LIZARD
Landscape Design and Ecology

JONES HOMES (SOUTHERN) LTD

Folders Lane Phase II, Burgess Hill

- Preliminary Ecological Appraisal Survey
- Preliminary Bat Roost Assessment
- HSI Assessment
- Updated Phase 1 Habitat Survey

Planning Issue

Prepared by	JT
Checked by	JJ
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Landscape Design and Ecology

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SUMMARY

Lizard Landscape Design and Ecology has been commissioned by Jones Homes (*Southern*) Ltd to undertake a Preliminary Ecological Appraisal of land at Folders Lane, Burgess Hill *(Grid Reference: TQ 329 179– hereafter referred to as 'the site').* A Preliminary Ecological Appraisal (*PEA*) was undertaken of the site on 06th December 2017, to appraise the existing ecological resource within the site and the surrounding area. An updated phase 1 habitat survey was undertaken on the site during June 2020.

The vegetation on site is of a reasonable length and appears to have been unmanaged since the original clearance works in 2017. The site offers a matrix of scrub, tall ruderal and species-rich semi-improved grassland, which may provide suitable habitat for protected species of amphibian and reptiles. The following additional surveys are recommended:

- *Given the presence of low numbers of slow worms and grass snakes on the adjacent site; reptile surveys are recommended to ascertain the presence / absence of reptiles on this site;*
- *4 no. ponds within 500.0 metres of the site have been assessed as providing 'average' or above habitat suitability. Due to the proximity of some of these ponds (<100m), it is recommended that GCN surveys are undertaken to assess the presence / absence of this species;*
- *A number of trees to the site boundaries have been assessed as offering some bat roost suitability. Should removal of these trees be required, further investigation through aerial inspection and / or emergence surveys will be required to assess the presence / absence of a bat roost within the trees;*
- *Numerous bird nests were recorded within scrub to the eastern boundary. Clearance of scrub / trees should take place outside the nesting season (Nesting season: March – August inclusive) or following inspection to ensure no active nests are present.*

Subject to results of the above surveys, mitigation measures (if required) are likely to involve sensitive vegetation clearance and the use of buffer zones to the site boundaries. The site is comprised of common species typical of the habitat types, no rare or unusual plant species were recorded on site. The site in general offers an assemblage of common plant species; compensatory measures could account for any loss of diversity.

1.0 INTRODUCTION

1.1 Lizard Landscape Design and Ecology has been commissioned by Jones Homes (*Southern*) Ltd to undertake a Preliminary Ecological Appraisal of land at Folders Lane, Burgess Hill *(Grid Reference: TQ 329 179– hereafter referred to as 'the site').*

1.2 A Preliminary Ecological Appraisal (*PEA*) was undertaken of the site on 06th December 2017, to appraise the ecological resource within the site and the surrounding area. The *PEA* was comprised of 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 site. An updated phase 1 habitat survey was undertaken on 24th June 2020 to identify any significant changes in habitat classification on site.

1.3 The updated field survey data and analysis contained in this report was undertaken and prepared by Mr Jeff Turton (*BSc GradCIEEM*). 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 development site is located due south of Folders Lane, within the town of Burgess Hill. The site area is c. 55.00 metres above sea level and measures approximately 1.7 hectares, formed of tussocky grassland and scrub. The site is enclosed by hedge / treelines to the south, east and west with fencing and access to Folders Lane to the North.

1.5 The site is bordered by grassland to the east; a planning approved housing development to the west; and residential properties to the north and south. Soil on site is described as slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils. There are no waterbodies located on site; however, there are 13 no. ponds within 500.0m of the proposed construction zone; 4 no. of which are located within 250m and directly connected to the site.

Surrounding Landscape

1.6 The residential area of Burgess Hill extends for at least 1.0 km to the north-west of the site. Land to the south, east and north-east is rural and dominated by pastoral farmland and hay meadows delineated by mature hedgerows and tree lines.

1.7 Large areas of *Ancient Woodland* exist to the east of the site, including *Blackbrook Wood* (*31.04 Ha located 1.1km east*) and *West Wood* (*42.74 Ha located 1.5km north-east*).

Development Proposals

1.8 The proposals include the construction of 40 no. new residential properties with associated gardens, access, and car parking.

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 The aims of the preliminary bat roost assessment survey were:

- *To identify the potential for roosting bats;*
- *Identify areas where future detailed survey effort would be required and should be focused;*
- *To establish whether other habitat features for different species groups exist to warrant further investigation.*

2.3 The aims of the HSI assessment was to:

- *Assess all waterbodies with 500.0m of the site against 10 no. criteria;*
- *Assess the sites suitability for supporting a population of GCN;*
- *Identify the need for further survey work if necessary.*

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

3.0 METHODOLOGY

3.1 The site was subjected to an updated phase 1 habitat survey on 24th June 2020 using guidelines set out in the *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit (JNCC, 2003).* This has resulted in an updated Site Habitat Plan *(Figure No. 01)*, Species Lists for Habitat Parcels (*Table No. 05)* and Target Notes *(Table No. 06).*

3.2 Habitats within the site were classified and the presence, or potential presence, of certain protected and / or notable species of flora and fauna were identified. A summary description of the habitat within the site following the ecology phase 1 habitat survey methodology is presented in *Section 4.0*.

3.4 Habitats within and immediately adjacent to the site were assessed for their potential for uncommon and protected fauna including mammals; birds; reptiles; and amphibians. This involved identifying features that may be used by protected species, potential foraging areas and other signs of use. Water bodies were recorded, wherever possible within 500 metres of the proposed development site.

3.5 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.

Ground-Level Bat Roost Assessment

3.6 A preliminary ground-level bat roost assessment of accessible trees was undertaken on 06th December 2017, by an experienced bat surveyor.

3.7 Each tree was searched for potential bat roost features such as:

- *Woodpecker Holes;*
- *Hazard Beams;*
- *Cracks / Splits;*

- *Bark Plates;*
- *Cavities from Knot Holes, Canker, or Pruning Wounds;*
- *Compression Forks;*
- *Ivy with stem diameter in excess of 50mm.*

3.8 Once features had been assessed, trees and buildings on site were categorised in accordance with *Table 4.1 of the Bat Conservation Trust's Good Survey Guidelines (2016):*

Category	Building	Trees
`Negligible`	No suitable features identified.	No suitable features identified.
`Low'	A structure, which could be used opportunistically, however, are 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.

Great Crested Newt Habitat Suitability Index Assessment

3.9 The *Habitat Suitability Index (HSI)* was developed by *Oldham et al (2000)* as a way of providing a numerical index allowing a direct comparison to be made between different water bodies. This index assesses ponds against 10 no. different criteria, each of which have a bearing on the likelihood of great crested newts (*Triturus cristatus*) being present in the pond under consideration.

3.10 The 10 no. attributes against which ponds can be assessed are:

- *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.*

3.11 The *HSI* 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 great crested newts and is not a substitute for more detailed presence / absence surveys for protected species of amphibian.

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 development site, describing any designated nature conservation sites in the vicinity of the development site. 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 Sites are located within 2.0km of the proposed development site.

Table No. 01 – Statutory Protected Sites within 2.0km

Site	Reason for Designation	Location
South Downs National Park.	An area in excess of 1600km^2 which encompasses a plethora of habitats including chalk grassland and woodland which supports a range of flora and fauna.	245m S

Table No. 01 – Statutory Protected Sites within 2.0 km – Cont'd

Site	Reason for Designation	Location
Ditchling Common SSSI.	A large area of acidic heathland as well as scrub, woodland and streams. The site is of importance for its moth, butterfly and breeding bird populations.	290m NE

4.1.3 The site is located within the *Impact Risk Zone (IRZ*) of *Ditchling Common SSS*I. Development proposals however do not meet the criteria, which would trigger consultation with Natural England.

Non-Statutory Protected Areas

4.1.4 *Sites of Nature Conservation Importance* (*SNCI's*) 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. SNCI's within 2.0 km of the site are shown in Table No. 02 below:

Table No. 02 – SNCI's within 2.0km

Site	Location
Brambleside Meadow.	300m SE
Blackbrook Wood & The Plantation.	1.1km E
Keymer Tile Works.	1.3km N
Ditchling Common Meadow.	1.5km NE
St Georges Retreat.	1.5km NE
Burgess Hill Railway Lands.	1.8km NW
Purchase Wood.	1.8km NE

4.1.5 The proposed development does not seek to alter or remove any non-statutory protected site; development proposals are not considered to adversely affect any SNCI in the vicinity.

UK Priority Habitats

4.1.6 Within 2.0 kilometres of the site there are *Priority Habitats* of Deciduous Woodland, Woodpasture and Parkland, Lowland Dry Acid Grassland and Ancient Woodland. The site does not contain nor is located adjacent to any areas of priority habitat.

UK Priority Species

4.1.7 UK Priority and other protected species relevant to the site include bats, reptiles, amphibians and birds.

4.1.8 A total of 9 no. species of bat have been recorded within 2.0km of the site. These include:

- *Common Pipistrelle (Pipistrellus pipistrellus);*
- *Soprano Pipistrelle (Pipistrellus pygmaeus);*
- *Brown Long-eared (Plecotus auritus);*
- *Daubentons Bat (Myotis daubentonii);*
- *Natterers Bat (Myotis nattererii);*
- *Whiskered Bat (Myotis mystacinus);*
- *Brandts Bat (Myotis brandtii);*
- *Serotine (Eptesicus serotinus);*
- *Noctule (Nyctalus noctula).*

4.1.9 All species of bat and their roosts are protected under *Regulation 41* of the *Conservation of Habitats and Species Regulations 2010* and *Section 9* of the *Wildlife and Countryside Act 1981*. It is an offence for anyone intentionally to kill, injure or handle a bat, to possess a bat *(whether live or dead),* disturb a roosting bat, or sell or offer a bat for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

4.1.10 Reptile surveys undertaken on adjacent land to the west revealed a population of Slow Worm (*Anguis fragilis*) and Grass Snake (*Natrix helvetica*). All UK reptile species are protected against killing / injuring under *The Wildlife and Countryside Act 1981 (As amended)*.

4.1.11 Great Crested Newts (*GCN*) are also known to be present in the local environment with 6 no. records with 2.0 km of the site. GCN and their habitats are fully protected against killing; injuring; damage or disturbance under *The Conservation of Habitats and Species Regulations 2010.*

4.2 Field Survey

4.2.1 The following habitats and features were recorded within the development site 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* with Species Lists for Habitat Parcels listed in Table No. 05; and Target Notes in Table No. 06.

4.2.2 Habitats within and adjacent to the development site area include:

- *Species-Rich Semi-Improved Grassland;*
- *Tall Ruderal;*
- *Hard / Bare Ground;*
- *Defunct Native Hedge;*
- *Scattered Trees;*
- *Dense Scrub.*

Site Description (Refer to Appendix A – Site Photographs)

4.2.3 The site is a large field surrounded by hedge and treelines.

Semi-Improved Grassland - Species-Rich

4.2.4 The bulk of the site is formed of un-maintained tussocky grassland with a sward composition indicative of past nutrient enrichment. The sward is dominated by yorkshire fog (*Holcus lanatus*) and sweet vernal grass (*Anthoxanthum odoratum*). False oat (*Arrhenatherum elatius*), meadow foxtail (*Alopecurus pratensis*) and cocks-foot (*Dactylis glomerata*) are abundant at the north of the site, becoming occasional in the south.

4.2.5 Other grasses present include wavy hair-grass *(Deschampsia flexuosa),* Timothy (*Phleum pratense*) and soft brome (*Bromus hordeaceus*) which are found 'rarely'. Forb species found 'frequently' include creeping cinquefoil (*Potentilla reptans*), curled dock (*Rumex crispus*) and meadow vetchling (*Lathyrus pratensis*). Lesser stitchwort (*Stellaria graminea*) and tufted vetch (*Vicia cracca*) are found 'occasionally'. Ribwort plantain (*Plantago lanceolate*) and red dead-nettle (*Lamium purpureum*) are found 'rarely'. Creeping buttercup (*Ranunculus repens*), clover (*Trifolium sp.*) and sorrel (*Rumex acetosa*) are abundant.

4.2.5 The grassland is flat and was ungrazed at the time of the updated phase 1 survey and the sward was c. 60cm long. The survey was undertaken in warm and dry conditions and these conditions had preceded the days previous. Therefore, the ground was entirely dry underfoot. However, it should be noted that areas were noted as damp underfoot during the initial phase 1 survey in December 2017 and that Yorkshire fog can be indicative of damp soil conditions.

Dense Scrub

4.2.6 Dense scrub including blackthorn (*Prunus spinosa*); hawthorn (*Crataegus monogyna*); and bramble *(Rubus fruticosus*) line the north-eastern and eastern boundaries of the site. Large areas of the site, particularly along each boundary, were cleared of scrub prior to the survey in 2017. There has been some regrowth of bramble in the cleared areas since, but these areas were more indicative of tall ruderal vegetation at the time of the updated field survey. There is a small area of regrowth which has become dominated with bracken (*Pteridium aquilinum*).

Defunct Native Hedge / Scattered Scrub

4.2.7 The western boundary of the site was largely cleared before the survey in 2017, resulting in a defunct hedge line backed by post and wire fencing. The update survey found that this hedge has since become out-grown due to lack of management and is bordering on dense scrub, rather than a hedgerow. Species present include bramble, blackthorn; hawthorn; dog rose (*Rosa canina*); and oak (*Quercus robur*). The field layer at the base of the hedgerow contains rare instances of red campion (*Silene dioica*) and American willowherb (*Epilobium ciliatum*).

Scattered Trees

4.2.8 Mature scattered trees line each boundary of the site. Oak and ash (*Fraxinus excelsior*) dominate with some occasional hornbeam (*Carpinus betula*) and field maple (*Acer campestre*). There is a lone sapling willow (*Salix spp.*) in the mid-western part of the site.

Tall Ruderal

4.2.9 The survey in 2017 found small tall ruderal stands of common nettle (*Urtica dioica*) and fleabane (*Pulicaria dysenterica*) existing within the grassland, the majority of which had recently been topped. The 2020 update survey found that the areas of scrub which had been cleared prior to the survey in 2017 had given way to areas of tall ruderal vegetation with some underlying bramble regrowth. Some of these areas are circular and isolated within the grassland and contain species associated with high soil fertility, indicating growth following a bonfire. Species found abundantly within the areas of tall ruderal include bramble and curled dock. Species found frequently include common nettle, broad-leaved dock (*Rumex obtusifolius*) and thistles (*Cirsium spp.*). American willowherb, common mugwort (*Artemisia vulgaris*) and couch grass (*Elymus repens*) are found occasionally. Ragwort (*Senecio jacoaea*), oxeye daisy (*Leucanthemum vulgare*) and teasel (*Dipsacus fullonum*) were found rarely.

4.3 Preliminary Ground-Level Bat Roost Assessment

Existing Trees

4.3.1 Existing Trees which were accessible during the survey were assessed from the ground for the present of any potential bat roost features (PRF's). Trees which were identified as containing PRF's are listed in *Table No. 03* below.

Table No. 03 – Trees containing Potential Bat Roost Features

No.	Description	Category
TG01	Group of 4 no. oak trees with moderate ivy throughout.	***`Low / Moderate`***
T02	Mature oak with light ivy coverage and deadwood throughout.	***'Low / Moderate'***
T03	Oak with large tear-out at the southern aspect to 9m height.	***'Low'***
TG04	2no. mature oak trees with no discernible features from the ground however the trees are of a size and age that could support a bat roost.	***'Low / Moderate'***
T05	Mature oak tree with no discernible features from the ground however the trees are of a size and age that could support a bat roost.	***'Low / Moderate'***
T06	Semi-mature oak with small woodpecker hole to the eastern aspect at c. 2.5m height.	***'Low'***
T07	Semi-mature oak with moderate ivy coverage.	***'Low'***
T08	Semi-mature oak with 4 no. woodpecker holes to the southern and northern aspects at heights between 2 and 6m.	***'Moderate / High'***
T09	Semi-mature oak tree with a small cavity to eastern scaffold at 7.0 m height.	***'Low'***
TG10	Mature oak trees with shedding collars apparent to the western aspect however access was limited for inspection.	***'Moderate'***
T11	Multi-stem ash tree with small knot-holes and cavities throughout.	***'Low / Moderate'***
T12	Mature oak tree with abundant deadwood throughout.	***'High'***

4.4 Pond Inspection

4.4.1 Ponds within 500.0 metres of the proposed development site and on the near-side of any barriers (*such as main roads*) were appraised for their potential to support protected species.

4.4.2 ***Pond P1*** is a large garden pond approximately 50.0m south of the proposed development site. The pond measures c. 500m^2 with gently sloping banks surrounded by grassland and scrub. A small number of fish are likely to be present, however, the number and species composition is unknown. Water quality is moderate with some emergent vegetation and macrophyte coverage noted.

4.4.3 ***Pond P2*** is a small pond c. 45m south-east of the proposed development site. The pond measures 110m^2 and is located to the east of a residential property, is surrounded by gardens and scattered oak trees. No access was available for detailed inspection of this pond.

4.4.4 ***Pond P3*** is located in a small patch of woodland c. 165m south of the proposed development site. This shallow pond covers an area of approximately 180m^2 and was heavily silted up with extensive leaf litter present at the time of the survey. The pond is heavily shaded by the surrounding willow trees, with numerous fallen branches recorded within the water. No fish or wildfowl were present.

4.4.5 ***Pond P4*** covers an area of c. 110m^2 roughly 480 metres south-east of the proposed development. This small field pond is surrounded by improved pasture which was heavily poached by cattle. The pond is small and shallow with reeds and willowherb dominating the area. No fish or wildfowl were recorded with water quality considered to be poor.

4.4.6 ***Pond P5***, located 50 m north of the site beyond Folders Lane was completely dry at the time of the survey.

4.4.7 ***Pond P6,*** located within the same development at P5, covers an area of c. 200m^2 approximately 125m north of the site. Sedges and rush line the banks with tall ruderal and scrub beyond while water lilies cover c. 35% of the pond surface. Water quality was considered to be moderate with no wildfowl recorded.

4.4.8 ***Pond P7*** is located 270m north-west of the site. This small pond was located within a housing development, surrounded by amenity grassland and gardens. Duckweed lies across the surface of the pond with no other emergent vegetation or macrophytes recorded. The water level was low with the occasional item of litter recorded within the waterbody.

Habitat Suitability Index Assessment of Surrounding Ponds

4.4.9 A *HSI* assessment of all waterbodies was undertaken to assess their suitability for supporting a population of *GCN*. A table summarising the *HSI* results is shown in *Table No. 04*.

Table No. 04 – Full Results of Habitat Suitability Index Assessment

HSI Category	***P1***	***P2***	***P3***	***P4***	***P6***	***P7***
Location	1	1	1	1	1	1
Pond Area	1	0.2	0.4	0.2	0.4	0.2
Pond Drying	1	0.5	0.5	0.1	0.9	0.5
Water Quality	0.67	0.67	0.33	0.33	0.67	0.33
Shade	0.8	0.6	0.2	0.5	1	1
Fowl	0.67	1	1	1	1	1
Fish	0.67	1	1	1	1	1
Surrounding Ponds	1	1	1	0.9	0.7	0.6
Terrestrial Habitat	0.67	0.67	0.67	0.33	0.33	0.33
Macrophyte Coverage	0.9	0.5	0.3	0.5	0.7	0.3
Score:	***0.82***	***0.65***	***0.55***	***0.55***	***0.79***	***0.63***
Suitability:	***`Excellent'***	***`Average`***	***`Below Average`***	***`Below Average`***	***`Good`***	***`Average`***

HSI Constraints / Considerations

4.4.10 Waterbodies to the far side of the railway line were not assessed as they were too isolated from the development site. 2 no. large fishing lakes to the west of the site were also excluded from the assessment due to the high densities of fish present which predate upon GCN larvae. A small pond within the Ridgeview wine estate could not be accessed during the assessment; this pond is located 175m south-west of the site.

5.0 EVALUATION

5.1 The ecological survey conducted during December 2017 identified the habitats on site as species-poor semi-improved grassland, tall ruderal, dense scrub, with scattered trees beyond, and one defunct native hedgerow.

5.2 The updated phase 1 habitat survey undertaken in June 2020 has identified the grassland on site to be semi-improved grassland - species-rich. Otherwise no new habitat types or significant changes to the previously identified habitats exist. Species-rich semi-improved grassland is not a Priority Habitat in the UK.

5.3 The site is comprised of common species typical of each habitat type, no rare or unusual plant species were recorded on site. As the site in general offers an assemblage of common plant species; any loss of diversity could be compensated for with a native planting scheme and suitable habitat creation areas to the landscape buffer areas to the site boundaries.

5.4 The vegetation on site is of a reasonable length and appears to have been un-managed since the clearance works undertaken prior to the survey in 2017. Given the matrix of habitats present on site, and the presence of low numbers of slow worms and grass snakes on the adjacent site; reptile surveys are recommended to ascertain the presence / absence of reptiles on site. The results of these surveys will allow a suitable mitigation strategy for reptiles to be formulated (*should one be required*); such mitigation is likely to include sensitive vegetation clearance and incorporation of buffer zones around the margins of the site as receptor areas for protected species of reptile in low numbers.

5.5 Ponds within 500.0 m of the site (*on the near-side of any major barriers*) were subject to a full HSI assessment. ***Ponds P1, P2, P6 and P7*** scored '*average*' or above and are therefore considered potentially suitable for supporting a population of Great Crested Newts. Habitats on site such as dense scrub and damp grassland provide suitable terrestrial habitat for GCN; therefore, further surveys to assess the presence / likely absence of GCN are recommended.

5.6 A number of trees to the site boundaries were identified as offering some bat roost suitability. It is understood that the majority of these trees are to be retained and protected as part of the proposals. Should any of these trees require removal then further survey work in the form of aerial inspection and / or emergence surveys will be required to assess how, and in what numbers (if at all) bats are using these trees.

5.7 The tree lines, which form the boundaries of the site form part of a continuous network of woodland and treelines in the wider landscape. These tree lines are considered to be of '*moderate local value'* and must be protected as part of the development proposals. A sensitive lighting scheme should be employed throughout the site which avoids light-spill onto this area. Low level bollard lighting of the minimum LUX level possible should be used where possible with lighting timed to ensure periods of total darkness. Any security lighting should be angled down and away from surrounding hedge / tree lines and fitted with cowls to prevent light-spill.

5.8 A number of old bird nests were recorded within remaining areas of scrub within the site. It is recommended that removal of dense scrub / trees take place outside the nesting season (*Nesting season: March – August inclusive*) or following inspection to ensure that no active nests are present. Alternative nesting sites should be provided through the provision of nest boxes to mature trees surrounding the site.

5.9 The site was searched extensively for signs of other protected species, particularly badger (*Meles meles*) in both 2017 and 2020. No evidence was found. Should any holes suggestive of a badger sett be found during site clearance then works in the vicinity should cease until an ecologist has been contacted.

6.0 PROTECTED SPECIES – CONCLUSIONS AND RECOMMENDATIONS

Reptiles

6.1 The matrix of habitats on site are considered to provide suitable reptile habitat. A full reptile survey consisting of 7 no. visits should be undertaken during the optimal survey season (*Mid-March – September*) in suitable weather conditions (*9 - 18^{o}C, dry, sunny*) to assess the presence / absence of reptiles on site.

Bats

6.2 A number of trees to the site boundaries have been assessed as offering some bat roost suitability. These trees should be retained within the scheme. Should removal be required, further investigation through aerial inspection and / or bat emergence surveys will be required to assess the presence / absence of a bat roost within the trees.

GCN

6.3 4 no. ponds within 500.0 metres of the site have been assessed as providing '*average*' or `*above average*` habitat suitability. Due to the habitats present on site, and the proximity of some of these ponds (*<100m*), it is recommended that GCN surveys are undertaken to assess the presence / absence of this species.

Birds

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

Badger

6.5 Although no badger setts were recorded within, or adjacent to the site, areas of badger foraging were recorded along the eastern boundary of the site. Should any holes suggestive of a badger sett be located during site clearance all works in the vicinity should cease while an ecologist is consulted.

6.6 Badgers are likely to traverse the site. It is recommended that all trenches over 1.0 m deep be covered overnight or be left with a ramp to prevent accidentally trapping any mammal.

Others

6.7 No suitable habitat for any other protected species was recorded on site. All habitats and species are common and widespread with no rarities noted.

7.0 ECOLOGICAL ENHANCEMENTS

7.1 The design of the proposed development should consider ecological enhancements for the benefit of wildlife in line with the *National Planning Policy Framework* and *Local Planning Policy*. Recommendations for ecological enhancements that could be considered as part of development proposals could include:

- *The creation of landscape buffer zones and reptile receptor areas to the development site boundaries for the translocation of low numbers of amphibian / reptile species and habitat creation areas;*
- *The use of flowering shrubs as listed within the RHS 'Perfect for Pollinators' plant list to provide year-round interest for invertebrates;*
- *Planting of a new native species-rich hedgerows within the development;*
- *The provision of bird nest boxes to the northern aspect of mature trees;*
- *Incorporation of boxes suitable for species such as house sparrow, swift and house martins to new buildings while outbuildings should incorporate access holes for swallows;*
- *The installation of suitable bat boxes to the southern aspect of mature trees;*
- *Use of a sympathetic lighting scheme across the site, with lighting angled down and away from hedge / tree lines and bat boxes;*

- *The use of pale and night-scented species around the site will increase bat foraging potential. Species could include jasmine; michaelmas daisy; and evening primrose;*
- *Use of wildflower seeding, scrub and native trees within areas of open space to provide a matrix of habitats.*

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);

- English Nature (2001) Great Crested Newt Mitigation Guidelines, English Nature;

- Froglife (2001) Great Crested Newt Conservation Handbook. Froglife;

- Joint Nature Conservation Committee, (1998) Herpetofauna Workers' Manual. JNCC, Peterborough;

- Natural England (2015) Template for Method Statement to support application for licence under Regulation 53(2)e of The Conservation of Habitats and Species Regulations 2010 (as amended) in respect of great crested newts (Triturus cristatus). Form WML-A14-2 (Version December 2015).

Table No. 05 – Species List for Habitat Parcels

Tall Ruderal

Common Name	***Scientific Name***	***DAFOR***
Fleabane	*Pulicaria dysenterica*	***LD***
Nettle	*Urtica dioica*	***LD***
Thistle	*Circium sp.*	***O***
Ragwort	*Senecio jacoaea*	***R***
Mugwort	*Artemisia vulgaris*	***R***
Curled dock	*Rumex crispus*	***A***
Broad-leaved dock	*Rumex obtusifolius*	***F***
American Willowherb	*Epilobium ciliatum*	***O***
Bramble	*Rubus fruticosus*	***A***
Ox-eye daisy	*Leucanthemum vulgare*	***R***
Couch grass	*Elymus repens*	***O***
Teasel	*Dipsacus fullonum*	***R***

Table No. 05 – Species List for Habitat Parcels – Continued

Semi-Improved Grassland - Species-Rich

Common Name	Scientific Name	DAFOR
Chickweed	*Stelleria media*	**O**
Clover	*Trifolium repens*	**O**
Cocks-Foot	*Dactylis glomerata*	**LD**
Creeping Buttercup	*Ranunculus repens*	**LA**
Dandelion	*Taraxacum officinale*	**O**
Curled Dock	*Rumex crispus*	**O**
Ground Ivy	*Glechoma hederacea*	**LA**
Ribwort Plantain	*Plantago lanceolata*	**LF**
Rye-Grass	*Lolium perenne*	**D**
Soft Brome	*Bromus hordeaceus*	**O**
Sorrel	*Rumex acetosa*	**LA**
Speedwell	*Veronica sp.*	**O**
Yorkshire Fog	*Holcus lanatus*	**O**
Creeping Cinquefoil	*Potentilla reptans*	**F**
Meadow Vetchling	*Lathyrus pratensis*	**F**
Meadow Foxtail	*Alopecurus pratensis*	**A**
Red Dead-nettle	*Lamium purpureum*	**R**
Lesser Stitchwort	*Stellaria graminea*	**O**
Tufted Vetch	*Vicia cracca*	**O**
Wavy Hair-grass	*Deschampsia flexuosa*	**R**
Timothy Grass	*Phleum pratense*	**R**
False Oat Grass	*Arrhenatherum elatius*	**A**
Sweet Vernal Grass	*Anthoxanthum odoratum*	**D**

Scattered Trees

Common Name	Scientific Name	DAFOR
Common Ash	*Fraxinus excelsior*	**F**
Field Maple	*Acer campestre*	**O**
Hornbeam	*Carpinus betulus*	**O**
English Oak	*Quercus robur*	**D**

Table No. 05 – Species List for Habitat Parcels – Continued

Dense Scrub

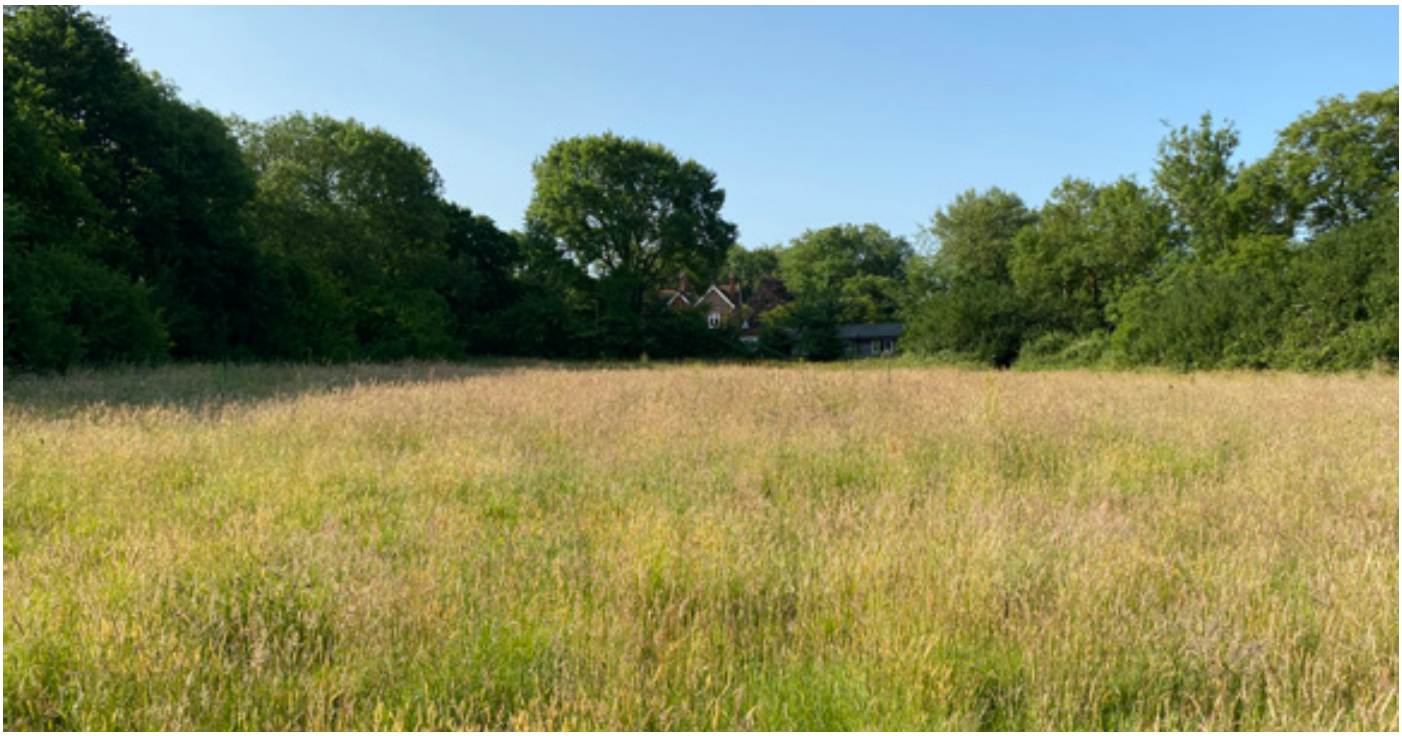
Common Name	***Scientific Name***	***DAFOR***
Blackthorn	*Prunus spinosa*	***D***
Bramble	*Rubus fruticosus*	***LD***
Elder	*Sambucas nigra*	***O***
Hawthorn	*Crataegus monogyna*	***O***
Bracken	*Pteridium aquilinum*	***LD***

Table No. 06 – Target Notes

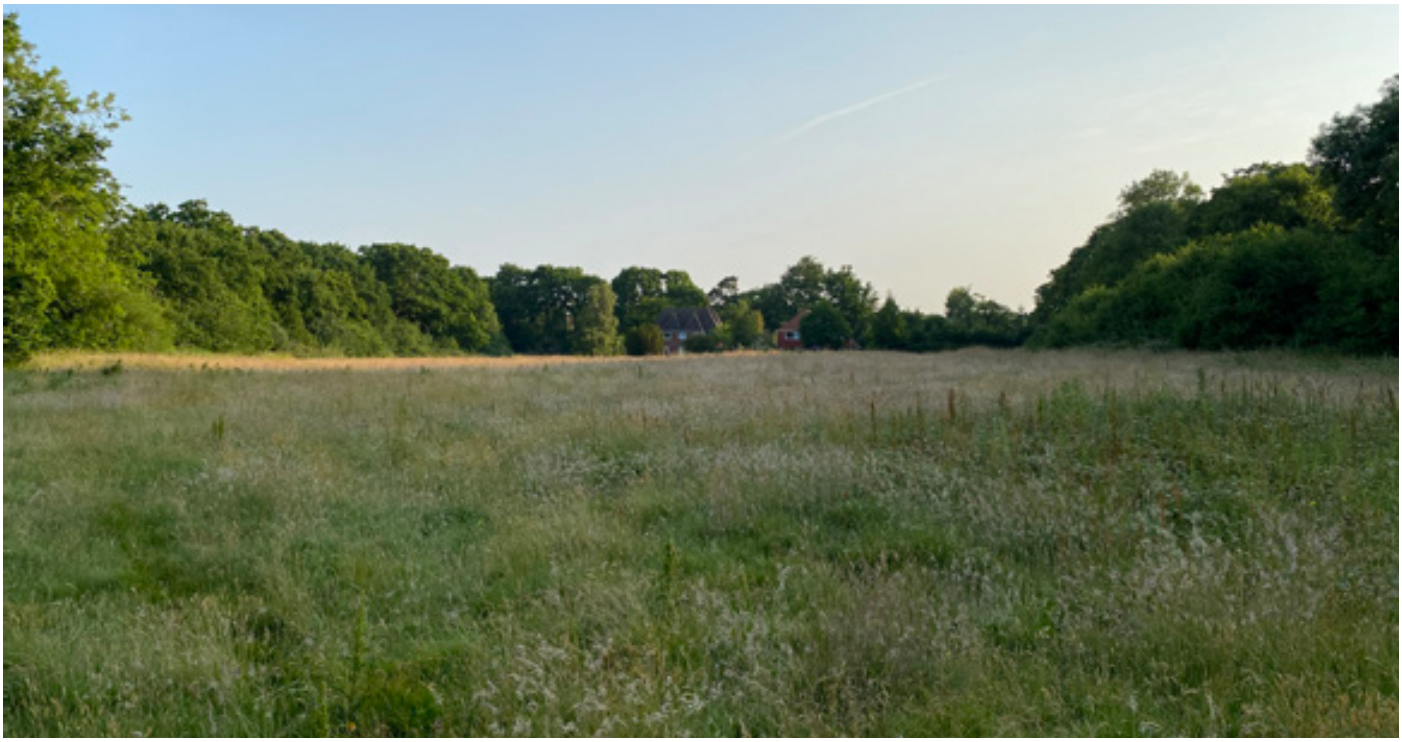
No.	***Feature***	***Description***
TN01	Mammal Hole.	Recently excavated hole of a size and shape indicative of use by rabbit.
TN02	Mammal Holes.	A rabbit warren located within a bank along the western boundary of the site.
TN03	Badger Snuffle Holes.	Small number of scrapes indicative of badger foraging located to the edge of scrub along the eastern boundary of the site.
TN04	Mature Treelines.	Mature treelines, which act as commuting corridors between the site and the wider environment. Artificial light spill upon these tree / hedge lines should be avoided.
TN05	Scrub and Rough Grassland.	Matrix of scrub and tussocky grassland, which is considered to provide suitable reptile and amphibian habitat.
TN06	Tall Ruderal Vegetation.	Location of historic bonfire and tall ruderal vegetation regrowth.

Appendix A – Site Photographs

APPENDIX A - SITE PHOTOGRAPHS

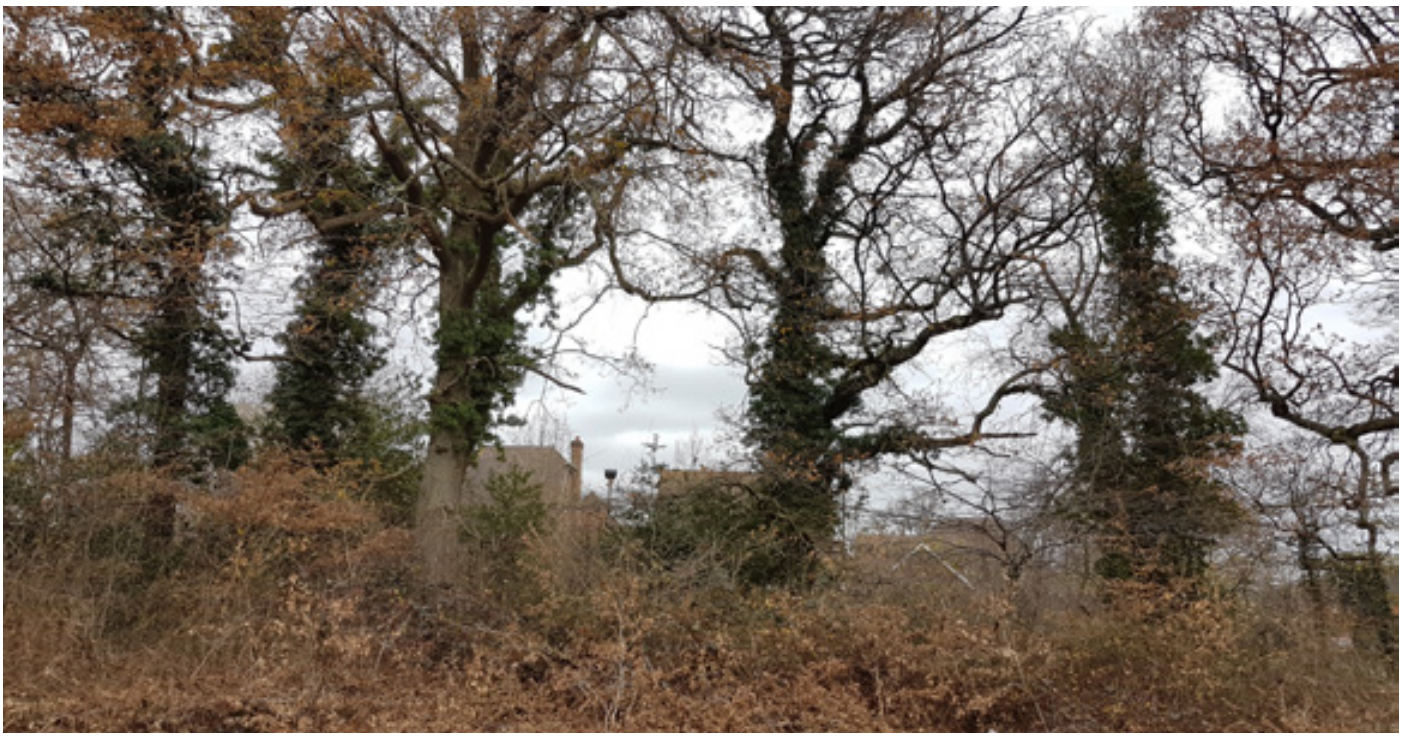


Photograph No. 1 - View across the site looking towards the south - June 2020.

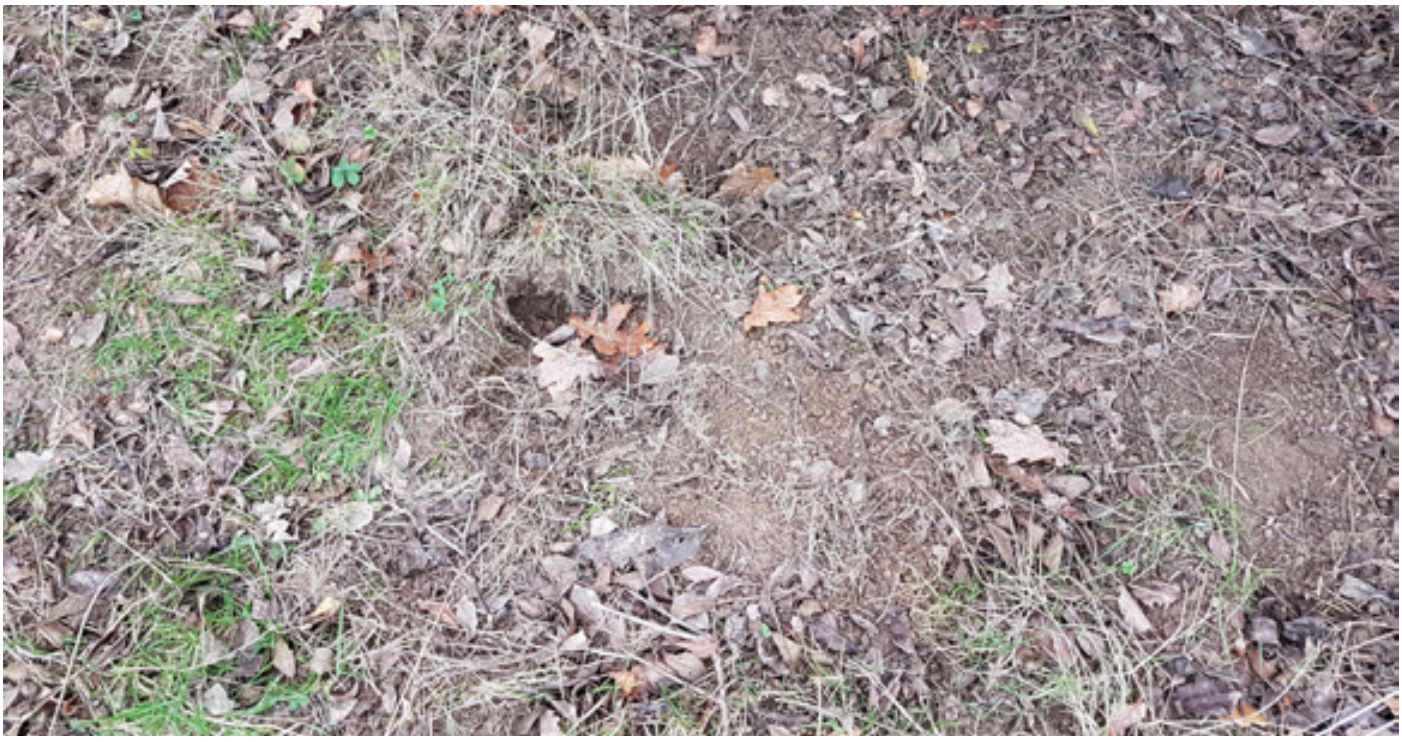


Photograph No. 2 - View across the site looking towards the north - June 2020.

APPENDIX A - SITE PHOTOGRAPHS

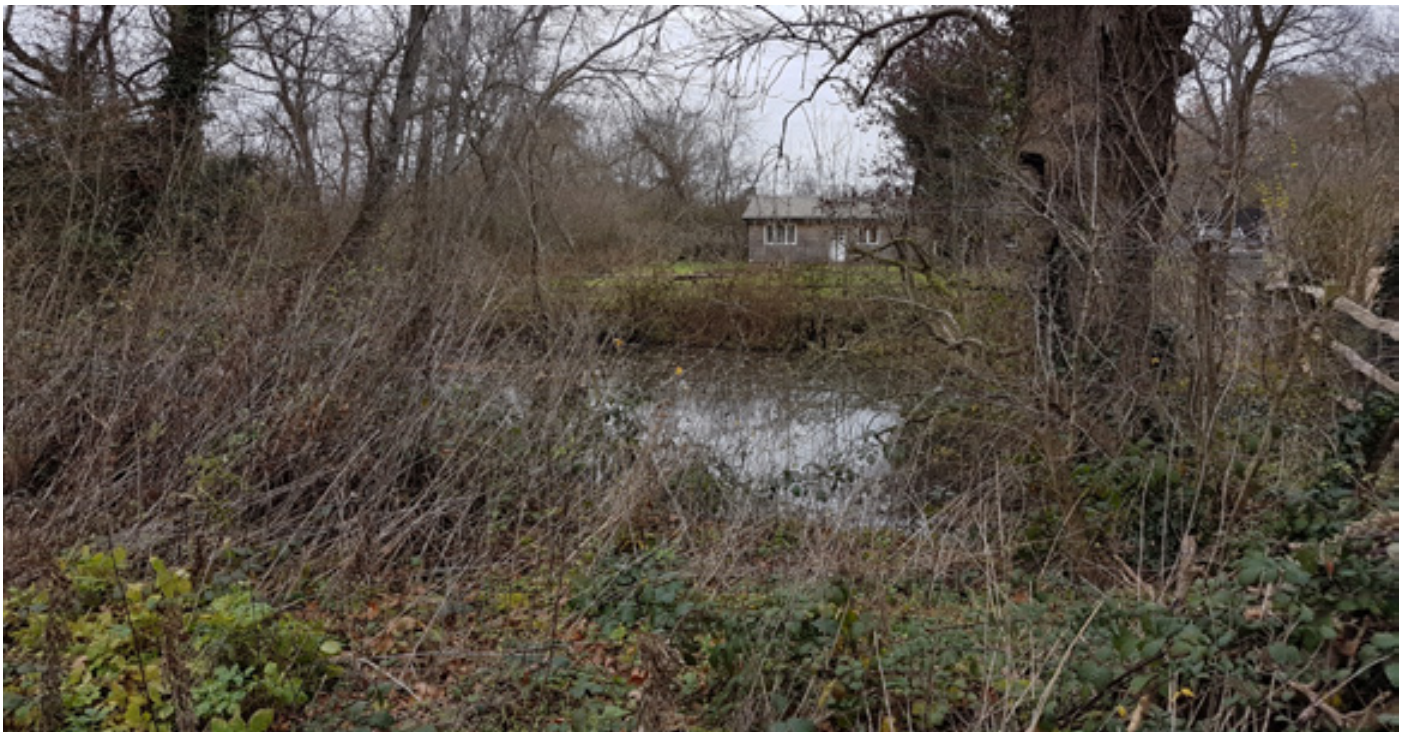


Photograph No. 3 - View of TG01, considered to offer 'low / moderate' bat roost suitability due to dense ivy covering and deadwood.

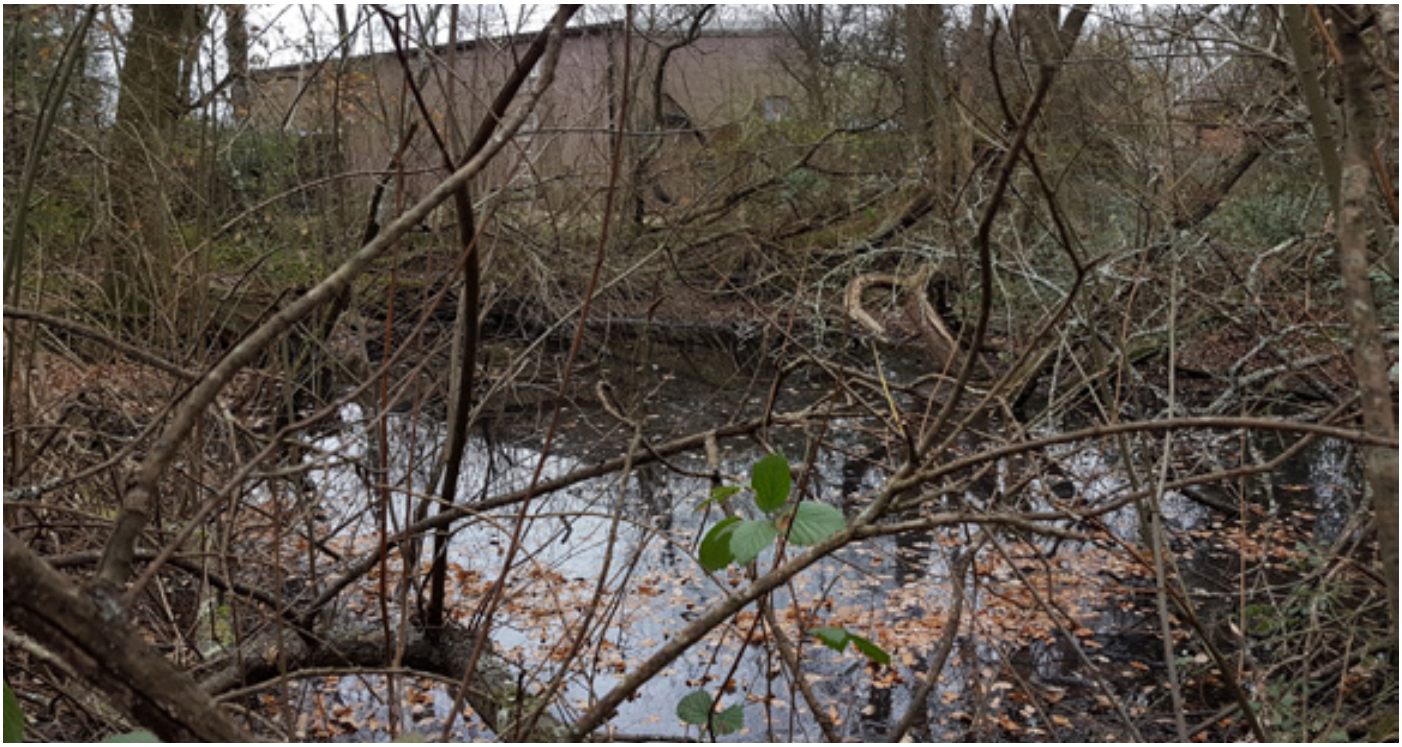


Photograph No. 4 - Limited evidence of badger foraging was recorded to the eastern boundary of the site. No badger setts were recorded however, areas of dense scrub within the site were inaccessible.

APPENDIX A - SITE PHOTOGRAPHS

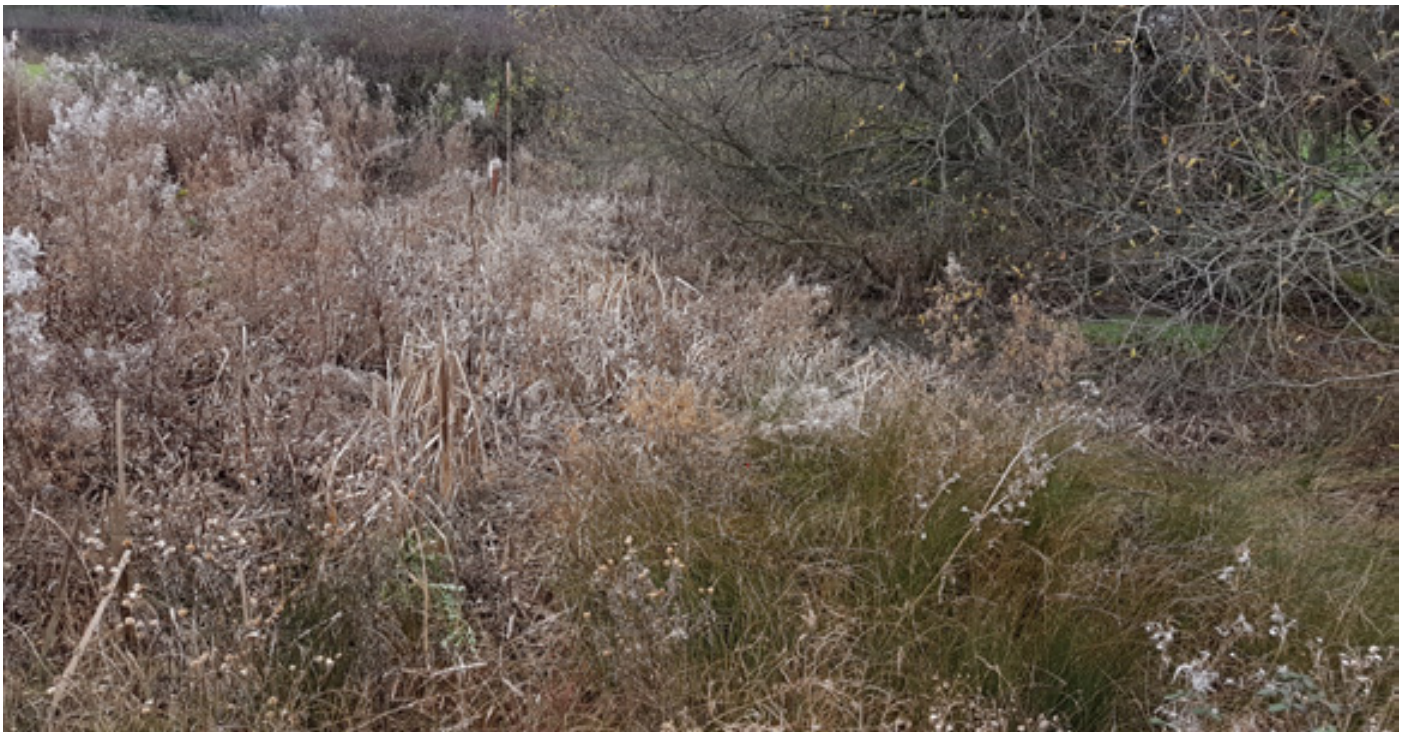


Photograph No. 5 - Pond P1, assessed as providing *'excellent'* habitat suitability for GCN.

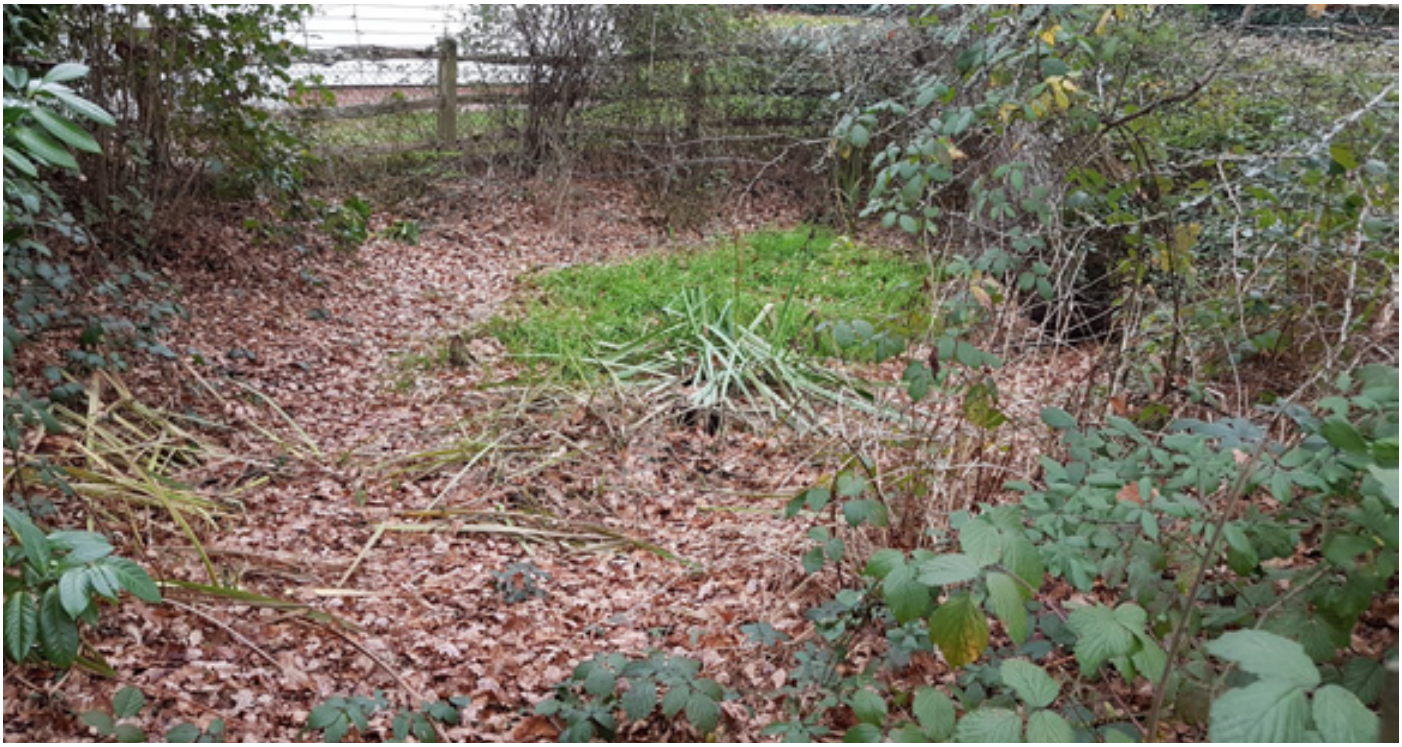


Photograph No. 6 - Pond P3, assessed as providing '*below-average*' habitat suitability for GCN.

APPENDIX A - SITE PHOTOGRAPHS

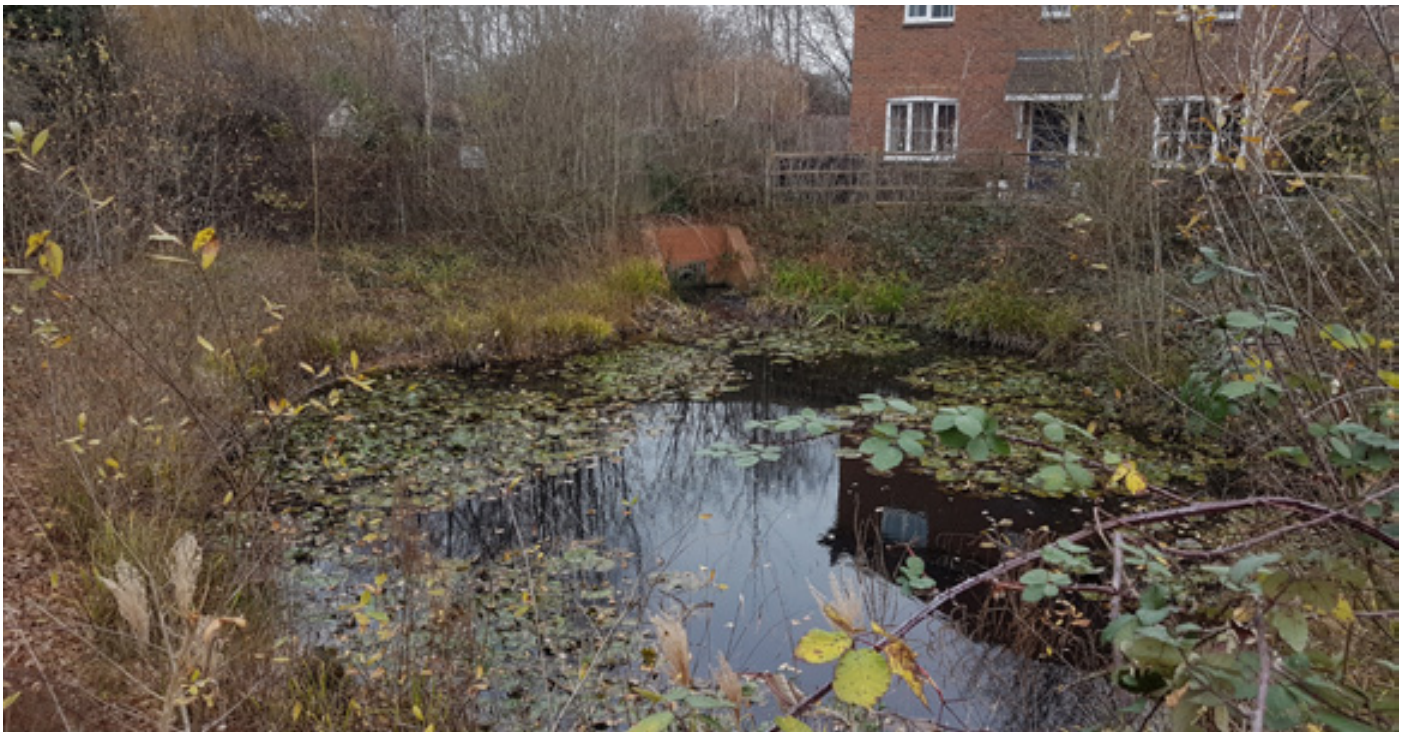


Photograph No. 7 - Pond P4, assessed as providing '*excellent*' habitat suitability for GCN.

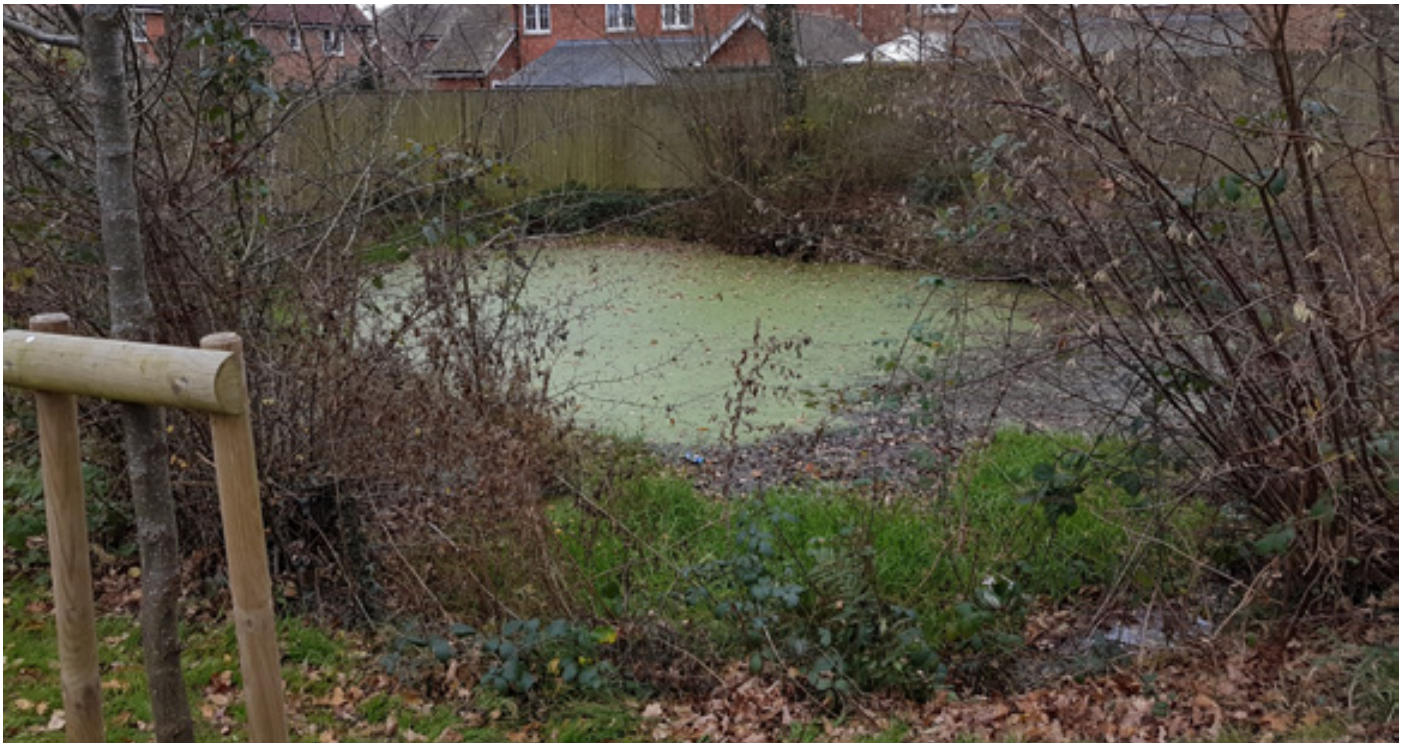


Photograph No. 8 - View of Pond P5 which was completely dry at the time of the survey.

APPENDIX A - SITE PHOTOGRAPHS



Photograph No. 9 - Pond P6, assessed as providing '*good*' habitat suitability for GCN.



Photograph No. 10 - Pond P7, assessed as providing '*average*' habitat suitability for GCN.

TG 01
T 03
T 02
SI
SI
TG 04
SI
T 05
SI
SI
SI
TN04
T 06
TN05
TN03
SI
SI
T 07
TN04
T 08
TN01
T 09
SI
SI
TG 10
SI
T 12
T 11
TN02
SI
TN05
TN06 (Old Bonfire Site)

N

0 1 2.5 5 10 m

Scale 1:500

Figure No.1 - Site Habitat Plan
Folders Lane Phase II, Burgess Hill

Legend

- SI — Semi-improved Grassland.
- Existing Walls/Fences.
- Dry Ditch.
- Dense Scrub.
- T 02 — Trees With Bat Roost Potential.
- Recently Cleared Bare Ground.
- Intact Native Hedge.
- TN04 — Target Notes.
- Defunct Native Hedge.
- Tall Ruderal.
- Bracken: Continuous
- Scattered Trees.

Planning Issue

Rev	Description	Date	Initials
01	Planning Issue	29.06.20	LB
00	Planning Issue	20.12.17	LB

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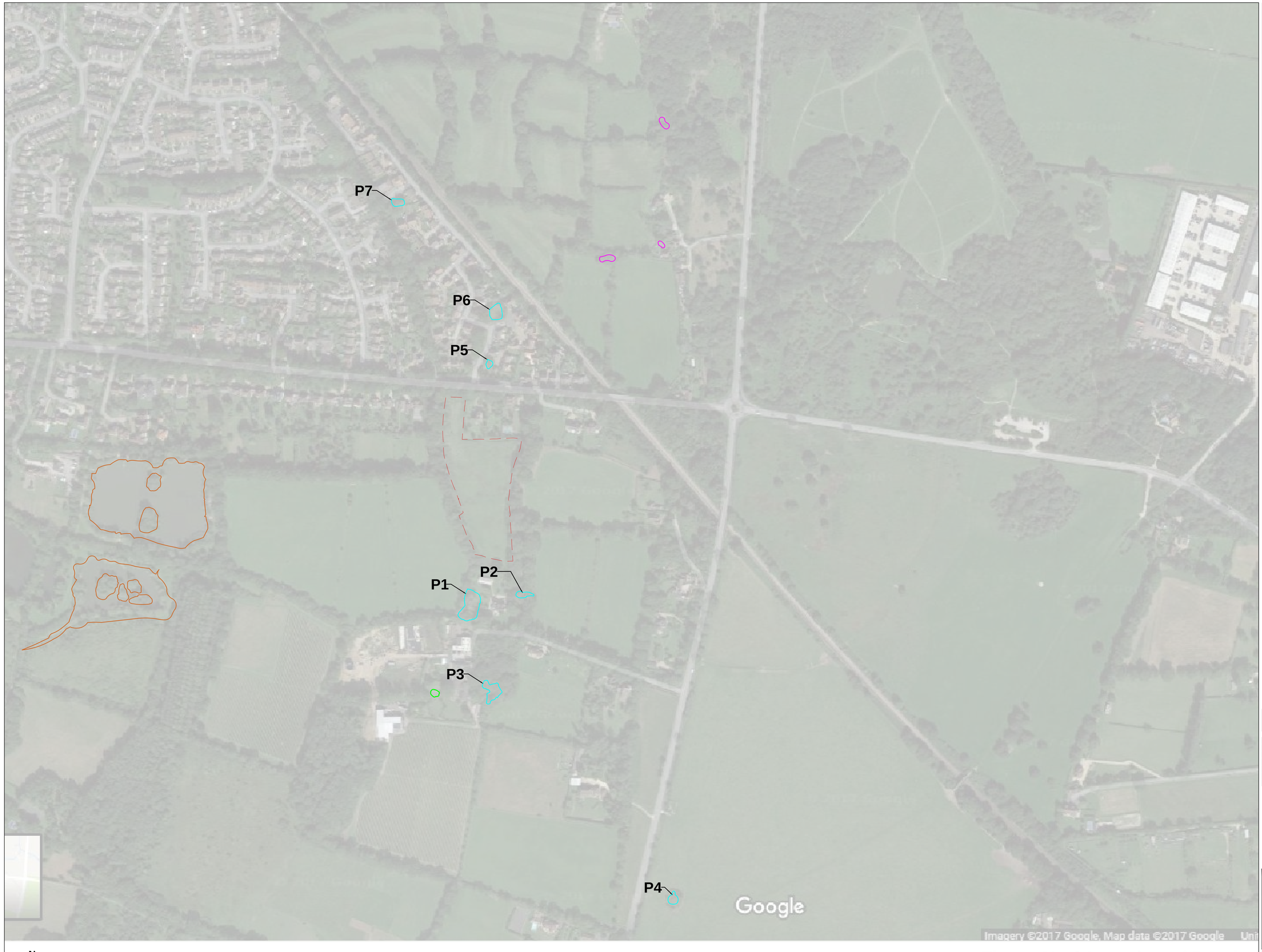
Client
Jones Homes (Southern) Ltd

Project Title and Location
Folders Lane Phase II, Burgess Hill

Drawing Title
Site Habitat Plan

Scale	*Drawn*	*Approved*	*Date*
1:500	LB	JJ	26.06.20

Drawing No **LLD1338-ECO-DWG001** *Revision* 01



N

0 1 2.5 5m

Scale 1:100

Figure No.2 Location of Ponds
Folders Lane Phase II, Burgess Hill

Legend

- Site Boundary.
- Pond.
- Commercial Fishing Lakes, Discounted from Survey.
- Ponds Not Surveyed.
- Ponds Not Accessible.
- P5 — Pond Number.

Plannig Issue

Rev	Description	Date	Initials
00	Planning Issue	20.12.17	LB

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Project Title and Location
Folders Lane Phase II, Burgess Hill

Drawing Title
Location of Ponds

Scale	*Drawn*	*Approved*	*Date*
1:2500	LB	JJ	20.12.17

Drawing No **1338/CAD/ECO**

Revision