Ecological Impact Assessment

for

Land off The Street, Flordon

October 2018

Status: Planning

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Report author:		Name: Nick Aldus Title: Senior Ecologist
Approved by:		Name: Dr Jo Parmenter Title: Director
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Client Details	
Client:	Pat London

Contact Details

The Landscape Partnership Ltd

Greenwood House | 15a St Cuthberts Street | Bedford | MK40 3JG — **Tel:** 01234 261315

Jonathan Scott Hall | Thorpe Road | Norwich | NR1 1UH — **Tel:** 01603 230777

The Granary | Sun Wharf | Deben Road | Woodbridge | IP12 1AZ — **Tel:** 01394 380509

Ensign House (E&F) | Tavern Quay | Sweden Gate | Surrey Quays | London | SE16 7TX — **Tel:** 020 3092 4141

The Landscape Partnership Ltd is a practice of Chartered Landscape Architects, Chartered Ecologists and Chartered Environmentalists, registered with the Landscape Institute and a member of the Institute of Environmental Management & Assessment & the Arboricultural Association.

Registered Office:

Greenwood House
15a St Cuthberts Street
Bedford
MK40 3JG

Registered in England No 2709001

Quality standards

This report is certified BS 42020 compliant and has been prepared in accordance with The Chartered Institute of Ecology and Environmental Management's (CIEEM) Technical Guidance Series '*Ecological Report Writing'* and Code of Professional Conduct.

Contents

Non-technical summary

The Landscape Partnership was commissioned by Pat London to undertake an Ecological Impact Assessment Habitat Suitability Index (HSI) Assessment for great crested newts, reptile survey and nightingale survey with an assessment of impacts of a proposed development at land off The Street, Flordon

The objectives of the appraisal were to assess potential use of the site by great crested newts, reptiles and nightingale, assess the impact of the development proposal and describe any measures necessary to avoid impacts, reduce impacts or compensate for impacts so that there is no net harm to these species.

The survey involved assessing the suitability of four ponds within 500m of the site for great crested newt, undertaking a presence/absence survey for reptiles, and a targeted survey for nightingale, which is thought to formerly have occurred in the local area. The surveys were undertaken by appropriately qualified and experienced personnel.

HSI survey returned three ponds as being or 'Poor' suitability and one as 'Below Average'. Therefore, no use of the site by great crested newts is anticipated and no further survey in respect of great crested newt is required.

A 'Good' population of slow worm was recorded throughout the site with a peak count of 31 adults and 16 juveniles. Small populations of common lizard (peak count 5 adults) and grass snake (peak count 2 adults) were also recorded. Under guidelines issued by Froglife, the proposed development site meets the criteria for an 'Important' site for reptiles in two of five categories (supporting three species of reptile; supporting and assemblage of species scoring 4 points or more).

No nightingale were recorded during surveys specifically targeted to this species in 2016.

In the absence of mitigation, the proposed development would give rise to a **Major Adverse** impact on reptiles.

A detailed Ecological Mitigation Strategy would be designed by a suitably qualified ecologist to include safeguarding and translocation to prevent injury or killing of reptiles, to ensure appropriate management for the retained, habitat within the development site, which would be enhanced and protected; and, if required, to also ensure appropriate management of the proposed receptor site. A Landscape and Ecological Management Plan (LEMP) setting out the proposed aftercare and long term management of retained habitats will be prepared to ensure habitats retain suitability for reptiles. Site habitats would be protected in the long-term by a Section 106 agreement. These measures would reduce the impacts of the development proposals upon the reptile species present to a **Moderate Adverse-Neutral** impact.

1 Introduction

1.1 Commission

1.1.1 The Landscape Partnership was commissioned by Chris Ling on behalf of Pat London to carry out a Habitat Suitability Index (HSI) Assessment for great crested newts, reptile survey and nightingale survey with an assessment of impacts of a proposed development at land off The Street, Flordon.

1.2 Legislation and policy background

1.2.1 There is a range of protection given to sites and species. Sites may be designated for local, national, European or global importance for nature conservation. Species may be protected by European-scale legislation or varying levels of national regulation.

1.2.2 The Local Planning Authority has a policy to protect features of nature conservation value within its Local Plan. Other regulators have policies relating to the consents issued by them.

1.2.3 Further information is given in Appendix 1.

1.3 Reporting standards

1.3.1 This report was written in compliance with British Standard 42020:2013 'Biodiversity — Code of practice for planning and development' and the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct.

1.3.2 This report was prepared in accordance with the CIEEM 'Guidelines for Ecological Report Writing' as updated December 2017[1].

1.3.3 The report was prepared by Nick Aldus. The report was reviewed by Dr Jo Parmenter, Director of The Landscape Partnership.

1.3.4 Assessment was undertaken against current legislation and planning policy, and in accordance with standard guidance. Further information is given in Section 2 and Appendix 2.

1.4 Site location and context

1.4.1 The site is within the village of Flordon in rural Norfolk, on land adjacent to St Michael's Church, with access gained from The Street to the south. The site is thought to have previously been used as pasture, and is approximately 1 hectare in size. It comprises one unmanaged and overgrown field of rank grassland and scrub. The surrounding area is largely agricultural with large blocks of well-connected woodland and waterways associated with the Tas Valley.

1.4.2 All four boundaries are well vegetated, with trees forming the majority of the west and east boundaries, a well-established hedgerow on the south boundary and a combination of hedgerow and fencing along the north boundary.

1.4.3 The Ordnance Survey Grid Reference for the approximate centre of the proposed development site is TM 1897 9719. The location of the site is shown in Figure 01.

1.5 Acknowledgements

Permissions to gain access to land

1.5.1 Pond 1 to the east of the development site is on land owned by Caroline and Rod Fryer, and Ponds 2a and 2b on land owned by Matt Williams. Permission to access the land for survey is gratefully acknowledged.

1 CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester

Surveyor Competencies

Survey(s) undertaken	Surveyor(s)	Experience (years)	Licences Held
Nightingale survey	David Lester	25+	
Great crested newt HSI Reptile survey	Ben Jervis MCIEEM	5	Great crested newt Class Licence CL08 (Level 1)

1.6 Description of the project

1.6.1 A small development of 5 detached houses and 6 terraced houses is proposed, backing onto the north and west boundaries of the site. An area of amenity grassland proposed as a village green will occupy the southern central area of the site, providing a clear view of St Michaels Church from The Street and a footpath through to the church. The village green will be accessible to members of the public for recreation.

1.6.2 The proposed development amends and updates a previous site masterplan, initially assessed in 2016, with a revised site layout to include existing semi-natural vegetation, woodland, scrub and also retained green infrastructure linking the site to surrounding habitat. Retained woody scrub and managed rough grassland and wildflower grassland will be present predominantly along the southern and eastern site boundaries.

1.6.3 The development proposals are shown in Appendix 3.

1.7 Objectives of this appraisal

1.7.1 The purpose of this appraisal is to inform a planning application for the proposed development, as described above. Detailed objectives are to:

- Determine the value of the site for reptiles and amphibians, including great crested newts
- Assess the impact of the development proposal on these species
- Describe any measures necessary to avoid impacts, reduce impacts or compensate for impacts so that there is no net harm to ecological features
- Propose ecological enhancements

1.8 Previous ecological studies

1.8.1 A Preliminary Ecological Appraisal of the site was previously undertaken by Enims Ltd, titled "*Land at Flordon, Norfolk – Ecological Constraints and Opportunities Assessment*" and dated August 2015. Recommendations for further survey included Habitat Suitability Index (HSI) assessment of nearby ponds and reptile survey.

1.9 Duration of appraisal validity

1.9.1 The assessment, conclusions and recommendations in this appraisal are based on the studies undertaken, as set out in this report, and the stated limitations. This appraisal is based on the project as described and any changes to the project would need the appraisal to be reviewed. Unless otherwise stated, the assessment, conclusions and recommendations given assume that the site habitats will continue to be used for their current purpose without significant changes until development takes place. However, changes in use or management may occur between the time of the survey and proposals being implemented. Ecological features may change naturally at any time; for example, species may be lost from existing sites or colonise new areas. Our knowledge of the ecology of the site enables us to provide an estimate of the duration of the

validity of the surveys carried out and hence the applicability of this appraisal, so that any future need for review and update of this appraisal, or the surveys described within it, and the date by which such updates would become necessary, can be identified.

1.9.2 The table below sets out the duration of validity of each element of each information source. If the proposed development is delayed beyond the stated timescale, update surveys or further investigations may be required.

Information source	Date undertaken	Duration of validity from date undertaken	Notes
Great crested newts: Habitat Suitability Index (HSI) survey	10th March 2016	2 years	Pond condition and suitably for great crested newts may change especially if management of nearby habitats changes
Reptile survey	April-May 2016	2 years	Providing management of the site is unchanged, no significant changes to reptile populations within 2 years are expected. Where site conditions and management are unchanged, validity beyond this period may be considered.
Nightingale survey	May 2016	2 years	Providing management of the site is unchanged, no significant changes to usage patterns are expected within 1-2 years

2 Methodology

2.1 Great crested newt: Habitat Suitability Index (HSI) assessment

Rationale

2.1.1 Great crested newts are protected by national and European legislation and are 'European Protected Species'.

2.1.2 Great crested newts are widespread but scattered at low density in mainland Britain. They breed in ponds and outside the breeding season they use land habitats such as farmland, woods, grasslands, quarries, industrial and 'brown-field' sites. They do not usually occur in flowing water. They hibernate on land, in shelter away from frosts and flooding, in places such as in log piles, under rubble or in hollow tree stumps. If a pond close to a site supports great crested newts, then there is potential for this species to occur on the site itself.

2.1.3 The Habitat Suitability Index (HSI) survey is used to estimate the likelihood of great crested newts being present in a pond and identifies which ponds in a survey area are likely to require great crested newt surveys. A summary of the methodology is given below.

2.1.4 HSI is a geometric mean of ten suitability indices, all of which are factors thought to affect Great Crested Newts. In general, ponds with high HSI scores are more likely to support Great Crested Newts than those with low scores. There is a positive correlation between HSI scores and the numbers of Great Crested Newts observed in ponds. So, in general, high HSI scores are likely to be associated with greater numbers of Great Crested Newts. The system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so. It can, however, be useful in prioritising ponds for further survey effort.

Selection of ponds

2.1.5 Natural England's *Method statement template for great crested newt mitigation licence*[2] is used to determine how many ponds require a HSI assessment. The area of the site is measured from OS maps and inputted into the great crested newts rapid risk assessment as part of the NE method statement. This informs the distance from the site boundary, whether that be 100m, 250m or 500m, required to identify that an offence to great crested newts is *highly unlikely,* see table below. A large-scale OS map is then inspected to identify any ponds within the buffer distance.

Distance from site (m)	**Maximum area lost or damaged (hectares)**		
	Green: *Offence highly unlikely*	**Amber: *Offence likely***	**Red: *Offence highly likely***
100	Up to 0.01	0.01-0.5	>0.5
250	Up to 0.5	0.5-10	>10
250+	Up to 5	5-10	N/A

2.1.6 Guidance on risk assessment categories

- **'Green', offence highly unlikely**: indicates that the development activities are of such a type, scale and location that it is highly unlikely any offence would be committed should the development proceed. Therefore, no licence would be required. However, precautions may need to be taken to avoid an offence.
- **'Amber', offence likely**: indicates that the development activities are of such a type, scale and location that it is likely. Design plans for the development may need to be altered (location, layout, methods, durations or timings) to minimise the effect on great

2 www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence

crested newts and if the scheme still results in a likely offence a licence may be required to carry out the works.

- **'Red', offence highly likely:** indicates that the development activities are of such a type, scale and location that it is highly likely. Design plans for the development should be altered (location, layout, methods, durations or timings) to minimise the effect on great crested newts and if the scheme still results in a likely offence a licence may be required to carry out the works.

2.1.7 The rapid risk assessment is a simplistic assessment and provides a general overview of a situation. The following factors should be considered when using the rapid risk assessment; population size, terrestrial habitat quality, presence of dispersal barriers, timing and duration of works, detailed layout of development in relations to newt resting and dispersal. The following factors could increase the risk of committing an offence: large population size, high pond density, good terrestrial habitat, low pre-existing habitat fragmentation, large development footprint, and long construction period. The following factors could decrease the risk: small population size, low pond density, poor terrestrial habitat, substantial pre-existing dispersal barriers, small development footprint and short construction period.

Methodology

2.1.8 The standard Habitat Suitably Index (HSI) methodology[3] was followed. Water bodies were identified on the Ordnance Survey 1:25,000 map within an approximate 500m radius of the site. Four water bodies were chosen for HSI survey.

2.1.9 The following measurements were made or estimated on site:

- pond area, to nearest 50m2;
- estimate of the number of years in every ten when the pond would dry up in summer;
- water quality, estimated by observation of invertebrates present;
- percentage of pond edge (up to 1m from the shore) which is shaded, e.g. by trees;
- presence/absence of and impact from waterfowl;
- presence/absence and density of fish populations;
- quality of surrounding terrestrial habitat;
- percentage of the pond covered by aquatic macrophytes (plant species).

2.1.10 Two map based estimates were made following the field survey

- The area of the UK within which the pond is situated
- The number of ponds within a 1km radius (including any ponds seen on the site visit but which are absent from 1:25,000 Ordnance Survey mapping and excluding any mapped ponds found to be absent during the site visit (see above)).

2.1.11 Pond suitability for great crested newts was defined using a categorical scale, as follows.

<0.5	**poor**: very unlikely to contain great crested newts.
0.5 – 0.59	**below average**: unlikely to contain great crested newts.
0.6 – 0.69	**average**: might contain great crested newts.
0.7 – 0.79	**good**: might contain great crested newts.
> 0.8	**excellent**: most likely to contain great crested newts.

2.1.12 The survey was undertaken on 10th March 2016 and the weather conditions were sunny, dry and with a light breeze.

Limitations to HSI survey

2.1.13 Whilst the HSI assessment is particularly useful in terms of quantifying and subsequently comparing pond conditions within the local area, the assessment is not without limitations, which

3 ARG UK (2010) *ARG UK Advice note no. 5. Great crested newt habitat suitability index,* Amphibian and Reptile Groups of the United Kingdom.

should be taken into consideration. The HSI score is designed to provide a general overview which quantifies favourable conditions that are commonly associated with the species. The assessment alone should not therefore be used to determine, at least with any confidence, whether or not further surveys should be undertaken.

2.1.14 In practice, there are many different variables which dictate the likelihood of presence or absence. For example, the methodology does not take into account known records of the species in the vicinity nor habitat connectivity. The surveyor's own personal experience should therefore always be used in combination with the HSI scores to determine which ponds should be included within the next stage of survey.

2.1.15 Access to one of the ponds was not granted and could not be viewed from any public highways, therefore this pond was only assessed using openly available aerial imagery.

2.2 Reptile survey

Rationale

2.2.1 The commoner species of reptile (slow worm, common lizard, grass snake and adder) are protected from intentional killing or injury, and it is also illegal to sell these species. The rare species, found primarily in heathland and dunes in the south of England, are smooth snake and sand lizard. These are European Protected Species and it is illegal to kill, injure, disturb, or take any of these species, or to damage or destroy a breeding site or resting place. Habitats used by reptiles include heathland, brownfield land, long grassland, scrub, including gorse and bramble scrub, the base of hedgerows and open (sunny) woodland. Most undisturbed (e.g. not regularly mown or closely grazed) areas of suitable size have the potential to support reptiles.

2.2.2 Possible hibernation sites, or hibernacula, (potentially occupied from late September to early April) include embankments, piles of cut logs or timber, fly-tipped material (including dumped tin sheets, rubble, tyres, turfs and mounds of soil), beneath tree roots, in mammal burrows and any other cavities or crevices above the winter water table.

Methodology

2.2.3 A presence-absence survey was undertaken in respect of reptiles in accordance with guidance[4], in areas potentially suitable for reptiles. Thirty artificial refugia each measuring approximately 100cm by 50cm (0.5m^2) were placed around the site in areas thought to have most potential to support reptiles, on 31st March 2016. Locations for refugia were primarily located in in areas of rough grassland adjacent to scrub or brash piles which would offer shelter to reptiles. Where possible, refugia were placed in inconspicuous locations to reduce the risk of interference. Refugia were made of heavy-duty bituminous roofing felt weighing 3.5kg/m^2 for greater thermal mass and little prospect of being blown away compared to cheaper alternatives. They were left in situ for a period of at least 1 week before survey visits were commenced.

2.2.4 Refugia were placed at a density of thirty per hectare, which is higher than the recommended density of ten per hectare of suitable habitat. The higher density was chosen to give a greater sample size and a greater likelihood of attracting reptiles compared to standard recommended density.

2.2.5 Seven survey visits were carried out in the early morning or late afternoon, during suitable weather conditions; avoiding heavy rain, strong wind and temperatures below 10ºC or above 17ºC. The visits started on 8th April 2016 and ended on 8th June 2016 at which point the refugia were removed from site. On all visits, the temperature of the refugia was checked by hand to test if they were warm to the touch, and thus likely to be attractive to basking reptiles. Opportunistic survey of potential basking areas, such as bare soil on banks, was undertaken concurrently with checks on the refugia. This survey method can also identify presence or absence of terrestrial amphibians.

4 Froglife (1999) *Froglife advice sheet 10: reptile survey*. Froglife, London & Gent T & Gibson S (2003) *Herpetofauna Workers Manual*. JNCC, Peterborough.

Limitations to reptile survey

2.2.6 Vigorous growth of vegetation during May led to the loss of two refugia, though this is not considered to have significantly affected the number of reptiles found during survey.

2.3 Nightingale survey methodology

Rationale

2.3.1 All birds are protected from being killed or injured, and their nests are protected from being damaged or destroyed whilst being built or whilst in use. Eggs are protected. Some bird species are additionally protected by being listed on Schedule 1 of the Wildlife and Countryside Act, which protects them from disturbance whilst nesting.

2.3.2 Nightingale has declined dramatically in recent years due to the loss of significant areas of habitat, and they are now assessed as being a Red list species in the UK. Nightingale song was recorded at Flordon during 2015 and the habitats onsite are considered suitable for the species.

Methodology

2.3.3 The site was visited on the 12th and 19th May 2016 by David Lester, a suitably qualified and experienced bird surveyor familiar with the species. Surveys were undertaken during warm, dry, still conditions for a minimum period of one hour at dusk, when nightingale tend to be most vocal, and involved listening and viewing the site from a concealed vantage point adjacent to the site.

Limitations to bird survey

2.3.4 Whilst not all areas of the site were fully accessible, nightingale song is loud and distinctive and so would be easily heard throughout the site and local area. Moreover there were no further reports of nightingale song that year. Therefore, it is considered there were no significant limitations to survey.

2.4 Assessment methodology

2.4.1 The assessment was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's Professional Guidance Series[5].

2.4.2 More details of the assessment methodology are provided in Appendix 2, but, in summary, the impact assessment process involves:

- identifying and characterising impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects; and
- identifying opportunities for ecological enhancement.

2.4.3 The hierarchical process of avoiding, mitigating and compensating for ecological impacts is explained further below.

2.4.4 In Ecological Impact Assessment (EcIA) it is only essential to assess and report significant *residual* effects (i.e. those that remain after mitigation measures have been taken into account). However, it is considered good practice for the EcIA to make clear both the potential significant effects without mitigation and the residual significant effects following mitigation, particularly where the mitigation proposed is experimental, unproven or controversial. Alternatively, it should demonstrate the importance of securing the measures proposed through planning conditions or obligations.

2.4.5 Assessment of the potential impacts of the proposed development takes into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Negative impacts can include:

- direct loss of wildlife habitats;

5 CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, Second Edition.

- fragmentation and isolation of habitats through loss of connectivity;
- disturbance to species from noise, light or other visual stimuli;
- changes to key habitat features; and
- changes to the local hydrology, water quality, nutrient status and/or air quality.

2.4.6 Negative and positive impacts on ecological features are characterised based on predicted changes as a result of the proposed activities. In order to characterise the impacts on each feature, the following parameters are considered:

- the magnitude of the impact;
- the spatial extent over which the impact would occur;
- the temporal duration of the impact and whether it relates to the construction or operational phase of the development;
- the timing and frequency of the impact; and
- whether the impact is reversible and over what time frame.

2.4.7 Both short-term (i.e. impacts occurring during the site clearance and construction phases) and long-term impacts are considered.

Conservation status

2.4.8 The extent to which the proposed development may have an effect upon ecological features should be determined in the light of its expected influence on the integrity of the site or ecosystem. The integrity of protected sites is considered specifically in the light of the site's conservation objectives. Beyond the boundaries of designated sites with specific nature conservation designations and clear conservation objectives, the concept of 'conservation status' is used. Conservation status should be evaluated for a study area at a defined level of ecological value. The extent of the area used in the assessment relates to the geographical level at which the feature is considered important.

2.4.9 For habitats, conservation status is determined by the sum of the influences acting on the habitats and their typical species that may affect their long-term distribution, structure and functions, as well as the long-term survival of its typical species within a given geographical area. For species, conservation status is determined by the sum of influences acting on the species concerned and inter-relationships that may affect the long-term distribution and abundance of its populations within a given geographical area.

Confidence in predictions

2.4.10 It is important to consider the likelihood that a change or activity will occur as predicted and also the degree of confidence in the assessment of the impact on ecological structure and function.

- **Certain** probability estimated at above 95%
- **Probable** probability estimated above 50% but below 95%
- **Possible** probability estimated above 5% but below 50%
- **Unlikely** probability estimated as less than 5%

Cumulative impacts

2.4.11 Consideration is also given to the potential for the development proposal to give rise to significant negative impact in combination with other proposed developments in the local area.

Overall assessment

2.4.12 An overall assessment of value and impact is provided. This is based upon the highest level or value of any of the features or species present, or likely to be present on the site. Similarly, the overall assessment of impact is the impact of greatest significance.

2.5 Mitigation hierarchy

2.5.1 The following principles underpin EcIA and have been followed, where applicable, in this assessment[6].

- **Avoidance** Seek options that avoid harm to ecological features (for example, by locating the proposed development on an alternative site or safeguarding on-site features within the site layout design).
- **Mitigation** Adverse effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.
- **Compensation** Where there are significant residual adverse ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- **Enhancement** Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

6 CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3 Results

3.1 Great crested newt Habitat Suitability Index (HSI) assessment

3.1.1 The results of the HSI assessment for each of the ponds surveyed are tabulated below.

3.1.2 Pond locations are detailed in Figure 02.

Habitat Suitability Index (HSI) survey results

Pond No.	HSI variables										HSI Total
	SI1 - Location	SI2 - Pond area	SI3 - Pond drying	SI4 - Water quality	SI5 - Shade	SI6 - Fowl	SI7 - Fish	SI8 - Ponds	SI9 - Terrestrial habitat	SI10 - Macrophytes	
1	1	0.05	0.9	0.67	1	0.67	0.01	1	0.67	0.35	0.37
2a	1	0.5	0.9	0.67	1	0.67	0.01	1	0.67	0.4	0.47
2b	1	0.05	0.9	0.67	1	1	0.01	1	0.67	0.7	0.41
3*	1	0.5	0.5	0.33	0.2	1	1	1	0.33	1	0.59

3.1.3 A summary of the HSI scores, with the distances from the development site and comments is tabulated below.

Summary of Habitat Suitability Index (HSI) survey results

Pond No.	HSI Score	HSI category	Distance from development (approx.)	Direction	Comments
1	0.37	Poor	300m	E	Pond formed from concrete lined swimming pool and containing fish. Located in garden of house on Station Road
2a	0.47	Poor	200m	NE	Large pond containing fish in garden of Bush Meadows, on Greenways
2b	0.41	Poor	275m	NE	Small pond containing fish in garden of Bush Meadows, on Greenway
3	0.59	Below Average	475m	N	Pond belonging to Orchard Farm, to which access was refused.

3.1.4 The three ponds with access permission were categorised as 'Poor', and the pond assessed using aerial imagery only was categorised as 'Below Average'. These ponds are therefore considered unsuitable for great crested newts.

3.2 Reptile survey results

3.2.1 The results of the survey are given below in the table below and the location of records is shown on Figure 03.

Survey Date	Temp (ºC)	Cloud cover	Common Lizard	Slow worm	Grass snake	Adder
08/04/2016	10	30-40%	0	4 male, 4 female, 1 juvenile	0	0
13/04/2016	15-16	35%	0	6 male, 5 female	2 adults	0
20/04/2016	10	< 5%	0	9 male, 7 female, 2 juvenile	1 adult	0
27/04/2016	10	30%	0	8 male, 4 female	1 juvenile	0
03/05/2016	12	40%	1 male, 1 female, 3 unknown	17 male, 7 female, 3 juvenile	2 juvenile	0
02/06/2016	12-13	100%	0	5 male, 7 female, 15 juvenile	0	0
08/06/2016	18-19	10%	0	10 male, 14 female, 16 juvenile	0	0
Peak Count			**5**	**47 (Total)** **31** (Adult) **16** (Juv)	**4 (Total)** **2** (Adult) **2** (Juv)	**0**

3.2.2 Nine slow worms were recorded during the first survey, including 1 juvenile approximately 6cm in size indicating successful breeding attempts were made in 2015. The peak count of slow worms increased throughout the period of the survey up to a total of 31 adults (17 male, 14 female) and 16 juveniles. Slow worms were reasonably evenly dispersed across the site, although the northern areas of dense scrub adjacent to the churchyard are likely to be of highest interest.

3.2.3 Common lizard was recorded during the fifth visit in low numbers, though not during any other surveys. This suggests a 'low' population of lizards occupies an area in the north of the site.

3.2.4 Both adult and juvenile grass snake were encountered in low numbers during multiple site visits. Grass snake are a transient species and will likely use the entire site, and habitats beyond the site, throughout the year.

3.2.5 No amphibians were found under refuges.

3.3 Nightingale survey results

3.3.1 No nightingale song was recorded during either of the two dusk surveys undertaken. Song thrush was the only bird of conservation concern recorded during survey, which was heard singing in the vicinity of the site on both visits.

4 Evaluation of conservation status and impact assessment

4.1 Assessment rationale

4.1.1 The assessment is based on the ecological data presented within this report. Future changes in the wildlife present on site are beyond the scope of this report, unless specifically stated.

4.2 Evaluation and assessment of species

Amphibians including great crested newt

4.2.1 Despite the presence of suitable terrestrial habitat at the site, Habitat Suitability Index (HSI) assessment of the surveyed ponds categorised three as 'Poor' and one as 'Below Average' for great crested newt and therefore they did not require further survey. Great crested newt is considered to be absent from the site but the site will offer terrestrial habitat for other locally native species of amphibian if suitable small waterbodies (garden pond, seasonally inundated ditches) are present the local area. The value of the site for this group is considered to be **Lower** at the **Parish** scale.

4.2.2 Habitats present on site are not uncommon in the local area and the site is unlikely to be of importance or any one group or local population. The impact of the development is assessed as **Neutral**.

Reptiles

4.2.3 Froglife has produced guidelines to identify sites which are important for reptiles; to qualify a site must meet at least one of the following criteria:

(1) Supports three or more reptile species

(2) Supports two snake species

(3) Supports an exceptional population of one species (see table)

(4) Supports an assemblage of species scoring a total of at least 4 points in the table below

(5) Does not satisfy 1-4 but which is of particular regional importance due to local rarity

	Low population	Good population	Exceptional population
	Score 1 point	Score 2 points	Score 3 points
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10
Common lizard	<5	5-20	>20
Slow worm	<5	5-20	>20

Figures in the table refer to maximum number of adults seen by observation and/or under mats [refugia] (placed at a density of up to 10 per hectare), by one person in one day

4.2.4 Under the guidelines issued by Froglife the proposed development site meets the criteria for an 'Important' site for reptiles in two/three of the five categories as it supports three or more species, scores a total of 5 points based on observed numbers, and possibly supports an exceptional population of slow worm.

4.2.5 Refugia were placed at a density of approximately 30 per hectare during survey. Relative to population sizes provided in the above table, it is considered likely that despite a peak count of 31 adult slow worms being recorded, the figures may over-represent the population which may only be 'Good' in size based on Froglife guidelines.

4.2.6 A re-inspection of the site during August 2018 found the habitats to remain broadly unchanged from survey in 2016. The results of the 2016 survey are considered to remain valid in 2018, and for a further 12 months from the date of the site visit, subject to site management remaining unchanged. The site is currently unmanaged and historic aerial photographs show encroaching scrub throughout the site over the past 10 years. It is likely that the suitability of the site for reptiles will ultimately decrease as a result of the ongoing absence of site management. An increasingly closed canopy and development of more extensive scrub in the medium-term will diminish the value of the site for reptiles.

4.2.7 The value of the site to reptiles is assessed as **Medium** at the **County** scale. The unmitigated impact is considered to be **Major Adverse**.

4.2.8 The scheme as shown in Appendix 3 will retain approximately one quarter to one third of the existing habitat including rough grassland at the south of the site and scrub along the eastern boundary. It is proposed that the southern grassland area, and eastern woodland and scrub will be will be protected as reptile habitat during construction and in the completed scheme and enhancements made, including artificial hibernacula, to maintain and enhance carrying capacity. The woodland along the eastern boundary will also retain value to slow worm but will also include a new site access path/woodland walk.

4.2.9 **It is considered that the total area proposed for retained reptile habitat is the minimum which could be considered to allow retention of the known population on site.**

4.2.10 The reptile habitat within the site will retain linkages to other areas of potential reptile habitat outside of the development, specifically the hedgeline continuing east along The Street and rough ground and field boundaries to the north. The northern site boundary will be enhanced for reptiles to retain a corridor to habitats within the churchyard.

4.2.11 A programme of capture and translocation would be required to clear the development footprint of reptiles and relocate the population into the retained habitat prior to groundworks commencing. Temporary reptile fencing would be erected around the site boundaries and retained habitat, and removed once construction is complete.

4.2.12 Due to the size of the slow worm and grass snake populations present at the site, it is envisaged that up to 50-60 days of trapping is likely to be required, based on mitigation guidelines. Should a larger than anticipated population of slow worm be encountered then a proportion of the population would need to be translocated to a receptor site elsewhere in the local area.

4.2.13 A suitable receptor site should ideally:

- be local to the proposed development site
- be of equal or greater size and/or of equal or greater habitat suitability than the donor site
- have a reptile survey undertaken to ensure the receptor site does not currently support a population of slow worms, grass snakes or common lizards (or at least only in very low numbers)
- not be subject to planning or other threats in the foreseeable future
- have a written, agreed and funded pre and post-translocation management agreement
- have a written, agreed and funded pre and post-translocation monitoring programme

4.2.14 An agreement has been reached with the managers of Flordon Common that an area in the west of the Common can be used for 'over-flow' translocation of reptiles in the event that high numbers of individuals, specifically slow worm, are encountered. It is considered that the population at Flordon forms part, and indeed the nucleus of, a local meta-population. The developer would contribute a financial sum and labour for enhancement and management to ensure population establishment and successful dispersal of individuals for a period of a minimum of five years following translocation.

4.2.15 Post construction, habitats within the site would be safeguarded via a Section 106 agreement managed in accordance with a site management plan.

4.2.16 Subject to the creation of a detailed Construction and Environment Management Plan and the agreement for post-construction site management the mitigated impact of the development is assessed as a being of a Minor Negative magnitude resulting in a **Moderate Adverse-Neutral** impact.

Breeding birds, including nightingale

4.2.17 No evidence of nightingale using the site in 2016 was found. Nightingale song reported from the vicinity during 2015 is considered likely to have been a lone male making an unsuccessful attempt at finding a mate, and it is considered that this bird did not return to the site in 2016.

4.2.18 Nightingale have a high fidelity for breeding sites and as the survey was negative, the site is not considered to be of importance for this species.

4.2.19 It is considered that the value of the site to nightingale is **Negligible** and the impact of the scheme is **Neutral**.

5 Mitigation and avoidance measures

5.1 Avoidance measures

5.1.1 The following impact avoidance measures have been identified and will be delivered.

Reptiles

- A detailed Ecological mitigation method statement (Construction Environment Management Plan) is required in order to effectively translocate reptiles from the construction zone site prior to development. This would include:
- Identifying reptile fencing locations to protected retained habitat and prevent reptile access to site from boundary vegetation
- Installation of reptile fencing, setting refugia and undertaking phased vegetation clearance at the development site in preparation for translocation
- Undertaking presence/absence surveys to determine suitability of receptor sites
- Receptor site enhancements prior to translocation to improve habitat quality and provide suitable hibernacula
- Trapping for a likely 50-60 days at the development site and translocation of captured reptiles to the retained vegetation and receptor site at Flordon Common (if considered necessary)
- Off-site improvements where these can be secured by the applicant, including reinstating/restoring field boundary hedges north and east of the site to improve site connectivity
- Creation of a habitat management plan in combination with a site planting plan for the site to ensure the site remains suitable for the reptile populations
- Undertaking post-translocation monitoring at agreed time periods (e.g. every other year) to observe long-term impacts on translocated reptile populations

5.2 Proposed mitigation for known impacts

5.2.1 The following mitigation is required to reduce the impacts of the scheme to within acceptable limits.

Great Crested Newt

- No mitigation required.

Nightingale

- No mitigation required.

5.3 Compensation for ecological impacts

5.3.1 No compensatory habitat creation or management is proposed other than that detailed in 5.1.1 above.

5.4 Species licensing

5.4.1 No species licence is necessary.

6 Recommendations

6.1 Recommended reports

Ecological mitigation method statement

6.1.1 It is recommended that an Ecological Mitigation Method Statement, setting out timings of delivery of mitigation for reptiles, is prepared prior to commencement of site clearance and construction.

Landscape and Ecological management plan

6.1.2 It is recommended that a Landscape and Ecological Management Plan (LEMP) setting out the proposed aftercare and long term management of retained habitats is prepared to ensure habitats retain suitability for reptiles.

6.2 Recommended conditions

6.2.1 It is recommended that the following conditions, based on model conditions in Appendix D of BS42020:2013, are applied to the planning permission.

6.2.2 No development shall take place (including any demolition, ground works, site or vegetation clearance) until a method statement for reptiles has been submitted to and approved in writing by the local planning authority. The content of the method statement shall include the:

a) purpose and objectives for the proposed works;
b) detailed design(s) and/or working method(s) necessary to achieve stated objectives (including, where relevant, type and source of materials to be used);
c) extent and location of proposed works shown on appropriate scale maps and plans;
d) timetable for implementation, demonstrating that works are aligned with the proposed phasing of construction;
e) persons responsible for implementing the works;
f) initial after-care and long-term maintenance (where relevant);

6.2.3 No development, demolition or earth moving shall take place, nor material or machinery be brought onto the site until protective fencing and warning signs have been erected on site in accordance with the approved method statement for reptiles. All protective fencing and warning signs will be maintained during the construction period in accordance with the approved details.

6.2.4 A Landscape and Ecological Management Plan (LEMP) shall be submitted to, and be approved in writing by, the local planning authority prior to the commencement of site clearance and construction. The content of the LEMP shall include the following to ensure that site will be managed in such a way so as to ensure the continued presence of a viable breeding reptile population.

a) Description and evaluation of features to be managed.
b) Ecological trends and constraints on site that might influence management.
c) Aims and objectives of management.
d) Appropriate management options for achieving aims and objectives.
e) Prescriptions for management actions.
f) Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five-year period).
g) Details of the body or organization responsible for implementation of the plan.
h) Ongoing monitoring and remedial measures.

6.2.5 The LEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body/ies responsible for its delivery. The plan shall also set out (where the results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers

the fully functioning biodiversity objectives of the originally approved scheme. The approved plan will be implemented in accordance with the approved details.

7 Conclusions

7.1.1 The purpose of this report was to inform a planning application for the proposed development.

7.1.2 A summary of assessments of value and the impact of the proposed development without mitigation, and the residual significant effects following mitigation, is provided in the table below.

Summary of assessment of value and impact

Feature	Level of value	Scale	Unmitigated impact	Confidence level	Mitigated impact
Amphibians including great crested newts	Lower	Parish	**Neutral**	Certain	-
Reptiles	Medium	County	Major Adverse	Probable	**Minor Adverse-Neutral**
Breeding birds, including nightingale	Negligible	-	**Neutral**	Probable	-

Figures

KEY:

Location of Site

E16811 Land off The Street, Flordon

Location Plan

Figure 01

Scale NTRS

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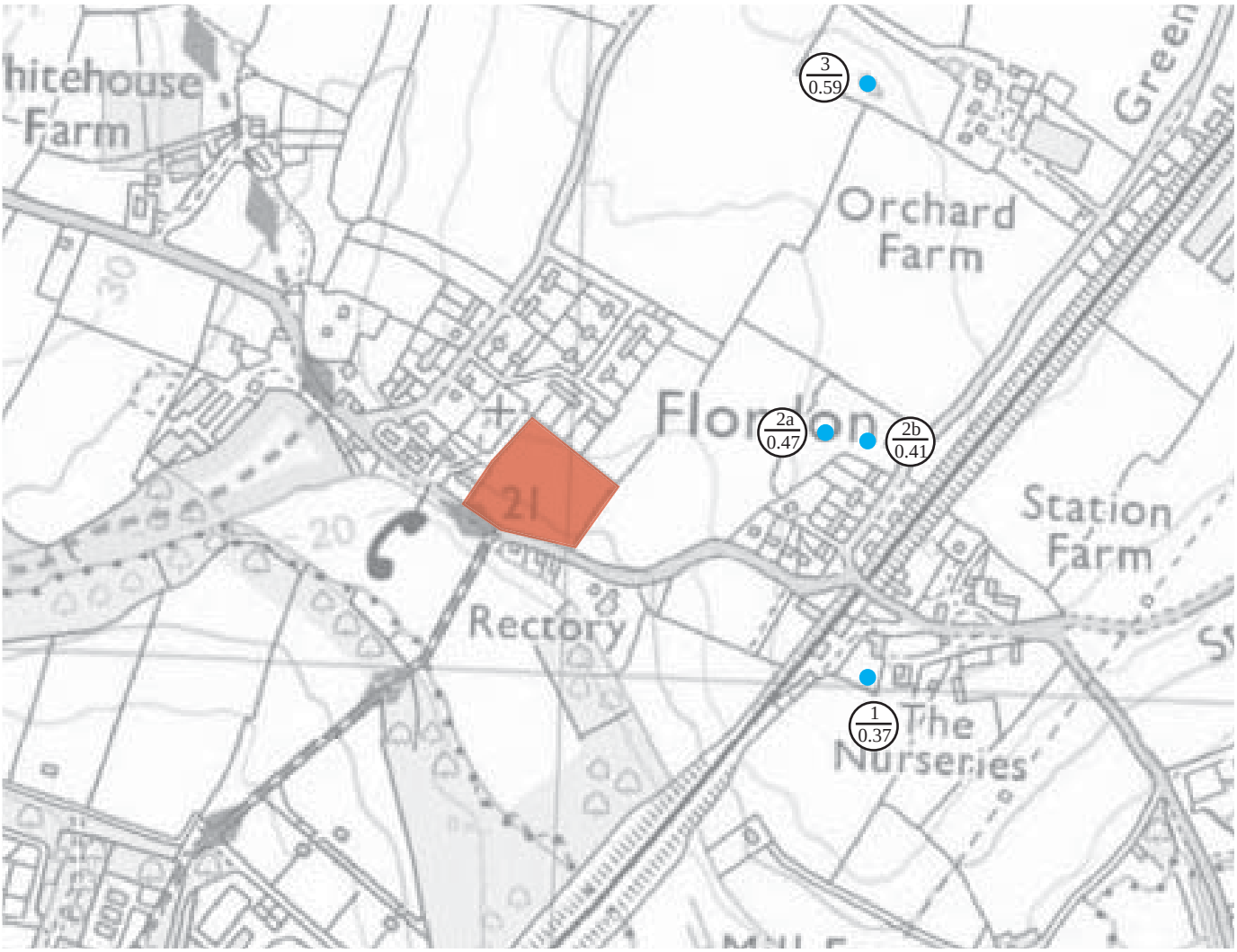

0km 500m

KEY:

Location of Site

Pond Location

Pond Number and HSI Score

E16811 Land off The Street, Flordon

Habitat Suitability Index (HSI) Assessment

Figure 02

Scale NTRS

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KEY:

- Site boundary
- ⑦ Refugia location and number
- Slow worm
- Grass snake
- Common lizard

E16811 Land off The Street, Flordon

Reptile survey

Figure 03

Scale: NTRS

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Appendix 1

Legislative and policy context

There are a number of pieces of legislation, regulations and policies specific to ecology which underpin this assessment. These may be applicable at a European, National or Local level. References to legislation are given as a summary for information and should not be construed as legal advice.

Birds Directive

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC), normally known as the Birds Directive, sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats. It was superseded by the 'new' Birds Directive (2009/147/EC) which generally updated the previous directive.

These requirements are interpreted into English law by the Wildlife and Countryside Act 1981 (as amended) with regard to protection of birds, and the Conservation of Habitats and Species Regulations 2017 with regard to the registration and regulation of Special Protection Areas.

Habitats Directive

The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC), normally known as the Habitats Directive, aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) and the registration and regulation of Special Areas of Conservation.

These requirements were interpreted into English law by the Conservation of Habitats and Species Regulations 2010 with regard to European Protected Species and the registration and regulation of Special Areas of Conservation. This Directive was amended in 2017 following the consolidation of the England and Wales and Offshore Habitats Regulations.

Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 interpret the Birds Directive and Habitats Directive into English and Welsh law. For clarity, the following paragraphs consider the case in England only, with Natural England given as the appropriate nature conservation body. In Wales, the Countryside Council for Wales is the appropriate nature conservation body.

Special Protection Areas and Special Areas of Conservation are defined in the regulations as 'European sites'. The Regulations regulate the management of land within European sites, requiring land managers to have the consent of Natural England before carrying out management. Byelaws may also be made to prevent damaging activities and if necessary land can be compulsorily purchased to achieve satisfactory management.

The Regulations define competent authorities as public bodies or statutory undertakers. Competent authorities are required to make an appropriate assessment of any plan or project they intend to permit or carry out, if the plan or project is likely to have a significant effect upon a European site. The permission may only be given if the plan or project is ascertained to have no adverse effect upon the integrity of the European site. If the competent authority wishes to permit a plan or project despite a negative assessment, imperative reasons of over-riding public interest must be demonstrated, and there should be no alternative to the scheme. The permissions process would involve the Secretary of State and the option of consulting the European Commission. In practice, there will be very few cases where a plan or project is permitted despite a negative assessment. This means that a planning application has to be assessed by the Local Planning Authority, based on information provided by the applicant, and the assessment must either decide that it is likely to have no significant effect on a European site or ascertain that there is no adverse effect upon the integrity of the European site.

Government policy is for Ramsar sites (wetlands of global importance) to be treated as if they were European sites within the planning process.

Appropriate Assessment

Appropriate Assessment is required in certain instances under the Conservation of Habitats and Species Regulations 2017. Regulation 63 says that:

> *63.—(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-*
>
> *(a) is likely to have a significant effect on a European site or a European offshore marine site*

(either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of the site,

must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

(2) A person applying for any such consent, permission or other authorisation shall provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an appropriate assessment is required.

(3) The competent authority shall for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority may specify.

(4) They must also, if they consider it appropriate, take the opinion of the general public, and if they do so, they must take such steps for that purpose as they consider appropriate.

(5) In the light of the conclusions of the assessment, and subject to regulation 64 (considerations of overriding public interest), the competent authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given.

The competent authority is typically the local planning authority. The appropriate assessment contains the information the council requires for the purposes of its assessment under the Habitat Regulations.

The Habitat Regulations also are applicable to local authority land use plans and policies. If a policy or plan is likely to have a significant effect upon a European site, the permission may only be given if the policy or plan is ascertained to have no adverse effect upon the integrity of the European site. This approach gives rise to a hierarchy of plans each with related appropriate assessments. For example, the appropriate assessment of a Regional Spatial Strategy will affect policies within a Core Strategy, which will then need its own appropriate assessment, and so on.

European Protected Species

European Protected Species of animals are given protection from deliberate capture, injury, killing, disturbance or egg taking/capture. Their breeding sites or resting places are also protected from damage or destruction, which does not have to be deliberate. A number of species are listed as European Protected Species, with those most likely to be considered in planning applications being bats, dormouse, great crested newt and otter. Natural England may give a licence for actions that are otherwise illegal, subject to them being satisfied on the three tests of no alternative, over-riding public interest, and maintenance of the species in favourable condition.

European Protected Species of plant are also listed and given protection. These species are generally very rare and unlikely to be present in proposed development sites.

Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 has been amended many times, including by the Countryside and Rights of Way Act 2000. It contains provisions for the notification and regulation of Sites of Special Scientific Interest, and for protected species.

The Regulations regulate the management of land within Sites of Special Scientific Interest, requiring land managers to have the consent of Natural England before carrying out management.

All public bodies are defined as 'S28G' bodies, which have a duty to further the nature conservation of Sites of Special Scientific Interest in the undertaking of their functions. In practice, this prevents planning applications being permitted if they would harm Sites of Special Scientific Interest, as it would be a breach of that duty.

The Act makes it an offence intentionally to kill, injure, or take any wild bird, take, damage or destroy the nest of any wild bird, while that nest is in use or being built, or take or destroy an egg of any wild bird. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.

The Act makes it an offence intentionally to kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. Some species have lesser protection under this Act, for example white-clawed crayfish, common frog and toads are only protected from sale, and reptile species, other than smooth snake and sand lizard, are protected from intentional killing or injury, but they are not protected from disturbance and their habitat is not protected. It is also an offence intentionally to pick, uproot or destroy any wild plant listed in Schedule 8.

National Planning Policy Framework

The National Planning Policy Framework dated March 2012 (NPPF) replaces previous Government Policy in relation to nature conservation and planning, which was set out in Planning Policy Statement 9. Paragraph 109 of the NPPF says that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible.

Paragraph 113 describes policy for designated sites, where Local Planning Authorities should set criteria-based policies, against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Further policy is within paragraph 118, where Local Planning Authorities should aim to conserve and enhance biodiversity when determining planning applications by applying the following principles.

- If significant harm resulting from a development cannot be avoided (through locating it on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused,
- Opportunities to incorporate biodiversity in and around developments should be encouraged.
- Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.
- Paragraph 115 adds protection to biodiversity within areas designated for their landscape value. It says that great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.

Government circular 'Biodiversity and Geological Conservation – Statutory Obligations and their Impact Within the Planning System' referenced ODPM 06/2005 and Defra 01/2005 has not been replaced and remains valid. It sets out the legislation regarding designated and undesignated sites and protected species, and describes how the planning system should take account of that legislation. It does however pre-date the NERC Act 2006 (see below), which includes a level of protection for a further list of habitats and species regardless of whether they are on designated sites or elsewhere.

Natural Environment and Rural Communities (NERC) Act 2006

This Act includes a list of habitats and species of principal importance in England. Local Authorities are required to consider the needs of these habitats and species when making decisions, such as on planning application.

Local Planning Authority's planning policy

The Local Planning Authority will have policies relating to biodiversity conservation.

Species Legislation

The following table provides an overview of legislation with regard to species.

Protected Species	Legislation			
	Wildlife & Countryside Act, 1981	**The Conservation of Habitats and Species Regulations, 2017**	**Natural Environment & Rural Communities (NERC) Act, 2006**	**Protection of Badgers Act, 1992**
Plants (certain 'rare' species)	✓	✓[7]	✓	
Invertebrates (certain 'rare' species)	✓	✓[8]	✓	
White-clawed crayfish	✓		✓	
Great crested newt, natterjack toad, pool frog	✓	✓	✓	
Other amphibians	✓[9]		✓	
Sand lizard, smooth snake	✓	✓[10]	✓	
Other reptiles	✓[11]		✓	
Breeding birds	✓	✓	✓	
Wintering birds (certain 'rare' species)	✓	✓	✓	
Bats	✓	✓	✓	
Dormouse	✓	✓	✓	
Water vole	✓		✓	
Otter	✓	✓	✓	
Badger				✓

7 Nine species present in the UK, with very specialised habitat requirements, are European Protected Species.
8 Fisher's estuarine moth, large blue butterfly and lesser whirlpool ram's-horn snail are European Protected Species.
9 The four other native amphibian species (smooth and palmate newts, common frog and common toad) are only protected against trade under this act.
10 Smooth snake and sand lizard are European Protected Species.
11 The four other native reptile species (common lizard, slow worm, grass snake and adder) are protected against intentional killing, injury and trade under this act.

Appendix 2

Assessment Methodology: Valuing Ecological Features and Impact Assessment

The three-stage assessment method for determining ecological value is based upon assessment matrices published in the Handbook of Biodiversity Methods[12]. It has been updated to comply with recent changes to planning policy and legislation. The three-stage process allows the value of ecological sites, habitats and populations, and the magnitude of the impact, to be cross-tabulated to identify impact significance.

Valuing ecological sites, habitats and populations: scale and level of value

Scale	Level of value	Sites, habitats and populations
European	**Very High**	Statutory sites designated under international conventions or related national legislation, for example: • Wetlands of International Importance (Ramsar sites), • Special Areas of Conservation, • Special Protection Areas.
National	**High**	Statutory sites designated under national legislation, for example: • Sites of Special Scientific Interest (England, Wales, Scotland), • National Nature Reserves (UK). Significant viable areas of habitats, or populations or assemblages of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)[13] of such size and quality as might qualify for SSSI designation. Populations or assemblages of red-isted, rare or legally protected species, as might qualify for SSSI designation, for example: • species of conservation concern, • Red Data Book (RDB) species, • birds of conservation concern (Red List species), • nationally rare and nationally scarce species, • legally protected species.
County	**Medium**	Statutory sites of lower conservation value designated under national legislation, for example Local Nature Reserves (UK). Non-statutory sites designated under local legislation, for example: • County Wildlife Sites, • Local Wildlife Sites, • Roadside Nature Reserves (protected road verges). Viable areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)[14] of such size and quality as might qualify for designation at the county level. Other non-designated sites which meet the criteria for designation at this level.

12 Hill, D., Fasham, M., Tucker, G., Shewry, M., Shaw, P. (eds.) (2005) *Handbook of Biodiversity Methods: Survey, Evaluation and Monitoring*, Cambridge University Press.
13 Listed under S41 of the Natural Environment and Rural Communities Act 2006 http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx.
14 Listed under S41 of the Natural Environment and Rural Communities Act 2006 http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx.

District/ Borough[15]	**Lower**	Sites meeting criteria for metropolitan designations. Undesignated sites or features not meeting criteria for county designation, but that are considered to enrich appreciably the habitat resource within the local district or borough, for example: • ancient woodland, • diverse, ecological valuable and cohesive hedgerow networks, • significant clusters or groups of ponds, • veteran or ancient trees. Viable areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)[16] not qualifying for designation at the county level.
Parish	**Lower**	Areas of habitat considered to enrich appreciably the ecological resource within the context of the local parish. Small areas of habitat or populations of species of principal importance for the conservation of biodiversity in England and Wales (Section 41 species and habitats)[17].
Site only	**Negligible**	Ecological feature or resource not meeting any of the above criteria.

Note: there is much overlap in designations and lists of important species, and many sites, habitats and species appear on several. Where a site, habitat or species has multiple designations or levels of protection, normally the highest level would be the level at which impacts are assessed.

15 Including metropolitan boroughs.
16 Listed under S41 of the Natural Environment and Rural Communities Act 2006 http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx.
17 Listed under S41 of the Natural Environment and Rural Communities Act 2006 http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx.

Definitions of impact magnitude

Magnitude (negative or positive)	Definition/trigger
Severe	Loss or severe degradation affecting over 75% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 90% of a site feature, habitat or population, for example through disturbance or trampling.
Major	Loss or severe degradation affecting over 25% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 50% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of over 50% in a site feature, habitat or population.
Moderate	Loss or severe degradation affecting over 5% of a site feature, habitat or population. Adverse change to, or reduced condition of, over 10% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of 10-50% in a site feature, habitat or population
Minor	Loss or severe degradation affecting up to 5% of a site feature, habitat or population. Adverse change to, or reduced condition of, 1-10% of a site feature, habitat or population, for example through disturbance or trampling. For benefits, an impact equivalent in nature conservation terms to a gain of up to 10% in a site feature, habitat or population.
Insignificant	No loss of or severe degradation to a site feature, habitat or population. Adverse change to, or reduced condition of, less than 1% of a site feature, habitat or population. No benefit to a site feature, habitat or population.

Impact significance

	Magnitude of impact							
Value of site, habitat or population	*Severe Negative*	*Major Negative*	*Moderate Negative*	*Minor Negative*	*Insignificant*	*Minor Positive*	*Medium Positive*	*Major Positive*
European (Very High)	Severe Adverse	Severe Adverse	Major Adverse	Major Adverse	Neutral*	Major Beneficial	Major Beneficial	Major Beneficial
National (High)	Severe Adverse	Major Adverse	Major Adverse	Moderate Adverse	Neutral*	Moderate Beneficial	Major Beneficial	Major Beneficial
County/Metropolitan (Medium)	Major Adverse	Major Adverse	Moderate Adverse	Moderate Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Major Beneficial
District/Borough (Lower)	Major Adverse	Moderate Adverse	Moderate Adverse	Minor Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Moderate Beneficial
Parish (Lower)	Moderate Adverse	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
Minimal/negligible	Neutral	Neutral	Neutral	Neutral	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial

Where the impact significance falls below Minor Adverse, the term 'Neutral' is used.

*In some circumstances, some 'insignificant' impacts might fail legislative or policy tests and the impact would be greater than Neutral.

Appendix 3

ST MICHAEL & ALL ANGELS CHURCH

maintenance access gate to churchyard

bin collection

private road

Lychgate

self-clown

(turning head)

wild life area

enclosed parking units 1-6

footpath

Village Green

childrens play area

wild life area

access road

footpath

wild life area

woodland walk

The Street

Hollysides

Mandhari

Sianni

Elm Vale

NORTH

Flordon - Proposed Site Layout Plan

1118-Sk03 1:500 Aug 2018

DRAFT

CLA Architecture
Woodpecker Studio
Chapel Lane
Felthorpe
NR10 4DN

Tel : 01603 754526
Mob : 07968 168283
E-mail: chris.ling76@gmail.com

Appendix 5