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Ecological Report: Clarkes Farm, Hillington, Norfolk, PE31 6DS



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Declaration of Compliance

This report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct and British Standard Institution's (BSI) BS 42020:2013 *Biodiversity – Code of practice for planning and development*. We confirm that the opinions expressed within this document are our bona fide professional opinions.

The information which is being provided is a true representation of the survey methods used and the results assembled, with respect to the stated dates of survey and assessment. The future validity of this report is conditional on any changes which occur to the assessment site, and in any case will be limited by professionally accepted survey lifespans^{1,2}.

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¹ <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

² Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). The Bat Conservation Trust London. Section 2.6.3 Age of survey data (pg 20).

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. Non-Technical Summary

Norfolk Wildlife Services (NWS) was commissioned by Shaun Gayton of CBFA, on behalf of their client, to undertake an ecological impact assessment of an agricultural barn for its proposed conversion to residential at Clarkes Farm, Hillington, PE31 6DS. The purpose of this report is to describe the ecological baseline of the survey area and detail a summary of potential impacts to ecological receptors. Requirements for mitigation and a proposal for biodiversity enhancements have been provided within the report.

The Clarkes Farm barn was surveyed on 29/07/2020 and 18/08/2020 by NWS. Dusk bat roost emergence surveys were completed and the site was checked for barn owl activity and nests. A physical inspection of the barns prior to the first emergence survey found a light scattering of bat droppings in the barn as well as two barn owl pellets. The subsequent dusk bat roost emergence surveys then identified a small maternity roost and day roost for common pipistrelle.

The presence of the bat roosts requires the development of the site to be completed under a mitigation licence issued by Natural England, as to convert the buildings without such a licence would be an offence under Article 12(1) of the Habitats Directive and its UK enactment, the Conservation of Habitats and Species Regulations 2017. Due to the presence of the maternity roost, there will be restrictions on the timings of works which could disturb the roost. The roosts loss can be compensated for through bat boxes built into the fabric of the building and bat boxes mounted on trees within the landholding.

Barn owls were confirmed to be roosting within the barns, but no nests or nesting behaviours were observed. There is potential for the barns to be used by a small number of nesting passerines, and there is evidence of historic jackdaw nesting in the western portion of the barn. Clearance of the barn and repairs to walls and roof should be completed outside the nesting season, or being completed under a method statement with a qualified watching brief, to prevent potential nesting bird disturbance. Mitigation for barn owls is proposed by providing new roosting opportunities. The provision of two bird nest boxes is expected to compensate the loss of nesting opportunities.

No impacts to other protected species are anticipated from the proposed works.

There are no statutory designated sites within 2km of the site, but there are two County Wildlife Sites. No impacts are predicted to any designated sites as a result of the proposed conversion of the barn.

. Introduction

.. Description of the project

Norfolk Wildlife Services (NWS) was commissioned by Shaun Gayton of CBFA, on behalf of their client, to undertake an assessment of the barn at Clarkes Farm, Hillington, Norfolk, PE31 6DS (centred at grid reference TF 77403 24761; see Figures 1 and 2) in relation to its potential for use by protected species, particularly barn owls and bats. The barn is proposed for conversion to residential use.

.. Purpose

The objectives of the NWS impact assessment were to:

- Determine if bats are roosting in the barns and if so to determine the species, type, size of the roosts (as shown in Figures 1 and 2);
- Determine if barn owls are nesting in the barns (as shown in Figures 1 and 2);
- Determine use of site by protected species;
- Identify and describe all potentially significant ecological effects as a result of the proposal in relation to bats, barn owls and other protected species;
- Outline appropriate avoidance or mitigation measures for significant effects as a result of the proposal and how these could be secured, in relation to bats and barn owls;
- Clearly identify requirements to ensure compliance with nature conservation legislation;
- Set out any requirement for post-development monitoring.

Figure 1: Survey area location



Figure 2: Survey area (red line), buildings (orange and blue shading)



. Methods

.. Zone of Influence

The Zone of influence (Zoi) is defined by the CIEEM Guidelines for Ecological Impact Assessment (2018) as: “The areas/resources that may be affected by the biophysical changes caused by activities associated with a project”.

The Zoi for this projects considers multiple areas for the potential changes to ecological features as a result of the conversion of this agricultural barn to residential use (swimming pool). The extent of these areas are:

- Within the application site boundary (Figure 2) and immediately adjacent habitats for direct impacts to valued ecological features (e.g. habitats and protected species).
- Within a 2km radius of the application site boundary for designated nature conservation sites which may be indirectly impacted as a result of the proposed development.
- Within 250m of the development site for water-bodies potentially used by great crested newts, as based on the small-scale of the proposal.

.. Desktop study

A detailed desktop study was made of the survey area using the search criteria and sources described in the Table below in June 2020. It should be noted that an absence of records may only reflect an absence of survey data and cannot be taken as confirmation that a particular species is not present in the site or surrounding area.

Table 1: Desktop study searches

Search	Sources
A 2km search radius for designated sites and features of interest	Natural England Magic Map Application (www.magic.gov.uk) Norfolk Biodiversity Information Service
A 2km radius for significant records of protected and priority species and European Protected Species mitigation licences	Natural England Magic Map Application (www.magic.gov.uk) Norfolk Biodiversity Information Service
A 250m radius for extant waterbodies	Natural England Magic Map Application (www.magic.gov.uk) Google Earth Pro Ordnance Survey maps (1:10,000)
A 2 km radius search for Great Crested Newt Class Survey Licence Returns (England) and Great Crested Newt Pond Surveys 2017 - 2019	Natural England Magic Map Application (www.magic.gov.uk)

.. Field survey and establishment of baseline ecological conditions

The survey area was walked over and inspected on 29/07/2020 by John Harris MCIEEM (Level 2 bat survey class licence reference: 2015-13039-CLS-CLS).

The weather conditions were: 19°C; dry; Beaufort Wind Scale 2 - light breeze.

Ecological features within the survey area are shown on Figure 5 within the Results Section. Additionally, photographs of ecological features have been referenced within the Results Section and are shown in Appendix 2.

The following Table outlines the criteria used to assign a category to the presence of protected species within the survey area. Only protected species deemed to be relevant to the survey area are included in this report.

Table 2: Criteria for defining the presence of protected species within the survey area.

Category	Criteria
Negligible	Habitats are generally very poor quality or absent for the species. No recent, confirmed records in close proximity. Surrounding habitat unlikely to support good populations of the species.
Low	Habitats are of relatively poor quality or very small in size for the species requirements. Few or no records in the area of search. However, presence cannot be discounted on the basis of national distribution and / or suitable habitats within the ZOI.
Moderate	Habitats provide enough of the known key requirements for the species to be used frequently. Factors limiting presence include: small habitat area, low suitability of surrounding habitats, barriers to commuting and regular disturbance.
High	Habitats provide enough of the key requirements for the species to be used on a regular basis. Good quality surrounding habitat and good connectivity.
Present	Presence confirmed from the current survey or by recent, confirmed records.

.. Habitats

A Phase 1 habitat survey of the survey area was conducted, with habitats separated into broad groups and assigned Phase 1 Habitat codes where relevant (Joint Nature Conservation Committee, 2010).

The habitat survey was extended to include a search for suitable habitats for, and physical signs of, protected species including badgers, and reptiles.

.. Bat surveys

... Visual inspection

A visual search was made of the barns within the area of proposed works, for bat roost potential (e.g. cavities, holes, cracks or crevices) and signs (e.g. droppings and feeding remains). The assessment of bat roost potential is based on current Bat Conservation Trust guidance (Collins, 2016).

... Bat activity surveys

Two dusk bat activity surveys were completed following the Bat Conservation Trust guidelines (Collins, 2016), taking place on 29/07/2020 and 18/08/2020.

The surveys were completed on the whole barn. Three surveyors and a FLIR OTM 266 thermal camera were used for both surveys: John Harris (JH) MCIEEM (Level 2 bat survey class licence reference: 2015-13039-CLS-CLS), Ben Christie (BC) ACIEEM (Level 2 bat survey class licence reference: 2019-43514-CLS-CLS), Ben Moore (BM) ACIEEM (Level 1 bat survey class Licence 2019-39352-CLS-CLS) and James Allitt (JA) (Level 1 bat survey class Licence 2019-39478-CLS-CLS). The surveyor locations are shown in Figure 5 using initials.

Equipment used included Echo Meter Touch 2 Pro, Anabat SD1, BatBox Duet and Song Meter 4 FS bat detectors, and red-filtered torches. Access inside the barns was available during the surveys and an inspection for bats within the barns was carried out at the end of the activity surveys.

Weather conditions for both surveys were favourable for conducting bat surveys, with conditions on the 29/07/2020 being predominantly dry for the survey (a few spots of rain fell between 20:47 and 20:51), the temperature was 19°C and there was 90% cloud cover and Beaufort Wind Scale 2. Weather conditions during the survey on the 18th June were dry at the start of the survey with a period of light rain between 20:20 and 20:31, a temperature of 16°C, 100% cloud cover and Beaufort Wind Scale 1 (light air) which increased to 2 during the survey.

Sunset on 29/07/2020 was 20:55 and the survey was conducted from 20:40 to 22:25. Sunset on 18/08/2020 was at 20:17 and the survey was conducted between 20:00 and 21:37.

.. Birds

A barn owl survey was carried out, which consisted of a methodical search internally for barn owls or their signs (e.g. droppings and pellets at a roosting site and droppings, pellets, prey remains and feathers/down at a nesting site). An assessment was made of the potential for barn owl to be present within the site. The buildings were inspected for nesting/roosting barn owls before the bat surveys by John Harris, as an accredited agent under Natural England barn owl survey class licence reference CL29/00228NE.

An assessment was also made of the features likely to support breeding birds and Schedule 1 birds within the survey area.

.. Amphibians

A desktop search for ponds within 250m of the survey area was conducted using the Natural England Magic Map Application (Magic Maps) and Google Earth Pro.

Any suitable terrestrial habitat for great crested newts within the survey area was identified, and an assessment was made of the potential for the species to be present within the survey area.

.. Assessment of impact potential / risk

Potential impacts on ecological features are characterized using the following criteria.

Positive or Negative

The definition of a positive or negative impact/effect is as per CIEEM (2018):

- *“Positive – a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality. This may also include halting or slowing an existing decline in the quality of the environment.*
- *Negative – a change which reduces the quality of the environment e.g. destruction of habitat, removal of foraging habitat, habitat fragmentation, pollution.”*

Spatial Extent

The spatial extent of an impact's predicted effects are estimated according to the following categories: international and European; national; regional / river basin district; county; local planning authority district; local (\approx parish); site (within the proposed development boundaries).

Magnitude

- **Major** – an impact which is predicted to have a crucial effect (positive or negative) on a designated conservation site, habitat or species population within a specified spatial extent. Normally the effect will be considered either long-term (potentially reversible) or permanent.
- **Moderate** – an impact which is predicted to have a modest effect (positive or negative) on a designated conservation site, habitat or species population within a specified spatial extent. Normally the effect will be considered temporary in either the short- or medium-term, and reversible.
- **Minor** – an impact which is predicted to result in a slight but unimportant effect (positive or negative) on a designated conservation site, habitat or species population within a specified spatial extent. Normally the effect will be considered to be short-term and reversible.
- **Neutral** – a 'non-impact', with no appreciable effects on a designated conservation site, habitat or species population.

Duration

The duration of an impact's predicted effect may be quantified, or else broadly defined as either short-term, medium-term, long-term or permanent.

. Results

.. Desktop study results

The following designated site records (in Table 3) were found within the area of search (see Figure 4). There are two county wildlife sites (CWS), one roadside nature reserve and no statutory designated sites within 2km of the site.

Table 3: Desktop search results – designated sites

Site name	Details	Source
Nut Wood – CWS ref 554	This is an area of plantation woodland with a well-developed coppice layer. The canopy is dominated by oak (<i>Quercus robur</i>) over an understory of hazel (<i>Corylus avellana</i>) coppice The site is 920m south east of the proposal	NBIS
Harpley Chark Pit – CWS ref 2292	This is a site composed of two pits: pit 1, to the west, has an exposed chalk face and large areas of calcareous grassland with scrub on the sides, while pit 2, to the east, is covered in dense scrub with some tall overgrown coppice trees. Between the top edge of pit 1 and the fence which surrounds it is an area of calcareous grassland, The site is 450m north of the proposal	NBIS
RNR 38	This RNR lies on the north side of a busy A-road and extends 250m. The RNR consists of a cutting which is raised from the level verge. It is backed by scrub. The whole verge runs from west to north-east and is situated in an arable landscape. The site is 790m to the north of the proposal	NBIS

The following species records were found within the area of search.

Table 4: Desktop search results – species

Species	Location details	Source
Bats (9 species)	26 records within 2km, including Western Barbastelle <i>Barbastella barbastellus</i> , Serotine <i>Eptesicus serotinus</i> , Whiskered/ Brandt's Bat <i>Myotis mystacinus/brandtii</i> , Daubenton's Bat <i>Myotis daubentonii</i> , Natterer's Bat <i>Myotis nattereri</i> , Noctule Bat <i>Nyctalus noctula</i> , Leisler's Bat <i>Nyctalus leisleri</i> , Common Pipistrelle <i>Pipistrellus pipistrellus</i> , Soprano Pipistrelle <i>Pipistrellus pygmaeus</i> , Brown Long-eared Bat <i>Plecotus auritus</i> .	NBIS
Badger	No records	NBIS
Reptiles	No records	NBIS
Great crested newt	No records from record search No records from NE class licence returns or pond survey. No ponds in 250m	NBIS Magic.gov OS maps
Hedgehog	7 records in data search	NBIS
Brown Hare	13 records returned	NBIS

Magic.gov shows one granted European Protected Species mitigation licences within 2km of the proposed development site. This was for bats covering barbastelle, brown long-eared bats and common pipistrelle. The licence reference was 2017-27421-EPS-MIT, the licence was issued on 16/04/2017.

.. Field survey results

... Habitat survey of the site and surroundings

The survey site is set in an arable landscape. The large field to the west and north is currently used to farm pigs and is predominantly bare ground. To the east are large arable fields. The access track is lined on either side by hedgerows with mature trees.

A concrete yard wraps round the eastern and southern side of the barn (Photos 1 and 7). This yard is walled, and the wall is tied into the barn enclosing the area (Photos 1, 3 and 7). To the west and north of barn is used to access the field to the west and is bare ground with small areas of weeds such as nettles and willow herb, and common grasses such as annual meadow grass, cock's-foot and creeping bent. There is a shallow dry ditch adjacent to the western wall which follows the wall to the gate in the south.

To the south of the site is a farmhouse with a pantile roof.

No signs of badger were seen and there was judged to be no suitable habitat within the site for them. The site was also deemed to have no suitable habitat for amphibians, reptiles or brown hares.

... Buildings – Visual inspection for bat roosting potential

Within the proposal site there are three structures, two metal container cabins and the traditional barn (Photos 1 to 5). The metal container cabins have no bat roost potential (Photos 1 and 4).

The barn is made up of a main barn, which is a double-storey barn, with a single storey extension off the eastern half of the northern wall. Off the southern side of the main barn is a single-storey projection on the eastern portion of the barn. The barn walls are predominantly cobble flint with brick quoins and other sections. The main barn is gable ended with a lined pantile roof. The walls are generally in good condition, with only a few cracks and crevices; no signs of bats were observed in any of the cracks which were within reach for searching. There are no windows in the barn but there are narrow ventilation slits near the eaves. The northern gable of the extension is single-skin timber cladding (Photo 3). There is a large rolling door on the north side of the barn and a double wooden door on the southern aspect (Photos 1 and 2). There is a doorway connecting the main barn and the northern extension internally. The extension has a double wooden door on the northern gable that opens onto the field.

Inside the barn is dirty and dusty, and there is no enclosed roof void. The roof timbers are well fitted and machined, and so offering no bat roosting potential where they are joined (Photo 5). A light scattering of bat droppings (circa 20) was found inside the barn. There were no feeding remains aggregations or droppings clusters found.

The barn was determined to have moderate roosting potential for bats.

... Bat activity surveys

29/07/2020

Two common pipistrelle emerged from near the ridge of the main barn, at the eastern end of the ridge, at 21:10 and 21:21. Another four common pipistrelles emerged from under a tile on the low portion of the roof of the main barn projection at 21:22 (2 bats), 21:23 and 21:44. One common pipistrelle emerged over the top of the double doors on the southern aspect of the barn at 21:22. The three roost sites have been classed as a maternity roost in 3 locations.

The locations of the bat roosts are shown on Figure 5 and in Photo 6.

Small numbers of common pipistrelle bats were observed foraging around the pond and up and down the lane to the east of the barn. The survey also recorded social calls.

18/08/2020

There were no confirmed bat emergences during the survey. The survey did record common pipistrelle foraging around the site, and social calls from bats flying around the barn. The first bats were observed at 20:24 a few minutes after sunset. The house to the south of the site is likely to be used by bats as is also pantile roofed. Bats were observed foraging up and down the lane to the east of the barn.

Table 5: Summary of bat roosts within the Clarkes Farm barns

Area	Species	Count/estimate of individuals	Roost location	Roost status	Conservation significance (Mitchell-Jones, 2004)
Ridge of main barn roof	Common pipistrelle	2	Under tiles near ridge on eastern end of barn	Maternity (small)	Moderate
Lower roof of southern projection of main barn	Common pipistrelle	4	Under tile		
Inside barn	Common pipistrelle	1	Inside barn		

... Barn owls

Installed in the western side of the barn, up in the rafters, is a barn owl box (Photo 5). Two fresh (from 2020) pellets were found inside the western portion of the barn under the nest box.

No barn owls were observed during the bat surveys on the 29/07/2020 or 18/08/2020.

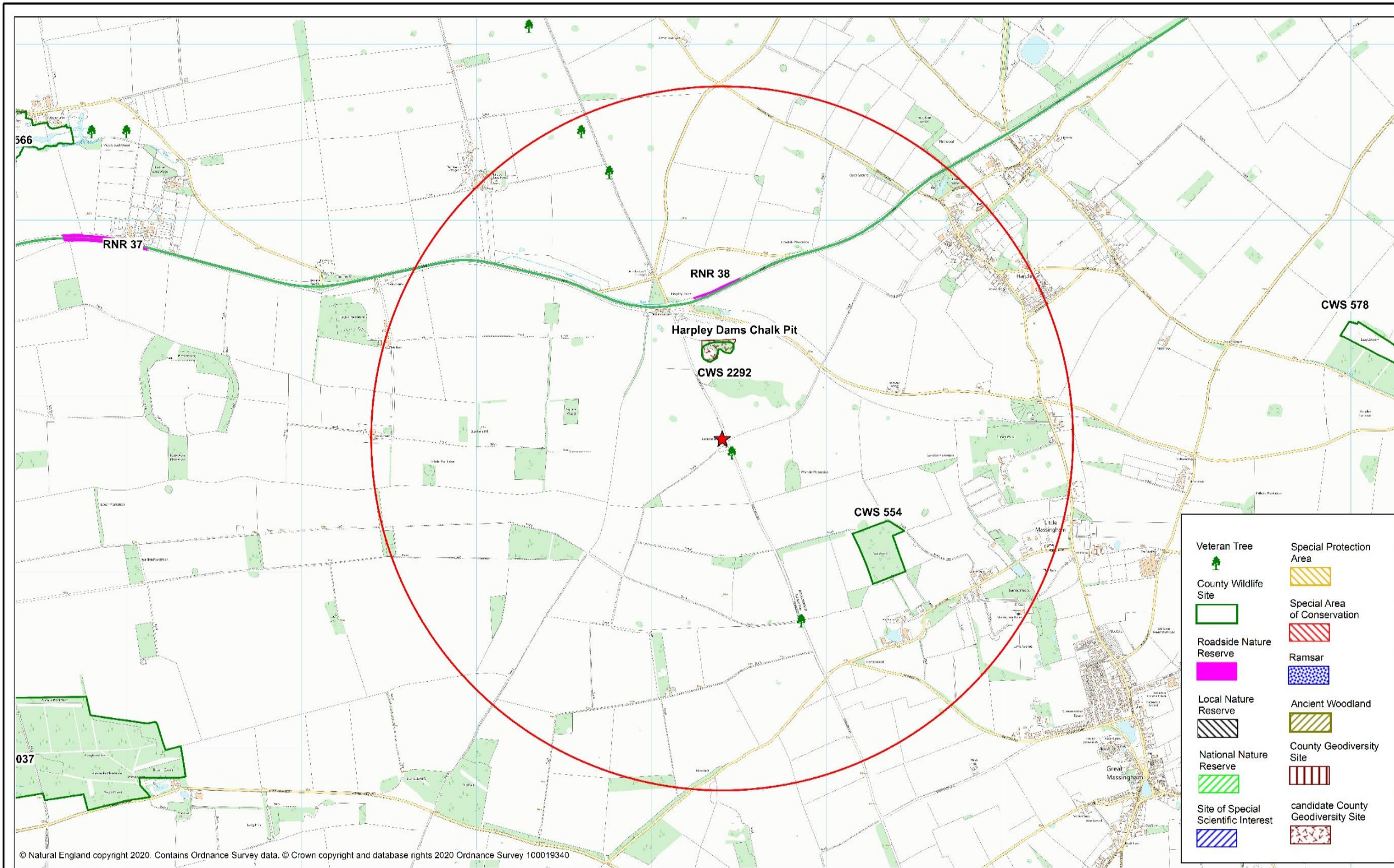
.. Limitations

Although there were short periods of light rain during the surveys, bats were still recorded flying around the site, and so it was decided that this did not cause any significant constraints to the surveys.

.. Further survey recommendations

No further surveys are required.

Figure 4: Designated sites data search result

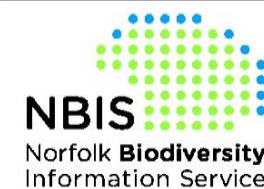


2km Data Search Around TF77405 24760, Hillington

for Norfolk Wildlife Services

Scale 1:20000

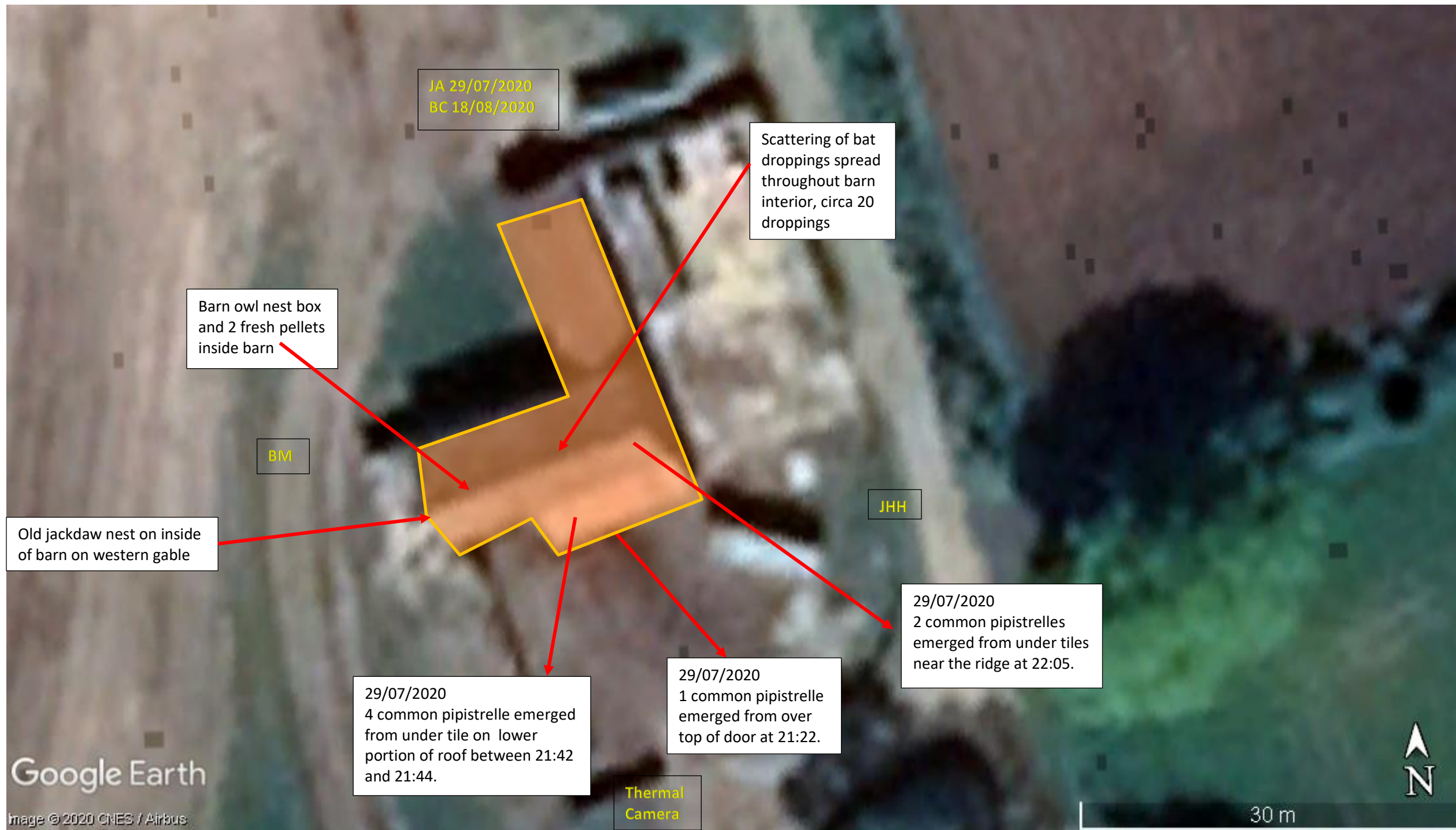
Compiled by L. Oddy on 18 September 2020



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Figure 5: Bat survey surveyor locations and results (JHH, BM and thermal camera were in the same locations for both surveys)



. Ecological Impact Risk Assessment

.. Potential impacts

... Bats

A small maternity roost for common pipistrelle would be permanently destroyed by the proposed development. Without mitigation measures, the proposed conversion works are estimated to cause *moderate negative* impacts on the local population of common pipistrelle. The statutory protection afforded to bat roosts requires mitigation measures.

Foraging bats could be impacted as a result of potential illumination of the boundary hedgerows and ponds by the inhabited dwelling, and this could be a permanent impact (Stone, 2013). However, the proposal is for a residential unit with typically limited exterior lighting, so any impacts to foraging behaviour on the local populations are predicted to be no more than *minor negative* in magnitude at the site level.

... Birds

Nesting use of the buildings is considered highly likely during the breeding bird season, as historic evidence of jackdaw nesting was observed. Potential impacts on breeding birds would largely be limited to minor negative displacement effects to on-site populations through the loss of the inside of the barn as a nest site for passerines. It is anticipated that the loss of resource will not be significant and is considered to be temporary as there is ample nesting opportunity in the surrounding landscape. Nonetheless, disturbance of active bird nests is prohibited by law, and appropriate mitigation measures during construction activities will need to be taken to avoid it happening.

Barn owls were not observed nesting on site, but the conversion of the barns will prevent barn owls from roosting within the structures. This displacement is anticipated to be a *minor negative* impact to the local barn owl population.

... Amphibians and reptiles

Amphibians (including great crested newts) and reptiles are considered likely absent from the development site, due to the surround land use and lack of suitable habitat within the site. The wall around the yard also acts as a barrier to animals entering the site. No impacts to these species are predicted, i.e. a *neutral* impact.

... Priority species

The site is comprised of a hard-standing yard which is walled. There are no suitable habitats within the complex for priority species such as hedgehogs and brown hare, and the yard wall will deter animals entering the site. A *neutral* impact is anticipated.

... Badgers

No signs of badger were seen in or adjacent to the site and there are no suitable habitats within the complex for badgers to use and the wall around the buildings will deter animals entering the site. A *neutral* impact is anticipated.

.. Cumulative effects

The proposal is considered to be on a small-scale. No significant development projects expected to impact the same populations of protected species were found in the vicinity. Therefore, no cumulative effects are predicted.

.. Mitigation measures

... Bats

Bats are roosting within the barn targeted for conversion. Based on the locations of the bat roosts and the works proposed, a European Protected Species (EPS) mitigation licence for bats will be required for the works to proceed lawfully.

Exact details of the mitigation requirements will be determined during the licence application process. Following the English Nature Bat Mitigation Guidelines (Mitchell-Jones 2004), the appropriate mitigation/compensation requirement for the level of impact currently predicted would be, "*Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred*". If it is not possible to incorporate a suitable new roost feature into the converted barns, the new roost could be placed within an outbuilding. This is not the preferred solution and would need to be fully justified within the licence application to Natural England.

If the conversions are to retain traditional roof pantiles (as is expected), then type F1 bitumen felt will be required as the roofing liner. It will not be possible to gain a licence to do the works if breathable membrane is used on any part of the development where bats maybe able to come in to contact with it.

A wildlife-sensitive lighting scheme, as per recent Institution of Lighting Professionals and Bat Conservation Trust guidance (Ferguson et al. 2018), will be adopted for the operational dwellings. This includes, but is not restricted to, ensuring that any lighting on the site avoids using lights with blue-white short wavelength and/or high UV contents, as these have a negative impact on insects and so could affect long-term foraging resources for bats. Any buildings or pathways on the facility which do require lighting will be lit with LED lights with no horizontal and upward spill; small bollard lights could be installed provided they have low mounting heights. Security lighting will be set on PIR motion-sensor switches and have short (1 min) timers.

... Barn owl

The proposed mitigation is based on the guidelines as set out by the Barn Owl Trust Guide (2015). A barn owl nest box is to be installed as soon as possible, but at least 30 days before the commencement of works. The box is to be within 200m of the barn and within a clear line of site. The new box should be kept free from disturbance by protection measures such as signage and fencing.

The box should look to be installed on one of the following locations in order of preference

- i) In a suitable building. If there are no suitable buildings -
- ii) In suitable tree. If no suitable trees then -
- iii) On a pole.

... Birds

The repairs the building will aim to avoid the main nesting period from 1st March through 31st August. If such timing is not possible then the areas proposed for works will be checked for evidence of active nesting by a suitably qualified ecologist prior to any work commencing. If nesting birds are present, the nest area will be cordoned off and left undisturbed until the birds have fledged or the nesting attempt has reached a natural conclusion.

The development will provide at least two bird boxes on the building or on trees within the landholding.

.. Mitigation licensing for European Protected Species

Bats are a European Protected Species as they are listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Mitigation licences allowing derogations from the protection afforded to EPS relating to development issued under Regulation 55(9) of the Conservation of Habitats and Species Regulations 2017 can only be granted in cases where the activity meets the following three tests.

1. Overriding public interest

The overriding public interest of the proposed development project is derived from it converting a mostly redundant and deteriorating complex of agricultural building into residential use, thus providing social benefits (increased housing stock) and economic benefits for local builders and suppliers. The cost would be negative ecological impacts which are rated as being of a moderate/minor local magnitude but amenable to effective mitigation and compensation under an EPS mitigation licence.

2. There is no satisfactory alternative

The proposal is to carry out conversion of an agricultural barn into a residential development. The alternatives to the proposed works are:

- a. Do nothing and leave the building as it is. This option would be a disappointment for the property owners, leaving potentially useful structural assets to continue under-used and to deteriorate (as there would be no purpose to repairing them). There would be no new provision of housing stock. There would be no immediate related impact on bats.
- b. Undertake the works but avoid the bat roosts entirely. This is considered to be unfeasible - redeveloping the site but leaving alone the sections of the barns with no observed bat activity would only allow for the conversion of a single-story portion of the barn.

3. The resulting permitted actions will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range

The surveys identified a small maternity roost (7 bats) of common pipistrelle, which is a relatively common bat species. Roost compensation will be created for the destroyed roosts. There is no reason to expect that the favourable conservation status of the local common pipistrelle population would be detrimentally impacted by the proposal if carried out under EPS mitigation licence conditions.

.. Residual impact assessment

Table 6: Residual impact risk assessment

Receptor	Potential impact	Mitigation	Residual impact
Bats	Negative impact from the loss of a small maternity roost, and potential harm to any bats present during construction activities.	Carry out the works under the conditions of an EPS mitigation licence. Provide bat boxes as compensation roost features.	Short-term minor negative impact, long-term neutral outcome.
Barn owls	Disturbance and destruction of a roost during construction. Minor negative impact at a local level.	Installation of new barn owl nest box within 200m of existing site.	Short-term minor negative impact, long-term neutral outcome.
Birds	Disturbance and destruction of nests during construction. Minor negative impact at a local level. Disturbance during the operational phase is anticipated to be neutral.	Timing of clearance works outside the nesting season, or else work within nesting season to be checked first and exclusion zones set up around nests to reduce disturbance risk. Provision of two bird boxes.	Short-term minor negative disturbance and displacement to local population during construction phase of project.

. Enhancements

No biodiversity net gain (BNG) calculation requirements are included within this project due to the small scale of the project (less than 0.5ha). Such small developments are expected to be excluded from any requirement to meet a 10% BNG in respect to the DEFRA net gain consultations (Consult Defra 2020).

. Recommendations for ecological planning conditions

It is recommended that a relevant condition of planning approval is stated, specific to roosting bats and requiring the mitigation measures set out within this report.

. Conclusions

Norfolk Wildlife Services was commissioned to undertake an ecological assessment of the barn at Clarkes Farm in Hillington, which is being proposed for conversion to a residence. An impact assessment of the proposed development in regards to protected species makes the following predictions:

- The proposed site has small numbers of common bat species roosting within the buildings and foraging around the site. One of the roosts is a small maternity roost for common pipistrelle.
- A negative impact on bat roosts by conversion of the barns will need to be mitigated under an EPS mitigation licence. There will be a restriction on the timing of works to avoid roost disturbance during the maternity season. A new maternity roost feature (e.g. integrated bat box) will be required to compensate the impact to the common pipistrelle maternity roost, and breathable membranes cannot be used for the re-roofing.
- There is a potential for a minor negative impact to any on-site bat population via light disturbance from the residences, which is to be mitigated by adopting a wildlife-sensitive lighting scheme.
- The barns are also used as a barn owl roost site. No barn owl nests were observed within the barn. A minor negative impact to barn owls is predicted through the loss of roosting due the conversion of the barns; this is to be mitigated by the installation of a new barn owl nest box.
- There is a potential for a minor negative impact on nesting birds, which is to be mitigated by the timing of the works, or else by a preceding watching brief to confirm nest absence.

No biodiversity net gain calculation requirements are included as due to the small scale of the project.

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Appendix 1: Relevant Legislation and Policy Guidance

Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 (as amended), Section 9, offers protection from intentional or reckless actions upon species listed on Schedule 5 or Schedule 8. Schedule 5 listed species have different degrees of protection depending on whether they are protected by Section 9.1, 9.2, 9.4 or 9.5.

- Section 9.1 - animals protected from killing or injury; includes water vole, grass snake, common lizard, slow-worm and adder.
- Section 9.4a - animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection; includes water vole.
- Section 9.4b - animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection; includes all bat species, hazel dormouse, otter and water vole.
- Section 9.4c - Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed; includes all bat species, hazel dormouse, otter, water vole, great crested newt and natterjack toad.

All birds are protected from destruction of their nests (with minor exceptions) under the Wildlife and Countryside Act 1981. A higher level of disturbance protection is extended to Schedule 1 species, such as barn owls, and their active nest sites.

Plants listed under Schedule 9 of the act are invasive and generally need controlling on a development site. It is an offence to “plant or otherwise cause to grow in the wild”, the invasive species listed on this schedule. Disposal of the plants or soil contaminated by them may need to be to a controlled waste site.

Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 consolidate the various amendments made to The Conservation (Natural Habitats, &c.) Regulations 1994 in England and Wales. This implements the European Habitats Directive (EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna). The updated legislation affords very strict protection to Annex IV listed species (e.g. all species of bats, hazel dormouse, otter, great crested newt and natterjack toad).

Developments that are likely to have a significant impact upon Annex IV listed species (e.g. bats and great crested newts) require a European Protected Species mitigation license from Natural England in order for the development to legally proceed.

Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities Act 2006 (NERC) came into force on 1 October 2006. Under Section 40 of the Act, all public bodies (including planning authorities) now have a legal duty to consider biodiversity in their work (i.e. a material consideration for planning applications). As such, in order to increase the likely success of any planning application, consideration should be given to enhancing the biodiversity value of the site following redevelopment. Section 41 lists priority (Principle Importance) habitats and species which are to be particularly considered with respect to potential impacts, and may include species which are not otherwise protected by UK legislation.

Appendix 2: Photographs



Photograph 1: Southern aspect of barn – yard flood due to heavy rain earlier in day on 18/08/2020



Photograph 2: Western and northern aspects of barn



Photograph 3: Northern and western aspects of single storey extension



Photograph 4: Eastern aspect of the barn look north from the south eastern corner – edge of metal container cabin



Photograph 5: Barn owl box (centre) and old jackdaw nest on western gable (lower right).



Photograph 6: Zoomed photo (photo 1) of roof to highlight emergence locations depicted by yellow circles



Photograph 7: Walled yard