



## Ashes Farm, Mendlesham, Suffolk

# Ecological Impact Assessment

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## 1.0 SUMMARY

- 1.1 The site (located at NGR: TM10916409) was found to comprise a large farmyard with a large number of semi-disused buildings surrounded by concrete hardstanding. Two former slurry lagoons lie to the north of the site, and two garden ponds offsite to the south. Planning permission is being sought to demolish the buildings and create four separate residential plots with associated parking and gardens.
- 1.2 Due to their modern construction and general lack of both potential roosting crevices and evidence of the presence of bats, all of the buildings on site were assessed as being of negligible suitability for roosting bats and do not warrant further detailed survey. As a precaution, some soft strip demolition methods are recommended for a small number of the buildings, and these works should be carried out during the period mid-March to end October only.
- 1.3 A small number of bird nests were noted in some of the buildings, including wood pigeon, wren and likely blackbird. Where possible building works should commence during October to February inclusive to avoid the bird nesting season; but if this is not possible, immediately prior to commencement of works a check for nesting birds should be undertaken by a suitably experienced ecologist. Any active nests will need to be left in situ until the young have left the nest.
- 1.4 Great crested newts are known to be present in a pond 40m to the south east of the site. eDNA results and site assessments indicate that they are unlikely to be present in any other closer ponds. Whilst well within 250m of the site, the confirmed great crested newt pond has good connectivity to moderate to high quality terrestrial habitat offsite to the south and east, contrasting with the negligible quality hardstanding and buildings across the vast majority of the proposed construction site. Great crested newts are therefore very unlikely to be adversely affected by the works either directly or indirectly, and no further survey, licensing or mitigation measures are recommended. Some small scale precautionary methods of working are recommended to further reduce the likelihood of great crested newts being harmed during demolition and construction.
- 1.5 The site is not deemed suitable for any other protected species.
- 1.6 The mitigation and enhancement measures detailed in section 6.0 can be secured via a planning condition, and should result in a significant overall enhancement of the site for a range of wildlife, most notably roosting bats, foraging hedgehog, nesting house sparrow and amphibians.



## 2.0 INTRODUCTION

### Instruction

- 2.1 This report has been prepared by Liz Lord following instruction by Ms Becky Spall of Peter Wells Architects to carry out an ecological appraisal of a large farmyard at Ashes Farm, Oak Farm Lane, Mendlesham, Stowmarket, Suffolk IP14 5TE.

### Site Proposals

- 2.2 Planning permission is being sought to demolish all existing buildings and create four detached residential dwellings with garages and large gardens.

### Site Description

- 2.3 The site lies to the south of the village of Mendlesham, approximately 7km to the north east of Stowmarket, Suffolk. The site comprises the vast majority of the farmyard at Ashes Farm, with one additional agricultural storage building offsite to the north east and a slurry lagoon to the north west. A small number of residential properties with large, mature gardens lie offsite to the south east and east, with arable fields beyond here. The wider landscape is dominated by arable fields of varying size, occasional areas of pasture and associated mature trees. There is very little woodland cover within 5km of the site, however mature hedgerows and lines of trees provide reasonably good local habitat connectivity.
- 2.4 A site location plan is provided below.

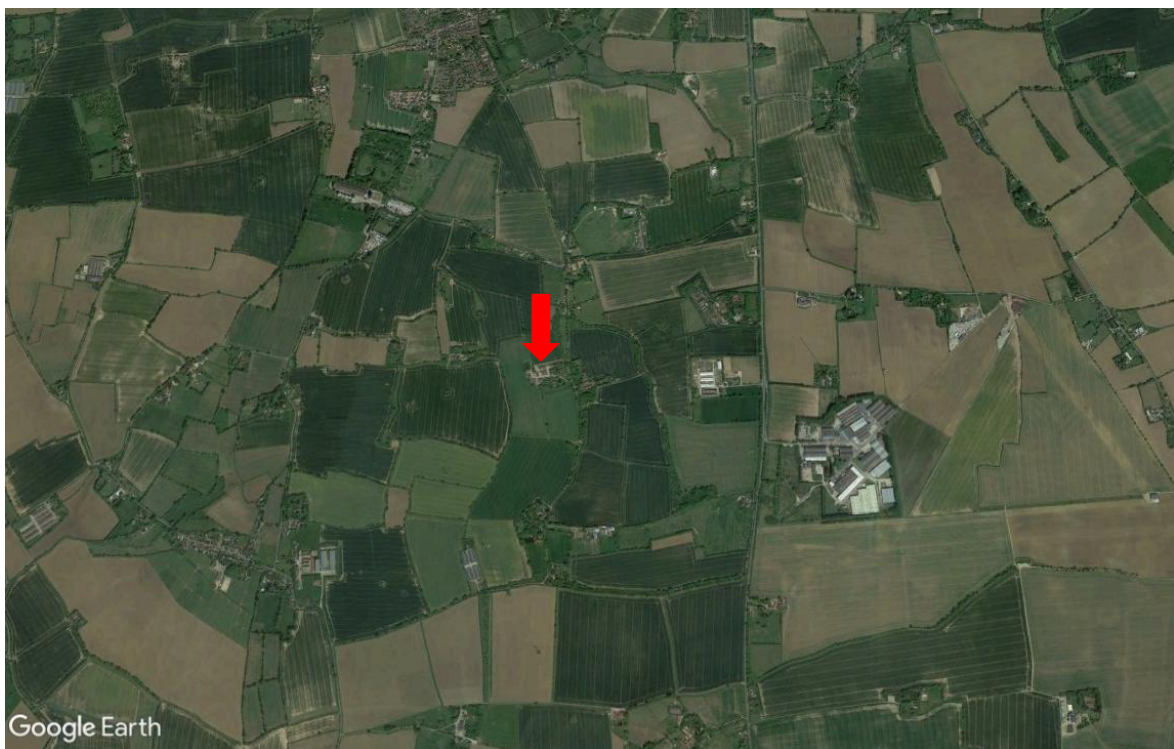


Fig 1A: Site location, with site location indicated beneath red arrow. Aerial photograph taken from Google Earth Pro, image dated 9/5/20



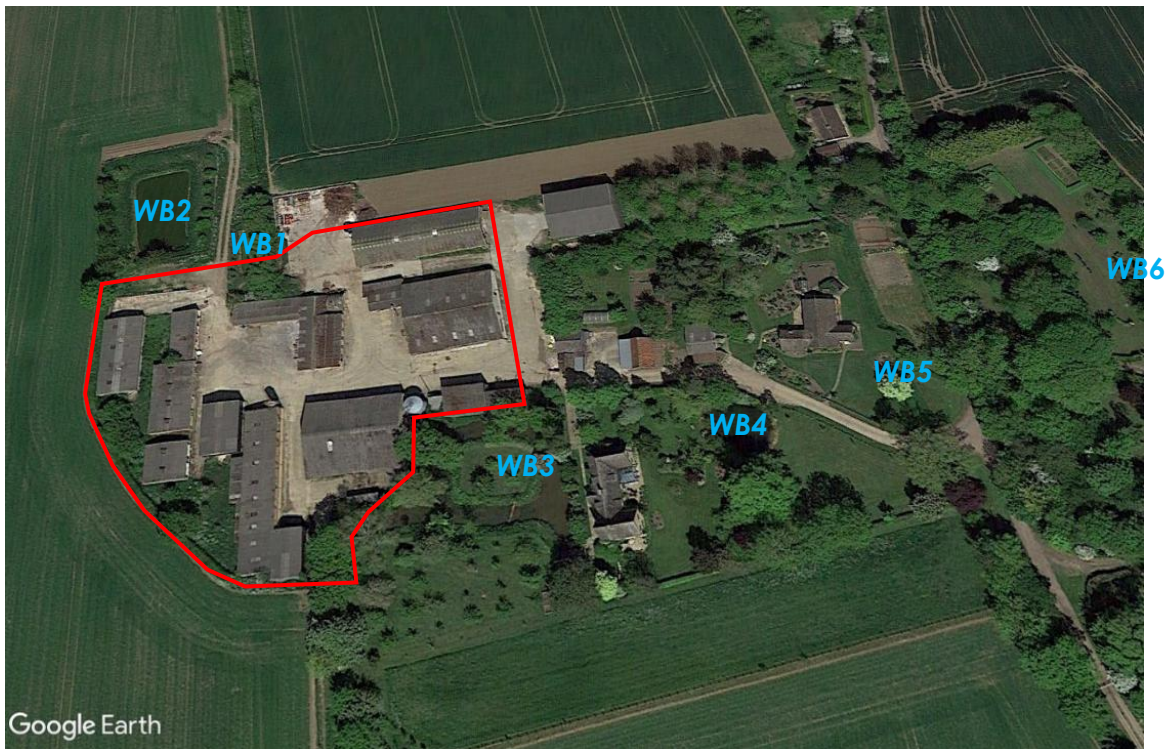


Fig 1B: Aerial plan, with approximate site boundary outlined in red. Locations of nearby water bodies also highlighted with numbered 'WB' labels. Aerial photograph taken from Google Earth Pro, image dated 9/5/20

## Objectives

- 2.5 This report has been written broadly in accordance with the report writing guidelines produced by the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM 2018, 2017a, 2017b). In accordance with the client brief, this survey and report aims to:
  - 2.5.1 Identify and describe all potentially significant ecological effects on protected and notable species / sites associated with the proposals;
  - 2.5.2 Set out the mitigation measures required to ensure compliance with nature conservation legislation and address any potentially significant ecological effects;
  - 2.5.3 Identify how mitigation measures will / could be secured;
  - 2.5.4 Provide an assessment of the significance of any residual effects;
  - 2.5.5 Identify appropriate enhancement measures; and
  - 2.5.6 Where deemed necessary, set out the requirements for post construction monitoring.
- 2.6 This survey and report is intended to inform, as necessary, the layout and design of the proposals, future landscape design and management on site, and where required the methodology and timing of development works.



### **Timescales**

- 2.7 The total works period is expected to be around 24-36 months following the granting of relevant permissions.
- 2.8 This report is valid for a period of 18 months from the date of survey. Beyond this time, changes to the buildings and / or use of the buildings may have occurred which could require re-assessment and potentially further survey to re-determine the presence / likely absence of protected species.

### **Relevant Documents**

- 2.9 The site assessment was based upon drawing numbers PW1065\_PL100, PW1065\_PL200, PW1065\_PL300 and PW1065\_PL400 all dated September 2021 by Peter Wells Architects, as shown in Appendix 1. Note that any minor amendments to the overall scheme are unlikely to alter the conclusions and recommendations of this report.
- 2.10 Recommendations included within this report are the professional opinion of an experienced ecologist based on the client's proposals for the site, the site surveys, the results of the desk study, and features present in the surrounding environment.





## 3.0 METHODOLOGY

### Desk Study

- 3.1 The Multi Agency Geographic Information for the Countryside (MAGIC) website was consulted on 8<sup>th</sup> July 2021 to determine the presence of any nationally and internationally designated sites such as Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites within influencing distance of the proposals.
- 3.2 The MAGIC website was also used to search for any records of European Protected Species Mitigation (EPSM) licences that have been approved by Natural England within a 5km radius of the application site since late 2008. The website was checked for any data from Natural England's great crested newt eDNA Habitat Suitability Index pond surveys for District Level Licensing 2017-2019 (last updated October 2020); and data from Natural England great crested newt Class Survey Licence returns within a 5km radius of the site (last updated May 2020).
- 3.3 A records search was carried out in July 2021 with the Suffolk Biodiversity Information Service (SBIS) for County Wildlife Sites and protected and notable species within a 2km radius of the site.

### Site Survey

- 3.4 A daytime building inspection and site survey was carried out on 26<sup>th</sup> June 2021. The survey was based upon the standard methodology for Extended Phase 1 Habitat Surveys (JNCC 2010), with habitats classified according to the abundance of plant species present. Any evidence of invasive species such as Japanese knotweed was noted.
- 3.5 The survey area was limited to the buildings on site and the immediate surroundings as highlighted in Figure 1B and Appendix 1, plus land within the potential Zone of Influence.
- 3.6 The survey also included an assessment of the site's potential to support any legally protected species; or Species and Habitats of Principal Importance, as identified by Section 41 of the Natural Environment and Rural Communities Act 2006. Where best practice guidelines exist, these have been used to assess the likelihood that individual species will be present, for example Bat Surveys: Good Practice Guidelines (Collins, J. 2016) and Habitat Suitability Index for Great Crested Newt (Oldham *et al*, 2000).
- 3.7 Using criteria provided in best practice guidelines, habitats have been assessed for their potential to support protected species; notably bats, barn owls *Tyto alba*, badgers *Meles meles*, great crested newts *Triturus cristatus*, reptiles, water voles *Arvicola amphibius*, dormice *Muscardinus avellanarius* and otters *Lutra lutra*.



3.8 Where methodologies, classification or recommendations deviate from best practice guidelines, this report provides ecological justification for such changes.

### **Building Inspection**

3.9 The buildings were surveyed and assessed in accordance with criteria outlined in *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, J. 2016).

3.10 The internal and external inspections of the buildings were carried out using a powerful torch, a ladder, a pair of Nikon 12 x 50 binoculars and an Easyview 8mm digital recording endoscope to inspect gaps and crevices for bats and evidence of bats.

3.11 Floors, walls and storage surfaces beneath all possible access points or crevices which may be used for roosting were checked for droppings, scratching and urine or fur staining, and particular attention was paid to the areas beneath tie beams from which bats may hang or rest.

3.12 The ridge boards, tie beams, barge boards and door / window frames of the buildings were specifically checked for scratching and staining, as well as roosting bats. Particular attention was paid to any gaps in and around timbers, roofs and walls; and the walls, ledges and ground area below.

3.13 Floor surfaces generally comprised relatively clean concrete or bare ground, and a variety of stored items. At the time of the building inspection the floors did not appear to have been recently swept.

### **Habitat Suitability Index (HSI) assessment**

3.14 Where relevant, for each water body located within potential influencing distance of the construction zone boundary (100-250m in this case), a Habitat Suitability Index (HSI) assessment was undertaken, following standard methods described in Oldham R.S. *et al*, (2000).

3.15 Features such as shading, water quality, terrestrial habitat, fish and fowl presence were noted during the survey. These features were used in the HSI to assess the potential of the ponds to support great crested newts.

3.16 Following the survey, the HSI field scores are inserted into a table to calculate a score for each pond, with pond suitability for great crested newts assessed on the following scale:





HSI Score	Pond Suitability
< 0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

### Great Crested Newt eDNA testing

- 3.17 One water body was subject to an environmental DNA (eDNA) test for great crested newt presence / absence. The kit was supplied by SureScreen Scientifics and the samples were taken on 26<sup>th</sup> June 2021 by Liz Lord. Liz is a licensed GCN surveyor and attended an ADAS-led training course on the methodology and application of eDNA testing in April 2017. The samples were collected, stored and couriered in accordance with Natural England protocol (Biggs *et. al* 2014), and were subject to a quantitative Polymerase Chain Reaction (qPCR) test. The full results can be found in Appendix 3.
- 3.18 The samples collected were of acceptable quality, and no limitations were highlighted by Surescreen Scientifics during the testing process.

### Surveyors

- 3.19 The survey was carried out by Liz Lord. Liz has been a professional ecologist since 2005, and holds current Natural England licences to survey bats - Class Licence Reg. No. 2015-13305-CLS-CLS; great crested newts - Class Licence Reg. No. 2020-44816-CLS-CLS; and barn owls - Class Licence Reg. No. CL29/00160. Liz is a full member of CIEEM.
- 3.20 The weather at the time of the building inspection was sunny with little wind (BF1-2) and a temperature of 20°C.

### Zone of Influence

- 3.21 The potential impacts of a development are not always limited to the boundaries of the site concerned, such as where there are ecological or hydrological links beyond the site boundaries. In order for the proposed works to have an impact on habitats and species outside of the site boundaries, there needs to be a source of impact, a pathway and a receptor for that impact.
- 3.22 The Zone of Influence will vary for different habitats and species depending on their sensitivity to predicted impacts, the distribution and status of the relevant species, whether a species is mobile, migratory, and whether its presence and activity varies according to the seasons.



3.23 An assessment of the Zone of Influence has been made based on the site layout shown in Appendix 1, and where necessary recommendations to avoid any significant adverse impacts beyond the site boundaries have been provided in section 5.0.

### **Limitations**

3.24 The conclusions in this report are based on the best information available during the reported period of survey.

3.25 Ecological surveys provide only a 'snapshot' of the site in time, and many species, such as bats and badgers, are capable of colonising a site in a very short space of time. Lack of evidence of a species at the time of survey can only allow conclusion of the *likely* absence of this species, since no level of survey effort is capable of proving absence beyond doubt.

3.26 Whilst best efforts have been made to identify all water bodies within 250m of the site, it is not always possible to record all garden ponds using Ordnance Survey maps and aerial photography. Additional search effort with respect to garden ponds is likely to be disproportionate, as many garden ponds have limited suitability for great crested newts, and it is a common constraint associated with all Ecological Assessments.

### **Geographic Context**

3.27 Where applicable, the importance of each ecological feature has been considered in a geographic context as follows:

- International and European
- National
- Regional
- Metropolitan, County, vice-county or other local authority-wide area
- River Basin District
- Estuarine system/Coastal cell
- Local (further categorized into District, Borough or Parish)
- Site

### **Assessment of Impacts and Effects**

3.28 The following definitions are used for the terms 'impact' and 'effect' in accordance with CIEEM (2018) guidelines:

- Impact – actions resulting in changes to an ecological feature
- Effect – outcome to an ecological feature from an impact



- 3.29 The importance of any ecological feature has been determined via the site surveys detailed in this report. Note that species and habitats afforded legal protection are, by default, always considered within the EclA assessment process to be 'important'.
- 3.30 Potential impacts of the proposals on any such features have been assessed based on the client proposals for the site, and following a review of all phases of the project. Impacts are assessed through consideration of the extent, magnitude, duration, reversibility, timing and frequency of works which may result in likely 'significant' impacts to any ecological features present. The route through which impacts may occur (direct, indirect, secondary or cumulative) has also been considered. Positive impacts are assessed as well as negative.
- 3.31 The results of the surveys have been used to identify any potentially significant impacts in the absence of any avoidance, mitigation or compensation measures. Any such appropriate measures have then been proposed where necessary.

### **Characterisation of Ecological Impacts**

- 3.32 When considering ecological impacts and effects, the following characteristics have been considered:
- positive or negative
  - extent
  - magnitude
  - duration
  - frequency and timing
  - reversibility
- 3.33 Where various characteristics have not been specifically referred to in this report, they have been considered insignificant or irrelevant to that specific feature.
- 3.34 A 'significant effect' is defined within the current CIEEM guidelines (2018) as: *"an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local."*
- 3.35 Where a significant effect is predicted, this requires assessment and reporting in order to provide the decision maker with sufficient information to determine the environmental consequences of a project. A significant effect can be either positive or negative, and its extent will determine the requirement of conditions, restrictions or monitoring works.



- 3.36 The current CIEEM guidelines (2018) also state that: *"After assessing the impacts of the proposal, all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts should be undertaken to determine the significance of their effects on ecological features. Any residual impacts that will result in effects that are significant, and the proposed compensatory measures, will be the factors considered against ecological objectives (legislation and policy) in determining the outcome of the application."*
- 3.37 This report has taken into account the factors detailed above for each important ecological feature in the absence of mitigation. Recommendations have then been made with respect to avoidance / mitigation / compensation / enhancement as necessary, and an assessment of the residual impacts after such measures has been made.

### **Mitigation Hierarchy**

- 3.38 In order to minimise the likelihood of any significant negative residual effects on environmental features, this assessment has followed the mitigation hierarchy (listed below in order of preference):
- Avoidance – measures that avoid harm to ecological features, both spatially and temporally;
  - Mitigation – avoidance or minimisation of negative effects through appropriate timing of works, or the provision of mitigation measures within the scheme design which can be guaranteed by condition or similar;
  - Compensation – measures taken to offset residual effects which result in the loss of, or permanent damage to, ecological features despite mitigation;
  - Enhancement – measures to provide net benefits for biodiversity, either by improved management of existing features, or the provision of new features, and over and above that which is required to mitigate / compensate for an impact. Delivery should be secured via planning condition or similar.

### **Legislation and Policy**

- 3.39 Specific reference has been made to the individual legal protection of the species detailed within this report, however additional information with respect to other relevant legislation and planning policy is provided in section 8.0.
- 3.40 The legislation of particular relevance within the body of this report is the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). The former confers legal protection to 'European' Protected Species against both disturbance and harm, and extends to the full protection of their habitats. This legislation also provides legal protection for a number of internationally designated sites within the UK, and remains in place following Brexit.



3.41 The Wildlife and Countryside Act 1981 (as amended) is UK specific, and generally only provides protection against direct harm to individuals of a species.



## 4.0 RESULTS (*Baseline Conditions*)

### Site Summary

- 4.1 The site comprises a large farmyard with modern buildings, some in current use and others dis-used. The buildings are surrounded by concrete hardstanding. Small pockets of regularly mown grass and marginal ruderal vegetation are present to the rear of some of the buildings.

### Desk Study: Statutory Designated Sites

- 4.2 Natural England's MAGIC website indicates that there are no UK statutory designated sites located within a 2km radius of the site boundary, and no statutory designated sites of international importance located within a 5km radius. The site is not located within the Zone of Influence for any internationally designated site.

### Desk Study: Non-Statutory Designated Sites

- 4.3 There are no County Wildlife Sites located within 1km of the site.

### Habitats

#### Invasive species

- 4.4 No aerial evidence of Japanese knotweed *Fallopia japonica* was recorded within the site or the immediately adjacent areas at the time of survey.

#### Water bodies

- 4.5 One water body is present just inside the northern boundary. Ordnance Survey maps at 1:10,000 scale highlighted the presence of a further eight water bodies within 250m of the site boundaries, as detailed in Table 1, overleaf. Due to the quality of the habitats on site i.e. very low quality terrestrial habitat for amphibians, only the closest four water bodies were subject to HSI assessments, with the results summarised in Table 1 and the full assessment results provided in Appendix 2.
- 4.6 Three of the furthest water bodies from the site – WB7, WB8 and WB9 – are considered likely to be outside the zone of influence of the site with respect to great crested newts due to the very low quality of the habitats present on site, the relatively large distances between these ponds and the site, and the presence of significant areas of high quality (woodland and scrub) habitats surrounding or directly adjoining these ponds. The likelihood of any GCN in these ponds being present on site is negligible, and therefore WB7, WB8 and WB9 are not considered further as part of this report beyond inclusion within Table 1.





**Table 1: Ponds within 250m of site boundaries**

Water body	Location & distance from site	HSI score	Suitability for GCN	Notes
WB1	On site, along northern boundary	0.45	Poor	Pig slurry / dirty water lagoon until 18 months ago. Has been recently pumped out, with c.150mm rainwater at bottom. High levels of green algal growth. To be infilled
WB2	10m north west	0.53	Below average	Pig slurry / dirty water lagoon until 18 months ago. Has been recently pumped out, with c.200mm rainwater at bottom. Likely will be infilled
WB3	5m south east	0.79	Very good	Historical moat, steep sided banks, no aquatic vegetation. Samples taken for eDNA analysis
WB4	40m south east	0.85	<b>Confirmed presence</b>	Mr Colchester confirmed the presence of GCN in the pond in 2021
WB5	85m east	N/A	-	Pond not apparent at time of survey
WB6	155m east	N/A	<b>Confirmed recent presence</b>	Positive record from SBIS data search, dated 2004
WB7	175m north west	N/A	-	Field corner pond with good connectivity to closer areas of high quality terrestrial habitat. Likely outside of the zone of influence with respect to GCN
WB8	210m north east	N/A	-	Due to habitats present on site and high quality habitats adjoining the pond, WB8 is likely to be outside of the zone of influence with respect to GCN
WB9	200m north west	N/A	-	Due to habitats present on site and high quality habitats adjoining the pond, WB9 is likely to be outside of the zone of influence with respect to GCN

### Hardstanding

4.7 The vast majority of the areas between and around the buildings comprise concrete hardstanding, in good overall condition with very few cracks or crevices. The farmyard is maintained in a tidy state, with little to no build-up of vegetation or detritus around the base of the buildings. As a result, very little vegetation grows around the buildings or in cracks and crevices.



#### Species poor semi-improved grassland

- 4.8 Small patches of species poor semi-improved grassland are present to the rear (south west) of the farmyard, and are regularly mown. Species present include cocksfoot *Dactylis glomerata*, Yorkshire fog *Holcus lanata* and rough meadow grass *Poa trivialis* with patches of nettle *Urtica dioica* and white dead-nettle *Lamium album*. A narrow margin of nettles, cleavers *Galium aparine*, grasses and hogweed *Heracleum sphondylium* grows along the western edges of Buildings 4 and 6.
- 4.9 Between Buildings 8 and 9 is a small area of similar regularly mown vegetation, with the addition of broadleaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, and broadleaved plantain *Plantago major*.

#### Ephemeral / short perennial

- 4.10 A small patch of ephemeral vegetation grows on stony ground between Buildings 13 and 14. Vegetation cover is sparse, and includes scentless mayweed *Tripleurospermum inodorum*, brome *Bromus sp.*, mallow *Malva sylvestris*, dandelion *Taraxacum officinale* agg., ribwort plantain *P. lanceolata*, rosebay willowherb *Chamaenerion angustifolium*, bristly oxtongue *Helminthotheca echioides* and white deadnettle.

#### Shrubs / trees

- 4.11 A small group of mature hazel *Corylus avellana* shrubs are present along the centre of the western site boundary. The understorey is generally bare, with scattered grasses, nettles and dock.
- 4.12 To the west of Building 4 is a group of four young fruit trees (8-10 years old). One semi-mature ash *Fraxinus excelsior* tree grows along the western site boundary, within a mature hedgerow.

#### Hedgerow

- 4.13 The western site boundary is marked by a mature, mixed native hedgerow. It is dominated by hawthorn *Crataegus monogyna*, with some dogwood *Cornus sanguinea*, field maple *Acer campestre* and hazel.

#### Buildings

- 4.14 Figure 2, overleaf, illustrates the current building layout, with all numbered buildings proposed for removal and the two former slurry lagoons to the north west (WB1 and WB2) to be infilled.
- 4.15 The buildings are also described and pictured below, including references to bat roosting potential where relevant.



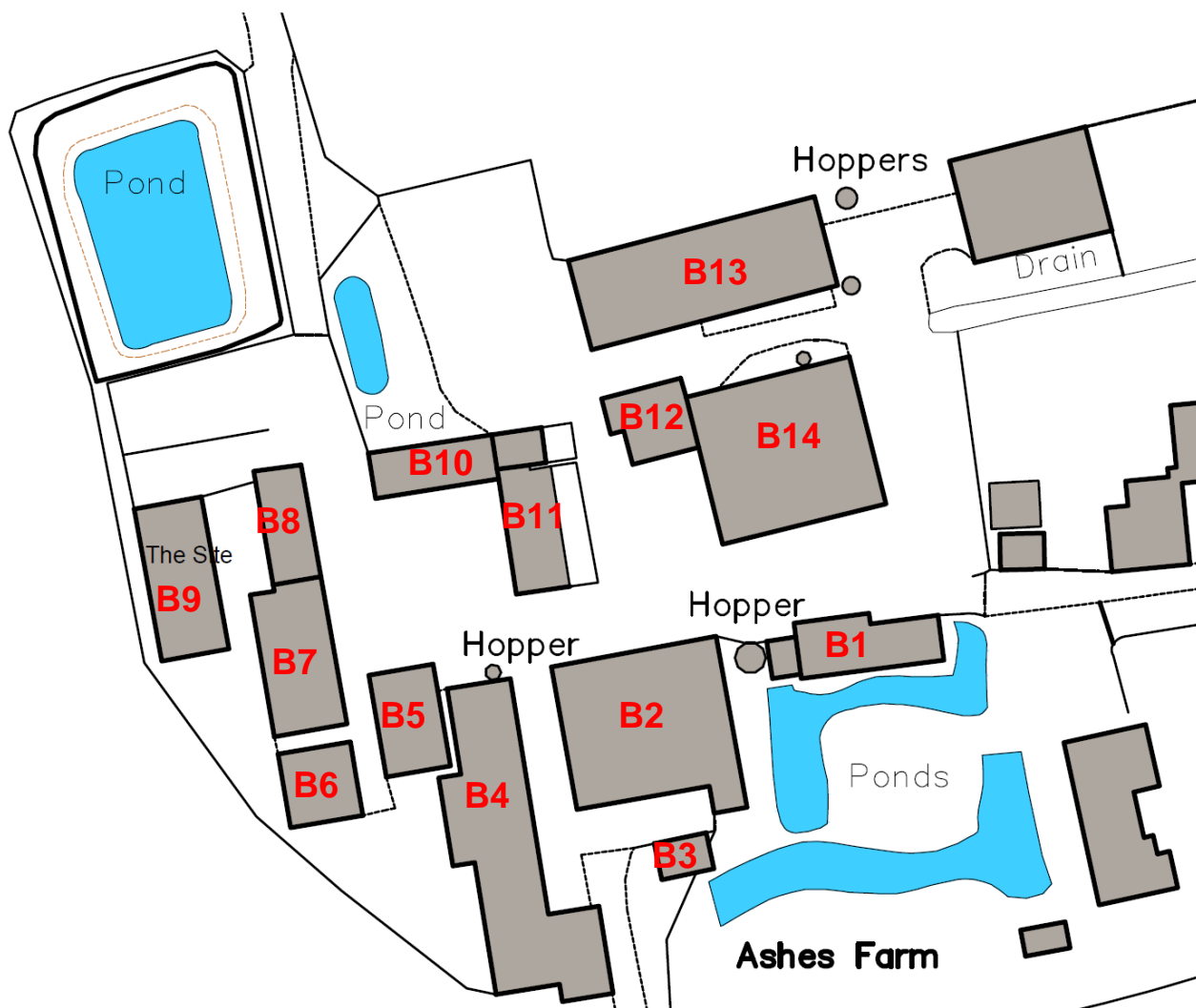


Fig 2: Building layout, taken from draft layout plan provided by Peter Wells Architects

4.16 All of the buildings on site are of modern construction, with tightly fitting wooden beams and / or steel girders supporting a single layer of wooden boards, corrugated asbestos, corrugated tin or plyboard sheets unless otherwise stated. Some have breeze block wall sections, some of which are rendered, and all of which are in good condition unless otherwise stated. Wooden barge boards are tightly fitted, or where gaps are present they are filled with dense cobwebs, dirt and debris.

4.17 All buildings have concrete floors unless otherwise stated, and are maintained in a clean and tidy state. The descriptions below provide additional details relating to the structure of the individual buildings beyond those provided above. All were fully accessible for inspection inside and out.

Building 1

4.18 Half of the building is open fronted to the north, with two sections closed and used to store farm machinery. Adjoining the western wall is a small single storey shed with chipboard sheet walls on a wooden frame, and a corrugated tin roof.





Photo 1: Northern and western facades of B1



Photo 2: Internal view of B1 open section

### Building 2

- 4.19 Three Perspex skylights create a very light internal environment, with the building used to store farm machinery at the time of survey. Wooden sliding doors are present on the northern façade.



Photo 3: Building 2, northern and western facades

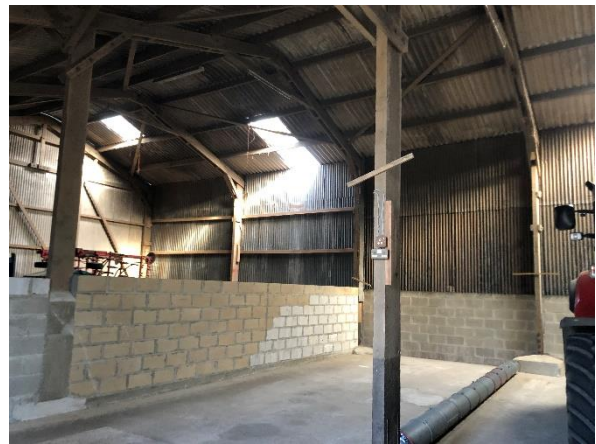


Photo 4: Internal view of B2

### Building 3

- 4.20 Small, single skinned tin storage shed, with modern wooden beams. Open to north.

### Building 4

- 4.21 Large building, formerly used to house pigs and divided internally into pig pens by breeze block walls. It is open on one side, and very light and airy internally.







Photo 5: Southern end of B4



Photo 6: Internal view of B4

### Building 5

- 4.22 Small, two storey building open to north. Very occasional small (c.5mm) crevices between adjoining beams, easily inspected from ground level.



Photo 7: North western façade of B5



Photo 8: Concrete farmyard extending north and east from B5

### Building 6

- 4.23 Single storey building formerly used to house pigs. Externally walls are rendered breeze block, and the corrugated asbestos roof are insulated with Celotex / polystyrene sheets. Small uPVC window frames are tightly fitted. Large vents are present in the roof, constructed of wood and plyboard.

### Building 7

- 4.24 Very similar to Building 6, but the northern half of the building has chipboard external walls and wooden door and window frames, all tightly fitted and in good condition. At the southern end is a small area of loose render at c.400mm height. Inspection revealed the resultant crevice to be filled with dirt, debris and cobwebs.



### Building 8

- 4.25 Also similar to Buildings 7 and 8, and half open (bottom gates missing) to the east. A chipboard barge board is present along the eastern façade, with very small crevices ( $\leq 5\text{mm}$ ) easily inspected with a torch from ground level.



Photo 9: South eastern façade of B7, with B8 immediately beyond, and B5 to east



Photo 10: Northern end of B8, viewed from east

### Building 9

- 4.26 Walls comprise breezeblocks to c.1.5m with vertical wooden slats between here and the single storey eaves. Permanently open to the north and with eight skylights, the internal environment is very light and airy. The south western corner of the building is partially covered with ivy *Hedera helix*.



Photo 11: Southern end of B9, with B8 to east and mown grass between the two buildings



Photo 12: Internal view of B9

### Building 10

- 4.27 Single storey building formerly used to house pigs, and internally divided into many small sections. Directly joins Building 11 to the east.





### Building 11

4.28 Single storey building, half of which is a porch providing cover to a concrete walkway. The remainder of the building supports former pig pens. Wooden door and window frames have very minor (<5mm) gaps between here and the surrounding breeze block walls, easily inspected from ground level, and generally full of dirt and debris. At the end of B11, also adjoining B10 is a small corrugated asbestos Nissen hut style building, with an apparent large opening in the roof.



Photo 13: South eastern façade B10



Photo 14: Internal view of B11



Photo 15: Nissen building at end of B10 and B11



Photo 16: Door on western side of B11, with small gaps around door frame

### Building 12

4.29 Small, single storey breeze block building. One small gap is present between a wooden door frame and surrounding breeze blocks on the south western corner of the building. It is relatively superficial and easily inspected, with no evidence of past or current bat presence.

### Building 13

4.30 Modern two storey grain / agricultural store, empty at the time of survey.







Photo 17: South eastern façade of B12



Photo 18: Gap above door frame of B12



Photo 19: Eastern façade of B13



Photo 20: Internal view of B13

### Building 14

4.31 Two storey modern barn used to store agricultural machinery. Building is open to south, with low metal gates. Similar gates are present on the northern and western façades with plastic mesh and / or tarpaulin above.



Photo 21: Short vegetation between B13 and B14



Photo 22: Internal view of B14



## Animals

### Bats

4.32 The desk study did not identify any bat EPSM licences within 5km of the site. The SBIS records search returned three bat records of pipistrelle *Pipistrellus sp.*, brown long-eared bat *Plecotus auritus* and serotine *Eptesicus serotinus*, all from c.1.7km to the north of the site.

### **Bats - roosting**

4.33 No evidence of the presence of bats was recorded in any of the buildings. All of the buildings were assessed in accordance with guidelines from the Bat Conservation Trust (Collins, J. 2016) as being of negligible suitability for roosting bats, either due to a lack of potential roosting features, or very poor quality roosting features in light, open conditions or beneath materials with very poor insulation properties.

4.34 A small number of small and / or superficial crevices were noted in Buildings B5, B7, B8, B11 and B12 as described in Table 2, below. None of these features were considered to warrant further survey beyond a precautionary check for the presence of roosting bats immediately prior to removal. Due to the ease with which these features can be thoroughly checked for roosting bats from ground level or with a ladder, the single dusk / dawn survey that current best practice guidelines would require for a building of 'low suitability' for roosting bats is unlikely to be any more effective than the site survey of 26<sup>th</sup> June in determining presence / absence of roosting bats. These buildings are therefore classified as being of negligible to low suitability but do not require any further detailed survey following the absence of roosting bats or any evidence of roosting bats recorded during the building inspection.

**Table 2: Bat Building Assessment results (PRF's = Potential Roost Features)**

Building	Suitability	Notes (inc. evidence of bats where present)
<b>B1 – B4</b>	Negligible	No PRF's
<b>B5</b>	Negligible to low	Very occasional small (5mm) crevices between adjoining beams. Easily inspected to determine bat presence / absence
<b>B6</b>	Negligible	No PRF's
<b>B7</b>	Negligible to low	Low level render loose on southern gable end. No evidence of the presence of bats, or recent past presence of bats at the time of survey. Easily inspected to determine bat presence / absence
<b>B8</b>	Negligible to low	Warped chipboard barge board present along the eastern façade, easily inspected to determine bat presence / absence
<b>B9 – B10</b>	Negligible	No PRF's
<b>B11</b>	Negligible to low	Shallow gaps present around door frames; most filled with debris, some more open. Easily inspected
<b>B12</b>	Negligible to low	One small gap between a wooden door frame and surrounding breeze blocks on the south western corner of the building. Relatively superficial, easily inspected with ladder to determine bat presence / absence
<b>B13 – B14</b>	Negligible	No PRF's



## **Bats – commuting / foraging**

- 4.35 The proposed development site provides very small areas of potential bat foraging and commuting habitat, limited to the hedgerow along the western site boundary and the very small areas of short grass and ruderal vegetation adjacent to this hedge. When considered in the context of the surrounding environment, and whilst due for retention, this hedge is unlikely to be of significant importance to the local bat population.

### Invertebrates

- 4.36 The site is considered likely to support a very low number of common and widespread invertebrate species typical of the habitats present.

### Amphibians

- 4.37 The MAGIC search did not highlight any great crested newt (GCN) EPSM licence records within 5km of the site. One class licence return dating from 2016 was identified at 1.2km north west of the site (also highlighted by SBIS), along with a negative record from the pond survey data set in approximately the same location dating from 2019. A positive pond survey record dating from 2019 was returned from c.1km south west. The SBIS data set showed two further records of GCN from 2004 and 2009, at 1.4km south west and 160m to the east of the site. Mr Colchester has also confirmed the presence of GCN in a garden pond c.40m to the south east of the site.

- 4.38 The proposed construction site provides very small areas of moderate to high quality potential GCN terrestrial habitat limited to the hedgerow along the western site boundary and the very small areas of short grass and ruderal vegetation adjacent to this hedge. With WB1 and WB2 very unlikely to support GCN, and eDNA results indicating GCN are also likely absent from WB3, the local GCN population is concentrated offsite to the east.

- 4.39 There are no ponds beyond the site to the west to which GCN may migrate, and no good quality terrestrial habitat, with a large arable field offsite to the west. By contrast, the two ponds to the east of the site with confirmed GCN presence are located immediately adjacent to, or are partly surrounded by, significant areas of high quality (woodland and scrub) habitats. As a result, the likelihood of GCN being present on site for the purposes of resting, sheltering or foraging is negligible, as is the potential for commuting GCN to be present.

### Reptiles

- 4.40 The site does not provide any suitable habitat for reptiles, and has limited connectivity to areas of potential offsite reptile habitat.



### Birds

- 4.41 The buildings provide opportunities for nesting birds, with a small number of old wren *Troglodytes troglodytes*, pigeon *Columba palumbus* and likely blackbird *Turdus merula* nests recorded in some of the buildings. No evidence of the presence of barn owl was recorded in any of the buildings.
- 4.42 The western boundary hedge and the small group of mature hazel shrubs also have potential to support nesting birds such as wren, dunnock *Prunella modularis* and robin *Erithacus rubecula*.

### Badger

- 4.43 Badgers are a common and widespread species, not of conservation concern.
- 4.44 No evidence of badger was recorded on or within 30m of the site. No setts, footprints, hairs, latrines, snuffle holes or scratching indicative of the presence of badgers was recorded.

### Otter

- 4.45 There are no waterbodies on, adjacent or connected to the site which have potential to support otters.

### Water vole

- 4.46 There are no waterbodies on, adjacent or connected to the site which have potential to support water voles.

### Dormice

- 4.47 The site provides a very small area of potential dormouse habitat along the western site boundary, with very poor connectivity to any other areas of potential dormouse habitat and a general lack of significant areas of woodland / scrub habitats in the surrounding landscape.

### Other Legally Protected Species

- 4.48 Due to a lack of suitable habitats the site is not considered likely to support any other legally protected species.

### Species of Principal Importance

- 4.49 The site provides some potential nesting opportunities for house sparrow *Passer domesticus*, starling *Sturnus vulgaris* and dunnock *Prunella modularis*, none of which were recorded on site at the time of survey. The site contains very little other habitat suitable to support Species of Principal Importance in England (SPIE).





## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### Designated Sites

- 5.1 The proposals are not considered to be detrimental to any CWS. No further survey or mitigation is recommended.
- 5.2 The proposals are very unlikely to have any direct adverse impact upon any national or international statutory designated sites. No further survey or mitigation is recommended.

### Invertebrates

- 5.3 Potential effects: negligible.
- 5.4 Mitigation measures: none.
- 5.5 Residual effects: negligible.

### Amphibians

- 5.6 Great crested newts (GCNs) and their habitats are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended).
- 5.7 Potential effects: negligible. There is very low potential for GCN to be present within the development site, and the proposals will not have an adverse effect on the Favourable Conservation Status of any local GCN population.
- 5.8 Mitigation measures: no further surveys are recommended. The local presence of GCN has been confirmed in ponds offsite to the east, however due to the habitats present on site, the likely and / or confirmed absence of GCN from all ponds immediately adjacent to the site, and the lack of ponds within close proximity of the site to the west, there is very low likelihood of GCN presence on site.
- 5.9 As a precaution, it is recommended that any rubble / spoil piles are located as far from the offsite GCN ponds as possible i.e. in the north western corner of the site. In the event that any GCN are discovered on site at any point, all works must cease and an ecologist contacted for further advice. An identification sheet for this purpose has been provided in Appendix 4.
- 5.10 Residual effects: minor positive at the site level. The creation of large gardens for each residential plot will be of significantly greater value to all amphibians than the current buildings and hard standing. The recommended planting of boundary hedges (see Section 6.0) will provide habitat corridors for a range of wildlife, including GCN.





## **Reptiles**

- 5.11 All Suffolk reptile species are protected against harm under the Wildlife and Countryside Act 1981 (as amended).
- 5.12 Potential effects: negligible.
- 5.13 Mitigation measures: none.
- 5.14 Residual effects: negligible.

## **Birds**

- 5.15 Breeding birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended).
- 5.16 Potential effects: the buildings provide confirmed nesting habitat for common bird species, and the western boundary hedgerow and shrubs provide further nesting opportunities. The disturbance and destruction of an active nest could have a negative effect on some bird species at the site level. Boundary vegetation features will be retained, and there will be negligible loss of foraging habitat in the context of the surrounding environment.
- 5.17 Mitigation measures: ideally building demolition would commence during October to February inclusive to avoid the bird nesting season. If this is not possible, immediately prior to commencement of works a check for nesting birds should be undertaken by a suitably experienced ecologist. Any active nests will need to be left in situ until the young have left the nest.
- 5.18 Residual effects: following implementation of the mitigation and enhancement measures detailed in section 6.0 – the provision of four double nest boxes for house sparrows and two open fronted nest boxes for wrens, blackbird and robin – overall no significant adverse effect is predicted on bird species at any level.

## **Bats**

- 5.19 All species of bat are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended). In summary, this makes it an offence to harm or disturb a bat; damage or destroy a roost; and obstruct access to a roost (whether or not bats are present at the time).
- 5.20 Potential effects on roosting bats: negligible. Roosting bats are unlikely to be using the buildings on site, however as a precaution it is recommended that a check of the small and shallow roost features identified in Table 2 is carried out by a licensed bat ecologist immediately prior to commencement of works. All can be thoroughly checked for roosting



bats from ground level or with a ladder. In the event of bat presence, further survey and licensing works will be necessary for the building(s) concerned. A summary of where these checks are required is provided in Table 3.

**Table 3: Survey / works recommendations with respect to bats**

Building	Suitability for roosting bats	Survey / working recommendations
<b>B1-B4</b>	Negligible	None
<b>B5</b>	Negligible to low	Inspect crevices between adjoining beams prior to commencement of works; powerful torch or ladder required
<b>B6</b>	Negligible	None
<b>B7</b>	Negligible to low	Inspect low level loose render on southern gable end prior to commencement of works; endoscope required
<b>B8</b>	Negligible to low	Inspect beneath warped chipboard barge board along the eastern façade prior to commencement of works
<b>B9 – B10</b>	Negligible	None
<b>B11</b>	Negligible to low	Inspect small gap between wooden door frame and surrounding breeze blocks on the south western corner of the building
<b>B12</b>	Negligible to low	Inspect small gap between wooden door frame and surrounding breeze blocks on the south western corner of the building; ladder required
<b>B13 – B14</b>	Negligible	None

5.21 Mitigation measures for roosting bats: none.

5.22 Potential effects on commuting / foraging bats: in the absence of mitigation negligible impacts are predicted with respect to foraging and commuting bats as the site provides a very small area of such habitat, however the effects on small numbers of commuting bats – particularly brown long-eared bats – could be greater where inappropriate lighting is installed on site.

5.23 Mitigation measures for commuting / foraging bats: a bat friendly lighting scheme should be implemented to avoid lighting the site boundaries or any mitigation features at night. Lighting within the new development should be minimal – ideally limited to small porch lights and located as close to the ground as possible. Any additional external lighting should be motion sensitive and use hoods, cowls, louvres and shields to direct light to the ground.

5.24 Residual effects: following the implementation of the built-in bat boxes detailed in Section 6.0, a minor positive effect on local bat populations is likely to result. New species rich hedge planting will also enhance the site for foraging bats, and the creation of large residential gardens will be of greater benefit to bats than the current buildings and hard standing.



## **Badger**

5.25 Badgers and their setts are afforded protection under the Protection of Badgers Act 1992 (as amended). This legislation includes protection against damage to badger setts and against interference and disturbance of badgers whilst they are occupying a sett.

5.26 Potential effects: none. No evidence of badgers was found on site or immediately adjacent, and there is no indication that badgers are likely to colonise the site in the near future.

5.27 Mitigation measures: none.

5.28 Residual effects: none.

## **Otters**

5.29 Otters and their habitats are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended).

5.30 Potential effects: negligible.

5.31 Mitigation measures: none.

5.32 Residual effects: negligible.

## **Water Voles**

5.33 Water voles and their habitats are fully protected by the Wildlife and Countryside Act 1981 (as amended).

5.34 Potential effects: negligible.

5.35 Mitigation measures: none.

5.36 Residual effects: negligible.

## **Dormice**

5.37 Dormice and their habitats are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and by the Wildlife and Countryside Act 1981 (as amended).

5.38 Potential effects: negligible.

5.39 Mitigation measures: none.

5.40 Residual effects: negligible.



### **Other Legally Protected or Notable Species**

- 5.41 The proposed development is not anticipated to impact on any other legally protected species, therefore no mitigation measures are recommended.
- 5.42 Mitigation and enhancement measures will provide artificial nesting features suitable for house sparrow (a SPIE) and wren, blackbird and robin. New planting will benefit a wide range of SPIE, including toad *Bufo bufo* and hedgehog *Erinaceus europaeus*.
- 5.43 The measures detailed in section 6.0 can be secured via planning condition.



## 6.0 MITIGATION & ENHANCEMENT MEASURES

- 6.1 Four house sparrow boxes should be provided, one on each new residential plot, ideally built into each garage. The box should be located at a height of at least 2m, immediately beneath the eaves or at apex height, and face between north and east. The recommended box type is shown below; others must be agreed with an ecologist.



*Woodstone Estella House Sparrow Box*

*Made of long lasting woodstone; can be built-in or fixed externally*

*Available from CJ Wildlife*

*Dimensions 29 x 16 x 21 cm, weight 6kg*

- 6.2 Two open fronted bird boxes suitable for wrens, robins and blackbirds should be provided in the western retained hedgerow. The boxes should be located at a height of 1-1.5m, in an area of dense vegetation, and facing between north and east. The recommended box type is shown below, and can be fixed with a nail or a strap.



*Woodstone Alicante Nest Box*

*Made of long lasting woodstone; can be fixed with a nail, screw or narrow tree strap*

*Available from CJ Wildlife*

*Dimensions 22.5 x 15 x 26cm*

- 6.3 The southern and eastern site boundaries should be delineated with native hedging, which could be set against garden fencing where preferred. A species rich mix of at least five of the following should be used - hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, dogwood *Cornus sanguinea*, field maple *Acer campestre*, hazel *Corylus avellana*, guelder rose *Viburnum opulus*, holly *Ilex aquifolium* and spindle *Euonymus europaeus* – planted in double staggered rows and mulched with 75mm of woodchip.
- 6.4 Where close boarded or similar garden fencing is used around the gardens, small (130mm x 130mm) gaps in fencing should be provided to aid hedgehog access into and through gardens which may not otherwise be accessible. One hole in the boundary of each property should be provided. Purpose built hedgehog gravel boards are now available, or can be cut as required.





6.5 Enhancement features for roosting bats should be provided on or built in to four of the new buildings, garages preferably. The box types should be taken from those detailed below. The boxes should be located at least 3m high, with a 1-2m clear drop beneath the box entrance i.e. clear of all wires, branches etc. They can face in any direction, and must be located well away from all external lighting features.

The designs below provide well insulated, long lasting roosting opportunities for a range of crevice dwelling bats. Any other designs should be agreed with an ecologist.



*Beaumaris woodstone bat box midi – for installation on building walls or large tree trunks*



*Chillon woodstone bat box – for building walls or large tree trunks*



Habibat Bat Box – to be built in to wall and rendered or weather boarded. Also available faced in red brick



Segovia build-in bat tube – to be built in to wall and the top section boarded or bricked over



## 7.0 REFERENCES

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

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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)*

Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M., (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal*, 10, pp. 143-155.



## 8.0 LEGISLATION

### **The Conservation of Habitats and Species Regulations 2017 (as amended)**

- 8.1 The Conservation of Habitats and Species Regulations 2017 (as amended) continue to provide safeguards for European Protected Sites and Species as listed in the Habitats Directive. As a result, the same provisions remain in place for European protected species, licensing requirements and protected areas after Brexit.
- 8.2 Species protected by the former European legislation includes great crested newt, all UK bat species, dormice and otter. A number of other plant and animal species are also included such as sand lizard, smooth snake and natterjack toad, however these additional species are rare, with restricted geographical ranges and specific habitat types.
- 8.3 Under The Conservation of Habitats and Species Regulations 2017 (as amended) it is an offence to:
- Damage, destroy or obstruct access to an EPS breeding or resting place;
  - Deliberately capture, injure or kill an EPS (including their eggs);
  - Deliberately disturb an EPS, in particular any actions which may impair an animals ability to survive, breed or nurture their young; or their ability to hibernate or migrate; or which may significantly affect the local distribution or abundance of the species to which they belong.
- 8.4 The legislation applies to all stages of amphibian life cycles (eggs, larvae and adult), and to active bat roosts even when they are not occupied at that particular time of year.
- 8.5 Natural England can, under certain circumstances, grant a licence to permit actions which would otherwise be unlawful, subject to the species concerned being maintained at a Favourable Conservation Status and there being a true need for the proposed works to take place.
- 8.6 Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) are also afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended). Ramsar sites, which are designated under the Convention on Wetlands of International Importance (1971), are afforded the same level of protection as SPAs and SACs via national planning policy.



### **The Wildlife and Countryside Act 1981 (as amended)**

- 8.7 The Wildlife and Countryside Act 1981 (as amended) provides varied levels of protection for a range of species including those already listed above. Water vole are one of the species not listed under the Conservation of Habitats and Species Regulations 2017 (as amended), but are afforded the highest level of protection under the Wildlife and Countryside Act 1981 (as amended).
- 8.8 It is an offence to intentionally kill, injure or take a water vole, to intentionally or recklessly damage or destroy a structure or place used for shelter and/or protection, to disturb a water vole whilst occupying a structure and/or place used for shelter and protection, or to obstruct access to any structure and/or place used for shelter or protection.
- 8.9 Other species, such as common lizard, slow worm, adder and grass snake, are afforded less protection. For these species it is an offence to intentionally or recklessly kill or injure animals.
- 8.10 All active bird nests, eggs and young are protected against intentional destruction. Schedule 1 listed birds e.g. barn owls, kingfishers, are further protected from intentional and reckless disturbance whilst breeding.
- 8.11 Schedule 9 of The Wildlife and Countryside Act lists plant species for which it is an offence for a person to plant, or otherwise cause to grow in the wild. This includes Japanese Knotweed which, under the Environment Protection Act 1990 (as amended) is classed as 'controlled waste'. If any parts of the plant including stems, leaves and rhizomes are taken off-site they must be disposed of safely at a landfill site licensed to deal with such contaminated waste.
- 8.12 Sites of Species Scientific Interest (SSSI) are afforded protection by the Wildlife and Countryside Act 1981 (as amended).

### **The Protection of Badgers Act 1992 (as amended)**

- 8.13 The Protection of Badgers Act (1992) makes it an offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so, and to intentionally or recklessly interfere with a sett.

### **The Protection of Mammals Act 1996 (as amended)**

- 8.14 The Act protects all wild mammals against actions which have the intention of causing unnecessary suffering, including crushing and asphyxiation.



### **The Natural Environment and Rural Communities Act 2006 (as amended)**

- 8.15 Under sections 40 and 41 of the Natural Environment and Rural Communities Act (NERC) 2006 local authorities have an obligation to have regard to the purpose of conserving biodiversity in carrying out their duties. The majority of UK legally protected species are listed under Section 41 the NERC Act.
- 8.16 Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006) also requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity' in England (Species of Principal Importance in England – SPIE). The S41 list is used to guide decision-makers, including local and regional authorities, in implementing their duty under Section 40 of the act to have regard to the conservation of biodiversity in England when carrying out their normal functions.

### **Statutory Designated Sites**

- 8.17 Under the National Parks and Access to the Countryside Act 1949 (as amended), statutory conservation agencies were able to establish National Nature Reserves (NNRs), with provisions for these areas strengthened by the Wildlife and Countryside Act 1981 (as amended). They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them.
- 8.18 Local Nature Reserves (LNRs) can be declared by local authorities after consultation with the relevant statutory nature conservation agency under the National Parks and Access to the Countryside Act 1949 (as amended). LNRs are not subject to legal protection, but are afforded protection against damaging operations via byelaws, and against development via local planning policies.

### **Non-Statutory Designated Sites**

- 8.19 Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and County Wildlife Sites (CWS) are often designated by the local Wildlife Trust. They are not usually afforded any legal protection, but are recognised in the planning system and given some protection through planning policy.

### **National Planning Policy Framework (NPPF)**

- 8.20 The National Planning Policy Framework (2019) sets out the Government's planning policies for England and how these should be applied. The NPPF must be taken into account when preparing a Local Authority's development plan, and is also a material consideration in planning decisions.





8.21 As well as highlighting the importance of protecting ecologically valuable sites and habitats, the NPPF highlights the duty of local planning authorities (LPA's) to deliver net gains for biodiversity within the planning system. Planning policies and decisions should, as per Paragraph 170d, contribute to and enhance the natural and local environment by:

*d) 'minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'*

8.22 To protect and enhance biodiversity, policies and plans should, as per Paragraph 174b:

*b) 'promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'*

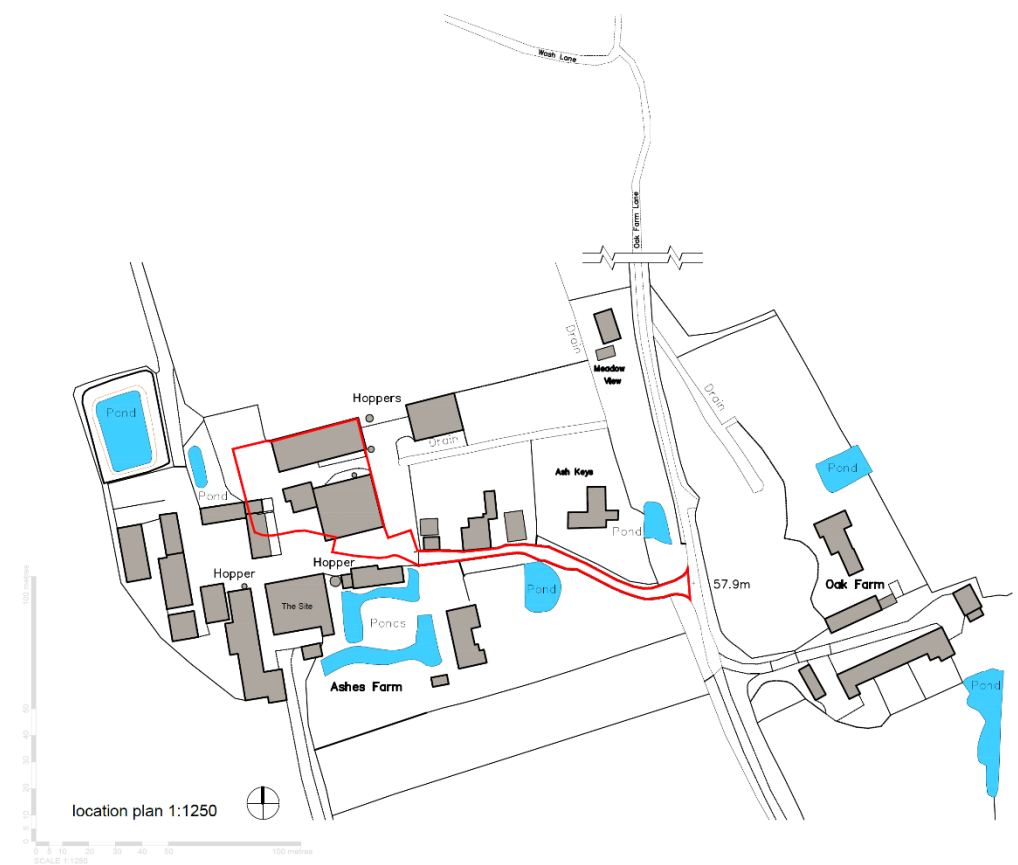
8.23 When determining planning applications, LPA's should apply principles which avoid an adverse effect on natural environments and notable species:

*d) 'if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;'*



## **Appendix 1: Proposed Plans**



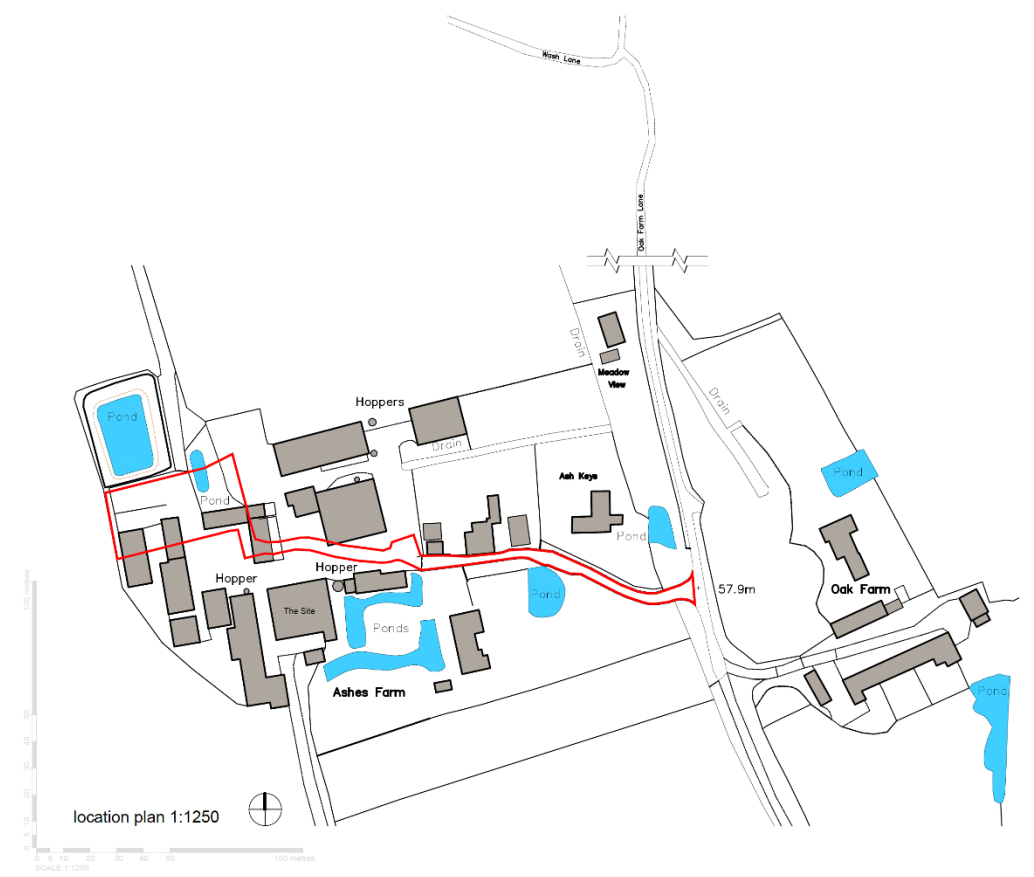


Task	Revision	Description	WPS Drawn	PWS Checked
<b>peterwellsarchitects</b>				
office farm, letteringham, woodbridge, suffolk, ip13 3ra - 01728 745356 - info@peterwellsarchitects.co.uk				
Project:	Ashes Farm, Oak Farm Lane, Mendlesham, Stowmarket, Suffolk, IP14 5TE			
Dwg Title:	Plot 1, Existing & Proposed Site Plan & Location Plan			
Client:	Simon Colchester	Dwg Status:	Planning	
Date:	Sep 2021	Scale:	1:250, 1:1250 @ A1	Dwg No.: PW1056_PL100
		Revision:	/	

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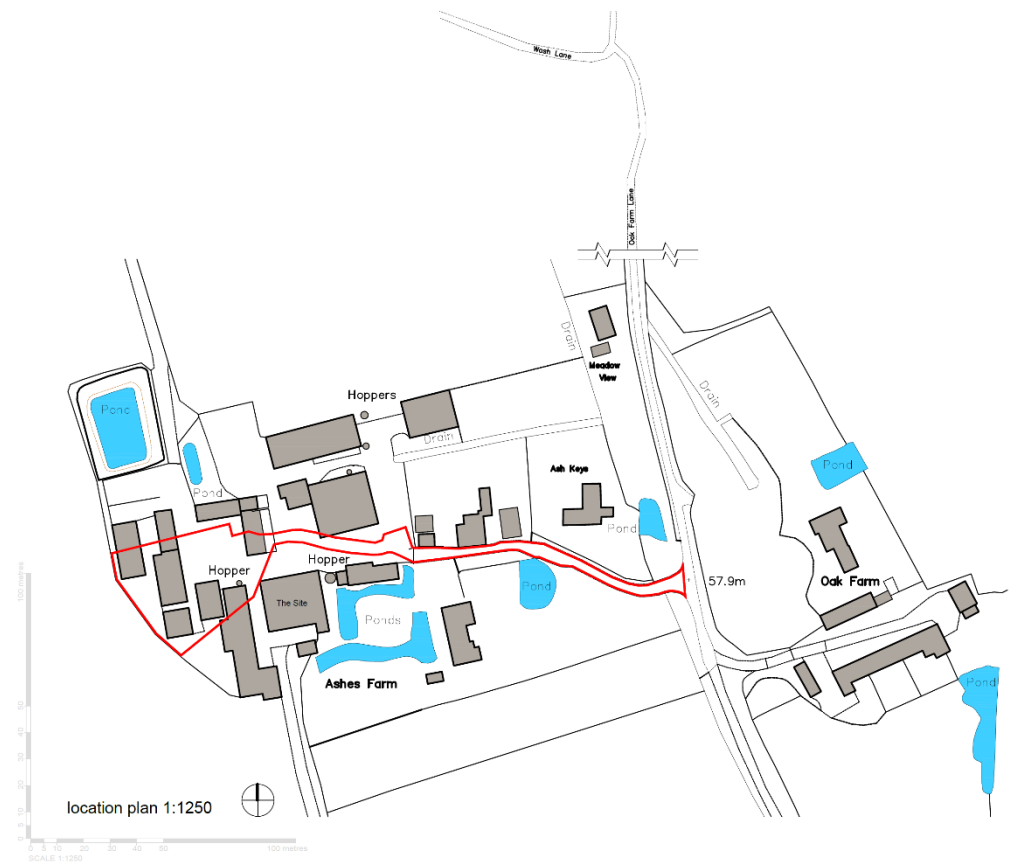
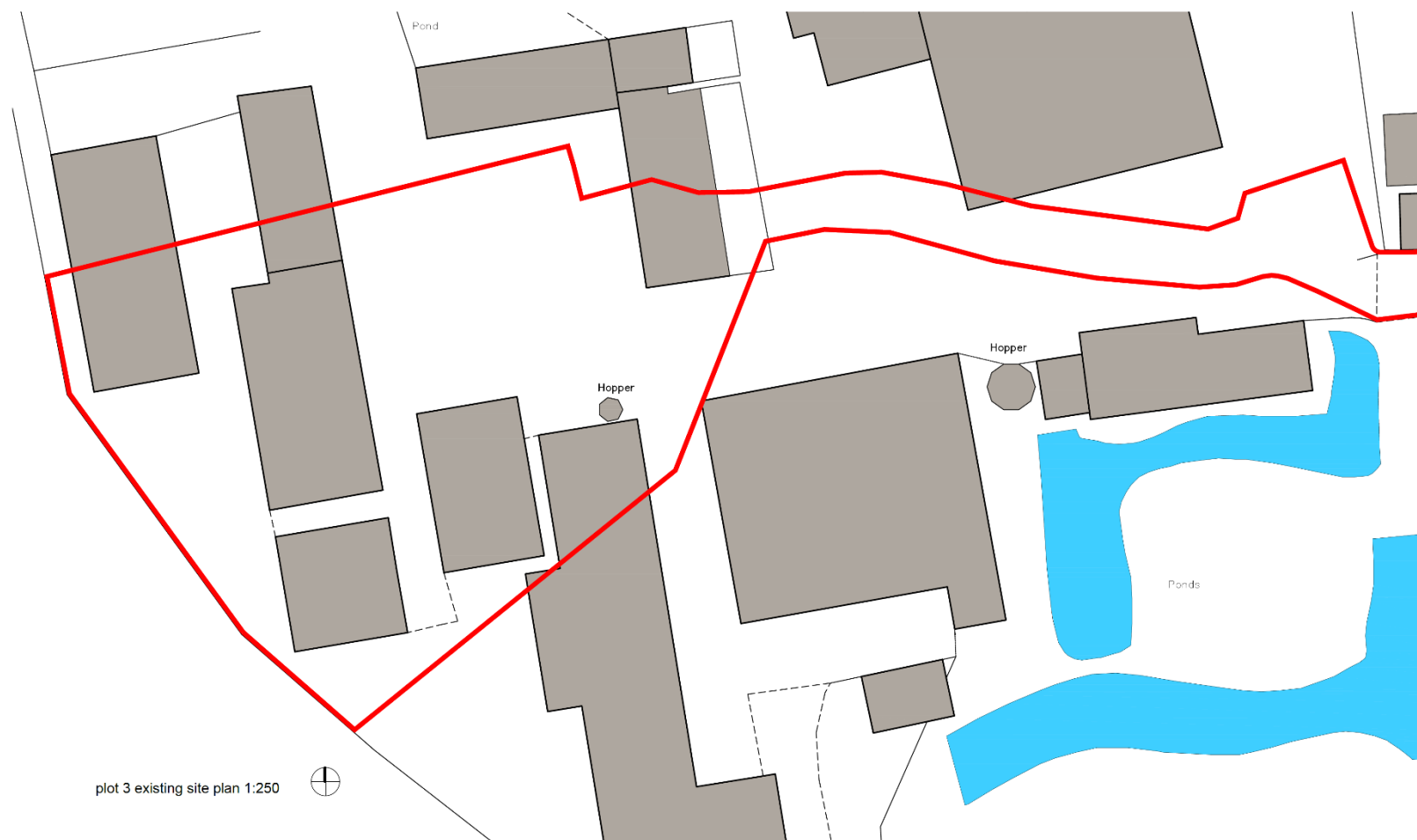


Date	Revision	Description	mmg	PW
			Drawn	Checked
<b>peterwellsarchitects</b>				
office farm, Itheringham, Woodbridge, Suffolk, IP13 7RA - 01728 745356 - info@peterwellsarchitects.co.uk				
Project: <b>Ashes Farm, Oak Farm Lane, Mendlesham, Stowmarket, Suffolk, IP14 5TE</b>				
Dwg Title: <b>Plot 2, Existing &amp; Proposed Site Plan &amp; Location Plan</b>				
Client: <b>Simon Colchester</b>			Dwg Status: <b>Planning</b>	
Date: <b>Sep 2021</b>	Scale: <b>1:250, 1:1250 @ A1</b>	Dwg No: <b>PW1056_PL200</b>	Revision: <b>/</b>	





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Date	Revision	Description	MD	PW
			Drawn	Checked
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Project	Ashes Farm, Oak Farm Lane, Mendlesham, Stowmarket, Suffolk, IP14 5TE			
Dwg. Title	Plot 3, Existing & Proposed Site Plan & Location Plan			
Client	Simon Colchester	Dwg. Status	Planning	
Date	Sep 2021	Scale	1:250, 1:1250 @ A1	Dwg. No.: PW1056_PL300
		Revision	/	

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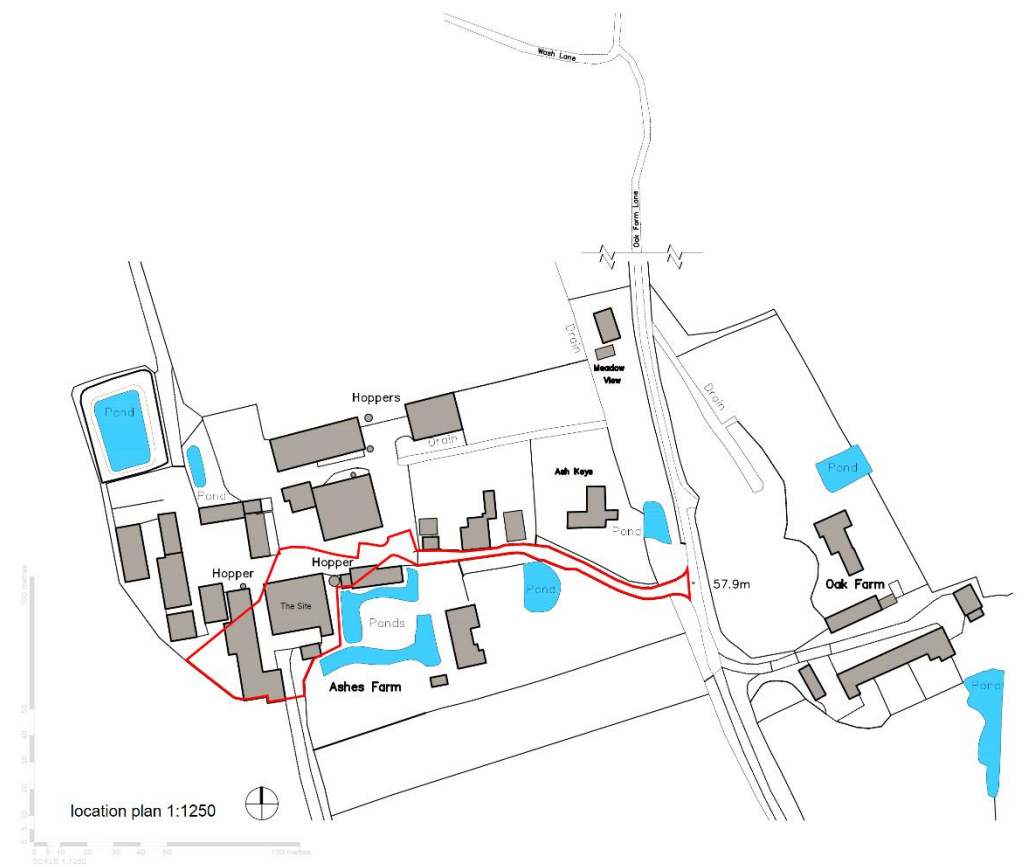
CDM  
 CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015  
 Designer's Hazard Information for Construction  
 These notes refer specifically to the information shown on this drawing. Refer to Health & Safety Plan for further information.  
 1. If you do not fully understand the risks involved during the construction of the items indicated on this drawing ask your Health & Safety Advisor or a member of the design team before proceeding.



plot 4 existing site plan 1:250



plot 4 proposed site plan, 1:250



location plan 1:1250

Date		Revision		Description		ing	PW
						Drawn	Checked
<b>peterwellsarchitects</b>							
office farm, letheringham, woodbridge, suffolk, ip13 7RA - 01728 745356 - info@peterwellsarchitects.co.uk							
Project: <b>Ashes Farm, Oak Farm Lane, Mendlesham, Stowmarket, Suffolk, IP14 5TE</b>							
Dwg Title: <b>Plot 4, Existing &amp; Proposed Site Plan &amp; Location Plan</b>							
Client: <b>Simon Colchester</b>				Dwg Status: <b>Planning</b>			
Date: <b>June 2021</b>	Scale: <b>1:250, 1:1250 @ A1</b>	Dwg No.: <b>PW1056_PL400</b>		Revision: <b>/</b>			
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**Appendix 2:**  
**HSI Assessment Results**

HSI Assessment results

Table 4: WB1

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b>	rectangle	
	length (m)	16	
	width (m)	6	
	OR estimate (m <sup>2</sup> ) if irregular		
	area (m <sup>2</sup> ) =	96	0.19
SI3. Dessication rate	<b>never/rarely/sometimes/frequently</b>	never	0.90
SI4. Water quality	<b>good/moderate/poor/bad</b>	bad	0.01
SI5. Shade	% of margin shaded 1m from bank	60	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	absent	1.00
SI7. Fish population	<b>absent/possible/minor/major</b>	absent	1.00
SI8. Pond density	number of ponds within 1km	5.1	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	moderate	0.67
SI10. Macrophyte cover	%	0	0.31
			<b>HSI = 0.45</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.41
			Date undertaken 26.06.21

Table 5: WB2

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b>	rectangle	
	length (m)	27	
	width (m)	17	
	OR estimate (m <sup>2</sup> ) if irregular		
	area (m <sup>2</sup> ) =	459	0.92
SI3. Dessication rate	<b>never/rarely/sometimes/frequently</b>	never	0.90
SI4. Water quality	<b>good/moderate/poor/bad</b>	bad	0.01
SI5. Shade	% of margin shaded 1m from bank	0	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	absent	1.00
SI7. Fish population	<b>absent/possible/minor/major</b>	absent	1.00
SI8. Pond density	number of ponds within 1km	5.1	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	moderate	0.67
SI10. Macrophyte cover	%	0	0.31
			<b>HSI = 0.53</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.49
			Date undertaken 26.06.21

Table 6: WB3

Habitat Suitability Index			SI value	
SI1.	Map location	<b>A/B/C</b>	A	1.00
SI2.	Surface area	<b>rectangle/ellipse/irregular</b>	irregular	
	length (m)			
	width (m)			
	OR estimate (m <sup>2</sup> ) if irregular		868	
		$area (m^2) =$	868	0.97
SI3.	Dessication rate	<b>never/rarely/sometimes/frequently</b>	never	0.90
SI4.	Water quality	<b>good/moderate/poor/bad</b>	moderate	0.67
SI5.	Shade	% of margin shaded 1m from bank	0	1.00
SI6.	Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7.	Fish population	<b>absent/possible/minor/major</b>	absent	1.00
SI8.	Pond density	number of ponds within 1km	5.1	1.00
SI9.	Terrestrial habitat	<b>good/moderate/poor/isolated</b>	good	1.00
SI10.	Macrophyte cover	%	0	0.31
			<b>HSI =</b>	<b>0.81</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI =	0.79
			Date undertaken	26.06.21

Table 7: WB4

Habitat Suitability Index			SI value	
SI1.	Map location	<b>A/B/C</b>	A	1.00
SI2.	Surface area	<b>rectangle/ellipse/irregular</b>	ellipse	
	length (m)		18	
	width (m)		14	
	OR estimate (m <sup>2</sup> ) if irregular			
		$area (m^2) =$	197.82	0.40
SI3.	Dessication rate	<b>never/rarely/sometimes/frequently</b>	never	0.90
SI4.	Water quality	<b>good/moderate/poor/bad</b>	good	1.00
SI5.	Shade	% of margin shaded 1m from bank	30	1.00
SI6.	Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7.	Fish population	<b>absent/possible/minor/major</b>	absent	1.00
SI8.	Pond density	number of ponds within 1km	5.1	1.00
SI9.	Terrestrial habitat	<b>good/moderate/poor/isolated</b>	good	1.00
SI10.	Macrophyte cover	%	70	1.00
			<b>HSI =</b>	<b>0.87</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI =	0.85
			Date undertaken	26.06.21

**Appendix 3:**  
**Great Crested Newt eDNA Results (WB3)**



Folio No: E11306  
Report No: 1  
Purchase Order: 1660  
Client: LIZ LORD  
Contact: Liz Lord

## TECHNICAL REPORT

### ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

#### SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

#### RESULTS

**Date sample received at Laboratory:** 29/06/2021  
**Date Reported:** 13/07/2021  
**Matters Affecting Results:** None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
7391	Ashes Farm, moat		Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: [ForensicEcology@surescreen.com](mailto:ForensicEcology@surescreen.com)

**Reported by:** Chris Troth

**Approved by:** Chris Troth



## METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

## INTERPRETATION OF RESULTS

- SIC:**            **Sample Integrity Check** [Pass/Fail]  
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:**            **Degradation Check** [Pass/Fail]  
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:**            **Inhibition Check** [Pass/Fail]  
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:**        **Presence of GCN eDNA** [Positive/Negative/Inconclusive]  
**Positive:** GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.  
**Positive Replicates:** Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.  
**Negative:** GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



**Appendix 4:**  
**Great Crested Newt Identification**

## Great Crested Newt ID

Great crested newts: these newts are **noticeably black to very dark brown** in colour, with a warty texture to their skin. Some of the warts are white, accentuating the warty and slightly speckled appearance. In spring male newts have a white stripe along the centre of their tail, and females have an orange stripe at the end of their tail. The bright orange-yellow belly colouring extends fully to join with the dark upper skin tone.

By contrast, common or palmate newts are a lighter brown-green colour and are significantly smaller (up to 9cm in length, whilst great crested newts may be up to 15cm in length). **Both common and great crested newts have an orange-yellow belly with black spots**; however the orange colouring fades towards the edges of the belly of common newts. Both males have crests in the spring.



Female Great Crested Newt



Female Common Newt



Female Great Crested Newt & Smooth Newt



Male Great Crested Newt



Liz Lord Ecology

