

**LAND AT BAYARDS, LEVEL MARE LANE,
EASTERGATE
ECOLOGICAL IMPACT ASSESSMENT
27th AUGUST 2021**



L I Z A R D

Landscape Design and Ecology

ECOLOGICAL IMPACT ASSESSMENT

Land at Level Mare Lane, Eastergate

On Behalf of: Reside Developments Ltd

Planning Issue

Prepared by	GS
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SUMMARY

Lizard Landscape Design and Ecology has been commissioned to undertake a Preliminary Ecological Appraisal and subsequent Protected Species Surveys of Land at Level Mare Lane, Eastergate, West Sussex (*centred on Grid Reference: SU 94618 06268 – hereafter referred to as 'the site'*). The results of these surveys were then used to inform an Ecological Impact Assessment.

A preliminary ecological appraisal (*PEA*) was undertaken on 13th May 2021, to appraise the existing ecological resource within the land and the surrounding area. The following Phase 2 Protected species surveys were recommended and undertaken during the 2021 survey season:

- *Reptile Surveys;*
- *Badger Surveys.*

Bat Activity Surveys were undertaken on the adjacent site (*permitted under BN/50/20/PL*), which shares the treeline forming the main feature of interest to bats, and this data was also incorporated into this assessment. Surveys were carried out over 20no. nights between 20th-27th April, 27th-31st May, 23rd June-1st July 2020.

The development site is formed of common, widespread habitats of low ecological value. Floral diversity in general was very low, with the bulk of the site dominated by heavily grazed improved grassland. Boundary treeline/woodland habitats are of moderate value and shall be retained and enhanced through the development.

No protected species of badger or reptile were recorded utilising the site, however the mature vegetation to the eastern boundary is utilised by common light-tolerant bat species of common and soprano pipistrelle and serotine. Barbastelle bat, a rare woodland bat for which local international sites are designated, have been recorded rarely within the adjacent site. A Information to inform a Habitats Regulations Assessment has been provided. With appropriate mitigation, compensation and enhancement as detailed above, there will be **no significant effects** upon any habitats or protected species within or adjacent to the site.

The impacts of the planned development upon biodiversity will be **negligible, non-significant** with proposed ecological enhancements resulting in a net gain in habitat and linear features, as proven through the completion of the DEFRA Biodiversity Net Gain metric.

1.0 INTRODUCTION

1.1 Lizard Landscape Design and Ecology has been commissioned to undertake a Preliminary Ecological Appraisal and subsequent Protected Species Surveys of Land at Fontwell Avenue, Fontwell, West Sussex (*Grid Reference: SU 946 061—hereafter referred to as ‘the site’*). The results of these surveys were then used to inform an Ecological Impact Assessment.

1.2 A preliminary ecological appraisal (*PEA*) was undertaken on 13th May 2021, to appraise the existing ecological resource within the land and the surrounding area. The following Phase 2 Protected species surveys were recommended and undertaken during the 2019 survey season:

- *Reptile Surveys;*
- *Badger Surveys.*

1.3 Bat Activity Surveys were undertaken on the adjacent site (permitted under BN/50/20/PL), which shares the treeline forming the main feature of interest to bats, and this data was also incorporated into this assessment. Surveys were carried out over 20no. nights between 20th-27th April, 27th-31st May, 23rd June-1st July 2020. The field survey data and analysis contained in this report was undertaken and prepared by George Sayer (*MCIEEM, Senior Ecologist; Lizard Landscape Design and Ecology*). The report has been reviewed by Catherine O'Reilly (*MCIEEM, Senior Ecologist; Lizard Landscape Design and Ecology*).

Site Information

1.4 The site consists of a field formed of horse grazing paddocks, surrounded by a large treeline/wooded shaw to the east and sparse treelines / hedges to all other aspects. The main site area covers a total area of approximately 2.1 hectares (*Ha*).

1.5 The site is bounded by Level Mare Lane to the north; the approved Northfields/Fontwell Avenue site to the east; the Bayards stables to the north-west and a track with residential dwellings to the south-west.

Surrounding Landscape

- 1.6 The wider landscape is largely rural; the area is dominated by a matrix of arable and pastoral farmland interspersed with hedgerows and small pockets of woodland. The nearest woodland area is a 0.68Ha plot of *Deciduous Woodland* located immediately west of the proposed development site.
- 1.7 There is 1 no. waterbody located within 500m of the proposed development site, located 90m south at Greenfields Farm.

Development Proposals

- 1.8 It is understood that the development proposals are for the development of 69 no. new dwellings. Access would come from the approved site to the east, apart from 6no. dwellings which would have access from Level Mare Lane. Construction access would also come through Level Mare Lane. The houses would be accompanied by gardens, parking, open space and play areas.

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 Policy ENV DM5 of the Arun Local Plan 2014-2031 states that:
- *Development will seek to achieve a net gain in biodiversity and protect existing habitats on site;*
 - *Development should incorporate elements such as green roofs / walls and bird and bat boxes;*
 - *Development shall be designed to provide links between habitats and facilitate species movement;*
 - *Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species.*
- 2.6 The Aldingbourne Neighbourhood Development Plan 2019- 2031 is currently at Regulation 19 – post-examination stage. The plan includes strong reference to biodiversity. Relevant policies include the following:
- *Policy EH2 Green Infrastructure and Ecosystem Services which states that “New development within, or immediately adjacent to the Biodiversity Corridors identified on Maps A1 and A2 will only be supported where it can be clearly demonstrated that development proposals will not give rise to any significant harm to the integrity or function of the Biodiversity Corridors.” Policy EH4 Protection of watercourses which states that “Proposals that support and promote river catchment management, wildlife conservation and reduce flood risk will be supported.”*
 - *Policy EH6 Protection of trees and hedgerows which states that “Development that damages or results in the loss of trees of arboricultural and amenity value or loss of hedgerows and/or priority habitat, or which significantly damages ecological networks will be resisted, unless the need for, and benefits of, development in that location clearly outweigh the loss. Development proposals, where appropriate, must be designed to incorporate biodiversity within and around developments and enhance ecological networks, seeking to retain wherever possible ancient trees, trees of good arboricultural and amenity value and hedgerows to contribute to the Government’s target*

to halt the decline in biodiversity by aiming for a net gain for nature.

Proposals which affect sites with existing trees or hedgerows should be accompanied by a survey that establishes the health and longevity of any affected trees or hedgerows and a management plan to demonstrate how they will be so maintained.”

- *Policy EH12 2019 Protection of bat habitats which states that “In order to be fully compliant with the Habitats Directive relating to the Singleton and Cocking Tunnels SAC qualifying features, proposals for the development of greenfield sites within the Parish (most of which falls within the SAC’s 12km Wider Conservation Area) must evaluate whether there is a potential for the loss of suitable foraging habitat and / or the severance of commuting flight lines, such as in the form of mature treelines, hedgerows and watercourses. If so, such features must be preserved unless surveys demonstrate that they are not used by Barbastrelle, Bechstein or other bats linked with nearby roosting sites. Care must also be taken through development design to ensure that such retained features are not affected by artificial lighting. Where these corridors are used by roosting feeding or commuting bats, development within 50 metres will be resisted.”*

- 2.7 The current development proposals have been designed to comply with all national and local planning policy with regards biodiversity. This compliance is discussed within the impact assessment section of this report.

3.0 METHODOLOGY

3.1 Desk Study

- 3.1.1 The Multi-agency Geographic Information for the Countryside (MAGIC) system was used for details of protected sites, habitats and protected species licences within 2.0km of the site. Due to the poor-quality habitats on site and immediately adjacent a full protected species search from SxBRC was not considered proportionate to the predicted impacts of the scheme. Further data on species present locally was obtained from other large planning applications within the immediate vicinity. The desk study was conducted on 13th July 2021.

3.2 Field Survey

- 3.2.1 A preliminary ecological appraisal was undertaken on 13th May 2021, 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, 2010)*. This has resulted in a Site Habitat Plan (*Figure No. 01*) and Species Lists for Habitat Parcels (*Table No. 05*).
- 3.2.2 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 500m 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 was undertaken on 13th May 2021 by an experienced bat surveyor who undertook an external and internal examination of the existing buildings and trees on site. The bat surveyor assessed the existing buildings visually and searched for evidence such as:

- *Grease Marks;*
- *Urine Stains;*
- *Bat Droppings;*
- *Feeding Remains;*
- *Dead or Live Bats.*

3.3.2 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.*

3.3.3 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).*

Table No. 01 – Categorisation Criteria

Category	Buildings	Trees
`Negligible`	<i>No suitable features identified.</i>	<i>No suitable features identified.</i>
`Low`	<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>
`Moderate`	<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>
`High`	<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 Reptile Survey

- 3.4.1 35 no. artificial reptile refugia (*roofing felt; 0.50 x 1.0 m²*) were laid out around the site on 7th June 2021 and allowed to settle for 14 days prior to commencement of the survey.
- 3.4.2 07 no. site visits were conducted, where the number, species, age and sex of the reptiles' present were recorded.
- 3.4.3 Surveys were undertaken where possible during recommended times (08:00-11:00 and 16:00-18:30) with suitable weather conditions for surveying reptiles (*guidelines recommend temperatures 9-18°C with intermittent or hazy sunshine during warm days*). Weather conditions recorded at each survey visit are shown below.

Table No. 02 - Details of Weather Conditions During Reptile Surveys

Survey	Date of Visit	Time	Weather
01	23.06.2021	10:00	14 degrees, WF1, clear and sunny
02	02.07.2021	17:30	18 degrees, WF1, light cloud
03	05.07.2021	09:00	16 degrees, WF2, light cloud
04	07.07.2021	10:30	17 degrees, WF2, light cloud
05	09.07.2021	08:45	17 degrees, WF3, clear and sunny
06	13.07.2021	09:00	17 degrees, WF1, clear and sunny
07	30.07.2021	08:30	16 degrees, WF3, light rain

3.5 Badger Survey

- 3.5.1 An area of mammal holes was monitored for 36 days, between 23rd June and 30th July 2021. The area was along the eastern site boundary, within the mixed plantation woodland boundary vegetation. (*refer to Figure No. 03 for locations of monitoring points*).
- 3.5.2 The area was monitored with an infrared trail camera, and deadwood placed across the entrance hole. Camera traps were set to record 30 seconds of footage once triggered.

3.6 Ecological Impact Assessment

- 3.6.1 The methodology for Ecological Impact Assessment (*EcIA*) 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.

3.6.2 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.*

3.6.3 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.*

3.6.4 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*".

3.6.5 The confidence that a certain activity will result in a significant adverse effect has been ranked as follows:

- *Highly probable;*
- *Probable;*
- *Unlikely;*
- *Highly unlikely.*

3.6.6 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 The nearest Statutory protected sites are detailed below.

Table No. 03 – Statutory Protected Sites

Site	Description	Location
South Downs National Park	A large area of varied habitats including chalk grassland and woodland which supports varied flora and fauna.	1.0km N
Eartham Pit, Boxgrove SSSI.	The area has undergone considerable geological and archaeological investigations. Immediately to the north of the pit there is a fossil shoreline.	3.0km NW
Fairmile Bottom SSSI.	The site contains yew <i>Taxus baccata</i> woodland and scrub as well as unimproved chalk grassland, which are all nationally rare communities.	4.0km NE
Duncton to Bignor Escarpment SAC	An example of mature beech <i>Fagus sylvatica</i> woodland located on the steep scarp face of the South Downs. The site has developed over chalk which is overlain in places by a clay-with-flints capping. Beech dominates in a mosaic with ash <i>Fraxinus excelsior</i> woodland, scrub and grassland. Much of the beech woodland is high forest but with some old pollards. Rare plants present include white helleborine <i>Cephalanthera damasonium</i> , yellow bird's nest <i>Monotropa hypopitys</i> , green hellebore <i>Helleborus viridis</i> and limestone fern <i>Gymnocarpium robertium</i> . The woods also have a rich mollusc fauna.	7.1 km N
Solent and Dorset Coast SPA	Designated for breeding colonies of, and open sea foraging habitat for internationally important colonies of: • common tern	7.1 km S

	• <i>Sandwich tern</i> • <i>little tern</i>	
<i>Pagham Harbour SPA, RAMSAR (also LNR, SSSI)</i>	<i>Areas of coastal and harbour habitat noted for its importance for over wintering birds.</i> <i>Designated an SPA for Common tern, Dark-bellied brent goose; Little tern and ruff.</i>	<i>9.8 km SW</i>

4.1.2 The site is located within the Impact Risk Zone of *Fairmile Bottom SSSI* however proposals do not meet the criteria which would require the LPA to consult with Natural England regarding potential impacts.

4.1.3 The Arun Valley SAC, SPA, Ramsar and Singleton and Cocking Tunnels SAC are located between 10-11 km from site and as such would usually be scoped out of this assessment. Following request from the nearby SDNPA, the potential for significant effects upon the Singleton and Cocking Tunnels SAC site is assessed.

Non-Statutory Protected Areas

4.1.4 *Sites of Nature Conservation Interest (SNCIs)* are designations applied to the most important non-statutory nature conservation sites. They are recognised by the *National Planning Policy Framework (2019)* and as such are material considerations when assessing planning applications. SNCI's located within 2.0km of the site are detailed below.

Table No. 04 – Non-Statutory Protected Sites

SNCI	Locations
<i>Fontwell Racecourse SNCI</i>	<i>0.015km NW</i>
<i>Slindon Bottom SNCI</i>	<i>1.0km N</i>

4.1.5 The proposed development site is neither located adjacent to or within any SNCI. The development proposals are highly unlikely to have an adverse effect upon any surrounding SNCI due to the intervening distances and lack of direct connectivity.

4.2 Habitats

4.2.1 Within 2.0km of the site there are *Priority Habitats* of *Lowland Meadow, Ancient Woodland, Traditional Orchard, Deciduous Woodland and Woodpasture and Parkland*. The site itself does not contain any *Priority Habitat*, with the wooded

4.2.2 Habitats within and adjacent to the land include:

- *Improved Grassland;*
- *Intact, Species-poor Hedge;*
- *Defunct, Species-poor Hedge;*
- *Dense / Continuous Scrub;*
- *Mixed Plantation Woodland;*
- *Tall Ruderal;*
- *Scattered Trees.*

Improved Grassland

4.2.3 The bulk of the site area is dominated by improved grassland. The majority of the site is heavily grazed by horses, with a small paddock to the north currently ungrazed and long. Species composition is typical of improved grassland being dominated by Perennial Rye-grass (*Lolium perenne*), Timothy (*Phleum pratense*) and common bent (*Agrostis capillaris*). The ungrazed section displays slightly higher diversity with soft brome (*Bromus hordeaceus*) and meadow fescue (*Festuca pratensis*) but is distinguished as a poor condition improved grassland by the abundance of White Clover (*Trifolium repens*) and Creeping Buttercup (*Ranunculus repens*), presence of thistles (*Cirsium spp.*) and general dominance of perennial rye-grass. The habitat is of **site value** only.

Intact, Species-poor Hedge

4.2.4 A small hedge dominated by hawthorn (*Crataegus monogyna*) separates several fields. The hedge is low, well-maintained and poorly-connected. The hedge does not contain any special features affording protection under the Hedgerow Regulations (1997) but can be considered a Priority Habitat. Despite this, the hedge is largely a feature for retaining horses and is of **site value** only.

Defunct, Species-poor Hedge

- 4.2.5 The south-western boundary contains a number of poor-quality sycamore (*Acer pseudoplatanus*) with several hawthorn. The trees form a relict hedgeline but are sparse and gappy, with little ecological value. The hedge is very gappy, and largely formed of sycamore, a species not listed under the Hedgerow Regulations (1997) as a native woody species. As such the hedge is not considered a Priority Habitat and is of **site value**.

Dense / Continuous Scrub

- 4.2.6 The western boundary contains a long, low boundary dominated by bramble (*Rubus fruticosus* agg.) with occasional ruderal plants such as hogweed (*Heracleum sphondylium*). The vegetation provides a very minor habitat which lacks structure or diversity and is of **site value**.

Mixed Plantation Woodland

- 4.2.7 The eastern boundary is lined with a wooded shaw, formed of a mixture of old, planted trees including Monterey cypress (*Cupressus macrocarpa*) and beech (*Fagus sylvatica*) with a number of self-seeded sycamore between. Other species noted include poplar (*Populus* sp.) and ash (*Fraxinus excelsior*). The understorey consists of sparse hawthorn, elder (*Sambucus nigra*) and sapling sycamore. The groundcover is largely dominated by ivy (*Hedera helix*) and nettle (*Urtica dioica*) with several large piles of horse manure covering much of the area. A number of the mature trees within have been proposed for protection under TPO. The habitat provides some local connectivity but is currently in poor condition and is of **site-local value**.

Tall Ruderal

- 4.2.8 Beneath the eastern woodland is a band of ruderal vegetation. To the north this is dominated by winter heliotrope (*Petasites fragrans*) with the remainder largely formed of nettle, with frequent spear thistle (*Cirsium vulgare*) and cleavers (*Galium aparine*). The vegetation provides a very minor habitat which lacks structure or diversity and is of **site value**.

Scattered Trees

- 4.2.9 The northern boundary contains a line of scattered mature trees, including maple (*Acer sp.*), beech and horse chestnut (*Aesculus hippocastanum*). A large Monterey cypress (*Cupressus macrocarpa*) is present to the south of the site. A large, bushy pine (*Pinus sp.*) is present to the centre-west of the site. A number of the mature trees have been proposed for protection under TPO. The mature trees do not offer any particular ecological habitat beyond for invertebrates and nesting birds, and are of **site value**.

4.3 Protected Species

- 4.3.1 The following is based upon protected species records returned from desk study, field study and any further Phase 2 Protected Species Surveys which were undertaken on site.

Reptiles

Desk Study

- 4.3.2 There are records of Slow Worm (*Anguis fragilis*), Grass Snake and Common Lizard within 2.0km of the site. All species of UK reptile are protected against reckless or intentional killing or injuring under *The Wildlife and Countryside Act 1981 (as amended)*.

Site Assessment

- 4.3.3 The site is dominated by well-grazed improved grassland; as such the majority of the site lacks the suitable structure for hibernation, shelter and foraging. Un-grazed margins along the eastern and northern boundary, and the bases of hedgerows to the southern and western boundaries were considered to offer areas of suitable reptile habitat.
- 4.3.4 A reptile survey of these areas undertaken June-July 2021 did not record any reptiles on site. All surveys were undertaken during suitable weather conditions at a suitable time of the year; therefore, there is nothing to suggest this may be a false negative. The site is of **negligible value** to reptiles.

Amphibians

Desk Study

- 4.3.5 Records of Common Toad, Common Frog, Smooth Newt exist within 2.0km. No records of Great Crested Newts (GCN) existing within 2.0km of the site. Surveys of ponds in the wider area were undertaken in 2014 in connection with a large development to the north-east; these surveys did not record GCN in any of the ponds surveyed.

Site Assessment

- 4.3.6 No waterbodies are present within the redline boundary. No access was available to the pond located 90m south-west, however inspection via satellite imagery suggests that this pond is surrounded by bare ground and possibly stocked with fish therefore is likely to be unsuitable as a breeding pond.
- 4.3.7 The site is dominated by well-grazed improved grassland; as such the majority of the site lacks the suitable structure for hibernation, shelter and foraging, beyond small sections of well-maintained hedge and water troughs which may harbour individual common amphibians. The woodland to the eastern boundary may provide some limited terrestrial habitat for GCN and toads; this area is to be retained, protected and enhanced within the proposals. The construction zone is considered to be of **negligible value** to amphibians.

Bats

Desk Study

- 4.3.8 Bat species such as Common Pipistrelle (*Pipistrellus pipistrellus*); Soprano Pipistrelle (*Pipistrellus pygmaeus*); Nathusius' pipistrelle (*Pipistrellus nathusii*), Brown Long-eared (*Plecotus auratus*), Natterer's (*Myotis nattereri*), Bechstein's (*Myotis bechsteinii*) and Serotine bats (*Eptesicus serotinus*) have been recorded within 2.0km of the site and Barbastelle (*Barbastella barbastellus*) bats have also been recorded using Fontwell Avenue as a commuting route.

Site Assessment

- 4.3.9 No buildings are present within the red line boundary. The following trees offer bat roost potential.

Table No. 05 – Trees Offering Bat Roost Potential

Tree No.	Description	Potential
TG01	<i>Group of mature beech and sweet chesnut, devoid of any suitable features but of an age and size conducive to supporting bat roosts.</i>	<i>Low.</i>
T02	<i>Large lime tree, with no discernible features but with dense suckers which may conceal a small roosting feature lower on the stem.</i>	<i>Low.</i>
T03	<i>Very large Monterey cypress, with no features noted but large enough to contain small, high features conducive to supporting small bat roosts.</i>	<i>Low.</i>
T04	<i>Nearly-dead sweet chestnut, with no significant cavities but small areas of flaking bark.</i>	<i>Low.</i>
T05	<i>Very large Monterey cypress, with no features noted but large enough to contain small, high features conducive to supporting small bat roosts.</i>	<i>Low.</i>
T06	<i>Mature sycamore with a shallow knot hole noted; the hole does not appear to lead into the stem.</i>	<i>Low.</i>
T07	<i>Large, off-site Monterey pine with several woodpecker holes noted.</i>	<i>Moderate.</i>
T08	<i>Large, off-site lime with several woodpecker holes noted.</i>	<i>Moderate.</i>

4.3.10 The mature woodland/treeline on the eastern boundary provides a strong linear landscape feature between the site and the wider environment, as well as offering a foraging resource in its own right. Bat activity surveys undertaken as part of the adjacent site to the east (*which shares this treeline feature*) found the treeline and adjacent site to be in use by a low number of common pipistrelles and serotine bats, and rarely by less common species of soprano pipistrelle, noctule, Myotis bats and barbastelle, an Annex II species. It is considered that similar numbers and species would use this similar, adjacent site which share the main boundary feature. The site is of **site** value to foraging bats and the boundary woodland and treelines of **local** value for commuting and foraging bats.

Breeding Birds

Desk Study

- 4.3.11 56no. bird species have been recorded within 2.0km of the site, including skylark, kingfisher, swallow and barn owl.

Site Assessment

- 4.3.12 The grassland within the main body of the site is too short and poached by horses to offer suitable nesting habitat for ground nesting birds; however, the surrounding hedge / tree lines offer suitable nesting habitat for a range of species. Woodpecker holes are noted to off-site trees with a green woodpecker noted foraging on-site. The woodland is suitable for a range of birds, with anecdotal evidence suggesting buzzards have previously nested here. Barn owl calls were heard during the bat activity surveys undertaken in 2020; no evidence of nesting barn owl is noted, with the grassland generally too heavily-grazed to support numerous small mammals. The majority of the site is of **site value** to nesting birds, with the woodland considered to be of **local value**.

Badgers

Desk Study

- 4.3.13 Badger records are confidential; however, badgers are known to be present within 1.0km of the site.

Site Assessment

- 4.3.14 Several mammal tracks were recorded between the eastern treeline and the site, while the short grassland on site may offer suitable foraging habitat for badgers. A number of mammal holes were also recorded along the eastern boundary of the site.

- 4.3.15 A detailed badger sett monitoring survey undertaken on site between June-July 2021 did not record badgers utilising any of the mammal holes within or adjacent to the site, which mirrors the findings of surveys undertaken in 2019 for the adjacent site. Evidence from camera traps deployed on site shows these areas to be used by foxes and rabbits only. A deer was also recorded by the camera traps however no badgers were recorded passing the cameras at any point during the survey. No direct evidence of badgers on site such as snuffle holes or latrines were recorded within the main body of the site. The site is therefore of **negligible value** to badgers, however they may very occasionally commute across the site.

Dormouse

Desk Study

- 4.3.16 A small number of dormouse records exist within 2.0km of the site, from Wandleys copse (1km NE) and Potwell Copse (1.9km NE).

Site Assessment

- 4.3.17 The species-poor hedgerows are routinely managed to a height of <2.0m and lack the size, connectivity and species diversity to support dormice. The western boundary scrub is too lacking in diversity and connectivity to support dormice. The eastern woodland may offer some limited habitat suitability however this is negated by the lack of direct connectivity between the site and areas of woodland in the wider environment, and general lack of suitable foraging species. The site is considered to be of **negligible value** to dormice.

Others

- 4.3.18 No suitable habitat for any other protected species (such as water vole) was recorded within or adjacent to the site area.

5.0 ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

5.1 Designated Sites

Potential Impacts

5.1.1 No impacts upon surrounding statutory protected sites are predicted due to the intervening distances and the discrepancy between habitats. The site is well outside the 3.5 km buffer zone for Pagham Harbour SPA/Ramsar and as such, significant recreational visits there are considered unlikely. Fontwell Racecourse is located 0.0.15km north-west of the site; in the absence of mitigation impacts could include degradation of habitats by dust smothering. Due to the intervening distance, impacts would be of minor impact magnitude and are highly unlikely to occur.

5.1.2 The Singleton and Cocking Tunnels SAC are 10-11 km from the site. Significant impacts upon bat flightlines must be assessed as part of proposals. In the absence of mitigation; bats which hibernate or roost at the SAC might be disturbed through disruption/removal of commuting and foraging habitat.

Mitigation and Compensation

5.1.3 Works during the construction phase will be undertaken in accordance with guidance provided within *The Control of Dust and Emissions During Construction and Demolition SPG (July 2014)* to control any excess dust creation.

5.1.4 Lighting design, vegetation removal and landscape proposals shall ensure the continued value of the site for bats. Full details are provided in section 5.5 below.

Residual Impacts

5.1.5 **No likely significant effect** upon surrounding designated sites will arise from the proposed development. Information to inform a Habitats Regulations Assessment has been provided as part of the application to confirm this.

5.2 Habitats

Potential Impacts

- 5.2.1 Development proposals will result in the loss of areas of tall ruderal, improved grassland, species-poor hedge. These habitats are common and widespread and will be replaced during development. A small section of the mixed plantation woodland of moderate value but poor condition would require removal. In the absence of mitigation, mature trees of site value may be affected by compaction, root damage, dust smothering and pollution events.

Mitigation and Compensation

- 5.2.2 All retained trees and hedges would be protected with tree protective fencing in accordance with BS5837:2012, with 2m buffers provided to higher-value trees. All fuel and hazardous materials will be stored in an appropriate manner a minimum of 5.0m from hedge / tree lines. Works during the construction phase will be undertaken in accordance with guidance provided within *The Control of Dust and Emissions During Construction and Demolition SPG (July 2014)* to control any excess dust creation which may impact adjacent priority habitat.
- 5.2.3 Post-development, a landscape scheme would replace habitats lost with further areas of amenity grassland and introduced shrub areas within gardens while public open space will include new native tree, hedge and shrub planting, areas of wildflower meadow and new enhanced hedgerow boundary planting. Wildlife friendly planting will be utilised, increasing the overall biodiversity value of the site.
- 5.2.4 The woodland shall be enhanced to increase its value and mitigate for any damage. The location of the section of woodland requiring removal has been designed to occur at a point where the canopy is already thin and poor, minimising the impact of removal.

Residual Impacts

- 5.2.5 No priority or other important habitats or plant species will be affected by this development, the impact of which is **negligible, not significant**. A Biodiversity Net Gain Assessment completed using the DEFRA Metric 2.0 has been completed which confirms that there will be a net gain in both habitat and linear features.

5.3 Reptiles*Potential Impacts*

- 5.3.1 No reptiles were found on site; impacts will be **negligible**.

Mitigation and Compensation

- 5.3.2 None required. Proposed enhancements will increase the overall value of the site for reptile species. In the unlikely event that any reptiles are found on site all works will cease while a suitably qualified ecologist is contacted for advice.

Residual Impacts

- 5.3.3 The overall impact of the scheme will be negligible in the short-term, with a **positive impact** in the long-term once vegetation has established.

5.4 Amphibians*Potential Impacts*

- 5.4.1 None predicted, the site is of negligible value to amphibians.

Mitigation and Compensation

- 5.4.2 None required. Proposed enhancements will increase the overall value of the site for amphibians. In the unlikely event that GCN are found on site all works will cease while a suitably qualified ecologist is contacted for advice.

Residual Impacts

- 5.4.3 The overall impact of the scheme will be **non-significant**, minor-adverse in the short-term, with a **positive impact** in the long-term once vegetation has established.

5.5 Bats

Potential Impacts

- 5.5.1 In the absence of mitigation impacts may include habitat fragmentation and loss of foraging areas, including for an Annex II species which rarely visits the eastern boundary. A small section of the eastern woodland requires removal, which would create a small gap in the canopy cover here.

Mitigation and Compensation

- 5.5.2 The evidence from bat activity surveys suggests the loss of canopy connectivity will have no significant impact upon the bats using the local area, as these also forage in open ground. New planting to each side of the gap created will be planted with semi-mature trees whose crowns will be allowed to overhang and close the gap as much as possible.
- 5.5.3 New lighting proposals will accord with BCT/ILP Guidance Note 08/18. Any lighting in the vicinity of boundary vegetation (most particularly the gap made in the woodland) will be low level bollards or downlighters, if any.
- 5.5.4 Night-scented and night-flowering species shall be used within the planting scheme, and new hedge and shrub planting shall increase the value of the boundary vegetation for bats.

Residual Impacts

- 5.5.5 The overall impact of the scheme will be negligible / minor-adverse in the short-term, with a **positive impact** in the long-term once vegetation has established.

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 The clearance of any hedges, shrub or trees will be undertaken outside the bird nesting season. Should this not be possible, vegetation will be checked prior to removal by a Suitably Qualified Ecologist. The loss of small areas of woodland and hedge will be compensated through replacement planting and the installation of bird boxes to suit a range of species.

Residual Impacts

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

5.7 Badgers and Other Mammals

Potential Impacts

- 5.7.1 In the absence of mitigation, impacts would include the trapping of badgers in footings/trenches, fragmentation of habitat and disruption of commuting corridors. Impacts would be of minor impact magnitude and highly unlikely to occur.

Mitigation and Compensation

- 5.7.2 Trenches deeper than 1.0m will be covered overnight or have a ramp installed to avoid trapping any badgers or other mammals on site. Boundary vegetation around the site will be retained with new commuting corridors created across the centre of the site. Hedgehog gaps will be made through garden fences to allow continued hedgehog commuting.

Residual Impacts

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

5.8 Dormouse

Potential Impacts

5.8.1 None predicted.

Mitigation and Compensation

5.8.2 None required.

Residual Impacts

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

6.0 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*. Full details of the ecological enhancements will be provided at reserved matters stage. Ecological enhancements which will be included as part of development proposals in addition to the mitigation measures above include:

- The use of flowering plants as listed within the RHS 'Plants for Pollinators' list to provide year-round interest for invertebrates;
- New tree and shrub planting throughout the site;
- The provision of nesting boxes for a variety of bird species within trees / the northern aspects of the new buildings;
- Integrated bat boxes to the southern aspect of new buildings and mature trees to suit a variety of species;
- Creation of wildflower meadows to the edges of the site;
- Creation of log piles and other insect features to the corners of the site;
- Re-enforcement of existing boundary vegetation and new hedgerow planting to the western boundary with species-rich hedgerow and shrubs;
- Enhancement of the eastern woodland through removal of manure, management of overly-dominant species such as sycamore and ivy, and in-planting with new species of ecological value.

7.0 CONCLUSIONS

- 7.1 The development site is formed of common, widespread habitats of low ecological value. Floral diversity in general was very low, with the bulk of the site dominated by heavily grazed improved grassland. No protected species were recorded utilising the site, however the mature vegetation to the western boundary is likely to be utilised by common light-tolerant bat species such as pipistrelle sp. With appropriate mitigation, compensation and enhancement as detailed above, there will be **no significant effects** upon any habitats or protected species within or adjacent to the site.
- 7.2 The impacts of the planned development upon biodiversity will be **negligible, non-significant** with proposed ecological enhancements resulting in creation of varied habitats across the site which will suit a range of birds, bats, reptiles and invertebrates.

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. 06 – Species List for Habitat Parcels

Improved Grassland		
Common Name	Scientific Name	DAFOR
Black Medic	<i>Medicago lupulina</i>	O
Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
Broadleaved Plantain	<i>Plantago major</i>	O
Cocksfoot	<i>Dactylis glomerata</i>	O
Common Daisy	<i>Bellis perennis</i>	LF
Common Nettle	<i>Urtica dioica</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	LF
Creeping Thistle	<i>Cirsium arvense</i>	O
Dandelion	<i>Taraxacum officinale</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Lesser Stitchwort	<i>Stellaria graminea</i>	O
Meadow Buttercup	<i>Ranunculus acris</i>	O
Meadow Cranesbill	<i>Geranium pratense</i>	O
Meadow Fescue	<i>Festuca pratensis</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	LD
Ragwort	<i>Jacobaea vulgaris</i>	O
Red Clover	<i>Trifolium pratense</i>	O
Ribwort Plantain	<i>Plantago lanceolata</i>	R
Rough Hawkbit	<i>Leontodon hispidus</i>	A
Selfheal	<i>Prunella vulgaris</i>	F
Timothy	<i>Phleum pratense</i>	O
White Clover	<i>Trifolium repens</i>	LF
Yorkshire Fog	<i>Holcus lanatus</i>	LD

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

Tall Ruderal		
Common Name	Scientific Name	DAFOR
Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
Burdock	<i>Arctium minus</i>	O
Cleavers	<i>Galium aparine</i>	LA
Common Nettle	<i>Urtica dioica</i>	D
Field Forget-me-not	<i>Myosotis arvensis</i>	O
Garlic Mustard	<i>Alliaria petiolata</i>	O
Ground Ivy	<i>Glechoma hederacea</i>	LF
Hogweed	<i>Heracleum sphondylium</i>	O
Ivy	<i>Hedera helix</i>	LA
Lords and Ladies	<i>Arum maculatum</i>	O
Spear Thistle	<i>Cirsium vulgare</i>	LF
White Dead-nettle	<i>Lamium album</i>	O
Winter Heliotrope	<i>Petastates fragrans</i>	LD

Mixed, Plantation Woodland		
Common Name	Scientific Name	DAFOR
Ash	<i>Fraxinus excelsior</i>	F
Beech	<i>Fagus sylvatica</i>	F
Common Hawthorn	<i>Crataegus monogyna</i>	A
Common Holly	<i>Ilex aquifolium</i>	O
Common Ivy	<i>Hedera helix</i>	LD
Common Lime	<i>Tilia x europaea</i>	R
Elder	<i>Sambucus nigra</i>	LF
Field Maple	<i>Acer campestre</i>	O
Leyland Cypress	<i>Cupressus x. leylandii</i>	R
Monterey Cypress	<i>Cupressus macrocarpa</i>	R
Poplar	<i>Populus sp.</i>	O
Sweet Chestnut	<i>Castanea sativa</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	D

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

Hedges and Trees		
Common Name	Scientific Name	DAFOR
Beech	<i>Fagus sylvatica</i>	F
Hawthorn	<i>Crataegus monogyna</i>	O
Horse Chestnut	<i>Aesculus hippocastanum</i>	O
Maple	<i>Acer sp.</i>	F
Monterey Cypress	<i>Cupressus macrocarpa</i>	R
Oak	<i>Pedunculate Oak</i>	O
Pine	<i>Pinus sp.</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	O

Dense / Continuous Scrub		
Common Name	Scientific Name	DAFOR
Bramble	<i>Rubus fruticosus agg.</i>	D
Burdock	<i>Arctium minus</i>	R
Common Nettle	<i>Urtica dioica</i>	O
Elder	<i>Sambucus nigra</i>	R
Hogweed	<i>Heracleum sphondylium</i>	O

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

Table No. 07 - Target Notes

No.	Feature	Description
TN01	Mammal Holes	Holes were surveyed and found to be in use by foxes and rabbits. No badgers were recorded during the survey period.

APPENDICES

Appendix A – Site Photographs

Appendix B – Reptile Survey Results

Appendix C – Bat Activity Survey of Adjacent Site (2020)



Photograph 1 – Overview of the site looking south.



Photograph 2 – View of the mixed, plantation woodland to the east.



Photograph 3 – Approximate location of proposed highway access through the woodland/treeline.



Photograph 4 – Tall ruderal to the south of the site.



Photograph 5 – Scattered trees to the northern boundary.



Photograph 6 – Defunct, species-poor hedge along the western boundary.



Photograph 7 – Mammal holes to the east of site.



Photograph 8 – Understorey of the mixed, plantation woodland.

Appendix B – Reptile Survey Results

Visit 1

Surveyor	Gs			
Date	23.06.2021			
Time	10:00			
Temperature	14°C			
Wind (Beaufort)	1			
Weather	Clear & Sunny			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				

Visit 2

Surveyor	Gs			
Date	02.07.2021			
Time	17:30			
Temperature	18°C			
Wind	1			
Weather	Light Cloud			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				

Visit 3

Surveyor	Gs			
Date	05.07.2021			
Time	09:00			
Temperature	16°C			
Wind	2			
Weather	Light Cloud			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				

Visit 4

Surveyor	Gs			
Date	07.07.2021			
Time	10:30			
Temperature	17°C			
Wind	2			
Weather	Light Cloud			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				

Appendix B – Reptile Survey Results

Visit 5

Surveyor	Gs			
Date	09.07.2021			
Time	08:45			
Temperature	17°C			
Wind	3			
Weather	Clear & Sunny			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				

Visit 6

Surveyor	Gs			
Date	13.07.2021			
Time	09:00			
Temperature	17°C			
Wind	1			
Weather	Clear & Sunny			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				

Visit 7

Surveyor	GS			
Date	30.07.2021			
Time	08:30			
Temperature	16°C			
Wind	3			
Weather	Light Rain			
Tile No.	Species	Ad/J	Sex	Notes
No reptiles				



BAT ACTIVITY SURVEY REPORT

Land at Fontwell Avenue, Fontwell

Prepared by	GS
Checked by	CO
Date	24 th December 2020
Project Reference	LLD1544
Revision	00

Contents

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FIGURES

Figure No. 1 – Bat Activity Survey

TABLES

Table No. 01 – Walked Transect Survey Details

APPENDICES

Appendix A – Bat Survey Data

Appendix B – Static Data Summary

SUMMARY

Lizard Landscape Design and Ecology has been commissioned by Reside Developments Ltd to undertake a Bat Activity Survey of Land at Fontwell Avenue, Fontwell, West Sussex (*Grid Reference: SU 946 061– hereafter referred to as ‘the site’*).

A preliminary ecological appraisal (*PEA*) was undertaken on 04th September 2018, to appraise the existing ecological resource within the land and the surrounding area. The boundaries of the site were considered to offer bat foraging and commuting potential; given the current proposals further surveys were not considered necessary at the time. Following changes to design which resulted in removal of further boundary trees, it was decided to undertake Bat Activity Surveys to establish levels of bat activity and bat species present at the site to guide mitigation.

The results of the Bat Activity Survey suggest that bat activity at the site is ‘low-moderate’, with the site boundaries being used for commuting and foraging, and the site itself being used for foraging by a low number of common bats, namely common pipistrelles and serotine bats, and rarely by less common species of soprano pipistrelle, noctule, Myotis bats and barbastelle, an Annex II species.

The design proposals include for mitigation including replanting of lost boundary vegetation and new SUDs features to mitigate for the loss of habitat and connectivity.

1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned by Reside Developments Ltd to undertake a Bat Activity Survey of Land at Fontwell Avenue, Fontwell, West Sussex (Grid Reference: SU 946 061– hereafter referred to as ‘the site’).
- 1.2 A preliminary ecological appraisal (PEA) was undertaken on 04th September 2018, to appraise the existing ecological resource within the land and the surrounding area. The boundaries of the site were considered to offer bat foraging and commuting potential; given the current proposals further surveys were not considered necessary at the time. Following changes to design which resulted in removal of further boundary trees, it was decided to undertake Bat Activity Surveys to establish levels of bat activity and bat species present at the site to guide mitigation.
- 1.3 This report has been prepared by George Sayer (*MCIEEM; Senior Ecologist; Lizard Landscape Design and Ecology*). The report has been reviewed by Catherine O'Reilly (*MCIEEM, Senior Ecologist; Lizard Landscape Design and Ecology*).

Site Information

- 1.4 The site contains a small number of stable outbuildings with large improved grassland fields which are currently in use as paddocks. The red-line boundary covers a total area of approximately 1.5 hectares (Ha).
- 1.5 The majority of the site is bounded by roads of varying traffic levels. Level Mare Lane bounds the site to the north; Fontwell Avenue to the east; and the Northfield Cottage and Farmhouse track to the south. Open grassland and arable fields lie beyond a mature tree lined western boundary.

Surrounding Landscape

- 1.6 The wider landscape has a rural feel; the area is dominated by a matrix of arable and pastoral farmland interspersed with hedgerows and small pockets of woodland. The nearest woodland area is a 0.68Ha plot of *Deciduous Woodland* located 130 metres (m) west of the proposed development site.

- 1.7 There is 1 no. waterbody located within 500m of the proposed development site, located 120m south.

Development Proposals

- 1.8 It is understood that the proposals include construction of a new residential development with '*low impact accommodation*' including renewable energies (*solar and air source*) with associated access and garden. The proposals involve removal of a proportion of the boundary vegetation (hedges with trees) along the eastern boundary.

2.0 SCOPE OF THE SURVEY

- 2.1 The aim of the survey has been:
- To establish which bat species use the site;
 - To assess the site for levels of bat activity;
 - To identify any key foraging or commuting areas within the site;
 - To provide suitable mitigation measures.

3.0 METHODOLOGY

3.1 Bat Activity Survey

Walked Transect Surveys

- 3.1.1 Bat activity survey visits were undertaken on 20th April, 19th May, 23rd June 2020 and 5th October.
- 3.1.2 2 no. bat surveyors were assigned a survey transect each to adequately gauge the level of bat activity across the site. Transects were walked around the margin of the site to monitor bat activity along each hedge / treeline.
- 3.1.3 Dusk surveys were started at sunset and terminated approximately 2 hours after sunset. Data including species; general patterns of activity; and number of passes were recorded throughout the survey. Details of the survey visits can be found in Table No. 03 below:

Table No. 01 – Walked Transect Survey Details

Date	20.04.20	19.05.20	23.06.20	05.10.20
Surveyors	George Sayer Joshua Harwood	George Sayer Catherine O'Reilly	George Sayer Joshua Harwood	George Sayer Caleb Fry
Survey Type	Dusk	Dusk	Dusk	Dusk
Weather	13°C Dry Clear WF 3	16°C Dry Clear WF0	20°C Dry Clear WF 0	15°C Dry Overcast WF 0
Sunset / Sunrise	20:07	20:51	21:21	18:29
Start	20:00	20:51	21:21	18:29
Finish	22:07	22:51	23:21	20:29

- 3.1.4 Bats were identified using Anabat SD2 and Ecometer Touch Pro bat detectors during transects.

Static Monitoring

- 3.1.5 A total of 28 no. nights static monitoring was carried out across the site, broadly as specified in Bat Surveys for Professional Ecologists – Good Practice Guidelines (BCT 2016). An Anabat Express was utilised for static monitoring.

- 3.1.6 A total of 3 no. different locations around the site were monitored, the location of static monitoring points is shown in Figure No. 01 – Bat Activity Survey.

Data Analysis

- 3.1.7 Sonogram analysis was undertaken using the AnalookW programme. The data for all visits has been collated and used to calculate bat activity indices.
- 3.1.8 Overall volume of bat passes, number of passes per night and species composition of passes were analysed to assess the significance of the site to bats.

3.2 Limitation and Constraints

- 3.2.1 No constraints were identified during the BAS; access was available to all parts of the site; all surveys were undertaken at the optimal time of year and in suitable weather conditions, though the first survey was undertaken during slightly windy weather. The levels of bat activity suggest this did not significantly impact the survey results.

4.0 BAT ACTIVITY SURVEY RESULTS

- 4.1 Walked transect surveys were undertaken on site during April, May, June and October 2020. These surveys revealed generally low-moderate levels of activity on site, with frequent passes by common pipistrelle and serotine with rarely soprano pipistrelle, Myotis sp., noctule and barbastelle also recorded. The bats in particular were found to forage within the northern and western portions of the site. The levels of activity along the eastern and southern boundaries were very low.
- 4.2 Static monitoring was undertaken for a total of 28no. nights between 20th-27th April, 27th-31st May, 23rd June-1st July and 10-18th October 2020. A minimum of 6no. bat species were recorded on site:
- Barbastelle (*Barbastella barbastellus*);
 - Common pipistrelle (*Pipistrellus pipistrellus*);
 - Soprano pipistrelle (*Pipistrellus pygmaeus*);
 - Myotid bats (*Myotis spp.*);
 - Noctule (*Nyctalus noctule*);
 - Serotine (*Eptesicus serotinus*).
- 4.3 During April, Serotine were the most common bat recorded (56% of all calls) followed by Common Pipistrelle (28.9%). Noctule accounted for 11.7% of all passes. During May, Common Pipistrelle become the most common (68.5%) followed by Serotine (24.4%). Barbastelle activity peaked during May with 3.9 % of all calls from this species. During June, common pipistrelle was very dominant at 87.5 % of passes, with serotine next with 5.8%. In October, 57% of all bat passes were common pipistrelle, followed by serotine at 36%. Passes by Myotis sp. bats peaked at 4.3% of all passes.

- 4.4 Soprano Pipistrelle and Myotis sp. calls were very uncommon, with fewer than 1 call per night in April and fewer than 3 calls per night in May. Given the low numbers of calls and the brevity of calls, identification could not be confidently made beyond Myotis sp. Noctule and barbastelle passes were also infrequent. Passes by common pipistrelle and serotine were most frequent shortly after sunset, with these eventually reducing. Other bats were mostly recorded some time after sunset, often during the middle of the night or several hours before sunrise.

5.0 EVALUATION AND MITIGATION

- 5.1 The site is used regularly by low numbers of common bat species. Common pipistrelle and Serotine bats dominate the bat activity on-site. Noctule bats are present occasionally. Myotis sp. Bats, Barbastelle bats and Soprano pipistrelle bats are present very rarely. The habitats are of high value to a low number of common bats, and of low value to very low numbers of less common bats, including one Annex II species which visits rarely, and generally well after sunset. The data would suggest the site forms a major part of the home range of c.2 common pipistrelle and serotine and falls within the edge of the home ranges of low numbers of noctule, Myotis, barbastelle and soprano pipistrelle bats. Overall, the site is of significant value to bats within the **Site area** only.
- 5.2 The western treeline is used as a commuting feature and should be retained and protected. The northern section of site is used for foraging; as much vegetation as possible should be retained along this boundary. The eastern boundary is used less frequently but is still visited occasionally.
- 5.3 To mitigate the loss of grassland used by low numbers of bats, the open areas of the site should be enhanced with suitable seed mixes to provide more foraging opportunities for bats.
- 5.4 Given the infrequency of visits of less common and Annex II species, providing any vegetation loss is adequately replaced in a timely manner, the proposals are considered to have a negligible impact upon these species.

6.0 CONCLUSIONS

- 6.1 The site is used frequently by low numbers of common bat species, and rarely by less common species including one Annex II species. The habitats are of value to bats within the **site area** and immediate surroundings only. The mitigation measures as defined above will ensure the continued ecological functionality of the site for commuting and foraging bats in the local area.

7.0 REFERENCES

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);

Appendix A – Walked Transect Results

Date	20/04/2020
Survey Type	Dusk
Sunrise / Sunset	20:07
Start Time	20:00
End Time	22:07
Temperature	13 °C
Wind	f3
Weather	Clear & Sunny

Surveyor	GS	
Point	Clockwise	
Time	Species	Notes
20:27	CPip	Heard to N boundary by substation
20:28	CPip	2 bats foraging along N
20:37	CPip	Heard to SW corner
20:38	CPip	Flying through trees to W
20:40	CPip	Under large trees to W
20:41	CPip	Flying S along W boundary
20:45	CPip	Under large tree to NW
20:46	CPip	Flying along N boundary in NW corner
20:49	CPip	Along N boundary
20:50	CPip	Foraging along N boundary
20:51	CPip	2 bats in NE corner
21:12	CPip	Flew through gap to SE near shed
21:25	CPip	Foraging in NE corner
21:27	CPip	Feeding along N boundary
21:52	CPip	Feeding along N boundary

Surveyor	JH	
Point	Anticlockwise	
Time	Species	Notes
20:30	C.pip	Social call, Near rabbit hutch
20:39	Noctule	echo recorded, not seen or heard
20:48	C.pip	Seen not heard
20:49	C.pip	commuting call, by transformer
20:51	C.pip	Commuting by rear gate
20:59	N.pip	Commuting near rabbit hutch
21:14	C.pip	Commuting along back tree line, was heard during my movements from corner to transformer
21:17	C.pip	Commuting by transformer

21:20	C.pip	commuting by rear gate
21:50	C.pip	back tree line paste wire

Date	19.05.2020
Survey Type	Dusk
Sunrise / Sunset	20:51
Start Time	20:51
End Time	22:51
Temperature	16 °C
Wind	0
Weather	Clear & Sunny

Surveyor	GS	
Point	Anticlockwise	
Time	Species	Notes
2120	Cpip	Faint
2126	Cpip	To n
2128	sero	to n foraging
2132	sero	flying s along w
2141	sero and cpip	foraging along w
2200	sero	foraging along w
2210	cpip	along e
2219	cpip	along n
2227	Spip	Along w
2242	Cpip	Along w
2244	Sero	Sw corner

Date	23.06.20
Survey Type	Dusk
Sunrise / Sunset	21:21
Start Time	21:21
End Time	23:21
Temperature	20 °C
Wind	0
Weather	Clear & Sunny

Surveyor	Gs	
Point	Anticlockwise	
Time	Species	Notes
21:52	Cpip	Faint callsl
2154	Cpip	Foraging along n treeline
2155	Sero	3 bats Foraging to n
2213	Cpip	Flew n along w boundary
2215	Cpip	Flew n along w
2218	Serotine	Heard
2224	Cpip	W boundary
2235	Cpip	Heard
2236	Noct	Flying n over site
2247	Sero	Faint calls e boundary
2248	Cpip	Flew Along e boundary
2259	Sero	Heard
2302	Cpip	Heard ne corner
2309	Cpip and noct	Flying along n boundary
2314	Noct	Heard w boundary

Surveyor	JH	
Point	Clockwise	
Time	Species	Notes
21:48	C.pip	NhNS
21:48	Serotine	NhNS
21:50	Serotine	Flew from NE to south along hedgeline
21:53	Serotine	Flying up and down hedgeline
21:54	Noctule	3/4 pulses nhns
21:55	Serotine	Flew from north to eastern boundary over horse field
21:58	Serotine	HNS
21:59	Serotine	HNS
22:10	C.pip	hns in 2nd field from north
22:18	Noctule	eastern most field, circled field then excited to north
22:48	pip	eastern most field, hns
23:15	Noctule	2nd western field, hns

Date	05.10.20
Survey Type	Dusk
Sunrise / Sunset	18:29
Start Time	18:29
End Time	20:29
Temperature	15 °C
Wind	0
Weather	Overcast

Surveyor	Gs	
Point	Anticlockwise	
Time	Species	Notes
18:46	pip	flying s
18:48	Sero	Foraging nw corner
18:50	Sero	Foraging along n in grassland
18:51	Pip	Foraging over nw
18:52-56	Sero	2 foraging nw corner
18:58	pip	hns along w
18:59	pip	2 foraging along w
19:03	pip	hns se corner
19:06	poss noct	hns se
19:17	myotis	Hns n
19:17	myotis	Hns on Lane
19:18	myotis	Hns w of lane
19:20	pip	foraging nw corner
19:21	Sero	Flying s along w
19:21	Pip	2 foraging along w
19:23	Pip	Hns along w
19:25	Sero	sw corner
19:26	C.Pip	hns sw
19:29	C.Pip	Hns sw by conifer hedge
19:39	C.Pip	Hns e boundary
19:53	C.Pip	Hns nw corner
20:19	Noctule	Poss brief call

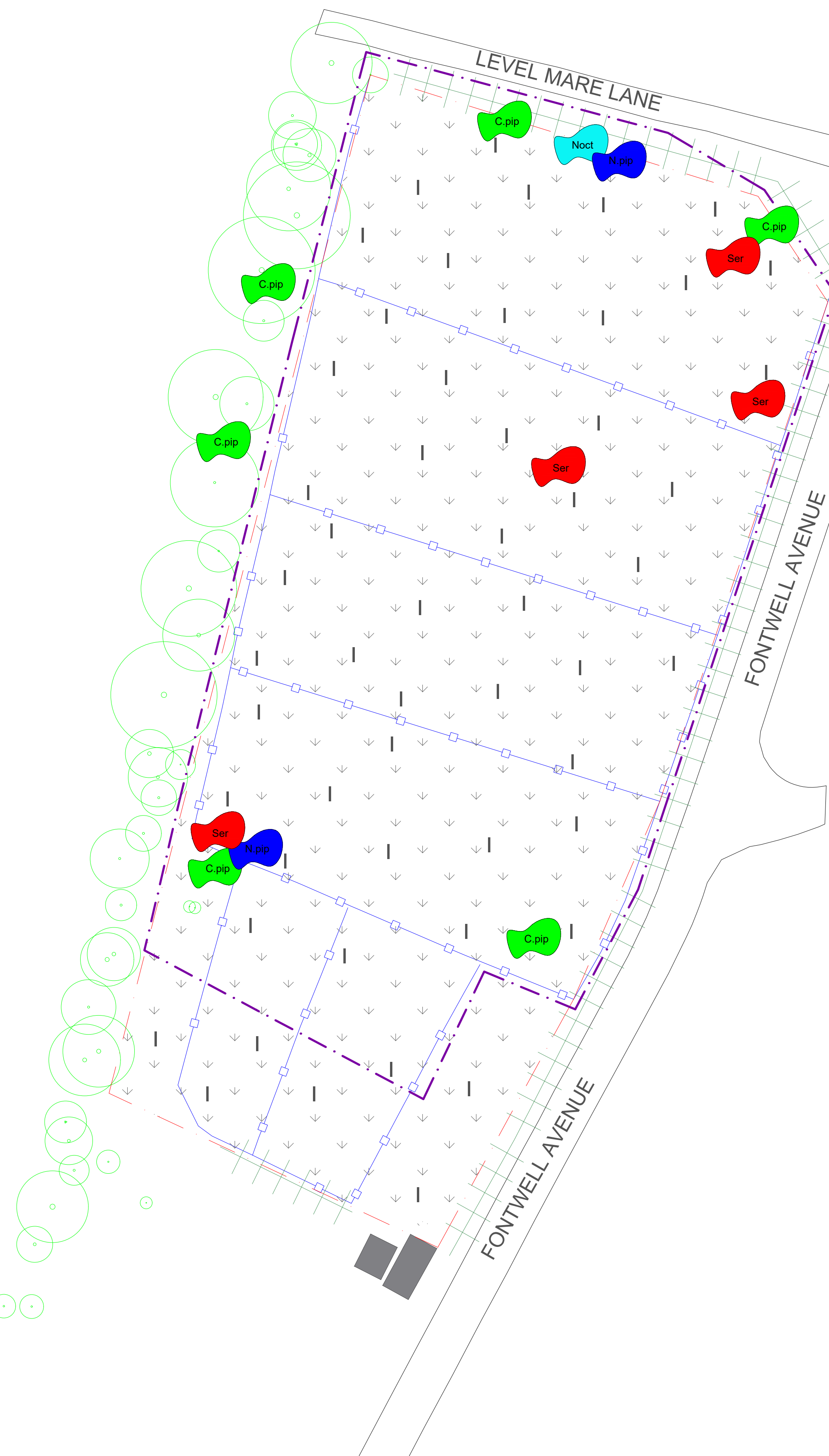
Surveyor	CF	
Point	Clockwise	
Time	Species	Notes
21:48	C.pip	
21:48	Serotine	
21:50	Serotine	Flew from NE to south along hedgeline
21:53	Serotine	Flying up and down hedgeline

21:54	noctule	3/4 pulses nhns
21:55	Serotine	Flew from north to eastern boundary over horse field
21:58	Serotine	HNS
21:59	Serotine	HNS
22:10	C.pip	hns in 2nd field from north
22:18	Noctule	eastern most field, circled field then excited to north
22:48	pip	eastern most field, hns
23:15	noctule	2nd western field, hns

Appendix B –Static Results

Appendix B - Summary of Static Bat Data

	Apr	7 Nights Monitoring		May	5 Nights Monitoring		June	8 Nights Monitoring		October	8 Nights Monitoring		Total	28 Nights Monitoring	
Species	April Total calls	April Calls Per Night	April % of all Bats	May Total calls	May Calls Per Night	May % of all Bats	June Total calls	June Calls Per Night	June % of all Bats	October Total calls	October Calls Per Night	October % of all Bats	All Nights Total calls	All Nights Calls Per Night	All nights % of all Bats
Noctule	32	4.6	11.4	14	2.8	3.0	22	2.75	3.389830508	4	0.5	0.667779633	40	0.142857143	6.677796327
Serotine	153	21.9	54.6	109	21.8	23.4	38	4.75	5.855161787	216	27	36.06010017	363	7.714285714	60.6
Common Pipistrelle	79	11.3	28.2	306	61.2	65.8	568	71	87.5192604	342	42.75	57.0951586	1216	12.21428571	203.0
Soprano Pipistrelle	5	0.7	1.8	11	2.2	2.4	16	2	2.465331279	10	1.25	1.669449082	37	0.357142857	6.2
Myotis species	4	0.6	1.4	7	1.4	1.5	0	0	0	26	3.25	4.340567613	33	0.928571429	5.5
Barbastelle	7	1.0	2.5	18	3.6	3.9	5	0.625	0.770416025	1	0.125	0.166944908	24	0.035714286	4.0
Total	280	40.0		465	93		649	81.125		599	74.9		1713	21.4	



Legend

Development Site Boundary / Survey Area.

Existing Building.

PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	24.12.20	JH

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Client
Reside Developments Limited

Project Title and Location
Land at Fontwell Avenue
Fontwell, Eastergate, West Sussex

Drawing Title
Bat Activity Survey

Scale
1:500@A1

Drawn
JH

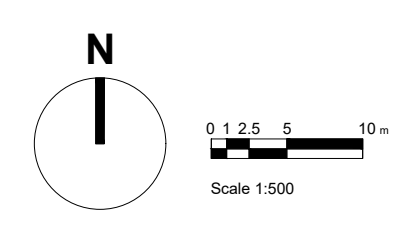
Approved
GS

Date
24.12.2019

Drawing No
LLD1544-ECO-FIG-001

Revision
00

Figure No. 01 - Bat Activity Survey
Land at Fontwell Avenue, Fontwell, Eastergate, West Sussex



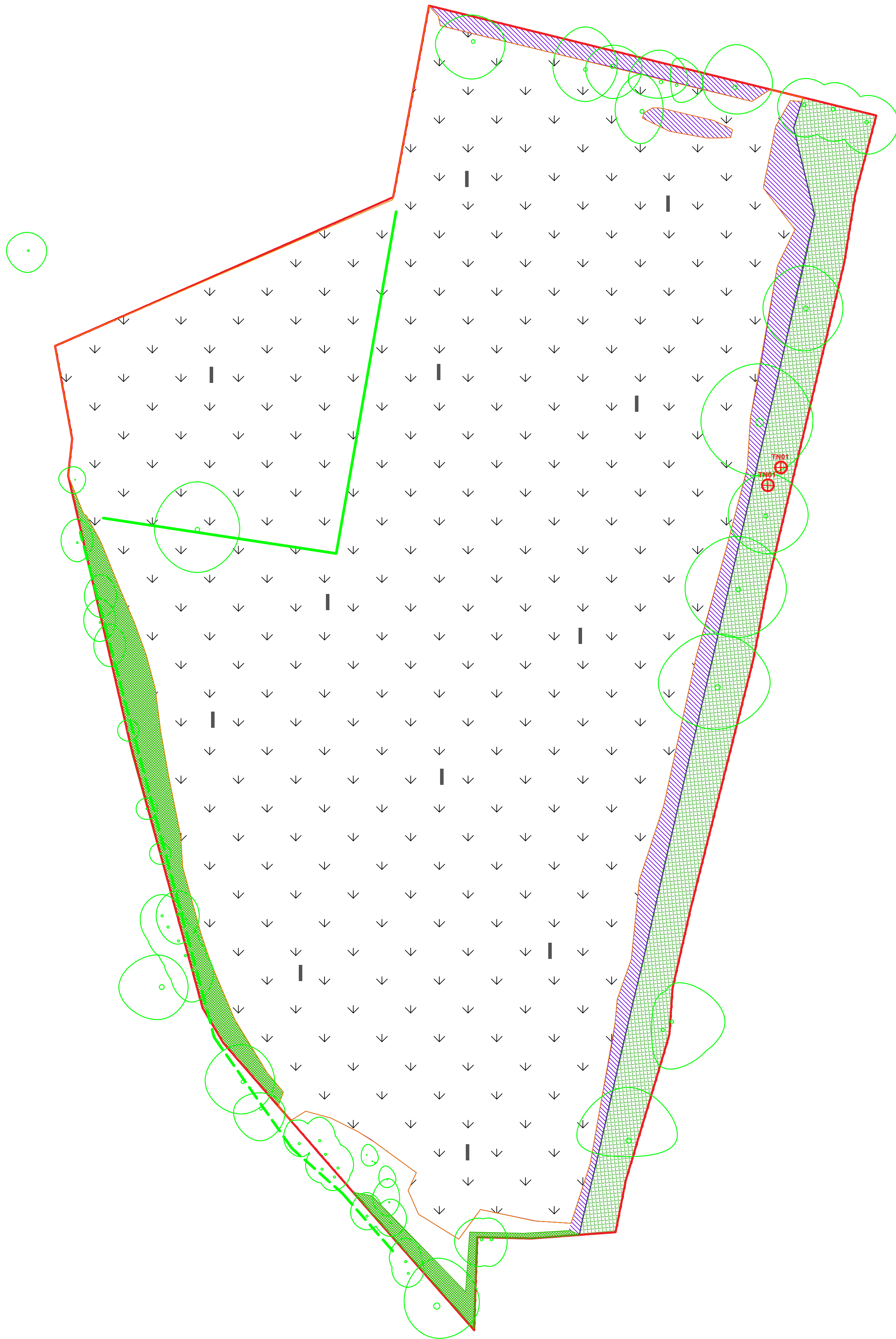
FIGURES:

Figure No. 01 – Site Habitat Plan

Figure No. 02 – Location of Artificial Reptile Refugia

Figure No. 03 – Location of Badger Sett Monitoring Points

RESIDE DEVELOPMENTS LTD
LAND AT BAYARDS, LEVEL MARE LANE
ECOLOGICAL IMPACT ASSESSMENT
LLD2327-ECO-REP-001-01-EcIA

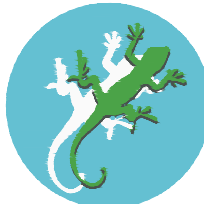


Legend

- Improved Grassland.
- Tall Ruderal.
- Mixed, Plantation Woodland.
- Dense Scrub.
- Scattered Trees.
- Intact, Species-poor Hedge.
- Defunct, Species-poor Hedge.
- Target Notes.

PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	30.07.21	GS

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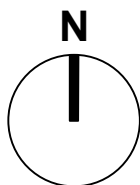
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Client
Reside Developments Ltd
Project Title and Location
Land at Bayards
Level Mare Lane, Eastergate

Drawing Title
Site Habitat Plan

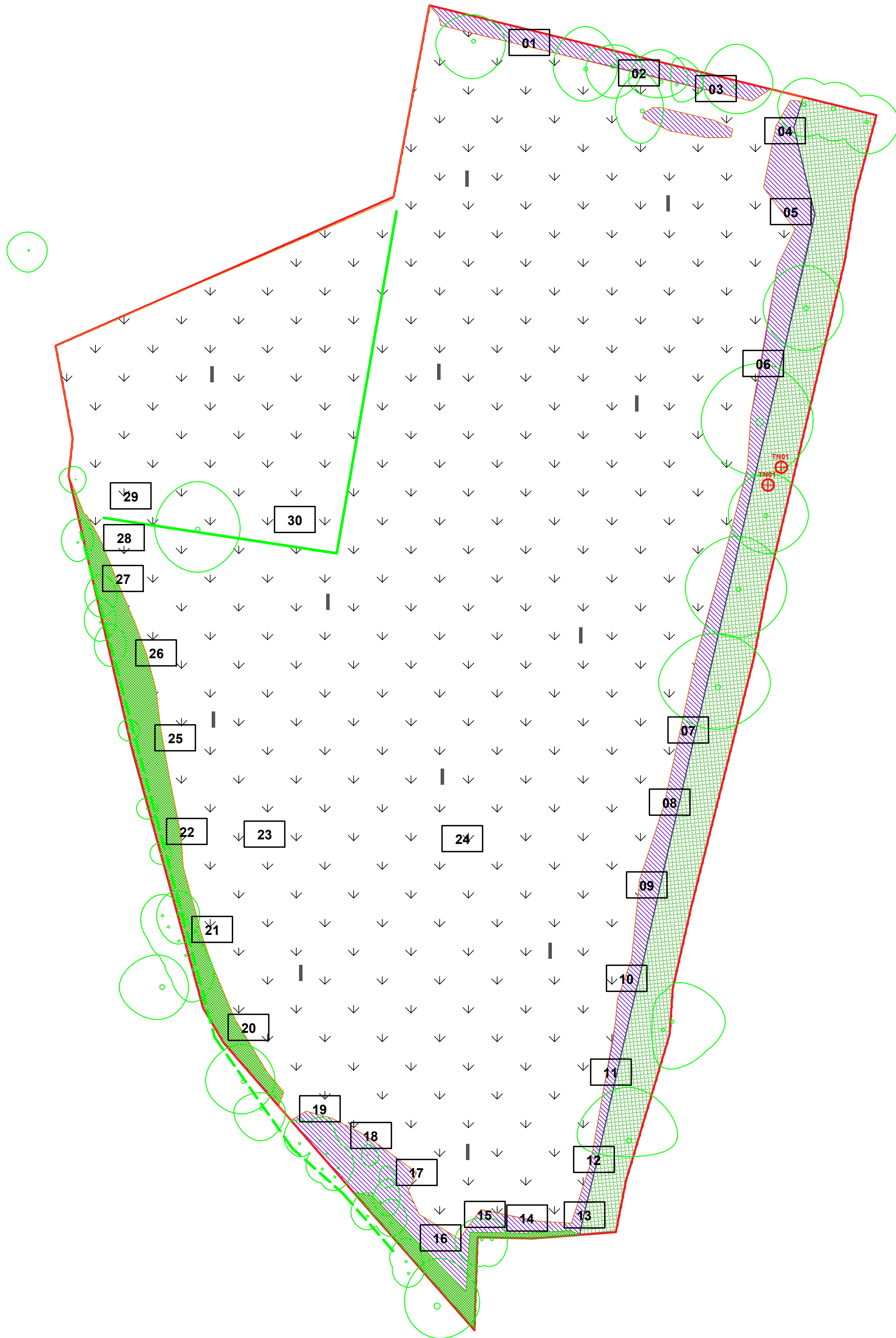
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Drawing No LLD2327-ECO-FIG-001	Revision 00
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0 5 10 25 50 100 m
Scale 1:500

Site Habitat Plan Land at Bayards, Level Mare Lane, Eastergate

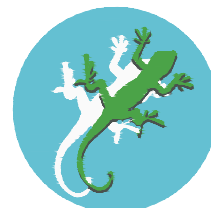


Legend

- Improved Grassland.
- Tall Ruderal.
- Mixed, Plantation Woodland.
- Dense Scrub.
- Scattered Trees.
- Intact, Species-poor Hedge.
- Defunct, Species-poor Hedge.
- Target Notes.
- Location of Artificial Reptile Refugia.

PLANNING ISSUE

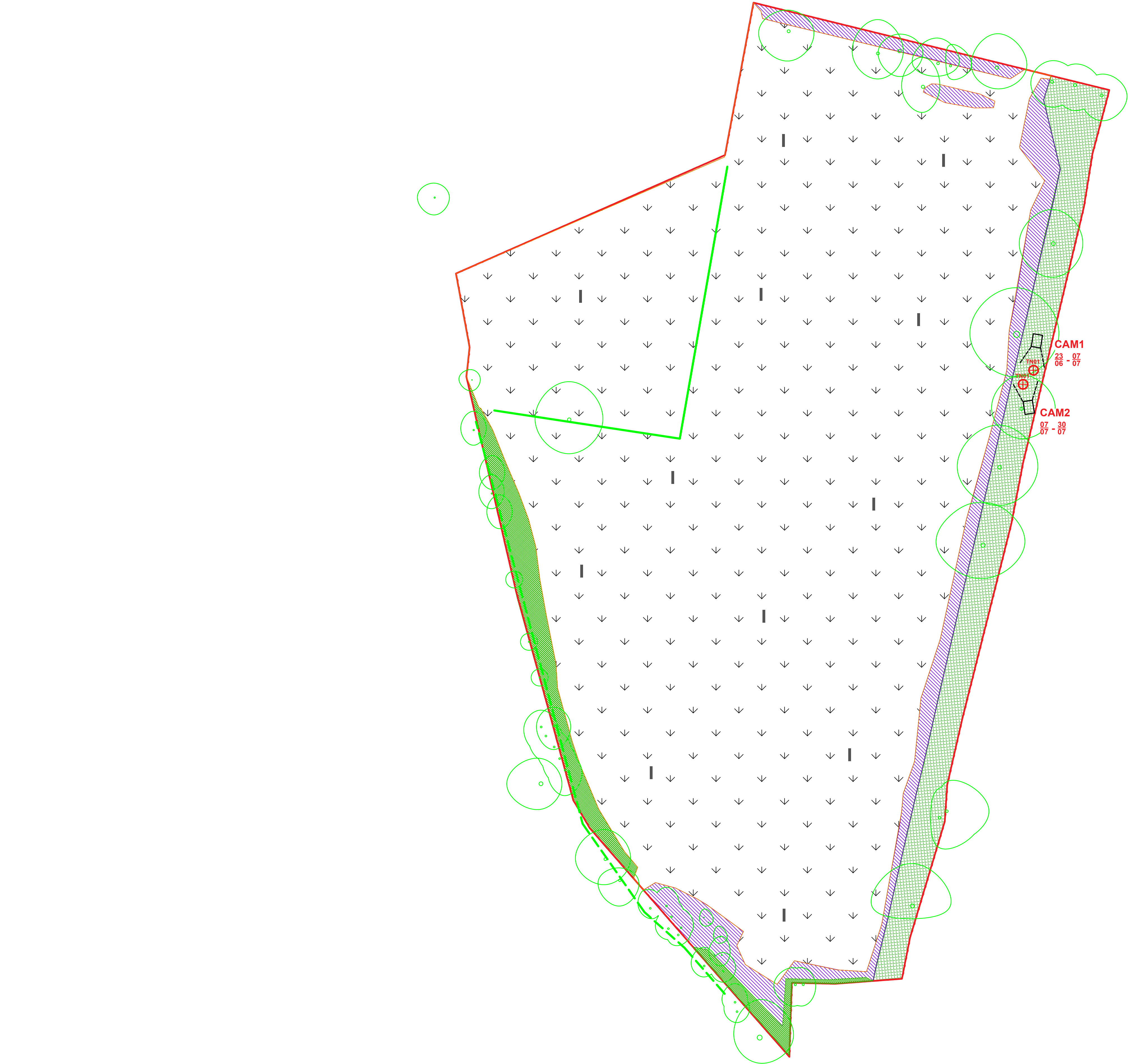
Rev	Description	Date	Initials
00	Planning Issue	30.07.21	GS

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Client Reside Developments Ltd			
Project Title and Location and at Bayards Level Mare Lane, Eastergate			
Drawing Title Location of Artificial Reptile Refugia			
Scale 1:500@A1	Drawn GS	Approved LB	Date 30.07.21
Drawing No LD2327-ECO-FIG-002	Revision 00		

Location of Artificial Reptile Refugia Land at Bayards, Level Mare Lane, Eastergate



Legend

- Improved Grassland.
- Tall Ruderal.
- Mixed, Plantation Woodland.
- Dense Scrub.
- Scattered Trees.
- Intact, Species-poor Hedge.
- Defunct, Species-poor Hedge.
- Target Notes.
- Location of Trail Camera (with Line of Sight).
- Trail Camera and Deployment Dates.

PLANNING ISSUE

Rev	Description	Date	Initials
00	Planning Issue	30.07.21	GS

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Client Reside Developments Ltd Project Title and Location Land at Bayards Level Mare Lane, Eastergate	Drawing Title Location of Badger Sett Monitoring Points
Scale 1:500@A1	Drawn GS
Approved LB	Date 30.07.21
Drawing No LLD2327-ECO-FIG-003	Revision 00

Location of Badger Sett Monitoring Points Land at Bayards, Level Mare Lane, Eastergate

Report Presented by:

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