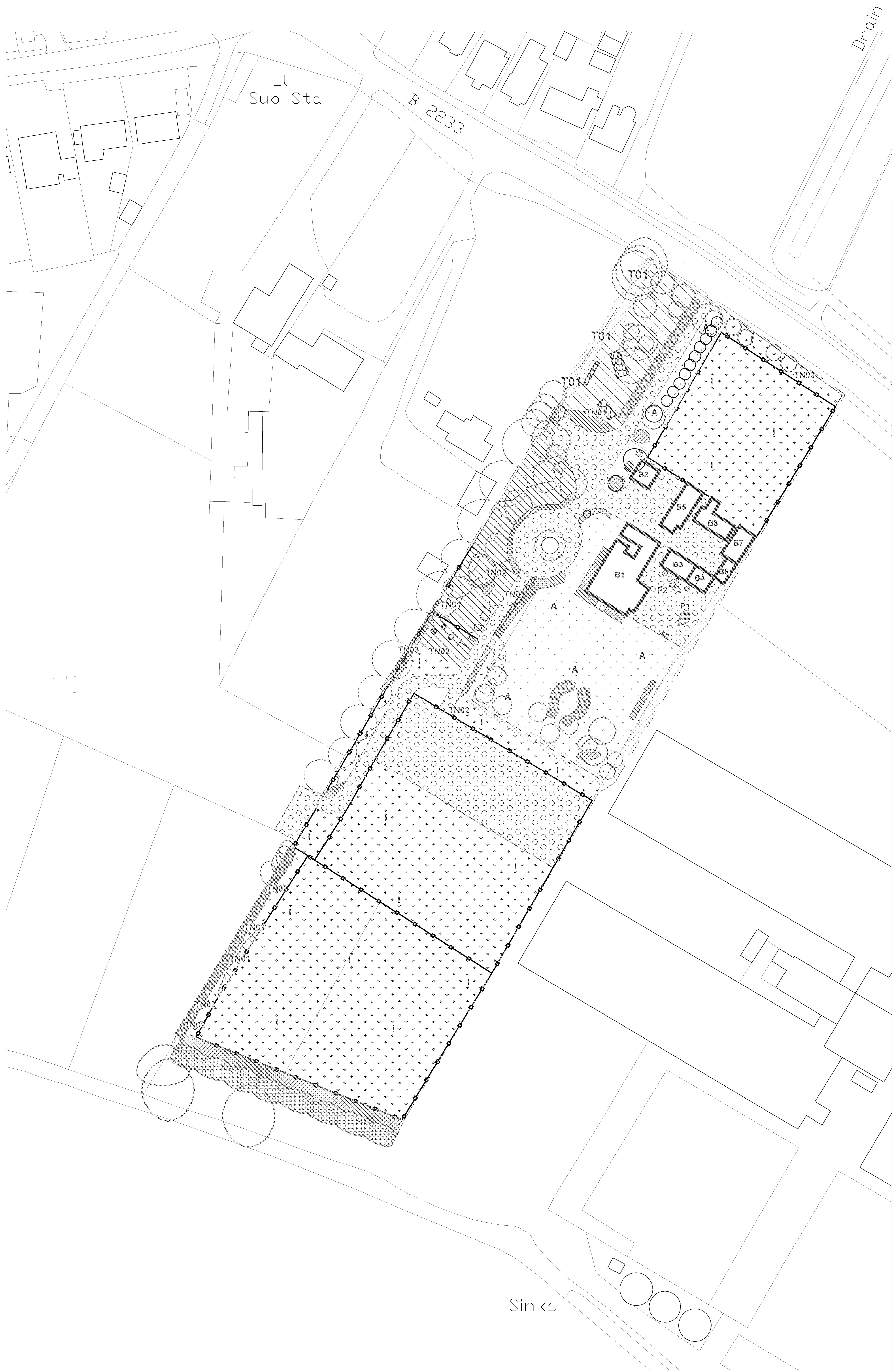
Collins J (ed): Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.) The Bat Conservation Trust (2016);

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth;

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.



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
00	Planning Issue	28.03.18	LB

LIZARD
Landscape Design and Ecology
The Old Bank, 34 South Street, Torring, Worthing, West Sussex, BN14 7LH
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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

00

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

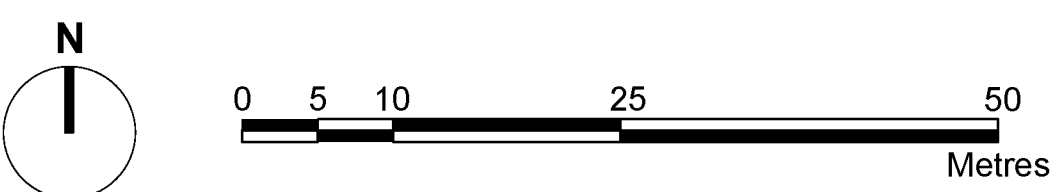


Table No. 05 – Species List for Habitat Parcels

Amenity Grassland

Common Name	Scientific Name	DAFOR
Black Medick	<i>Medicago lupulina</i>	O
Catsear	<i>Hypochaeris radicata</i>	R
Cleavers	<i>Galium aparine</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 aparine</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. 06 – Target Notes for Protected Species

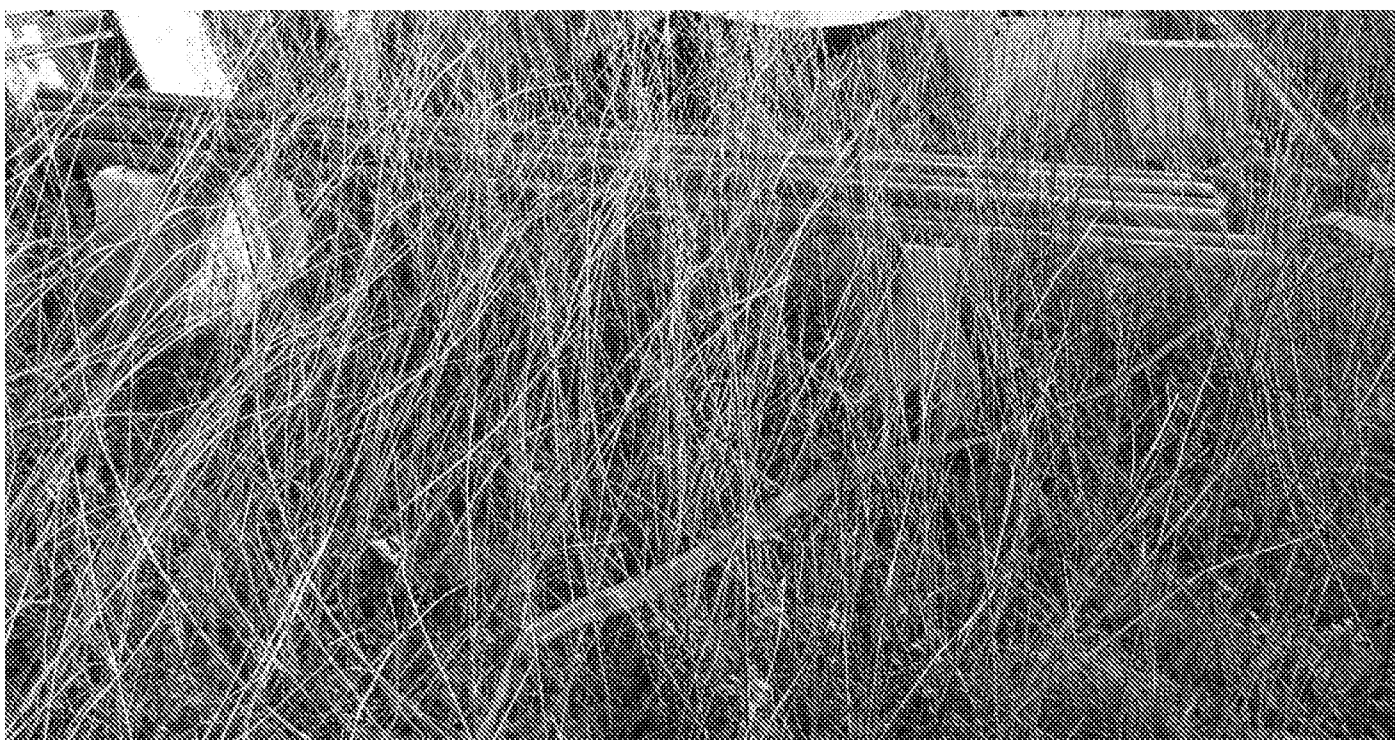
No.	Feature	Description
TN01	Compost Piles.	Piles of logs and debris which provide some habitat for reptiles, amphibians and invertebrates.
TN02	Tall Ruderal, Field Margins and Dense Scrub Vegetation.	Taller vegetation which provides some habitat for reptiles and amphibians.
TN03	Mammal Holes.	Evidence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

APPENDIX A – SITE PHOTOGRAPHS

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.

DOMUSEA DEVELOPMENTS
BOWERIES, BARNHAM ROAD, EASTERGATE
PRELIMINARY ECOLOGICAL APPRAISAL SURVEY

LLD1387-ECO-REP-001-PEA

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.

DOMUSEA DEVELOPMENTS
BOWERIES, BARNHAM ROAD, EASTERGATE
PRELIMINARY ECOLOGICAL APPRAISAL SURVEY

LLD1387-ECO-REP-001-PEA

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.

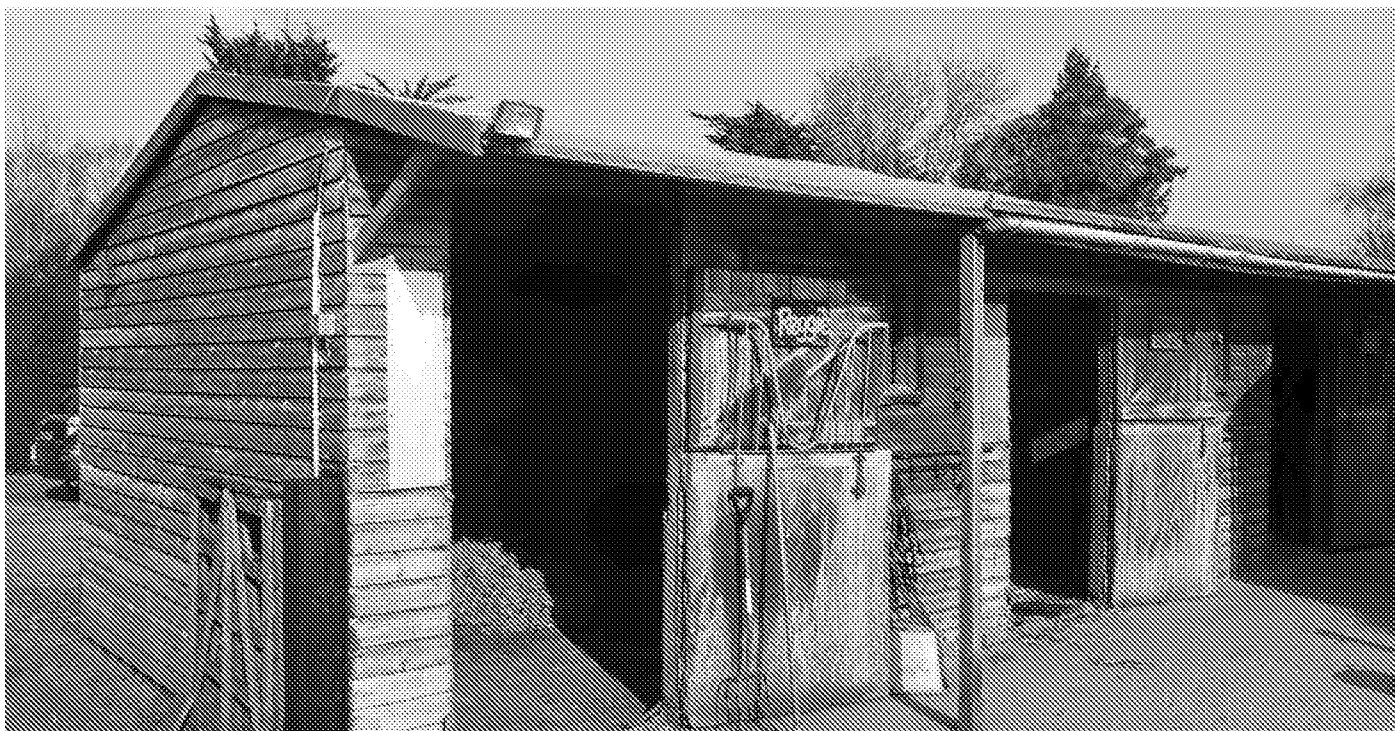


Photograph No. 22 - Buildings B3 and B4 - the store and boiler rooms.

DOMUSEA DEVELOPMENTS
BOWERIES, BARNHAM ROAD, EASTERGATE
PRELIMINARY ECOLOGICAL APPRAISAL SURVEY

LLD1387-ECO-REP-001-PEA

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 B – SUSSEX BIODIVERSITY RECORDS CENTRE
SUMMARY REPORT**

DOMUSEA DEVELOPMENTS
BOWERIES, BARNHAM ROAD, EASTERGATE
PRELIMINARY ECOLOGICAL APPRAISAL SURVEY
LLD1378-ECO-PEA-REV0100

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.