

Gorse Farm, Worthenbury Preliminary Ecological Appraisal

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1 Introduction

1.1 Background

- 1.1.1 Dunelm Ecology Ltd was commissioned to undertake a preliminary ecological appraisal (PEA) at Gorse Farm, Worthenbury. The survey was carried out in support of a planning application to redevelop the site for residential use. This would include substantial refurbishment and some demolition of existing buildings along with associated landscaping.

1.2 Aims and Objectives

- 1.2.1 The main objective of the assessment was to identify the presence of any priority/protected species and habitats within the application site. This report provides an overview of the legislation and policies relevant to protected species and habitats within the Wales. Also included are a description of the methods used and the results of the ecological appraisal. The implications of the survey findings are discussed, with (where possible) an assessment of potential impacts provided and recommendations to prevent, reduce and/or offset any adverse ecological impacts.

1.3 Legislative and Policy Context

- 1.3.1 A range of legislation has been established in the UK to protect important nature conservation sites and species. This includes the Wildlife and Countryside Act (WCA) (1981) (as amended), Countryside and Rights of Way (CROW) Act 2000 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Section 14 of the WCA 1981 also makes it an offence to spread or release into the wild certain plants and animals which may cause ecological, environmental, or socio-economic harm. These are listed under Schedule 9 of the Act.
- 1.3.2 Other international conventions include: the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), which requires the maintenance of populations of wild flora and fauna, giving particular protection to endangered and vulnerable species; and the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), which requires the protection of migratory species throughout their entire range. The above conventions are implemented in England and Wales via the Wildlife and Countryside Act (WCA) (1981) (as amended) and Countryside and Rights of Way (CROW) Act 2000. This legislation also protects important habitats and sites such as Sites of Special Scientific Interest (SSSI). Section 14 of the Wildlife and Countryside Act 1981 also makes it an offence to release into the wild certain plants and animals which may cause ecological, environmental, or socio-economic harm. These are listed under Schedule 9 of the Act.
- 1.3.3 The Hedgerows Regulations 1997 regulate hedgerow removal and affords increased protection to those meeting certain ecological, landscape, cultural or archaeological criteria.
- 1.3.4 The Protection of Badgers Act 1992 protects badgers and their setts from persecution. The purpose of this Act was, therefore, animal welfare as opposed
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to concern over the conservation status of this mammal, which is common and widespread across much of rural Britain. However, the Act also contains restrictions that apply more widely, and have relevance to developers.

- 1.3.5 The Environment (Wales) Act became law in 2016 and includes legislation that supersedes the Natural Environment and Rural Communities (NERC) Act 2006.
 - 1.3.6 Section 6 of the Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act. It places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In doing so, public authorities must also seek to 'promote the resilience of ecosystems.' Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.
 - 1.3.7 Section 7 replaces the duty in Section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of principle importance for the conservation and enhancement of biodiversity in Wales. The Welsh Ministers must also take all reasonable steps to maintain and enhance the living organisms and habitats included in any list published under this section, and encourage others to take such steps.
 - 1.3.8 Planning Policy Wales (Edition 10) was published in December 2018. Chapter 6 - Biodiversity and Ecological Networks - highlights the importance of biodiversity and explains the 'Biodiversity and Resilience of Ecosystems Duty' (the 'Section 6 Duty'), introduced in the Environment (Wales) Act 2016 (see above).
 - 1.3.9 PPW states that in executing this Duty, planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity. In doing so planning authorities must also take account of and promote the resilience of ecosystems, including their diversity, connections, scale, condition and adaptability.
 - 1.3.10 PPW advises that planning authorities must have regard to the relative significance of international, national and local designations in considering the weight to be attached to nature conservation interests.
 - 1.3.11 In terms of maintaining and enhancing biodiversity, PPW states that planning authorities must follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible.
 - 1.3.12 The first priority for planning authorities is to avoid damage to biodiversity and ecosystem functioning. Where there may be harmful environmental effects, planning authorities will need to be satisfied that any reasonable alternative sites that would result in less harm, no harm or gain have been fully considered.
 - 1.3.13 Planning authorities should ensure that features and elements of biodiversity or green infrastructure value are retained on site, and enhanced or created
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wherever possible, by adopting best practice site design and green infrastructure principles. The provision of up to date ecological survey information will assist in this process. Where necessary, planning authorities should seek to modify the development proposal through discussion with the applicant at the earliest possible stage. Biodiversity and green infrastructure modifications should draw on the issues and opportunities identified through the Green Infrastructure Assessment.

- 1.3.14 In some circumstances, it will be appropriate to attach planning conditions, obligations or advisory notes to a permission, to secure biodiversity outcomes. Planning authorities should take care to ensure that any conditions necessary to implement this policy are, relevant to planning, relevant to the development to be permitted, enforceable, precise, and reasonable in all other respects.
 - 1.3.15 When all other options have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes, offsite compensation for unavoidable damage must be sought. This should normally take the form of habitat creation, or the provision of long-term management arrangements to enhance existing habitats and deliver a net benefit for biodiversity. It should also be informed by a full ecological assessment before habitat creation or restoration starts.
 - 1.3.16 The Green Infrastructure Assessment should be used to identify suitable locations for securing offsite compensation. Where possible, a landscape-scale approach, focusing on promoting wider ecosystem resilience, should help guide locations for compensation. This exercise will determine whether locations for habitat compensation should be placed close to the development site, or whether new habitat or additional management located further away from the site would best support biodiversity and ecosystem resilience at a wider scale.
 - 1.3.17 Where compensation for specific species is being sought, the focus should be on maintaining or enhancing the population of the species within its natural range. This approach might also identify locations for providing species specific compensation further away from the site. Where they exist, Spatial Species Action Plans should be used to help identify suitable locations.
 - 1.3.18 Any proposed compensation should take account of the Section 6 Duty (Biodiversity and Resilience of Ecosystems Duty), and the five key ecosystem resilience attributes that it outlines. It should also be accompanied by a long-term management plan of agreed and appropriate mitigation and compensation measures.
 - 1.3.19 Finally, where the adverse effect on the environment clearly outweighs other material considerations, the development should be refused.
 - 1.3.20 PPW advises that the presence of a species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained.
 - 1.3.21 Technical Advice Note (TAN) 5: Nature Conservation and Planning (2009)
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- TAN 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. It provides advice to local planning authorities on the application of the law relating to planning and nature conservation and its impact within the land use planning system.

2 Methods and Approach

2.1 Field Survey

- 2.1.1 The survey approach and assessment followed best practice guidelines and was undertaken in cognisance of Wrexham Council's Local Planning Guidance note 32.

Extended Phase 1 Habitat Survey

- 2.1.2 All habitats present within the site boundary and adjacent were surveyed on 22 April 2022 following the Phase 1 habitat survey methodology which is the standard technique for classifying and mapping British habitats (JNCC 2010). The survey aimed to provide a record of habitats that are present and investigate further those that are likely to be ecologically important, with features of interest recorded as target notes.
- 2.1.3 The survey was 'extended' to include a general assessment for the presence or potential presence of protected species, noting any areas of suitable habitat and the location and type of any field signs recorded. As the planning proposals would affect buildings and given the presence of three ponds within 250 m of the site; the survey primarily focused on bats, birds and great crested newts (GCN). Badgers were also a focus of the survey owing to site's rural location while reptiles were scoped out of the assessment due to the agriculture dominated landscape. Further information on survey approaches for target species/groups is provided below.

Bats

- 2.1.4 An inspection survey of all buildings within the site was carried out during daylight hours following the methodology outlined in the *Bat Mitigation Guidelines* (Mitchell-Jones 2004) and *Bat Surveys Good Practice Guidelines* (Collins 2016). The survey involved systematically searching the exterior and interior of buildings for bats and their field signs with the aid of ladders, endoscope (Snakevision), close-focusing binoculars (Opticron Countryman BGA 8x42) and a powerful torch (Clulite 1M candle-power). Such signs may include insect remains, droppings, grease marks, urine stains and smoothing or lack of cobwebs. Buildings were assigned to a roost potential category based on the criteria presented in Table 1 below (Collins 2016).
- 2.1.5 Additionally, an initial ground level roost assessment of trees likely to be impacted by the proposals was undertaken. This involved a detailed inspection of the exterior of trees from the ground to look for features that bats could use for roosting (PRFs). Trees were assigned to a roost potential category based on the same criteria as the building (Collins 2016).

Table 1 Bat Roost Assessment Criteria

Roost Potential Category	Description of Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
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 (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
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.

Birds

- 2.1.6 Birds were surveyed for in conjunction with the bat survey. This involved searching the interior of the buildings for signs of occupation including droppings or splashing, pellets (regurgitated prey remains), feathers and nests.

GCN

- 2.1.7 There are three ponds within 250 m of the site, all of which were surveyed for GCN using the egg searching technique (Foster 2001). Ponds 250 – 500 m from the site were discounted from the survey owing to the small scale of the development proposals meaning impacts on further afield habitats are highly unlikely. In addition, consideration was also given to the quality of terrestrial habitats within the site for GCN.

Badger

- 2.1.8 The survey was undertaken following the standardised methodology given by Harris *et al.* 1989. This included a search for badger setts, badger paths (including footprints), latrine sites (or dung pits), trapped hair on fences and evidence of foraging.

2.2 Personnel

- 2.2.1 The PEA was undertaken by Jon Guarnaccio MCIEEM. Jon has 19 years experience as an ecological consultant and holds survey licenses for numerous protected species including bats, GCN and barn owl.

2.3 Survey Constraints

- 2.3.1 The PEA was undertaken at an appropriate time of year following best practice guidelines. The habitat survey was however completed at the beginning of the recommended survey window making grass identification difficult and meaning some plant species may have gone unrecorded. Access to the roof space of B1 was not possible.
- 2.3.2 It should also be noted that the behaviour of animals can be unpredictable and may not conform to standard patterns recorded in scientific literature. Therefore, this report cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats, or that they will not occur in locations or habitats that appear unsuitable.

2.4 Ecological Evaluation

- 2.4.1 One of the key elements of an ecological assessment is to determine which ecological features (habitats, species, ecosystems and their functions/processes) are important and should be subject to further detailed assessment. It is unnecessary to carry out detailed assessment of features that are sufficiently widespread, un-threatened and resilient to development effects, such that there is no risk to their viability.
- 2.4.2 Ecological features can be important for a wide variety of reasons. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat/species rarity, to the extent to which they are threatened throughout their range, to their rate of decline and/or the legal protection they receive. The importance of an ecological feature should be considered within a defined geographical context. In accordance with CIEEM 2019 guidelines, the following frame of reference has been used:
- International and European
 - National (Wales)
 - Regional (North Wales)
 - Metropolitan/County (Wrexham)
 - Local (Worthenbury)
- 2.4.3 Taking into account the CIEEM guidance, features of less than Local importance are generally considered unlikely to trigger a mitigation or policy response in EclA terms and are therefore not subject to ecological assessment within this report.

3 Results

3.1 Field Survey

Habitats

- 3.1.1 Figure 1 shows the results of the Phase 1 habitat survey with further information on key habitat types mentioned below. In summary, the site mainly comprises hard standing and un-used buildings surrounded by poor semi-improved grassland with patches of tall ruderals and scattered trees. No plant species listed on Schedule 9 of the Wildlife and Countryside Act were recorded although snowberry (an invasive species) was observed next to B1.

Poor semi-improved grassland

- 3.1.2 Grassland represents the dominant habitat within and surrounding the application site and appears to have previously been grazed by sheep. The grassland is relatively species poor comprising no more than 6-8 species per m² on average. Grass species present include abundant meadow grass, bent spp., frequent perennial rye, occasional cock's foot, and rare meadow foxtail, annual meadow grass and crested dog's tail. Herbs include: frequent common nettle, occasional dandelion, creeping thistle, dock spp, meadow buttercup, creeping buttercup and white clover, and rare silverweed. Grassland comprising the above species has also started to colonise hard standing areas.

Tall ruderal

- 3.1.3 Discrete patches of dense common nettle are scattered throughout the site.

Scrub

- 3.1.4 Dense bramble scrub has enveloped a dilapidated greenhouse and occurs to the rear of B1.

Hedgerows

- 3.1.5 Species poor hedges exist around the edges of the site. These are approx. 4 m tall x 3 m wide and comprise hawthorn and blackthorn with a ground flora of common nettle, cleavers and dock spp. Hedgerows also line the approach road to the farm but these have been heavily flailed.

Scattered trees

- 3.1.6 Scattered trees within the site include plum, cherry, ash, silver birch and oak. Most trees are located on the site boundaries.

Introduced shrubs

- 3.1.7 A discrete patch of snowberry exists in front of B1 but no Schedule 9 listed plant species were recorded.

Standing water

- 3.1.8 P1 is located on the northwest corner of the site boundary. This is partly shaded by a mature oak tree and willow scrub with marginal vegetation restricted to brooklime, water starwort and float grass.

Protected Species

Bats

- 3.1.9 The results of the bat inspection survey are shown in Table 3 below but in summary no evidence of bats was recorded. The site is set amidst an agricultural landscape surrounded by pasture and arable fields which are bordered by hedgerows. Such habitats result in moderate value foraging habitat for bats.

Table 3 Bat Inspection Survey Results

Building/ Tree Ref	Description	Survey Findings	Roost Potential
B1	Two storey former farmhouse dating from 19 th century. Constructed from rendered solid brick walls set under a hipped blue slate roof. The rear elevations have been extended with single and two storey pitched roof sections constructed from concrete blocks and pantile roofs. Timber weatherboarding is present on the exterior of the building.	No evidence of bats recorded but crevice roosting opportunities exist in the form of gaps between concrete blockwork. The roof covering are generally tight fitting although some gaps exist under ridge and hip tiles on the original building. Bats can also access the interior of the building via gaps around windows.	Moderate
B2	Barn dating from 19 th century comprising two and single storey sections. The barn is constructed from solid brick walls set under pitched roofs clad with both corrugated metal and blue slates. Both roofs are unlined. Several open doorways and windows are present resulting in well lit and draughty internal conditions.	No evidence of bats recorded. Bats can easily access the interior of the building but crevice roosting opportunities are restricted to gaps between brickwork on the west elevation of the building and around lintels. The slates are tight fitting with no discernible access points for bats.	Moderate
B3	Early/mid 20 th century single storey barn built from solid brick walls set under pitched corrugated metal roof. The barn is completely open on its north elevation resulting in well lit and draughty internal conditions.	No evidence of bats was recorded and no crevice roosting opportunities exist.	Negligible
B4	Mid 20 th century single storey building built from brick and block walls set under a pitched corrugated metal	No evidence of bats recorded but they can access hollow concrete blockwork via gaps around	Low

Building/ Tree Ref	Description	Survey Findings	Roost Potential
	roof.	wall tops.	
B5	Large former agricultural building constructed from concrete blocks and a steel frame with a double pitched corrugated metal roof. The building is open on the east and west elevations resulting in well-lit internal conditions.	No evidence of bats recorded but some gaps exist around wall tops where the building adjoins B4 allowing bats access to hollow concrete blockwork.	Low
B6	As above but entirely steel frame structure.	No evidence of bats recorded and no crevice roosting opportunities exist.	Negligible
T1	Mature oak tree on southern edge of site.	No signs of bats recorded. The tree supports several superficial holes in limbs at varying heights.	Low
T2	Mature oak tree on northern edge of survey area.	No signs of bats recorded. Two holes in limb but only extend 100 mm deep.	Low

Breeding birds

- 3.1.10 Evidence of nesting birds was recorded in buildings B1, B2 and B4. House sparrows and jackdaws are nesting within B1, old swallow nests were found on the ground floor of B2 and active bluetit and pied wagtail nests were found in B4. No other evidence of breeding birds was recorded within the site but scrub vegetation (particularly within an abandoned greenhouse) and scattered trees provide nesting opportunities.

GCN

- 3.1.11 Table 4 below presents the results of the GCN survey. In summary, GCN eggs were recorded within all three ponds surveyed signifying they support a breeding GCN population. Small rubble piles, sheets of corrugated iron, grassland and tall ruderal habitats provide valuable terrestrial habitat for GCN as they offer foraging and resting opportunities.

Table 4 GCN Pond Survey Results

Pond ref	Distance from site (m)	GCN Present/Absent
P1	0	Present
P2	105	Present
P3	110	Present

Badgers

- 3.1.12 No badger setts were recorded within 30 m of the site but numerous badger pathways cross the site with evidence of foraging within grassland.

4 Discussion and Recommendations

4.1 Evaluation

- 4.1.1 Table 5 below summarises the value of ecological features within the site in a geographical context. Features have either been scoped in or out of the assessment with those scoped in considered to be of sufficient importance to warrant them being carried through to the impact assessment stage.

Table 5 Ecological Feature Evaluation

Ecological feature	Geographic Level of Value	Scoped in/out	Comments
Habitats	Local	In	The site largely comprises hard standing, buildings, poor semi-improved grassland and tall ruderals which are habitats of limited ecological value that do not meet County Wildlife Site selection criteria and therefore do not warrant further attention within this report. However, hedgerows are a Priority Habitat in Wales (although none qualify as important) while the site supports several mature oak trees around its periphery.
Bats	Unknown at this stage	In	Further surveys of buildings are required in order to evaluate any bat population present. Trees have low potential to support roosting bats.
GCN	Unknown at this stage	In	Given the presence of three GCN breeding ponds within 110 m of the site, and the high suitability of terrestrial habitats, it is almost certain that GCN are present within the site. GCN receive full legal protection and listed as a species of Principal Importance in Wales. The ecological value of the GCN population can however not be established without population estimate survey data.
Breeding Birds	Local	In	Three site buildings support several bird nests including swallow nests. Swallows are a red listed species and are legally protected under the Wildlife and Countryside Act 1981. Although the buildings are unlikely to support a particularly important population of swallows, suitable nesting sites are becoming scarcer, and swallow numbers are declining. Scrub habitats are also likely to be utilised by breeding birds while barn owls are likely to forage across grassland habitats.
Badgers	Local	In	Badgers are foraging within grassland habitat and regularly commute through the site although no badger setts were recorded within 30 m of the site.

4.2 Assessment

- 4.2.1 Table 6 below details the impacts associated with the planning proposals. In accordance with CIEEM guidelines, impacts have been characterised (where appropriate) in terms of their extent, magnitude, duration, frequency, timing and reversibility.

GCN and bats have not been included within the table as further survey information is required in order to accurately assess impacts. However, bats (if found to be present) and GCN would be adversely impacted by habitat loss and

may be killed or injured during works which would constitute an offence under the relevant legislation.

Table 6 Assessment of Potential Impacts

Ecological feature	Potential Effect	Possible causes	Details of ecological effect	Significance
Habitats	Habitat loss and degradation	Landscaping of site	Construction phase could result in permanent loss or damage to mature trees and hedgerows although likelihood of this happening is assessed as low given such habitats are located on site boundaries and not scheduled for removal. Snowberry could be inadvertently spread during construction phase.	Adverse significant at local level.
Breeding birds	Mortality and Disturbance	Refurbishment/demolition of buildings and clearance of scrub	Birds could be disturbed and/or possibly injured or killed if demolition/clearance takes place during the nesting season. This action could, therefore, result in an offence under the legislation that protects all wild birds and their nests.	Adverse significant at local level
	Habitat loss	Refurbishment/demolition of buildings and clearance of scrub	Permanent loss of nesting sites. Loss of farm buildings would contribute to overall decline in swallow populations.	Adverse significant at local level
Badgers	Mortality and Disturbance	No badger setts are located within 30 m of the site but there is a risk of badgers being harmed if they investigate the construction area.	Badgers may become trapped in any steep sided excavations as they are likely to explore the development site.	Adverse significant at local level
	Habitat loss	Loss of foraging habitat.	The scheme will result in the loss of a relatively small area of foraging habitat meaning territorial conflicts are unlikely to arise as a result of habitat loss within the social group's territory.	Neutral

4.3 Mitigation and Recommendations

- 4.3.1 Under CIEEM 2019 Guidelines, a sequential process should be adopted to avoid, mitigate and compensate negative ecological impacts and effects; this is often referred to as the 'mitigation hierarchy' and are the key principles following the impact assessment stage. These measures are detailed in Table 7 below. Generic best practice guidance and procedures should also be implemented as part of the development. For instance, new fencing should include 130 mm gaps at the base to allow movement of hedgehogs through the site while new lighting

should be kept to an absolute minimum with lighting designed to minimise light spill. There is also an opportunity to enhance the ecological value of the development through the planting of native trees and shrubs as part of the landscaping scheme while existing hedgerows could be enhanced through introducing new native species such as hazel, elder, dog rose and honeysuckle.

- 4.3.2 Further survey work is required to inform impacts and mitigation measures in respect of GCN and bats. It is advised that ponds 1 – 3 are subject to GCN population estimate surveys using bottle trapping and egg searching techniques. Best practice guidance stipulates that six visits are required between April and mid June with three of the six visits taking place between mid April and mid May to coincide with the peak of the breeding season. Surveys should be evenly spread throughout the survey season and should take place under favourable weather conditions i.e. temperatures above 5°C.
- 4.3.3 In accordance with best practice guidelines, it is also advised that a suite of nocturnal bat surveys is completed between May and August to give confidence in the initial negative survey result. The optimal period is late May to early August as maternity colonies do not form until late May and start to disband from mid August onwards. The surveys would focus on buildings only as trees with bat roost potential would not be impacted by the planning proposals.

Table 7 Mitigation Measures

Ecological feature	Measures Proposed	Mechanism to secure delivery	Residual Impact
Habitats	Avoid damage to mature trees and hedgerows	Fence off trees and hedges to protect them from inadvertent damage during construction phase.	Neutral
Breeding Birds	Avoid death/injury of nesting birds which would constitute a legal offence under Wildlife and Countryside Act (1981) as amended. Compensate for loss of nesting habitat through creation of new artificial nesting sites in refurbished/new buildings	Demolition/refurbishment of buildings and clearance of scrub should take place outside the breeding bird season which lasts from March to August inclusive to avoid disturbing nesting birds. If this is not feasible, breeding bird checks should be undertaken by an ecologist no more than 48 hours in advance of demolition commencing. If nesting was confirmed works would need to be postponed until checks had fledged the nest. Six artificial swallow nesting cups and six integral bird nesting units should be incorporated into the scheme design. Swallow cups should be installed on directly under overhanging eaves while roosting units should be installed at a height of at least 4 m above ground level and cater for sparrows and crevice roosting species such as pied wagtail and blue tit. Such features should be installed on variety of elevations.	Neutral
Badgers	Avoid harm to badgers	Steep sided excavations should have scaffold boards installed overnight to allow any trapped animals to escape and building materials should be locked away at night. Any large dimension pipes should be capped off at the end of each working day to prevent entry by badgers.	Neutral

5 References

Collins J (2016). *Bat Surveys Good Practice Guidelines*. Third Edition. BCT, London.

JNCC (2010). *Handbook for Phase 1 habitat survey - a technique for environmental audit*. JNCC, Peterborough.

Mitchell-Jones AJ (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.



Plate 1 B1



Plate 2 B2—B5



Plate 3 B6 in foreground



Plate 4 Numerous gaps exist between block-work in B1



Plate 5 Potential roosting features in B2



Plate 6 Badger path through site (poor semi-improved grassland)



Plate 7 Pied wagtail nest with chicks in B4



Plate 8 P1



Plate 9 GCN egg found in P1



Plate 10 Suitable terrestrial habitat for GCN within the site



Plate 11 Derelict greenhouse enveloped by dense bramble scrub providing suitable bird nesting habitat



Plate 12 Badger footprints within site

