



## Helmingham Hall, Helmingham, Suffolk

# Ecological Impact Assessment

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## 1.0 SUMMARY

- 1.1 The site (located at NGR: TM 18745791) was found to comprise an open area of closely grazed, species poor grassland historically used as a horse paddock and now grazed year-round by deer and sheep. Full planning permission is being sought for development of a new car park and access route across this grassland, which lies within the wider grounds of Helmingham Hall.
- 1.2 A site survey carried out on 25<sup>th</sup> February 2021 identified the need for further detailed surveys with respect to great crested newts. These surveys were carried out in spring 2021, and confirmed the presence of a 'medium' population of great crested newts across three nearby water bodies.
- 1.3 Due to the very low quality of great crested newt habitat within the proposed development footprint, the short duration of the development works and the proposed timing of the development works (early autumn / winter), the proposals are very unlikely to result in an offence under the relevant legislation or to have any adverse effect upon the Favourable Conservation Status of the local great crested newt population. Given the habitats currently surrounding the ponds on site, the proposed new native screening belts around the car park, and the opportunity for further targeted habitat enhancements for great crested newts, the proposals are considered likely to have a significant positive effect on great crested newts at the site level.
- 1.4 No mitigation licence is recommended for the site, since it will be possible to implement the proposals without disturbance or harm to individual great crested newts. No habitat used by great crested newts for the purposes of foraging, shelter or protection will be lost, and whilst the proposed car park site may be used by commuting newts during spring and summer migration to / from / in / out of ponds, the works will be timed to avoid these key migration periods.
- 1.5 Two veteran oak trees are present within very close proximity to the proposed car park, and a further three mature to over-mature oak trees just beyond. Works in close proximity to these trees will follow specialist no-dig / hand-dig methods as recommended by an arboriculturalist, to avoid direct harm to the trees. All of the trees are of moderate to high suitability for roosting bats, but will not be directly affected by the proposals. The car park will not be permanently lit at night, and will only be partially lit by low level (both height and intensity) lighting during the winter months (mid November to mid January) when winter light events take place and bats are in hibernation.
- 1.6 The site is not deemed suitable for any other protected species.



## 2.0 INTRODUCTION

### Instruction

- 2.1 This report has been prepared by Liz Lord following instruction by Mr M Hoare of Hoare Ridge and Morris LLP to carry out an ecological appraisal of a proposed new car park and access route at the Helmingham Hall estate, Helmingham, Stowmarket, Suffolk IP14 6EF.

### Site Proposals

- 2.2 Full planning permission and listed building consent is being sought for the creation of a new car park and access route.

### Site Description

- 2.3 Helmingham Hall is situated in the parish of Helmingham, between the villages of Stonham Aspal and Otley, and approximately 10km north of Ipswich. The Hall is surrounded by Helmingham Park, which supports a large expanse of grazed wood-pasture and parkland. Numerous ponds are present across the parkland, which is currently in the Higher Tier Countryside Stewardship scheme.
- 2.4 Beyond the park the landscape is dominated by arable farmland, interspersed with small copses and linked with hedges and tree lines. There are very few areas of woodland or other tree / scrub cover within 2km of the site, although there is good connectivity from the park to the wider landscape in all directions via hedgerows. An aerial site location plan is provided below.



Fig 1A: Site location plan, with approximate site area outlined in red. Aerial taken from Google Earth Pro, image dated 9/5/2020



*Fig 1B: Site location plan, with approximate car park area outlined in red and new access route shown as dashed red lines. Aerial taken from Google Earth Pro, image dated 9/5/2020 – note mature tree in centre of car park is no longer present*

## **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 To 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 It is expected that the car park will be constructed during autumn / winter 2021, in readiness for winter events at the hall.

### **Relevant Documents**

- 2.8 The site assessment was based upon drawing number 182 SK03A by Hoare, Ridge and Morris, as provided in Appendix 1. Note that any minor amendments to the scheme are unlikely to alter the conclusions and recommendations of this report, however significant amendments may require further survey or re-targeted survey.
- 2.9 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 27<sup>th</sup> February 2021 to determine the presence of any nationally or 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 A records search was carried out in March 2021 with the Suffolk Biodiversity Information Service (SBIS) for County Wildlife Sites and protected and notable species within a 2km radius of the site.
- 3.3 The MAGIC website was 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 also 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 2km radius of the site (last updated May 2020).

### Site Survey

- 3.4 An initial site survey was carried out on 25<sup>th</sup> February 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 land within the red line boundaries as shown in Figure 1B and Appendix 1, plus land immediately adjacent and 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.
- 3.7 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).
- 3.8 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*.



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

### **Tree Inspection**

3.10 Trees were surveyed from ground level with a pair of Nikon 12 x 50 binoculars and assessed in accordance with criteria outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, J. 2016).

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

3.11 For each water body located within potential influencing distance of the construction zone boundaries a Habitat Suitability Index (HSI) assessment was undertaken, following standard methods described in Oldham R.S. *et al*, (2000).

3.12 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 pond to support great crested newts. 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:

<b>HSI Score</b>	<b>Pond Suitability</b>
< 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 Survey**

3.13 WB7 was surveyed on four occasions and WB9 and WB10 on six occasions during the period mid-April to mid-May following the techniques described in Froglife Advice Sheet 11 (Froglife, 2003). Where possible, all of the following techniques were used on each visit – egg searching, torching and bottle trapping. Netting was not used due to immediate presence being confirmed in WB9 and WB9, and to avoid damage to the ornamental planting around WB7.

3.14 Torching was carried out between dusk and midnight, by walking slowing around the edges of the ponds, and focusing on clear, open pond margins and associated vegetation. A Clulite CB2 one million candle power torch was used, and the ponds were only surveyed in this way on warm nights (temperature >5°C) and with little / no wind and no rain.





### **Great Crested Newt eDNA testing**

- 3.15 Two water bodies (WB4 and WB6) were subject to an environmental DNA (eDNA) test for great crested newt presence / absence. The kits were supplied by Surescreen Scientifics and the samples were taken on 28<sup>th</sup> April 2021 by Liz Lord. Liz 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.
- 3.16 Both tests provided optimum samples, and no limitations were highlighted by Surescreen Scientifics during the testing process. The full results of the tests can be found in Appendix 3.

### **Surveyors**

- 3.17 The site 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.
- 3.18 The weather at the time of the initial survey was overcast with a light breeze (BF2-3) and a temperature of 5°C. Weather conditions during targeted surveys are provided later in the report.

### **Limitations**

- 3.19 The conclusions in this report are based on the best information available during the reported period of survey.
- 3.20 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.
- 3.21 The habitat survey was undertaken at a time of year when some plant species are not present above ground, or are simply not easily recorded; however an overall assessment of the limited flora communities present at the time of survey, and the management of the habitats, has been used to assess the likelihood of the unrecorded presence of any plant species of conservation importance. An updated site walkover was also undertaken in May 2021, and did not record any species of note within the grassland.



- 3.22 The very cold and dry spring of 2021 delayed the traditional great crested newt presence / absence surveys during March and most of April, and it is not known whether peak newt counts were missed as a result. It is also not known whether the weather conditions may have delayed all or some newts from entering the ponds, and therefore resulted in a delay of potential newt DNA build-up in water bodies which may have affected the eDNA results.
- 3.23 Due to the presence of large numbers of deer across the Helmingham estate and the use of the ponds by the deer as watering features, bottle trapping of WB9 was stopped after the first survey. Some bottle traps were damaged by deer, whilst others become dislodged and re-positioned without air bubbles, both of which could have resulted in injury or harm to any great crested newts in the bottle traps. The population count for this water body was completed via torching only, which could potentially have resulted in a slightly lower count due to the abundance of aquatic vegetation.
- 3.24 Due to the large area of closely grazed grassland between the proposed car park and WB6, only an eDNA survey of this water body was undertaken since the presence of GCN in this pond alone would be very unlikely to have any implications for the potential presence of GCN's within the development footprint. The results indicate GCN are present in WB6, but were not counted as part of the population assessment. However, due to the very small numbers of GCN recorded across WB9 and WB10 (peak count 11), even with the lack of WB9 bottle trapping, it is reasonably unlikely that great crested newt numbers across WB6, WB9 and WB10 fall into the 'large' population class (>100 count) rather than a 'medium' (11-100 count). All the same, the conclusions and recommendations relating to the potential impacts of the new car park would not be altered by the presence of a 'large' GCN population.
- 3.25 Due to the very low quality of the habitats to be affected by the proposals, and the proposed timing of the works, the limitations detailed above are very unlikely to have a significant impact upon the conclusions and recommendations of this report.

### **Zone of Influence**

- 3.26 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.
- 3.27 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.



3.28 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.

### **Geographic Context**

3.29 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**

3.30 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

3.31 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'.

3.32 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.

3.33 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 ones.

3.34 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

- 3.35 When considering ecological impacts and effects, the following characteristics have been considered:
- positive or negative
  - extent
  - magnitude
  - duration
  - frequency and timing
  - reversibility
- 3.36 Where various characteristics have not been specifically referred to in this report, they have been considered insignificant or irrelevant to that specific feature.
- 3.37 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."*
- 3.38 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.
- 3.39 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."*
- 3.40 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**

3.41 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**

3.42 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.

3.43 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.

3.44 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)

### Desk Study: Statutory Designated Sites

- 4.1 The site is not the subject of any statutory designations, there are no statutory designated sites of national importance within 2km of the proposed development, and no internationally designated sites within 5km. However, the MAGIC search highlighted that site is located within the potential Zone of Influence with respect to internationally designated sites which may require financial contributions towards the emerging Suffolk Recreational Disturbance Avoidance and Mitigation Strategy (RAMS) with respect to recreational related impacts.

### Desk Study: Non-Statutory Designated Sites

- 4.2 There are no County Wildlife Sites located within influencing distance of the proposed works, with the closest CWS an area of woodland known as Oak Grove located approximately 300m to the west.

### Habitats

#### Invasive species

- 4.3 No aerial evidence of Japanese knotweed *Fallopia japonica* was recorded across any part of the surveyed areas or the immediately adjacent land at the time of survey.

#### Water bodies

- 4.4 No water bodies are present within the construction zone. Ordnance Survey maps at 1:10,000 scale highlighted the presence of ten water bodies within 250m of the car park and access route proposals.
- 4.5 The water bodies are described and shown in Table 2 and Figure 2, and range from small garden ponds, to lakes and moats. One is a swimming pool and another is an enlarged fast flowing ditch, and are not suitable for great crested newts. All except these two water bodies were subject to HSI assessments to determine their potential to support great crested newts, with the HSI scores detailed in Table 1 and the full results provided in Appendix 3.

#### Improved grassland / bare ground

- 4.6 The proposed car park area supports an open expanse of closely grazed, species poor grassland. Species present include rough meadow grass *Poa trivialis*, cocksfoot *Dactylis glomerata*, red fescue *Festuca rubra* and creeping bent *Agrostis stolonifera* with occasional white clover *Trifolium repens*, celandine *Ficaria verna* and dandelion *Taraxacum officinale*. This area of the parkland was reported to have formerly been used as a horse paddock (Tollemache, E. pers.comm).



- 4.7 All of the parkland is currently permanently grazed by a combination of soay sheep *Ovis aries*, red deer *Cervus elaphus* and fallow deer *Dama dama*. All grassland accessible to the animals appears to be very closely grazed, with animals present throughout the year and supplemented with hay when necessary.
- 4.8 A bare earth track runs north from the existing hardstanding entrance to the park, along the eastern half of the proposed new access track. The remainder of the track runs across closely grazed grassland towards the new car park area.

#### Trees

- 4.9 A large number of ancient and veteran trees including some exceptionally large oak *Quercus robur* pollards are present across the wider parkland, particularly across parkland to the north and east of the Hall, however no trees are present within the proposed car park. The low level stump of a recently (2020-21) felled tree is present in the centre of the car park.
- 4.10 Two ancient oak trees lie within close proximity of the northern and south eastern car park boundaries, and an ancient oak and over-mature red oak *Quercus rubra* stand either side of the proposed access route.

#### **Animals**

##### Bats

- 4.11 The records search returned 37 records of bats within 2km of the site, the majority from the surrounding Helmingham Park. A suspected breeding colony of serotine bats *Eptesicus serotinus* was identified c.0.3km to the south east of the site, in St Marys Church. Other species recorded across the park included barbastelle *Barbastella barbastellus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, noctule *Nyctalus noctula* and daubenton's bat *Myotis daubentonii*. No bat EPSM licences were identified within 5km of the site.

##### **Bats - roosting**

- 4.12 A small number of ancient and veteran trees are present within close proximity of the proposed car park, and are assessed as being of high suitability for roosting bats. All such trees will be retained and protected as part of the proposals, and will not be subject to any significant increase in lighting levels. Whilst there may be some low level (both height and intensity) lighting associated with some winter events at Helmingham Hall, this will be during the bat hibernation period when negligible impacts upon foraging or roosting bats are expected.







Photo 1: Eastern end of proposals – access route across grassland, following existing mud track



Photo 2: Existing mud track / bare earth



Photo 3: Main car park area, looking south



Photo 4: Recently created (2020/21) tree stump within car park area



Photo 5: Main car park area, looking north



Photo 6: WB9, surrounded by closely grazed grass





## Bats - commuting / foraging

4.13 Whilst the wider estate parkland provides high quality potential bat commuting and foraging habitat, the proposed construction zone does not provide significant areas of such habitats. Grassland across the carpark is closely grazed, and appears to be of low botanical value; and there will be no adverse effect on any of the surrounding parkland trees.

## Amphibians

4.14 Numerous records of great crested newt (GCN) were returned within 2km of the site. The desk top records search returned 18 GCN records, including one from the walled garden moat (WB1, see Fig.2 below) and another between WB7 and WB9, both dating from 2005. The majority of the remaining records are 0.4km – 1.5km from the site, in all directions, and included records from within the wider park boundaries. The MAGIC search highlighted the presence of 14 GCN records within 5km of the site, predominantly from District Level Licensing pond surveys undertaken since 2017 (these were duplicated by the SBIS search). Half of these records are located within 2km of the site, including records at 0.4km south east, 0.57km north east, 1km west and 1km south west. Two of the records are located within Helmingham Park.

4.15 All water bodies within 250m of the car park proposals are shown on the plan below.

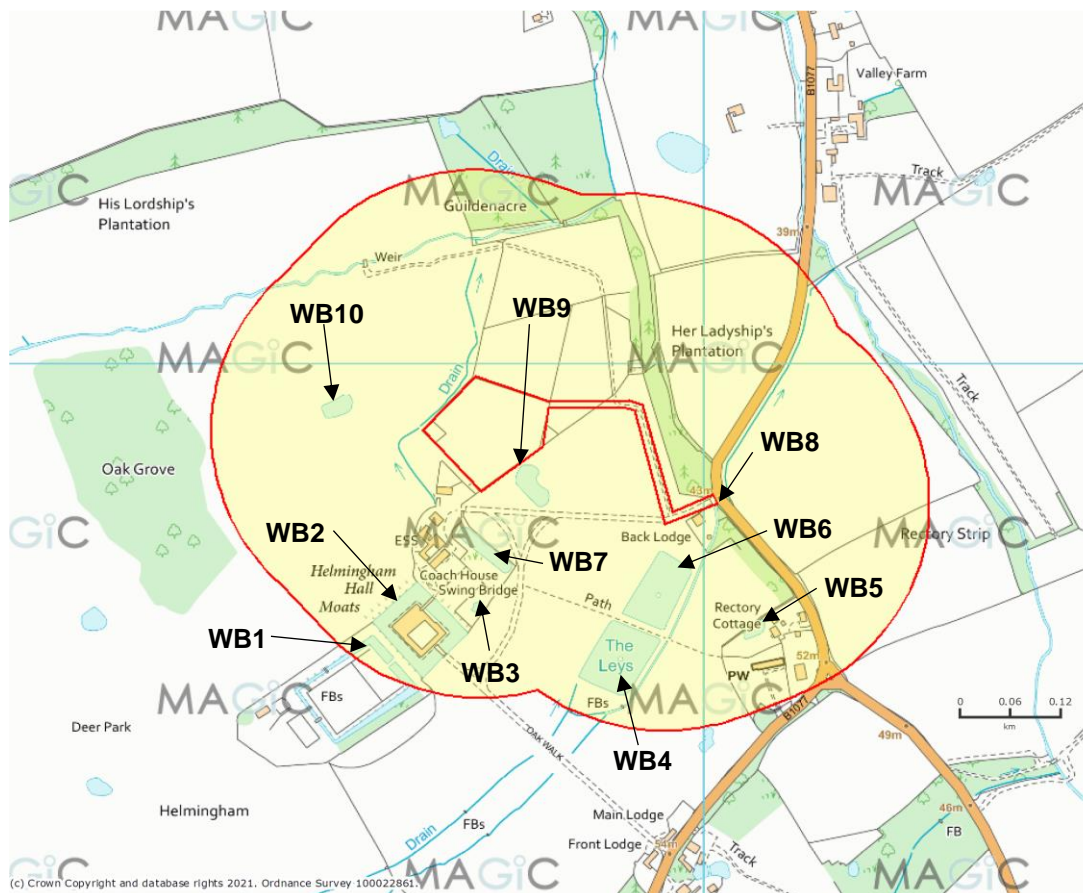


Fig 2: Location of ponds within 250m of proposed new car park. Excerpt taken from MAGIC map, generated at [www.magic.gov.uk](http://www.magic.gov.uk) on 01/03/21



- 4.16 The proposed car park and access routes consist of closely grazed grassland, with small areas of bare ground and existing hard standing at the eastern end of the access route. All of the site is of very low quality for GCN, however due to the very close proximity of WB9 to the site, and the potential for GCN to commute between WB9 and WB10, GCN are a material consideration to the proposals.
- 4.17 HSI assessments of the ponds were therefore undertaken in February 2021, with the results detailed in Table 1, below. The full results are provided in Appendix 3.
- 4.18 Due to the new access route utilising existing tarmac and / or bare ground for much of the eastern half of the route, the location of the majority of the ponds were considered predominantly in relation to the proposed parking area.

**Table 1: HSI assessment results and pond location (NOTE: distance measured from car park, not new access route)**

Water Body	Distance & direction from car park	HSI Score	GCN Suitability
1	235m south west	0.80	Excellent
2	140m south west	0.51	Below average
3	135m south	N/A – swimming pool	Not suitable
4	225m south east	0.69	Average
5	325m south east (165m from access route)	0.79	Good
6	190m south east	0.71	Good
7	50m south	0.57	Below average
8	220m south east	N/A – running stream	Not suitable
9	7m south east	0.80	Excellent
10	90m west	0.85	Excellent

- 4.19 Following the results of the HSI assessments, and considering the close proximity of WB9 and WB10 to the car park, further detailed surveys for GCN were carried out to varying degrees in spring 2021. The full survey results are summarised in Table 2, below, and are provided in full in Appendix 2.



**Table 2: Great crested newt survey results summary**

Water Body	Surveyed?	Survey Method	Results
1	Yes	Torching only	GCN likely absent, or in very low numbers
2	Yes	Torching only	GCN likely absent
3	<b>No - unsuitable</b>	-	-
4	Yes	eDNA	GCN absent
5	<b>No - too far away</b>	-	-
6	Yes	eDNA	GCN present
7	Yes	Torch, bottle trap, egg search	GCN absent
8	<b>No - unsuitable</b>	-	-
9	Yes	Torch, egg search	Small breeding GCN population
10	Yes	Torch, Bottle trap, egg search	Small breeding GCN population

4.20 Due to the habitats present across the proposed car park area i.e. closely grazed, species poor grassland of very low potential value to GCN, only the closest water bodies, or those to which GCN may commute across the site (highlighted grey in the Tables above) were considered to be within relevant influencing distance of the works; however all suitable water bodies with the exception of WB5 (325m from proposed car park) were subject to survey to varying degrees in order to determine the approximate size of the local GCN population. Any GCN present in WB1, WB2, WB4, WB6, WB7, WB9 and WB10 are likely to form part of the same metapopulation.

4.21 It is noted that the likelihood of any GCN which may be present in any water bodies other than WB7, WB9 and WB10 being present within the proposed car park site is negligible, and the eDNA surveys of WB4 and WB6 simply served to provide a better picture of the size and spread of the local GCN population for the purposes of completion and transparency. However due to the very poor quality of the grassland present on site, it is also noted that the information provided by population size data is not of significant relevance to the car park proposals. There is no potential for GCN to use this grassland for resting or shelter, regardless of the local GCN population size. The only ponds of significant relevance to the car park proposals relate to the potential for commuting GCN to be present, and therefore to WB9 and WB10 only.



### Invertebrates

4.22 The proposed development areas are considered likely to support common and widespread invertebrate species typical of the habitats present. Whilst a large tree stump is present in the centre of the proposed car park area, it is very recent, with Google Earth imagery showing the tree to be standing in May 2020. It is unlikely to yet be used by stag beetles *Lucanus cervus*. No records of stag beetle were returned by the records search, however there is a relative abundance of standing dead wood associated with a large number of ancient and veteran trees across Helmingham Park, and their local presence cannot be ruled out.

### Reptiles

4.23 The proposed development area does not provide suitable habitat for reptiles, nor is it located adjacent to any areas of potential reptile habitat.

### Birds

4.24 The grassland across the proposed car park site does not provide any potential habitat for nesting birds, nor is there any habitat suitable for ground nesting birds in the immediate vicinity of the car park due to the very short nature of the grass and moderate levels of disturbance by visitors and dog walkers.

4.25 The small number of trees within close proximity to the proposed car park provide good opportunities for nesting birds, potentially including barn owl, however no evidence of the presence of barn owl was recorded in or around any of these trees at time of survey or subsequent site visits. A pair of barn owls are reported to nest in a hollow veteran tree within the wider parkland (Tollemache, E. pers.comm).

### Badger

4.26 Badgers are a common and widespread species, not of conservation concern.

4.27 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 and water vole

4.28 Otters are occasionally recorded within the grounds of Helmingham Hall taking fish from the water bodies (Tollemache, E. pers.comm); however there are no features on, adjacent or connected to the proposed development site with potential to support otters, as no fish were noted to be present in WB9 or WB10. The records search did not return any otter records within 2km of the site.



4.29 Water voles are reported to be present in the banks of WB1, to the south west of Helmingham Hall, as was confirmed by the results of the desk top search and recorded during the 2021 newt torching surveys. There is also potential for water vole presence in the banks of some other water bodies within the park, however potential for water vole presence in the banks of WB9, the closest water body of relevance to the proposals, is very low due to relatively shallow and / or heavily eroded banks, surrounding closely grazed grassland and a low abundance of marginal aquatic vegetation. No water voles, or evidence of the presence of water voles, was seen around WB9 during any of the six GCN survey visits.

#### Dormice

4.30 No records of dormice were returned within 2km of the site.

4.31 The site does not support or indirectly affect any habitat of sufficient extent to support this species, nor is it connected to any such habitats.

#### Other Legally Protected Species

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

#### Species of Principal Importance

4.33 The closely grazed grassland of the car park area may be used by foraging starling *Sturnus vulgaris* and hedgehog *Erinaceus europaeus*, both of which are Species of Principal Importance in England (SPIE).



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### Designated Sites

- 5.1 No further survey or mitigation is necessary with respect to nationally or internationally designated sites. The proposals are not predicted to have any adverse effect on internationally designated sites with respect to increased recreational pressure; and the events and activities at Helmingham Hall are likely to attract visitors away from such sites within the Suffolk region thereby potentially indirectly reducing the effects of visitor pressure on internationally designated sites in the local area.
- 5.2 The proposals are not considered to be detrimental to any CWS. No further survey or mitigation is recommended.

### Invertebrates

- 5.3 Potential effects: negligible.
- 5.4 Mitigation measures: none. Where possible, the tree stump present in the car park should be removed in large sections and relocated to the proposed planting buffer zones to the north and west of the car park.
- 5.5 Residual effects: the measures detailed in section 6.0 should result in a minor enhancement of the site for common invertebrate assemblages.

### 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.
- 5.8 Whilst a medium population of GCN is confirmed to be present in two ponds within close proximity of the car park (<10m for WB9, 90m for WB10) and one further pond beyond here (WB6 - 190m), the car park and access route entirely comprises very closely grazed grassland. The site provides very poor quality GCN foraging habitat, and no opportunity for resting or sheltering amphibians, including hibernating amphibians. There are no potential features in which / beneath which a GCN could hide, and any GCN present on site would be easily seen.





- 5.9 Research generally shows that open habitats including arable land and pasture are likely to be actively avoided by great crested newts in preference to scrub and woodland habitats (Jehle and Arntzen 2000, Joly *et al.* 2001, Mullner 2001, Malmgren 2002). However, WB9 is surrounded by large expanses of closely grazed grass on all sides, and any GCN using this pond must therefore commute across the open grassland, including that of the proposed car park area. The proposed car park site and immediately adjoining areas do not provide any potential features suitable for hibernating GCN, and it is expected that GCN migrate towards the gardens of Helmingham Hall or woods surrounding the parkland to hibernate. GCN may also be commuting between WB9 and WB10. The grassland surrounding WB10 is interspersed with rushes *Juncus spp.*, whereas the proposed car park area is a former horse paddock and is very uniform in nature.
- 5.10 Natural England's rapid risk assessment tool (Natural England, 2015) indicates that for the loss / damage of more than 1ha (in this case c.1.5ha) of newt habitat within 100m of a GCN pond the notional probability of an offence is Red i.e. 'highly likely', with a probability score of 0.9. Natural England recognise that the risk assessment is rather simplistic, and measures can be taken to further reduce the likelihood of an offence. The risk assessment does not take into account habitat quality, positioning of development proposals and ponds, timing of construction or duration of construction. In this case, the likelihood of an offence via disturbance or harm to GCN is negligible due to the habitats present and the short duration of the works; and the likelihood of an offence via the destruction of GCN habitat is also negligible given that it does not provide the habitat qualities necessary for forage, rest or shelter.
- 5.11 Breeding and resting (hibernation, shelter) habitat and some associated foraging places are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended), however commuting is not directly covered by the legislation. Whilst potential barriers to commuting GCN may be installed (exclusion fencing), they will be timed to avoid conflict with commuting GCN, and will be very short term. The works will not therefore:
- 1) Result in any direct or indirect harm to GCN;
  - 2) Result in the loss of any protected GCN habitat;
  - 3) Result in any disturbance to GCN via obstruction; or
  - 4) Have an adverse impact upon the Favourable Conservation Status of the local GCN population in any way.



- 5.12 There is no requirement for licensable trapping and translocation of GCN from the car park, because due to the short grass it is possible to be 100% certain of GCN absence (thereby ruling out potential for harm or disturbance). There will be little change in habitat quality, with current (and historically, as horse pasture) low quality habitat being replaced with further low quality habitat. Both are, and will continue to be upon completion, fully accessible to commuting GCN.
- 5.13 It is therefore concluded that the works can proceed under a non-licensed method statement.
- 5.14 The likelihood of GCN being present within the car park during construction will be further reduced either with exclusion fencing where works are carried out during the active GCN season; or by carrying out works during the GCN hibernation season (Nov – mid March), when GCN will be in or near to terrestrial places of shelter and are extremely unlikely to be present in the open short grassland on and surrounding the car park. Any potential disturbance of commuting GCN via obstruction as a result of exclusion fencing will be avoided by timing works to avoid GCN spring migration (towards ponds) and summer migration (out of ponds).
- 5.15 It is noted that significant areas of grass parkland will remain undisturbed to the south and east of WB9, and will continue to surround WB10.
- 5.16 Measures to further avoid any harm of, or disturbance to GCN will be taken as follows:
- The grass will remain very closely grazed until the point of car park construction (the car park grass was seen to remain very short into mid-May)
  - The implementation of a detailed Precautionary Method Statement
  - Timing of construction works to avoid the spring and summer migration periods i.e. to carry out all excavation, earth moving and the placing of aggregate between mid-July and the end of October (with exclusion fencing) or between November and mid-January (without exclusion fencing). If required, GCN exclusion fencing would be installed along the south eastern and north western car park boundaries
- 5.17 In the above circumstances, an EPSM licence is considered to be disproportionate and unnecessary given no offence will be committed.
- 5.18 Mitigation measures: none necessary, since there will be no overall loss of GCN habitat, however the planting of species rich, native shrub belts to the north and west of the car park will provide a significant enhancement for the GCN population present in and around WB9 and WB10 due to a current lack of such habitats within the immediately vicinity of these ponds.



5.19 Residual effects: major positive at the site scale. The planting of new native scrub belts, the creation of log piles within the scrub belts and the provision of amphibian ladders in cattle grids across the park would result in a significant overall enhancement of the habitat for GCN close to WB9 and WB10.

### **Reptiles**

5.20 All Suffolk reptile species are protected against harm under the Wildlife and Countryside Act 1981 (as amended).

5.21 Potential effects: negligible.

5.22 Mitigation measures: none.

5.23 Residual effects: negligible.

### **Birds**

5.24 Breeding birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended).

5.25 Potential effects: negligible, subject to tree protection measures being put in place.

5.26 There will be minimal loss of foraging habitat in the context of the surrounding environment, with large expanses of parkland surrounding Helmingham Hall.

5.27 Mitigation measures: none required, subject to tree protection measures being put in place.

5.28 Residual effects: following implementation of the enhancement measures detailed in section 6.0 – the creation of wide, mixed native planting belts – no significant adverse effect is predicted on bird species at any level in the medium to long term, and a minor enhancement will result for a range of species, including Species of Principal Importance in England such as yellowhammer *Emberiza citrinella*, linnet *Linaria cannabina*, starling and house sparrow.

### **Bats**

5.29 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).

5.30 Potential effects on roosting bats: a minor adverse effect upon any bats using the trees within the car park is possible where trees are indirectly harmed during the works, or where nocturnal lighting discourages bats from leaving / entering a roost. The potential effects of lighting are significantly reduced during the hibernation period of November to mid-March.



- 5.31 Mitigation measures for roosting bats: tree protection measures must be put in place during car park construction and any nocturnal lighting must be of very low intensity, low height, be both located and directed away from the trees, and limited to the period November to mid-March inclusive.
- 5.32 Potential effects on commuting / foraging bats: the grassland provides a small area of sub-optimal foraging habitat for bats, with significant areas of moderate to high quality habitat present offsite in the immediate surroundings. Subject to the implementation of a bat friendly lighting scheme as detailed above, no significant adverse impacts upon foraging / commuting bats are predicted. Where spring / summer / autumn nocturnal car park lighting is proposed, some impacts are possible and may require further survey.
- 5.33 Mitigation measures for commuting / foraging bats: none, subject to the details above.
- 5.34 Residual effects: an overall minor positive effect at the site level is predicted with respect to foraging or commuting bats following the planting of mixed native shrub belts which will provide areas of moderate to high quality foraging habitat in the medium to long term.

### **Badger**

- 5.35 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.
- 5.36 Potential effects: negligible. No evidence of badgers was found on site or immediately adjacent, and there is no indication that badgers are likely to colonise any of the sites in the near future.
- 5.37 Mitigation measures: none.
- 5.38 Residual effects: negligible.

### **Otters**

- 5.39 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).
- 5.40 Potential effects: negligible.
- 5.41 Mitigation measures: none.
- 5.42 Residual effects: negligible.



### **Water voles**

- 5.43 Water voles and their habitats are fully protected by the Wildlife and Countryside Act 1981 (as amended).
- 5.44 Potential effects: negligible. Whilst water voles are known to be present in WB1, and are reasonably likely to be present in other water bodies with suitable banks e.g. WB7, WB4 and WB6 the proposals will not result in any adverse impacts upon these water bodies. WB9, the pond closest to the proposed car park, provides low quality potential habitat for water voles, with shallow and / or heavily eroded banks and a low abundance of marginal vegetation beyond the closely grazed grass banks. No potential impact on water voles is therefore likely.
- 5.45 Mitigation measures: none.
- 5.46 Residual effects: negligible.

### **Dormice**

- 5.47 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).
- 5.48 Potential effects: none.
- 5.49 Mitigation measures: none.
- 5.50 Residual effects: none.

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

- 5.51 The proposed development is not anticipated to impact on any other legally protected species, therefore no mitigation measures are recommended.
- 5.52 No mitigation measures are necessary due to the negligible impacts resulting from the loss of very short, species grassland of low ecological value and locally abundant; however linear species rich habitats and purpose-built amphibian shelter and hibernation features will be provided as part of the car park proposals. This will result in a significant enhancement of the site for a range of SPIE including house sparrow, yellowhammer, linnet, starling, song thrush *Turdus philomelos*, toad *Bufo bufo* and hedgehog *Erinaceus europaeus*.
- 5.53 The measures detailed in section 6.0 can be secured via planning condition.



## 6.0 MITIGATION & ENHANCEMENT MEASURES

### Mitigation Measures

- 6.1 No mitigation measures are necessary.

### Enhancement Measures

- 6.2 New species rich native tree and shrub belts will be provided along the north western and south western boundaries of the new car park (see Appendix 1). The new planting will be mulched and protected from deer browsing. The grass surrounding the trees will be left to establish a dense, tussocky layer, and will not be cut in order to benefit a wide range of wildlife, including invertebrates, small mammals, amphibians and reptiles.
- 6.3 Three log piles and one purpose-built amphibian hibernaculum will be provided within the planting belts. The hibernaculum will be constructed in accordance with the details provided in Appendix 4, and will measure at least 1m x 2m and 1m high. The top could be covered with topsoil and planted with shrubs, ivy or similar where preferred. The log piles will be constructed from hardwood logs measuring at least 150mm in diameter, and the piles will measure at least 1m x 1m x 1m.
- 6.4 Cattle grids at the two main entrances to the parkland, and the gate to the Hall and outbuildings will each be provided with an amphibian ladder to enable both amphibians and small mammals to escape from beneath the grid. The ladders will either be sourced from the British Herpetological Society and made of Enkamat; or will be handmade and based on a typical wooden wildlife ladder with a central run of close mesh wire / sturdy plastic mesh.



## 7.0 REFERENCES

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## 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) will soon become the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019). These regulations will 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 measureable 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 Car Park Layout**





- - - - Phase 1 Area
- - - - Phase 1 Area Omission
- - - - Phase 2 Area

**AVAILABLE PARKING:**

2.7m wide x 5m long car parking spaces

Phase 1 = 121no.  
(of which 17no. proposed for omission)

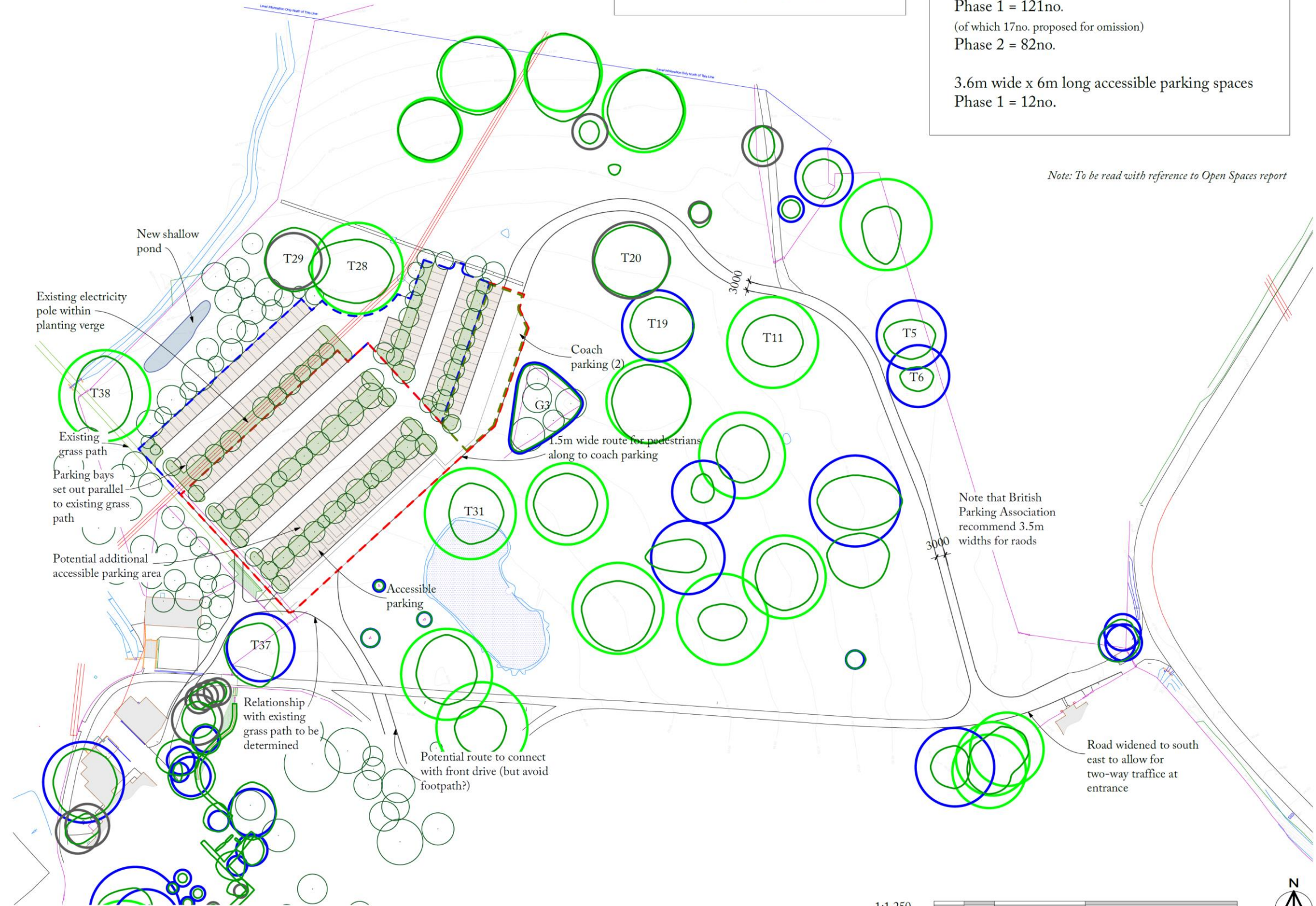
Phase 2 = 82no.

3.6m wide x 6m long accessible parking spaces  
Phase 1 = 12no.

DO NOT SCALE FROM THIS DRAWING EXCEPT FOR PLANNING PURPOSES. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT. THE CONTRACTOR IS TO CHECK ALL BUILDING AND SITE DIMENSIONS PRIOR TO ORDERING MATERIALS OR CONSTRUCTION. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ENGINEERS' AND OTHER SPECIALISTS' DRAWINGS. COPYRIGHT REMAINS WITH THE ARCHITECT.

REVISIONS		
-	23.02.2021 SG	PRELIMINARY
A	09.04.2021 SG	PRELIMINARY
B	22.07.2021 SL	PRELIMINARY
C	23.07.2021 SL	PRELIMINARY

*Note: To be read with reference to Open Spaces report*



Note that British Parking Association recommend 3.5m widths for roads

Road widened to south east to allow for two-way traffic at entrance

**Hoare, Ridge & Morris**  
Architects

PROJECT	HELMINGHAM HALL
DRAWING TITLE	Proposed Car Park Scheme
SCALE	1:1250 at A3
STATUS	PRELIMINARY
DRAWING NO.	182. SK03C

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Sudbury IP17 1SP  
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**Appendix 2:**  
**Great Crested Newt survey results**





**WB1** Walled garden moat, fully accessible for torch survey; banks too steep for bottle trapping or egg searching

**Egg search – n/a**

	Date	Torch	Bottle	Turbidity	Veg cover	Temp (°C) min	Notes – GCN absent
PM	20/04/21	0	n/a	1	3	5	Water vole and pike recorded
AM	21/04/21	0	n/a				
PM	27/04/21	0	n/a	1	2	5	Pike recorded
AM	28/04/21	0	n/a				
PM	07/05/21	0	n/a	1	3	5	Water vole and pike recorded
AM	08/05/21	0	n/a				
PM	13/05/21	0	n/a	1	2	9	
AM	14/05/21	0	n/a				

**WB2** Helmingham Hall moat, fully accessible for torch survey; banks too steep for bottle trapping or egg searching

**Egg search - n/a**

	Date	Torch	Bottle	Turbidity	Veg cover	Temp (°C) min	Notes – GCN absent
PM	20/04/21	0	n/a	2	2	5	Pike, large carp, hundreds of small fish
AM	21/04/21	0	n/a				
PM	27/04/21	0	n/a	2	2	5	Pike, large carp, hundreds of small fish
AM	28/04/21	0	n/a				
PM	07/05/21	0	n/a	2	2	5	Pike, large carp, hundreds of small fish
AM	08/05/21	0	n/a				
PM	13/05/21	0	n/a	2	2	9	Pike, large carp, hundreds of small fish
AM	14/05/21	0	n/a				



**KEY:**

SN = smooth newt

GCN = great crested newt

M = male

F = female

**WB7** Garden pond fully accessible for survey

**Egg search - Negative**

	Date	Torch	Bottle	Turbidity	Veg cover	Temp (°C) max / min	Notes – GCN absent
PM	20/04/21	0	0	1	1	5	Large numbers of small fish throughout
AM	21/04/21	0	0				
PM	27/04/21	0	0	1	1	5	Large numbers of small fish throughout
AM	28/04/21	0	0				
PM	07/05/21	0	0	2	1	5	Large numbers of small fish throughout
AM	08/05/21	0	0				
PM	09/05/21	0	0	1	1	11	Large numbers of small fish throughout
AM	10/05/21	0	3 M SN				



**WB9**

Field pond surrounded by closely grazed grassland. Bottle trapping ceased after first visit due to deer disturbing traps and potentially harming GCN. No potential safe locations for bottle traps away from deer

**Egg search - Positive**

	Date	Torch	Bottle	Turbidity	Veg cover	Temp (°C) min	Notes
PM	20/04/21	1FGCN	Set but disturbed				
AM	21/04/21		0	2	2	5	
PM	27/04/21	0	n/a				
AM	28/04/21		n/a	2	3	5	
PM	07/05/21	1MGCN	n/a				
AM	08/05/21		n/a	1	3	5	
PM	09/05/21	2FGCN, 1FSN	n/a				<b>PEAK COUNT 2 GCN</b>
AM	10/05/21		n/a	1	3	11	
PM	13/05/21	1FGCN, 1FSN	n/a				
AM	14/05/21		n/a	1	3	9	
PM	15/05/21	2FGCN, 2FSN	n/a				<b>PEAK COUNT 2 GCN</b>
AM	16/05/21		n/a	1	3	5	



**WB10**

Field pond surrounding by grazed rush pasture. Banks eroded by deer and sheep. Bottles positioned away from areas likely to be accessed and trampled by deer

	Date	Torch	Bottle	Turbidity	Veg cover	Temp (°C) min	Notes
PM	20/04/21	2FGCN, 1MGCN					
AM	21/04/21		7MGCN, 3FGCN	2	2	5	<b>PEAK COUNT 10 GCN</b>
PM	27/04/21	1FCGN, 2MGCN					Some bottle disturbance by deer
AM	28/04/21		4MGCN, 2FGCN	2	2	5	
PM	07/05/21	1FCGN, 1FSN					
AM	08/05/21		2FCGN, 1FSN	1	2	5	
PM	09/05/21	1FCGN, 3FSN					
AM	10/05/21		3MGCN, 3MSN, 1FSN	2	2	11	
PM	13/05/21	1FCGN, 1FSN					
AM	14/05/21		7FGCN, 1FSN, 3MSN	2	2	9	
PM	15/05/21	1FCGN, 3FSN					
AM	16/05/21		8FGCN, 1MGCN, 4MSN	1	2	5	



**Appendix 3:**  
**HSI Assessment Results**

HSI Assessment results

Table 3: 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> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 2670	0.68
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	25	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	minor	0.33
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	good	1.00
SI10. Macrophyte cover	%	75	1.00
			<b>HSI = 0.82</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.80
			Date undertaken 25.02.21

Table 4: 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> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 3760	0.51
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	0	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	major	0.01
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	moderate	0.67
SI10. Macrophyte cover	%	25	0.56
			<b>HSI = 0.51</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.47
			Date undertaken 25.02.21

Table 5: 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> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 4865	0.33
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	0	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	minor	0.33
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	moderate	0.67
SI10. Macrophyte cover	%	25	0.56
			<b>HSI = 0.69</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.66
			Date undertaken 25.02.21

Table 6: WB5

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 345	0.69
SI3. Dessication rate	<b>never/rarely/sometimes/frequently</b>	rarely	1.00
SI4. Water quality	<b>good/moderate/poor/bad</b>	good	1.00
SI5. Shade	% of margin shaded 1m from bank	75	0.70
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	possible	0.67
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	good	1.00
SI10. Macrophyte cover	%	25	0.56
			<b>HSI = 0.81</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.79
			Date undertaken 25.02.21

Table 7: WB6

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 4050	0.46
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	0	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	minor	0.33
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	moderate	0.67
SI10. Macrophyte cover	%	25	0.56
			<b>HSI = 0.71</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.69
Date undertaken			25.02.21

Table 8: WB7

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 950	0.96
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	20	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	major	0.01
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	good	1.00
SI10. Macrophyte cover	%	30	0.61
			<b>HSI = 0.57</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.53
Date undertaken			25.02.21



Table 9: WB9

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 1160	0.92
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	10	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	possible	0.67
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	moderate	0.67
SI10. Macrophyte cover	%	20	0.51
			<b>HSI = 0.81</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.80
			Date undertaken 25.02.21

Table 10: WB10

Habitat Suitability Index			SI value
SI1. Map location	<b>A/B/C</b>	A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular	irregular	
		area (m <sup>2</sup> ) = 635	1.00
SI3. Dessication rate	<b>never/rarely/sometimes/frequently</b>	rarely	1.00
SI4. Water quality	<b>good/moderate/poor/bad</b>	good	1.00
SI5. Shade	% of margin shaded 1m from bank	25	1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor	0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	possible	0.67
SI8. Pond density	number of ponds within 1km	6.3	1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	good	1.00
SI10. Macrophyte cover	%	20	0.51
			<b>HSI = 0.86</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI = 0.85
			Date undertaken 25.02.21

**Pond suitability for great crested newts is classed as follows:**

**< 0.5 = poor**

**0.5-0.59 = below average**

**0.6-0.69 = average**

**0.7-0.79 = good**

**> 0.8 = excellent**

**Appendix 4:**  
**Hibernaculum Design**

Fig. 8 Great crested newt refuges on (A) impermeable and (B) free-draining soils

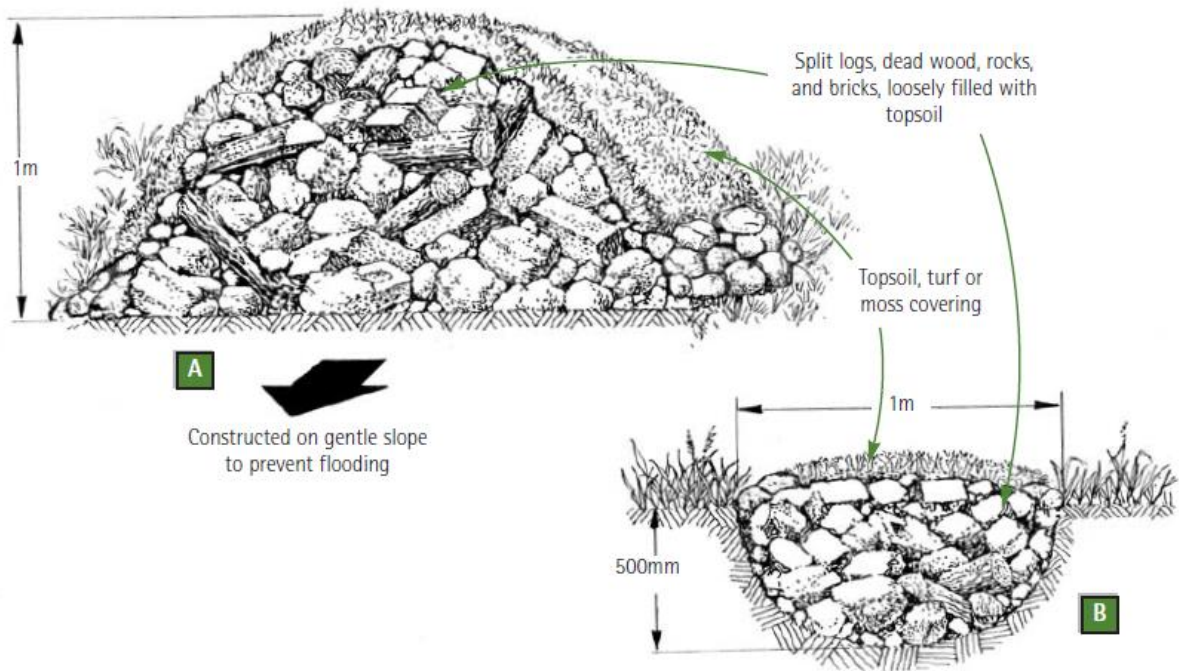


Fig 3: Diagram taken from Great Crested Newt Conservation Handbook (Langton et.al, 2001)

**Appendix 5:**  
**Great Crested Newt eDNA Results**



Folio No: E9875  
 Report No: 1  
 Purchase Order: 1633  
 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:** 30/04/2021  
**Date Reported:** 14/05/2021  
**Matters Affecting Results:** None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1108	Helmingham WB6	TM189577	Pass	Pass	Pass	Positive	11
1109	Helmingham WB4	TM189576	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 6:**  
**Great Crested Newt Non-Licensed  
Precautionary Method Statement**



# Non-Licensed Precautionary Method Statement

## 1.0 Timing of Works

Works will only be carried out either 1) between mid-July and end October, to avoid the peak migration periods of amphibians into and out of ponds, or 2) between November and mid-January when GCN activity is very limited and GCN are most likely to have moved well away from the pond and grassland areas to hibernate.

Works will not take place at night, will not extend beyond a 3 month period, and will be completed as quickly as is practically possible.

## 2.0 Toolbox Talk

Every contractor and site worker will be briefed by an experienced ecologist in possession of a Natural England GCN Survey Licence prior to commencement of works. They will be made aware of the legal protection of GCN, the reasons for this Method Statement, how to identify a GCN, and what to do if a GCN is found during works. All site contractors will be provided with a copy of this Method Statement, which includes an ID sheet for reference purposes.

## 3.0 Exclusion Fencing

Prior to commencement of construction works, and only during the period mid-July and end October, the south eastern and north western boundaries of the car park and all associated working areas will be bordered by amphibian exclusion fencing to discourage GCN from entering the site (see Fig. 5, overleaf). The route of the fencing will be through closely mown grass and therefore supervision of installation by the ecologist is not necessary, however post installation checks by the ecologist will take place.

Exclusion fencing will be installed according to the below specification, with the lip facing outwards to discourage GCN from climbing over the fence.

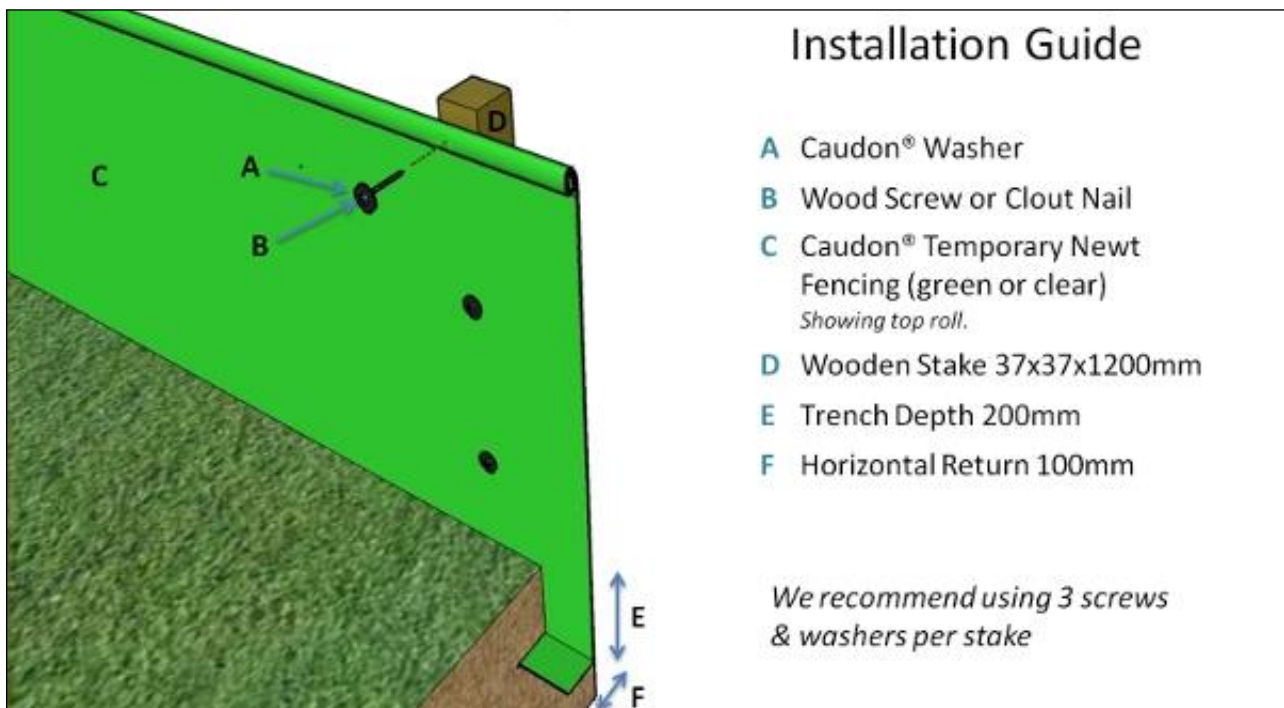


Fig 4: Installation Guide Specification taken from <https://www.wildlifefencing.co.uk>



Fig 5: Approximate car park area outlined in red and new access route shown as dashed red lines. Location of GCN fencing shown in blue. Aerial taken from Google Earth Pro, image dated 9/5/2020

#### 4.0 Ground Vegetation and Top Soil Removal

Due to the very low height of the vegetation on site, a pre-works staged fingertip search by the licensed ecologist is unlikely to be required, however this will be confirmed by the ecologist. Where necessary, vegetation and topsoil will be slowly and carefully mechanically stripped, with arisings removed from the working area or stored in skips.

#### 5.0 Discovery of GCN during works

If a GCN is found on site at any point during construction, all works will cease. An ecologist will be contacted for further advice, if not already present on site. Natural England will be informed, and works will not re-commence until either a development (EPSM) licence has been secured or other provisions have been agreed with Natural England.

#### 6.0 Completion of works

When car park construction is complete, where necessary all exclusion fencing will be removed under the supervision of the ecologist. No materials will be temporarily stored on site or immediately adjacent – where excess materials are present they will be removed and stored elsewhere.

#### 7.0 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 bottom of their tail. The bright orange-yellow belly colouring extends fully to join with the dark upper skin tone.

By contrast, common and 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. Males of all species have crests in the spring.



Female Great Crested Newt with visibly warty skin and orange colouring to very edges of belly



Female Common Newt



Male Great Crested Newt



Female Great Crested Newt (black) & Smooth Newt (green / brown)



Liz Lord Ecology

