PRELIMINARY ECOLOGICAL APPRAISAL

BAT RISK ASSESSMENT

NORTHFIELDS FARM

SHIPTON

GLOUCESTERSHIRE

BOM-RSL-23-10

SEPTEMBER 2023

Bombus Ecology

50, Mackie Drive

Guisborough

North Yorks.

TS14 6DJ

PRELIMINARY ECOLOGICAL APPRAISAL

BAT RISK ASSESSMENT

NORTHFIELDS FARM

FOXCOTE

SHIPTON

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GL54 4LL

GRID REF

SP 02844 17259

REPORT FOR

RURAL SOLUTIONS

Quality Assurance

Version	Prepared by	Date	Checked by	Date	Approved by	Date
R1	David Pollard	05/09/2023	Holly Pollard	05/09/2023	Sarah Woods	05/09/2023
R2						

This report is intended to provide an accurate description of findings from survey work undertaken on the date shown in the report; however, it cannot fully account for any changes to site conditions following the completion of the survey work due to activities carried out on site or the dynamic nature of the natural environment. All work carried out by Bombus Ecology is subject to our Terms and Conditions.

The report has been produced in accordance with current best practice guidelines

Contents

1. Introduction

1.1: Due to a series of legal protections, it is illegal to cause disturbance or harm to many species across the whole of the UK, including nesting birds, bats of all UK species, great crested newts, badgers and many others. In order to determine the possible impact that development works or other land management proposals may cause, an ecological assessment is necessary to identify the species using the site, ways in which these species may be at risk, and potential avoidance, mitigation or compensation measures required during the planned works on site. The aim of this report is to provide the above listed information and to inform future works taking place on the proposed site, in terms of habitat protection and ecological enhancement (biodiversity net gain).

LEGISLATION

1.2: Within the UK, there is a suite of environmental legislative acts concerned with the protection, conservation and enhancement of the ecological and environmental factors present within our rural and built environments. The Wildlife and Countryside Act (1981) is the primary legislation for protection of wildlife within the UK and refers to the treatment and management of protected species listed as Schedule 1 (birds), 5 (mammals, reptiles, fish and invertebrates) and 8 (plants). Section 9 is arguably the most important part of the legislative act, as it states 'It is an offence to intentionally kill, injure, or take a scheduled species that is living wild at the time; to possess a scheduled species; to damage, destroy or obstruct access to the place of refuge used by the protected species.'

1.3: The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 is the English enactment of European legislation and provides similar but subtly different protection for species listed on Schedules 2 and 4 of those regulations. A recent change in this legislation means that the provisions of this act now complement those of the Wildlife and Countryside Act more. Species to which these provisions apply are the European Protected Species, examples of this include any of the Bat species within the UK and Great Crested Newts. Activities that might cause offences to be committed can be legitimised by obtaining a licence from the relevant statutory body.

1.4: All British bat species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 and are afforded protection under Section 9 of this Act. In addition, all British bat species are listed on Schedule 2 of The Conservation of Habitats and Species Regulations 2019 and are protected under Regulation 39 of these Regulations. They make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and

Flora 1992, under which bats are included on Annex IV. The Act and Regulations makes it an offence, inter alia, to:

- Intentionally kill, injure, take (handle) or capture a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not) – under the Habitats Regulations it is an offence to damage or destroy a breeding site or resting place of any bat; or
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection – under the Habitats Regulations it is an offence to deliberately disturb a bat (this applies anywhere, not just at its roost) in such a way as to be likely to affect its ability to survive, breed, reproduce, rear or nurture its young, or hibernate.

1.5: Badgers also have their own specific piece of legislation, the Protection of Badgers Act (1992), and there are other species that also have their own specific legislation.

1.6: Other important pieces of legislation that are important to protecting and conserving the environment as a whole within the UK and in some cases Europe include the Ramsar Convention on Wetlands (1971), Convention on the Conservation of Migratory Species of Wild Animals (1979), Convention on Biological Diversity (1992), The Countryside and Rights of Way Act (2000) and the Plant Health Act (1967, amended 2008). This is by no means an exhaustive list, but these are the most important legislations with regards to the ecological protections of the UK countryside.

BIOSECURITY

1.7: Biosecurity is important when entering any land, or other premises where there is a risk of spreading pests. Primarily, the goal of biosecurity is to prevent, control and/or manage risks to life and health. Food safety, zoonoses, the introduction of animal and plant diseases and pests, and the introduction and management of invasive alien species are all possible aspects relating to biosecurity, and it is of vital importance that measures are taken to prevent the spread of disease, loss of biodiversity and introduction of pests and pathogens.

1.8: Biosecurity measures are a series of precautionary steps designed to reduce the risk of transmission of harmful organisms. Good biosecurity practice refers to ways of working that minimise the risk of contamination and the spread of pests and invasive plants. The term pest in this case should be taken to include all invertebrate, bacterial or fungal organisms that are harmful.

1.9: When conducting all on site survey work, appropriate biosecurity measures are employed to prevent breaches of biosecurity and the potential spread of harmful pests and disease. A detailed brief on our biosecurity measures and qualifications is available on request.

2. Site Context

2.1: The site, known as Northfields Farm, is located at Foxcote, Shipton, Gloucestershire GL54 4LL at Grid Reference SP 02844 17259 (Figure 1). This can be accessed via a private road off Withington Road. The plans for this site include the redevelopment of the barns.

2.2: Bombus Ecology was commissioned to carry out a Preliminary Ecological Appraisal/Bat Risk Assessment of the target buildings at Northfields Farm, in order to identify the current ecological value of the site and any potential issues that will need to be mitigated or compensated for as a result of the planned works, as well as providing the basis for a suite of ecological habitat enhancement which is a key aim of the project.

FIGURE 1. Surveyed Area indicated by the red line above.

3. Methodology

3.1: During the course of our Preliminary Ecological Assessment, we use two main methods of survey: field based and computer based. When conducting these surveys we ensure that we adhere to all guidelines set out by the appropriate expert bodies, including Natural England, the Bat Conservation Trust, The British Trust for Ornithology and the Amphibian and Reptile Conservation Trust to name a few. In accordance with best practice, levels of wildlife disturbance caused when conducting these surveys are kept to an absolute minimum and appropriate biosecurity measures are assessed and put in place.

FIELD SURVEY

3.2: The field-based survey consists of an initial walkover survey conducted over the proposed site to identify the presence of any protected species or habitats, as well as to identify any invasive species that may be present and any possible detrimental impacts on site that the proposed works may cause. Any ponds and watercourses within the immediate vicinity of the site would also be assessed for their value to protected species, and if deemed necessary a habitat suitability index would be carried out. Through this initial field based survey, the need for further species specific surveys would be confirmed and it would also be determined if any alternate biosecurity methods would be necessary for future site visits.

COMPUTER BASED SURVEY

3.3: The computer based survey is carried out using data sets from open source resources such as OpenStreetMap, the Ordnance Survey OpenData, the governmental open data download portal and the Multi-Agency Geographical Information for the Countryside web portal (MAGIC) which collates datasets from a wide variety of governmental and non-governmental organisations including DEFRA, Historic England, the RSPB, the Forestry Commission and the Environment Agency to name a few. Designated areas within the near vicinity of the site are important to know in case of any impact that may be caused through the planned future use of the site and any proposed works to take place. From this information, a landscape scale map is produced using geographical information services (GIS) software to illustrate and investigate the distances and geographical barriers between the site and the designated areas, in order to determine any potential impacts.

PROTECTED SPECIES SURVEY

3.4: Based on the habitats present, the site was assessed with particular regard to determining the presence or otherwise of badgers (*Meles meles*), bats, great crested newts (GCN) (*Triturus cristatus*), nesting birds, and reptiles. An overview of the survey methods used is outlined below.

3.5: Badgers:

An assessment of the site and surrounding habitats (where access was available), with a focus on any areas of dense vegetation, was carried out in order to identify any evidence of badgers, including:

- the presence of any setts
- well-used runs/tracks
- supplementary evidence, such as hairs or prints
- badgers themselves

Any badger holes found during the survey were classified in accordance with standardised survey guidelines (Harris *et al.*, 1989), being grouped into setts, where applicable, and categorised in terms of the type of sett (in descending order of significance: main, annexe, subsidiary, outlier) and the level of use of each hole (well-used, partially-used, disused).

3.6: Bats:

An assessment of the target buildings were carried out to identify the presence of any Potential Roosting Features (PRFs) for bats, and/or evidence of roosting bats, following the guidelines provided by the Bat Conservation Trust (BCT) (Collins, 2016). An external inspection of the building was carried out, focussing on features that may provide roosting opportunities or access points to roosting features internally, such as the roofing materials, soffits, fascias, barge boards and any lead flashing if present. An internal inspection was also carried out for any evidence of bats. The target building is categorised in accordance with BCT guidelines, detailed in Table 1 below.

Features that are symptomatic of bat use include bat droppings in around or below an entrance hole, staining around an entrance hole, small scratches around an entrance hole, audible squeaking at dusk or in warm weather, smoothening of surfaces around the cavity of an entrance hole and the distinctive smell of bats. The bat risk assessment was completed using ladders, binoculars and a powerful torch. An endoscope was also available to check any small gaps/cracks for evidence of bats.

A preliminary ground level roost assessment of any trees if present within an impact zone or directly adjacent to the barns was also carried out to identify the presence of any PRFs for bats, such as split bark, woodpecker holes and other cavities for bats and/or evidence of roosting bats. All trees assessed were categorised in terms of their value in accordance with the current Bat Conservation Trust (BCT) survey guidelines (Collins, 2016), shown in Table 1.

Table 1. Guidelines for assessing bat roosting potential of structures and trees

Suitability	Habitat description	Further action required?
Negligible	Negligible habitat features on site likely to be used by roosting bats.	No further bat risk assessment effort or bat activity surveys are required.
Low	A tree of sufficient size and age to contain PRFs, but with none seen from the ground or features seen with only very limited roosting potential.	**Trees:** No further bat risk assessment effort or bat activity surveys are required.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection conditions and surrounding habitat, but unlikely to support a roost of high conservation status.	Two bat activity surveys are required to determine whether the structure or tree is being utilised by roosting bats; this should be comprised of one dusk and one dawn survey. One survey must occur between May and August.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three bat activity surveys are required to determine whether the structure or tree is being utilised by roosting bats; this should be comprised of one dusk and one dawn survey, with an additional survey (either dusk or dawn). Two surveys must occur between May and August.

The activity survey followed the internal/external inspection and was completed by Director of Ecology David Pollard MRSB who is a Level 2 (2017-29217-CLS-CLS) Licensed Bat Surveyor and has over 25 years' experience in bat survey work. He was assisted in this commission by Ecologist Holly Pollard who is an experienced bat surveyor (6 years) currently working towards her first bat licence.

The equipment used for survey and call analysis included: 'Echometer' Touch Detectors recording in RTE, Anabat Express recording in Frequency Division and Bat Box duets. Surveyors took up position close to the building for 30 minutes prior to and for 2 hours after dusk. At any one time all areas of the roof and external area of the target buildings deemed to hold risk were being observed. Visual observation of bat activity were noted using night and thermal vision units and bat species were identified using bat detectors. The information recorded included weather, timings, whether bats emerged from or entered the building, direction of travel, species and activity: foraging or commuting. The surveys were carried out under suitable conditions (mild, no rain or strong wind) in which bats would be active.

3.7: Great Crested Newts:

An assessment of the habitats present on the site was carried out in order to determine their suitability to support GCN and any natural or artificial refugia (such as logs, stones, discarded building materials etc.) present were also lifted to check for the presence of GCN.

3.8: **Nesting Birds:**
The habitats on site were assessed to determine their suitability for nesting, with a check carried out for the presence of any active nests or any evidence of nesting behaviour.

3.9: **Reptiles:**
The assessment for reptiles followed a similar methodology to that for GCN, with an assessment of the habitats present carried out to determine their suitability to support reptiles, and with any refugia lifted to check for the presence of reptiles or evidence of reptiles, such as sloughs (shed skins).

3.10: **Other Wildlife:**
In accordance with good practice, the site was checked for the presence of any other protected/notable species, with a regard to any other species highlighted in the desktop study.

3.11: **Invasive Species:** The site was also surveyed for the presence of any invasive, non-native flora or fauna.

4. Results

4.1: The survey was carried out on the 22nd of June 2023 by Director of Ecology David Pollard BSc (Hons) MRSB and was assisted in this commission by Principal Ecologist Sarah Woods BSc (Hons) MSc AMRSB MRES and Ecologist Holly Pollard.

4.2: The weather conditions at the time of the field survey initially were cool and rainy with a temperature of 23° C, and as such were suitable for this initial walkover survey. There were no constraints with regards to access on the site. All survey and biosecurity guidelines were adhered to. The results of the field and computer-based study are as listed below.

ECOLOGICAL FEATURES ON SITE

4.3: The site consists of a medium sized farm curtilage including associated barns, stables and storage buildings.

4.4: The target buildings are predominantly modern construction i.e. corrugated metal sheeting/corrugated asbestos Yorkshire boarding, skylights etc all of which are sub optimal for bats. The exception to this is a large stone barn with a metal roof this had a number of potential PRFs and this was the focus of the emergence survey. The southern end of this barn had no roof. Around the curtiledge were a number of derelict buildings i.e. wall structures with no roofs.

4.5: The large stone built barn housed a grain sorting machinery behind a large door opening which led to ambient light throughout the barn.

4.6: Within all the farm buildings there were no signs of bats but commensal species of birds were noted nesting i.e. hirundines, and a kestrel fledgling

4.7: Around the hard standing there are small areas of tall ruderal type vegetation. Including species like broad leaved dock *Rumex obtusifolium*, yarrow *Achillea millefolium,* spear thistle *Cirsium vulgare*, dandelion *Taraxacum sp*. and rough hawkbit *Leontodon hispidus*.

ECOLOGICAL FEATURES OFF SITE

4.8: The site is set in a wider farmland landscape with small woodland copses, close to the village of Shipton. There is one small lake and a stream within 500m.

PROTECTED SPECIES ON SITE

4.9: Badgers

Badgers are likely to use the woodlands on the periphery for foraging. There are no obvious signs and trails. Thus, badgers are not considered to be of material consideration in this development of this portion of land.

4.10: Bats

The target buildings are on the whole unsuitable for bats due to their construction; corrugated materials and ambient light. The exception to this was the large double storey stone barn although there was ambient light through a window and holes in the roof – no signs of bats were noted across the whole site.

Dusk Bat Survey Date and Conditions	Weather	Survey Start/Sunset	Survey End	Temp Start	Temp Finish
22nd June 2023	Warm, Dry with slight breeze	21:00/21:31	23:07	18°c	14°c

No bats emerged from any of the target buildings despite extensive bat activity across site from foraging bats including noctules *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*. The first bat appeared over half an hour after sunset indicating their potential roosting site could be some distance away. Observations were made with thermal imaging equipment after dark.

Bats were noted commuting and foraging in the leeward side of the buildings which was sheltered by from the breeze.

The trees on the borders are not mature enough to offer PRFs for bats but are being retained. The woodlands/hedgerows bordering the field and associated landscapes have the potential to be a bat flight lines/foraging routes given the optimal foraging habitat close by and thus should be maintained and protected from light spill and noise disturbance.

4.11: Birds

The buildings, surrounding vegetation, hedgerows and trees offer numerous nesting opportunities for other common passerine species. Also noted was a fledgling kestrel *Falco tinniculus*.

4.12: Great Crested Newts and Other Amphibians

Common amphibians including GCN would not use site for foraging purposes. They will not forage on arable fields due to the threat of visible predation. There is only one small lake with 500m over 300m from site across the arable fields.

4.13: Reptiles

The majority of the site is sub-optimal for common reptiles due to hard standing.

4.14: Invasive Species on Site

No invasive species, as listed on Schedule 9 of the Wildlife and Countryside Act, were recorded on-site at the time of the survey. However, grey squirrel *Sciurus carolinensis* was noted within the woodland just off-site.

Computer-Based Study of Site

4.15: The computer-based study was carried out on a landscape wide scale, using open source GIS software to research and analyse any potential impacts to designated areas that may occur as a result of the planned works. The closest internationally designated site is the Cotswolds Beechwoods Special Area of Conservation (SAC) Special Protected Area (SPA), at 13.5 km to the west of the site. The nearest nationally designated site is the Lineover Wood Site of Special Scientific Interest (SSSI) and lies 3.9 km southwest of the site.

4.16: There are fifty two areas of Ancient woodland/Ancient Replanted Woodland within 5km of site the closest is Cleevely Wood at 553 m north of site.

4.17: Due to the intrinsic compact nature of the proposed development, it is not thought there will be any impact on any local protected sites.

Table 2. Statutory Designated Sites

Designated area type	Site Name	Reference code	Reason for designation	Size (ha)	Distance from site (km)
Special Area for Conservation (SAC)	Cotswold Beechwoods	UK0013658	Biological	590.2	13.5
Site of Special Scientific Interest (SSSI)	Lineover Wood	1002290	Biological	17.46	3.9
	Hampen Railway Cutting	1002583	Biological	3.64	4.1
	Puckham Woods	1002057	Biological	32.29	4.4

Biological Records

4.18: Biological records were requested from Gloucester Centre for Environmental Records GCER at the time of writing of this report, these have not yet been received. Upon receipt the records will be analysed and added to the report and the report reissued.

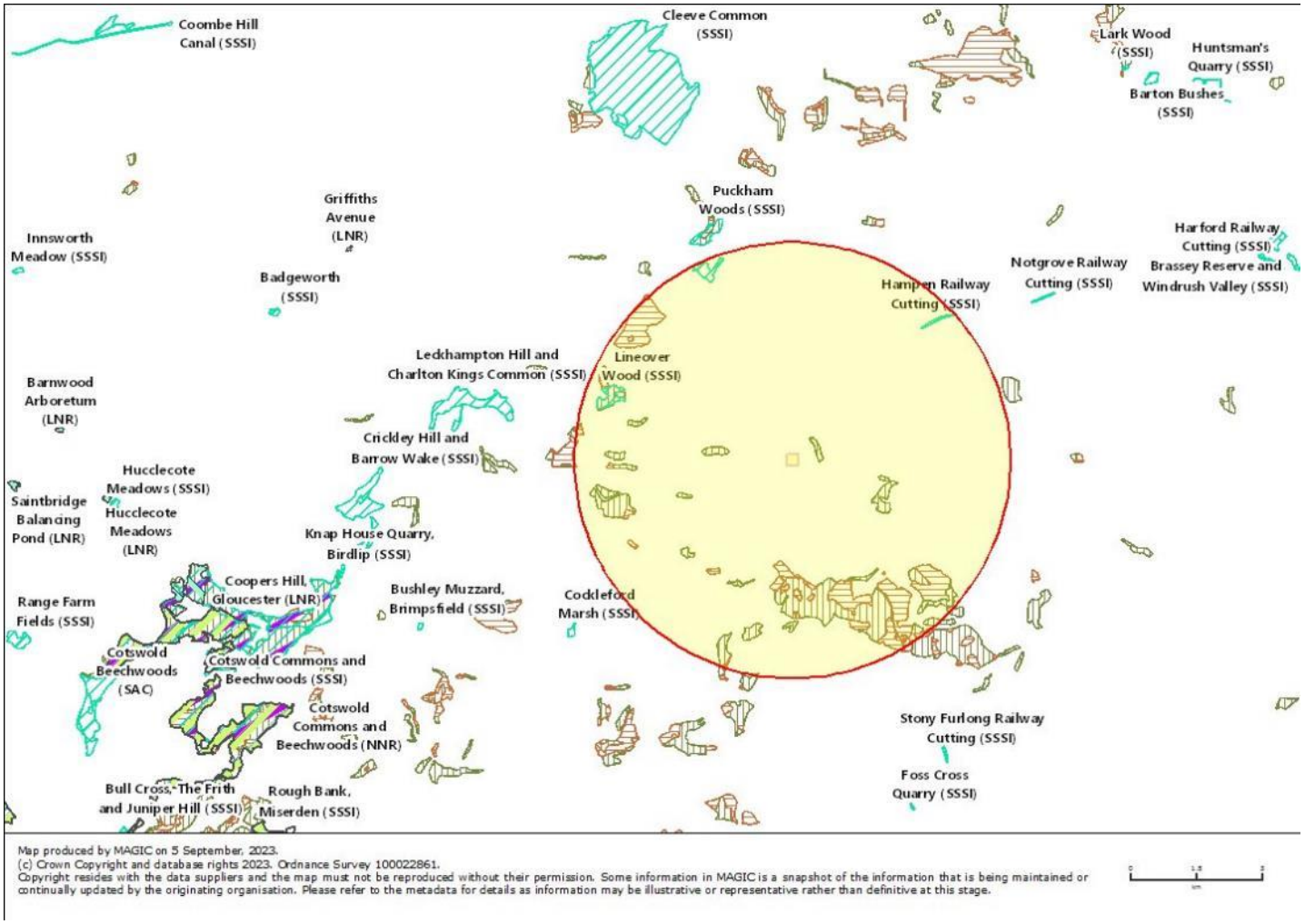

Figure 2 Protect Sites and Ancient Woodland within 5km of site

5. Conclusion and Recommendations

5.1: The target buildings are deemed to be of negligible potential for roosting bats at this current time and as such, no further surveys, for bats or barn owls, will be required for the Northfields Farm Site.

5.2: Based on the findings from both of the surveys carried out as part of this Preliminary Ecological Appraisal, Bombus Ecology Ltd would recommend the following:

MITIGATION

5.3: Ideally, any demolition/reconstruction activities should take place outside the nominal bird breeding season (March to August) If this is not achievable then the ecologist will provide advice and potentially a watching brief.

5.4: Any vegetation should not be removed during bird breeding season. If this is not achievable, then the ecologist will provide advice and potentially a watching brief.

5.5: There is a strong recommendation for the use of a bitumen type felt or second generation breathable membranes as opposed to first generation breathable membranes within the roofs of the proposed conversion.

5.6: In the unlikely event, a bat is found during the redevelopment, work should cease on that section and the Ecologist at Bombus Ecology informed will provide a watching brief and method statement.

5.7: It is recommended that a wildlife-friendly, low-level lighting scheme should be adopted during and post-development to minimise disturbance to any nocturnal wildlife using the peripheries of site, such as bats foraging along the site boundaries. Further details can be obtained from the ecologist.

ENHANCEMENT

5.8: Emerging Government policy supports the pursuit of measurable net gains for biodiversity. The Environment Bill includes a requirement of 10% for biodiversity net gain on all development sites.

5.9: Looking at the proposal there is the potential for measurable net gains in excess of 10%.

5.10: The following measures are recommended to achieve the required biodiversity gain:

- Installation of bat access tiles and bird boxes

- Replanting of a range of ruderal type plants and scrub that will attract pollinators along the periphery i.e. nectar sources.

- Landscape planting of trees that provide nectar, fruit or nuts i.e. rowan *Sorbus acuperia*, hornbeams *Sorbus sp*. blackthorn Prunus spinosa, hazel and crab apple *Malus sylvestris.*

FURTHER SURVEYS

5.11: No further survey work is required for the Northfields Farm Site.

6. Site Images

Image 1 Large stone built barn with double doors

Image 2 Internal structure of large barn with ambient light

Image 3 Northern wall of large barn

Image 4 PRF high up on roof fascia

Image 5 Other barns on site

Image 5 Internal structure of other barns

Image 6 Barn Owl box in image 5

Image 7 Kestrel fledgling

Image 8 Smaller sheds

Image 9 Stand-alone tractor shed

Image 10 Small open fronted sheds east of stone barn

Image 11 Stone barn on left, large modern barns north of site

Image 12 Southern end of large stone barn with corrugated metal lean too

Image 13 Lack of roof on southern end of stone barn

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