

**ECOLOGICAL IMPACT
ASSESSMENT**

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1. INTRODUCTION

Background

- 1.1 Grass Roots Ecology has been commissioned to carry out an ecological impact assessment on land at Tuck Mill Barn, Marstow (the 'application site'), pursuant to proposals for the conversion of the barn to residential use, together with associated cycle storage, private amenity space, refuse storage and on-site foul water treatment (the 'proposals').
- 1.2 The proposals have been updated in connection with a previously submitted planning application (P210465/F) which was refused on various grounds which included matters relating to ecology/nature conservation, as set out below:
- ensuring a biodiversity net gain;
 - additional survey work relating to horseshoe bats given that the application site is located within a core sustenance zone attributed to the Wye Valley Woodlands Special Area for Conservation (SAC); and
 - submission of suitable foul drainage package treatment incorporating necessary pollution prevention measures to ensure there are no adverse impacts (from phosphates) on the nearby River Wye SAC given that the application site is located approximately 50m from the Garren Brook Local Wildlife Site which is a direct tributary of the River Wye.

Objectives

- 1.3 This ecological impact assessment sets out the findings of a desk study, an extended phase 1 habitat survey and specific bat activity surveys and in doing so:
- a) determines the main habitat types within the application site;
 - b) evaluates the ecological value of the application site;
 - c) identifies any actual or potential habitat or species constraints;
 - d) assesses the ecological impact of the proposals in terms of habitats and species, both in relation to the construction and operational phases;
 - e) identifies any mitigation/compensation which may be required to reduce the impacts during the various phases;

- f) identifies potential opportunities to enhance the ecological value of the application site in line with biodiversity net gain aspirations; and
- g) addresses the reasons for refusal that were outlined in the previous planning application, as highlighted above.

2. PLANNING POLICY, LEGISLATION AND GUIDANCE

National Planning Policy Framework (2021)

2.1 Chapter 15 of the revised National Planning Policy Framework (NPPF) (Conserving and enhancing the natural environment) sets out the Government's policies on biodiversity, landscape and geological conservation. Insofar as ecology and biodiversity is concerned, NPPF requires that the planning system and development planning policies should contribute to and enhance the natural and local environment.

2.2 Paragraph 174 sets the overarching objective to...

"... identify and pursue opportunities for securing measurable net gains for biodiversity".

2.3 When specifically determining planning applications, local planning authorities should apply the following principles as set out in paragraph 180:

- *"If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."*

- 2.4 In relation to developments that could have a significant impact on European and Internationally designated wildlife sites, the 'presumption in favour of sustainable development' does not apply (paragraph 182).
- 2.5 In terms of elements which are of relevance to the proposals, the following considerations and aims have informed this ecological impact assessment:
- Minimising adverse impacts on habitats and species;
 - Seeking gains for biodiversity; and
 - Avoiding adverse impacts on a SSSI and European designated sites.

Legislation

- 2.6 The recent enactment of the Environment Act 2021 now triggers biodiversity net gain principles through Schedule 14 (which amends the Town and Country Planning Act 1990) and is set to become mandatory in 2023 following implementation of the forthcoming Biodiversity Net Gain Regulations (which are currently out for consultation). Developers will be required to provide at least 10% biodiversity net gain in respect of any new development that results in habitat loss or degradation. However, it is understood that planning applications for a change of use, such as the proposals, will be exempt from these biodiversity net gain obligations (as set out on page 21 on DEFRA's recent Consultation on Biodiversity Net Gain Regulations and Implementation). That said, in the spirit of biodiversity net gain, recommendations have been made in this ecological impact assessment.
- 2.7 Other legislation relating to wildlife and biodiversity considered to be of particular relevance to the proposals includes:
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora;
 - Council Directive 2009/147/EC on the conservation of wild birds;
 - The Conservation of Habitats and Species Regulations 2017 [as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019]] (collectively referred to as the 'Habitats Regulations' hereafter);
 - The Wildlife and Countryside Act 1981 (as amended);
 - The Natural Environment and Rural Communities (NERC) Act 2006; and

- The Protection of Badgers Act 1992.

BS 42020:2013 Biodiversity

- 2.8 The British Standards Institute has published BS 42020:2013 to provide a coherent methodology for biodiversity management. It seeks to promote transparency and consistency in the quality and appropriateness of ecological information submitted with planning applications and applications for other regulatory approvals.
- 2.9 BS 42020:2013 also refers to the recognised guidelines on ecological impact assessment published by CIEEM¹. These guidelines provide recommendations on topics such as professional practice, proportionality, pre-application discussions, ecological surveys, adequacy of ecological information, reporting and monitoring. The guidelines are referred to later in relation to the assessment methodology.

Natural England's Standing Advice

- 2.10 Natural England has published Standing Advice relating to protected species which serves to support local planning authorities and forms a material consideration in determining planning applications. This guidance has been given due consideration, including other detailed guidance (as referred to elsewhere in this assessment), in the scoping of ecological surveys and ecological assessment.

Wye Valley and Forest of Dean Bat SAC Development Management – Horseshoe Bat Activity Survey and Assessment Guidance (July 2021)

- 2.11 Whilst relating to another SAC and within the jurisdiction of the neighbouring authority (Forest of Dean), regard has been had to this guidance document at the request of Herefordshire Council's ecology officer in their consultation comments relating to the previous planning application. Following the principles within this guidance Herefordshire Council's ecology officer recommended that the proposals should be treated as a 'Class B' (i.e. qualifying as a 'highly sensitive location') level survey site which sets out the requirement for the following:

¹ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

1. Production of an ecological impact assessment, incorporating details on management regimes, although the latter is not considered to be relevant to the proposals given that it relates largely to the footprint of the building and immediate surrounding habitat which does not represent 'soft' habitat that is managed in any way which is favourable to horseshoe bats;
2. Deployment of automated bat recording detectors in strategic locations paying particular attention to the proximity to linear habitat features;
3. Minimum of 35 days sampling within the survey period April – October and ideally spread across this period based on a minimum of 10 days during the spring period (April-May), 15 days during the summer period (June – August) and 10 days during the autumn period (Sept-October);
4. Various considerations and recommendations in terms of detector densities and positioning (e.g. height above ground);
5. Requirement for manual transect surveys (April to October) to gather additional information, although this wasn't judged to be relevant given the low quantum of the proposals and that sufficient data would be gathered through careful positioning of a static detector;
6. Other considerations and recommendations relating to manual transect survey methodology.

2.12 As such, appropriate regard has been had to this guidance in scoping the level of bat activity survey work that has informed the proposals. It should be noted that the guidance acknowledges that an ecological impact avoidance strategy that is fully embedded within a development proposal may reduce the need for specific horseshoe bat surveys. Indeed, following the surveys performed it has been recommended that there should be no external lighting erected on the converted building to ensure that horseshoe bats can continue passage through the application site in accessing their wider foraging grounds.

3. METHODOLOGY

Background

- 3.1 A comprehensive ecological impact assessment has been performed the ecological baseline from which potential impacts on ecological receptors can be identified and assessed.
- 3.2 Where any potential adverse impacts have been highlighted, appropriate mitigation measures are identified. Enhancement measures in the spirit of planning policy are also prescribed.
- 3.3 The value of the habitats within the application site and any nearby ecologically designated wildlife sites (i.e. Wye Valley Woodland SAC and River Wye) which may be affected by the proposals have been assessed with due regard to CIEEM's guidelines on ecological impact assessment (see below).

About the Author

- 3.4 This ecological impact assessment has been produced under the direction of Alexander Heath, Director of Grass Roots Ecology, who is a 'suitably qualified ecologist' with nearly 15 years of experience as a practising ecological consultant and nearly 20 years of experience within the environmental assessment and development planning sectors. The author holds both Bachelor of Science and Master of Science degrees in ecology related subjects, is a full member of CIEEM and possesses relevant European Protected Species licences with Natural England.

Desk Study

- 3.5 Information on protected/notable species ecologically designated sites within a 2km search radius of the application site was sourced from Herefordshire Biological Records Centre (HBRC). Data received has informed this ecological impact assessment where required and (subject to any confidentiality restrictions) can be made available on request.
- 3.6 Information on protected species and statutory designated wildlife sites relating to a wider search area was also obtained where appropriate from inspecting the online

National Biodiversity Network (NBN) Atlas² and Multi-Agency Geographic Information for the Countryside (MAGIC)³ databases respectively.

- 3.7 Regard has also been had where required in relation to priority species and habitats listed within the UK Biodiversity Action Plan (BAP)⁴.

Phase 1 Habitat Survey

- 3.8 An extended phase 1 habitat survey of the application site was initially performed on 08-Apr-2020 as part of the previous planning application, with a final check performed on 19-Aug-2022 prior to the submission of this planning application, along with further interim checks undertaken as part of the bat activity survey work. The visits were performed in line with the methodology set out by the Joint Nature Conservation Committee ('JNCC')⁵, as recommended by Natural England, where all habitats types were mapped, as presented on Plan GRE 1.

- 3.9 Notable, rare or scarce plant species were highlighted if present along with evidence of protected species or species of nature conservation importance.

- 3.10 Target Notes (TN) were employed to identify particular features/observations of interest, as shown on Plan GRE 1.

- 3.11 This technique has been 'extended' to allow any habitat areas of greater potential to be identified for more detailed survey and also serves to identify the need for any further species-specific survey work which may be required to inform the proposals and ensure that all ecological constraints (and impacts) could be identified and fully understood.

- 3.12 Indeed, this survey method aims to characterise habitats and communities present and is not intended to provide a complete list of all species occurring across the application site.

- 3.13 All habitat survey visits were performed by Alexander Heath MCIEEM.

² <https://nbn.org.uk>

³ <http://magic.defra.gov.uk>

⁴ At the UK level the UK BAP has been replaced by the UK Post-2010 Biodiversity Framework (2012) (Joint Nature Conservation Committee and DEFRA) with all UK BAP species and habitats now known as habitats and species of principal importance or 'priority habitats / species'. The UK BAP contains 1,150 priority species which have been identified based on criteria relating to international importance, rapid decline and high risk. It also contains 65 priority habitats.

⁵ Joint Nature Conservation Committee (JNCC) (2010) *Handbook for phase 1 habitat survey – a technique for environmental audit*.

Protected and Notable Species Survey

- 3.14 All signs of protected species or faunal groups encountered during the survey visits were recorded. This included observations of tracks or other signs of visible activity. The structure and quality of the habitats present were assessed for their suitability to support faunal groups, paying particular attention to identifying signs of occupation by protected species. In addition, a note was made of any fauna or flora of conservation interest not protected by UK or European legislation. Based on habitat associations the following key species or faunal groups were given particular consideration during the surveys.

Bat Survey

- 3.15 The habitat suitability for bats was assessed as part of the extended phase 1 habitat survey visits. This involved assessing the suitability of habitats for foraging and commuting bats and contextualised through examination of suitable habitat and features in the wider landscape as well as possible flight-lines across the application site following natural linear features such as hedgerows and potential links to wider habitat of importance (e.g. designated wildlife sites). This assessment then followed the criteria in line with Table 4.1 of the guidance produced by the Bat Conservation Trust (BCT)⁶ in assigning its suitability as either negligible, low, moderate or high.
- 3.16 As already mentioned, regard has also been had to the guidance produced by the Forest of Dean relating to a comparable SAC which also supports horseshoe bat populations.
- 3.17 In considering the above, an automated bat recording detector (Titley Scientifics' Anabat Swift) was deployed on the edge of the hedgerow which borders the northwest boundary of the application site. The detector was deployed on 26-Apr-2022 and was left to monitor until 18-Aug-2022 which amounted to 115 continuous nights. Recorded bat calls were analysed using Titley Scientifics' bat identification software (Anabat Insight) with the aid of British Bat Calls: A Guide to Species Identification (Russ, 2012) where required.
- 3.18 Indeed, this level of monitoring is judged to be proportionate to the proposals and sufficient in identifying the level of horseshoe bat activity and the likelihood for any

⁶ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

'significant effects' on the nearby Wye Valley Woodlands SAC, pursuant to the tests set out within Regulation 63 of the Habitats Regulations.

- 3.19 Any trees likely to be affected by the proposals were subject to a ground-level assessment for their potential to support roosting and/or hibernating bats. This involved searching for potential roosting features⁷ using binoculars and a high-powered torch where required. This initial survey then allowed any trees to be categorised as having negligible, low, moderate or high bat roosting potential, again in accordance with the aforementioned BCT guidance.
- 3.20 The building was also appraised for its potential to support roosting and/or hibernating bats. Again, this involved searching for potential roosting features⁸ using binoculars and a high-powered torch where required. This initial survey then allowed any trees to be categorised as having negligible, low, moderate or high bat roosting potential, again in accordance with the aforementioned BCT guidance.

Badger Survey

- 3.21 Particular attention was given during the survey visits for any evidence indicating activity, such as the presence of a sett, well-worn paths/push-throughs, footprints, latrines and foraging signs. Access permitting, this extended to approximately 30m from the application site boundary.

Great Crested Newt Survey

- 3.22 Any ponds within and in close proximity to the application site⁹ were identified and appraised for their suitability to support Great Crested Newts *Triturus cristatus*. This identified whether any further survey work was considered necessary to support the planning application.

⁷ potential roosting features in trees include the following: Woodpecker holes, knot-holes, rot-holes, pruning-cuts, tear-outs, compression-forks, wounds/cankers, butt-rot, splits, and other crevices.

⁸ potential roosting features in buildings include the following: roof voids and other concealed spaces, gaps at/broken/slipped roof tiles, timber cladding, cavity walls, tenon/mortice joints in timber structures, cracks/missing mortar in brick/stone work

⁹ It is widely appreciated that without barriers to dispersal Great Crested Newts can traverse distances of up to 500m from their respective breeding ponds and suitable terrestrial habitat within this distance *could* be utilised, but suitable habitat at much closer distance *will* be more commonly used. Historically, when Great Crested Newt mitigation schemes were in their infancy, this distance from a development site was taken as the maximum distance at which Great Crested Newts could be relevant to a development scheme. However, more recent guidance has demonstrated that this zone of influence is in reality typically much smaller. For example, a research report⁹ undertaken by English Nature (now Natural England) in 2004 concluded that "... the most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate." Moreover, studies by Jehle⁹ and Cresswell & Whitworth⁹ have also demonstrated that the habitat within 50m of the pond is the most important to Great Crested Newts and supports the majority of the population within its terrestrial phase. Newts generally only disperse beyond this area where there are suitable habitat features linking the breeding pond to the terrestrial habitat. Accordingly, identification of any ponds within 250m of the SGV application site and solar farm site was considered to be appropriate.

Bird Survey

3.23 All birds were observed and recorded during the various survey visits. Habitats within the application site were also appraised for their general suitability for foraging and nesting birds. In terms of the building, this was also subject to internal and external inspections for any evidence of nesting birds. Similar to bats, this involved the use of binoculars and a high-powered torch where required. In addition, given the open-fronted nature of the building, it was further assessed for its potential to support nesting/roosting owls.

Ecological Evaluation and Impact Assessment

3.24 This ecological impact assessment has been performed in line with the methodology and approach set out in CIEEM's latest guidelines¹⁰.

3.25 Ecological features (habitats, species and ecosystems) present within the application site and its zone of influence have been appraised following the desk study, consultation (as part of the previous planning application) and subsequent field surveys with their ecological importance determined in considering factors such as geographical context. In identifying these ecological features (or receptors), it is recognised that a development can affect habitats and species both directly (e.g. the land-take required) or indirectly (e.g. through noise generation or artificial lighting).

3.26 The key elements of the ecological impact assessment process which has been followed comprise:

- Identifying and characterising impacts;
- Incorporating measures to avoid and/or mitigate these impacts;
- Assessment of the significance of any residual effects after mitigation has been applied;
- Where there are significant residual effects, identification of appropriate compensation measures to offset these; and
- Identifying opportunities for ecological enhancement.

¹⁰ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester. Version 1.2 - Updated March 2022

- 3.27 Professional judgment has been applied to determine whether impacts would be significant or not on any identified ecological feature/receptor and in accordance with CIEEM guidelines:

"... a 'significant impact' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (explained in Chapter 4) or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.

In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)."

- 3.28 Accordingly, only ecological features which could undergo *significant impact* and which have been identified as being of sufficient value to be a material consideration have been assessed and considered in relation to the need for mitigation.

Assumptions and Limitations

- 3.29 This ecological impact assessment is based on the submitted proposals plan.
- 3.30 Every effort has been made to perform the habitat survey visits during the optimum time of year to allow a robust assessment of the value of the habitats and identification of constraints for the purposes of allowing an assessment of any significant potential impacts and identification of appropriate mitigation measures.
- 3.31 The building was subject to inspections for evidence of bats and birds and it should be noted that it is not always possible to identify all field signs attributed to these faunal groups, this particularly so for the former given their secretive nature and ability to occupy concealed spaces which are not always visible/accessible for inspection.

- 3.32 In terms of Badgers, it should be noted that it is not always possible to identify all field signs attributed to this species, especially where there are areas of dense vegetation (particularly scrub) as this can conceal features such as setts.
- 3.33 Invasive plant or animal species listed on Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended) were recorded where seen, although it is not always possible to record these features as they can be concealed by vegetation.
- 3.34 Any assessment must however be considered as a 'snapshot' of the existing conditions at the application site on the day and time of survey and therefore does not represent a comprehensive list of flora and fauna.
- 3.35 The ecological data provided by HBRC is not exhaustive. Therefore, there remains the potential for further protected/notable species to occur within the search area, that were not included within the data search.
- 3.36 Indeed, ecological constraints can change over time and it is considered that the findings of this ecological impact assessment are to be valid for a period of one year, after which a habitat/walkover survey should be repeated to check that the baseline conditions have not significantly changed.

4. ECOLOGICAL BASELINE AND EVALUATION

Context and Surrounding Habitats

- 4.1 The application site is located in a rural location to the southwest of Marstow village surrounded by largely agricultural land which is divided by hedgerows and occasional woodland.
- 4.2 Garren Brook is located in close proximity to the northeast of the application site and this flows into the River Wye which is located approximately 1.2km to the southeast at its nearest point.

Ecologically Designated Sites

- 4.3 The nearest statutory designated site is the River Wye SAC. The SAC is notified on account of its Annex 1 habitat (Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation) and Annex II species which comprise White-clawed Crayfish *Austropotamobius pallipes*, Sea Lamprey *Petromyzon marinus*, Brook Lamprey *Lampetra planeri*, River Lamprey *Lampetra fluviatilis*, Twaite Shad *Alosa fallax*, Atlantic Salmon *Salmo salar*, Bullhead *Cottus gobio* and Otter *Lutra lutra*. The river channel is also recognised for its gorges and significant areas of associated woodland. The River Wye SAC is currently at risk from nutrient (phosphate) enrichment which can affect its designating features and plans/projects that increase phosphate discharges may therefore adversely affect the integrity of the site and need to demonstrate nutrient neutrality.
- 4.4 The River Wye is also designated as a Site of Special Scientific Interest (SSSI), principally on account of its diverse flora and fauna, being a valuable wildlife corridor, an essential migration route and a key breeding area for many nationally and internationally important species.
- 4.5 At further distance is Wye Valley Woodlands SAC located approximately 3km to the southwest of the application site. It is notified on account of its Annex I habitats (*Asperulo-Fagetum* beech forests, *Tilio-Acerion* forest, *Taxus baccata* woods) and is also recognised, although not a primary reason for designation, for its populations of Lesser Horseshoe bat *Rhinolophus hipposideros*.

- 4.6 In terms of non-statutory designated sites, Garren Brook Local Wildlife Site is located approximately 50m to the northeast at its nearest point. It is recognised for its riparian habitat (much of it being wooded) and notable flora.

Habitats within the Application site

- 4.7 Plan GRE 1 (Habitats Plan) shows the habitats within the application site.

Semi-improved grassland

- 4.8 The eastern part of the application site comprises poor semi-improved grassland (see TN₁, Photograph 1). False Oatgrass *Arrhenatherum elatius* dominates the sward with herbaceous species being limited to Broad-leaved Dock *Rumex obtusifolius*, Ribwort Plantain *Plantago lanceolata*, Dandelion *Taraxacum officinale* agg., Common Nettle *Urtica dioica* and Hogweed *Heracleum sphondylium*. The sward was maintained relatively short during the various survey visits.



Photograph 1: poor semi-improved grassland (TN₁)

- 4.9 Further small areas of this habitat are present to the southern boundary of the application site along a northernly orientated slope (TN2, Photograph 2). Here a more diverse sward is present and comprises predominantly finer grasses such as Red Fescue *Festuca rubra*, Crested Dog's-tail *Cynosurus cristatus* and Bents *Agrostis* sp. with Yorkshire-fog *Holcus lanatus* and False Oatgrass also present. Herbaceous species include occasional Ribwort Plantain, Creeping Cinquefoil *Potentilla reptans*, Creeping Buttercup *Ranunculus repens*, Red Clover *Trifolium pratense* and White Clover *Trifolium repens* with areas of Rosebay Willowherb *Chamaenerion angustifolium* also dominate in areas.



Photograph 2: semi-improved grassland at southern boundary (TN2)

- 4.10 In addition, the proposed location for the wastewater treatment plant represents a small area of short grazed semi-improved grassland.
- 4.11 This habitat is not considered to be anything particularly unusual in botanical terms, being similar to other semi-improved grassland in the local area. Accordingly, it is judged to be of importance to nature conservation at the site level only.

Buildings and Hardstanding

- 4.12 The building (see Photograph 3) represents a typical agricultural steel-framed structure which supports a shallow pitched roof made up of corrugated sheet (suspected cement) with rooflights onto timber purlins. Metal sheeting and concrete block form the northwest elevation and the gable end walls with the remaining (southeast) elevation being open. There is no roof void or any other obvious concealed space. Rosebay Willowherb, sapling Ash *Fraxinus excelsior*, Goat Willow *Salix caprea* and Elder *Sambucus nigra* have colonised in places around the perimeter of the building along with Ivy *Hedera helix* which has encroached into the interior at the northern elevation.



Photograph 3: building

- 4.13 The building is judged to be of negligible/low value (site-level importance) in its own right, although consideration are given to roosting bats and nesting birds and the following sub-section.
- 4.14 Hardstanding areas comprise compacted hardcore and gravel and make up areas adjacent to the building and form the entrance track.

Ephemeral/short perennial

- 4.15 Areas in the west of the application site represent ephemeral/short perennial habitat (TN3, Photograph 4) with species such as Ribwort Plantain, Greater Plantain *Plantago major*, Ragwort *Senecio jacobaea*, Mayweed *Tripleurospermum* sp. and Sow Thistle *Sonchus* sp. Occasional fine grasses such as Red Fescue are also present.



Photograph 4: ephemeral/short perennial (TN3)

- 4.16 This habitat is judged to be of importance to nature conservation at the site level only.

Scrub

- 4.17 Small areas of Bramble *Rubus fruticosus* agg. have colonised along part of the northern boundary, mainly between the hedgerow and the building.
- 4.18 Overall, this habitat is judged to be of importance to nature conservation at the site level only, although value is afforded to some faunal groups such as (nesting) birds.

Hedgerows and trees

- 4.19 A native hedgerow forms the northern boundary of the application. Hawthorn tends to dominate with Elder, Blackthorn *Prunus spinosa*, Hazel *Corylus avellana* and Elm *Ulmus procera* (some dead) also present. Bramble also dominates in a large gap along its length. A ditch (observed to be wet on several occasions) also runs along its northern length (understood to be outside of the application site).
- 4.20 A small length (approximately 10m) of native hedgerow comprising Hawthorn and Blackthorn is also present in the east of the application site and runs alongside the entrance track.
- 4.21 None of the hedgerows are judged to qualify as being 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997, however, being composed of native species they do qualify as a habitat of principal importance under Schedule 42 of the NERC Act.
- 4.22 Occasional semi-mature Cherry *Prunus* sp. and Ash are present in the northeast of the application site including mature conifers comprising Leyland Cypress *Cupressus × leylandii* and (suspected) Norway Spruce *Picea abies* along part of the southern boundary, planted in a line to screen the building. Other occasional immature trees such as Ash and Rowan *Sorbus* sp., including Snowberry *Symphoricarpos albus*, are also present along part of the southern boundary.
- 4.23 The trees are judged to be of importance to nature conservation at the site level only, with value accorded to some faunal groups such as (nesting) birds.

Fauna Utilising the Application site

Bats

- 4.24 Records for Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Nathusius' Pipistrelle *Pipistrellus nathusii*, Brown Long-eared bat *Plecotus auritus*, Noctule bat *Nyctalus noctula*, Serotine bat *Eptesicus serotinus*, Bechstein's bat *Myotis bechsteinii*, Greater Horseshoe bat *Rhinolophus ferrumequinum* and Lesser Horseshoe bat were returned by HBRC within the requested search area.

- 4.25 None of the trees within the application site presented any obvious features for roosting bats, however, screening from adjacent vegetation can conceal such features on some of the trees.
- 4.26 In terms of the building, no evidence to suggest usage was found. Overall, the building was judged to be of negligible bat roosting potential with any minor concealed spaces subject to high fluctuations in temperature and humidity which are not considered to be suitable for roosting bats. Accordingly, no further survey work was considered to be required in relation to its conversion.
- 4.27 However, as already discussed, the application site is located within the foraging grounds for nearby horseshoe bat populations with specific populations known to be attributed to the nearby Wye Valley Woodlands SAC (although not a primary reason for its notification), being located within a core sustenance zone. As such, to ascertain any usage of the application site for these rarer bat species, static monitoring was performed during the period 26-Apr to 18-Aug-2022 (115 continuous nights), the results of which are appended to this ecological impact assessment.
- 4.28 In summary, Lesser Horseshoe bats were detected on 57 of the 115 monitored nights (nearly 50%) with a peak of eight registrations on 03-Jul-2022. In terms of Greater Horseshoe bats, activity was notably lower, being detected on only 11 nights (nearly 10%) with no more than one registration on each recorded night. Many of the timings tended to correlate with navigating to and from a nearby roost site.
- 4.29 Overall, it is judged that the application site is of importance to local horseshoe bats at the local level.

Badger

- 4.30 [REDACTED] no field signs were observed within the application site together with no evidence to suggest the presence of any sett. As such, no further consideration is given to Badgers in this ecological impact assessment.

Great Crested Newts

- 4.31 A record for this protected species from 2005 corresponding to a pond located approximately 1.1km to the southeast was returned by was returned by HBRC. However, this is considered to be well outside the distance within which this protected species can be found from its breeding pond.
- 4.32 In terms of any other ponds at closer distance, no ponds are known within 500m on consulting OS mapping.
- 4.33 As such, the likelihood of encountering Great Crested Newts within terrestrial habitat within the application site is judged to be extremely low and no further consideration is therefore given in this ecological impact assessment.

Birds

- 4.34 Dunnock *Prunella modularis*, Wren *Troglodytes troglodytes* and Chaffinch *Fringilla coelebs* were all seen/heard during the various survey visits.
- 4.35 The scrub, hedgerows and trees all offer apparent nesting and foraging opportunities for local common garden bird species.
- 4.36 In terms of the building, whilst no nests were observed, various internal ledges do provide obvious nesting sites for common species such as Woodpigeon *Columba palumbus*. No other evidence of activity (e.g. owl pellets) was found.
- 4.37 Overall, the application site is judged to be of value to local birds at the site level only.

Reptiles

- 4.38 Populations of common reptiles are known in the local area and the small areas of grassland along the northern boundary of the application site do provide some apparent opportunities for this faunal group although any suitability is tempered as the habitat is orientated along a north facing slope. Open areas adjacent to this habitat may also present good basking opportunities.

4.39 Overall, the application site is judged to be of value to common reptiles at the site level.

Other

4.40 Following the various survey visits and review of records returned by HBRC, there are considered to be no further ecological considerations relating to the application site.

5. IMPACTS, MITIGATION AND ENHANCEMENTS

Ecologically Designated Sites

Potential Impacts

- 5.1 Garren Brook Local Wildlife Site is located in close proximity (approximately 50m) to the application site and its hydrologically linked via the ditch which runs along the northern boundary hedgerow. In the absence of precautions during construction, any contaminated run-off and other polluting sources could result in a pollution event downstream which could adversely affect Garren Brook (minor-moderate adverse significance at the local level) and potentially the River Wye SAC (minor significance adverse) situated further downstream. The introduction of a residential dwelling also has the potential to adversely affect the River Wye SAC through an increase in phosphates derived from introduced foul water – an impact of minor adverse significance.
- 5.2 Any potential impacts on the River Wye Woodlands SAC are addressed below in relation to horseshoe bats.

Mitigation Measures

- 5.3 A Construction Environmental Management Plan (CEMP) will be produced to reduce the potential for impacts on on-site and neighbouring ecological receptors during the construction phase and this can be secured by way of planning condition on any consent. Standard best practice pollution prevention measures, waste management and environmental monitoring will be adopted and would include:
- Hydrocarbons, greases and hydraulic fluids to be stored in a secure compound area;
 - All plant machinery to be properly serviced and maintained, thereby reducing risk of spillage or leakage;
 - All waste produced from construction will be collected in skips with the construction site kept tidy at all times;
 - Excavated soil to be stored on site or removed by a licensed waste disposal unit;

- All materials and substances used for construction to be stored in a secure compound and all chemicals to be stored in secure containers to avoid potential contamination;
- Location of spill kit to be known by all construction workers and implemented in the event of spillage or leakage;
- Skips to be used for site waste/debris at all times and collected regularly or when full;
- All hydrocarbons and fluids to be collected in leak-proof containers and removed from site for disposal or recycling;
- All waste from construction is to be stored within the site confines and removed to a permitted waste facility;
- Contractor to nominate member of staff as the environmental officer with the responsibility to ensure best practice measures are implemented and adhered to, with any incidents or non-compliance issues to be reported to project team.

5.4 An on-site foul water treatment package has been incorporated into the proposals in order to eliminate any impacts from phosphates. This will involve installation of a sealed catchment tank with macerator installed adjacent the converted building together with a primary treatment plant and associated secondary soakaway located within the neighbouring field within the applicant's ownership. The treatment plant and soakaway have been located beyond 50m of the ditch along the northern boundary of the application site (and therefore well separated from the nearby Garren Brook and downstream River Wye drainage catchment). The installation of the treatment plant and associated soakaway will ensure the necessary attenuation such that there is no risk of phosphates entering the drainage catchment.

Habitats

Potential Impacts

- 5.5 Overall, the application site is judged to be of low value in ecological terms, with prevailing habitats being common and widespread.
- 5.6 The proposals would result in minor changes to the existing habitats, the most significant change being replacement of the ephemeral/short perennial with amenity

habitats, such as grassland and new trees. Further trees are proposed elsewhere within the application site. All existing trees and the hedgerows would be retained.

- 5.7 Such minor habitat change is not considered to lead to any significant adverse impacts overall and no specific mitigation is judged to be required.
- 5.8 In terms of the retained and neighbouring habitats (e.g. hedgerows, trees and ditch), in the absence of mitigation, these habitats could suffer physical damage/root zone impacts during the construction phase and this could lead to an adverse impact of minor significance.

Mitigation Measures

- 5.9 In addition to the aforementioned measures within a CEMP, other appropriate provisions under BS42020: 2013 (Biodiversity: Code of Practice for Planning and Development) and BS 5837: 2012 (Trees in Relation to Design, Demolition and Construction – Recommendations) would also be adopted where required to safeguard adjacent habitats.

Bats

Potential Impacts

- 5.10 The application site is of value to a range of bat species for both foraging and commuting purposes given its location within open countryside and connectivity with good habitat features (e.g. hedgerows, woodland, watercourses, pasture).
- 5.11 In terms of horseshoe bats, including other bat species which are sensitive to artificial lighting, any external lighting, particularly where it spills onto the hedgerow along the northern boundary, could adversely affect these species – an adverse impact of minor-moderate significance at the site/local level.
- 5.12 The introduction of new garden habitat is likely to provide a net gain enhancement as the provision of amenity (i.e. nectar and pollen producing) species would increase the invertebrate assemblage and in turn provide improved foraging opportunities – an enhancement of minor beneficial significance at the site level.

- 5.13 In terms of roosting, conversion of the building would not lead to any loss of roosting opportunities nor are there any trees which have been identified as supporting suitable roosting features.

Mitigation Measures

- 5.14 To safeguard opportunities for horseshoe bats (and other species less tolerant to artificial lighting) it is recommended that an appropriate mechanism (such as a legal covenant/planning condition) is applied to prevent any external lighting on the converted building, unless otherwise agreed with Herefordshire Council. This would safeguard the adjacent hedgerow in its likely role in providing a commuting route to wider foraging grounds.
- 5.15 To provide new bat roosting opportunities for crevice-dwelling bat species, the converted building will incorporate inset bat roosting boxes (e.g. Schwegler 1FR or equivalent) within the fabric of suitable elevations. In addition, bat boxes are also recommended on suitable retained trees. The bat boxes would be sited as high up as possible and positioned in a sheltered location away from direct lighting and strong winds and only exposed to the sun for part of the day. Such measures can be secured by way of planning condition.

Birds

Potential Impacts

- 5.16 Removal of any trees/scrub and works to the building if performed during the months of March and August inclusive may disturb nesting birds – an adverse impact of moderate adverse significance at the site level.
- 5.17 Newly created habitats will reintroduce nesting and foraging opportunities for local bird populations such that there would be no net change in foraging and nesting opportunities.

Mitigation Measures

- 5.18 Removal of trees/scrub and works to the building should be undertaken outside of the nesting bird season (March–August inclusive). However, if such works are required within the nesting bird season then a check survey for nesting birds will be undertaken (by a suitably qualified ecologist) immediately prior to works with a safe method of works agreed if required. If any nesting birds are identified then a suitable cordon may be required (depending on the species encountered) and works would cease until all young have fledged.
- 5.19 To provide additional nesting opportunities, suitable bird nesting boxes can be erected on suitable retained mature trees. Such measures can be secured by way of planning condition.

Reptiles

Potential Impacts

- 5.20 If any substantive works are proposed within the area of grassland on the slope to the southern boundary of the application site then this could result in killing/injury in the absence of necessary precautions – a minor adverse impact at the site level.

Mitigation Measures

- 5.21 A pre-commencement check survey to review the extent of any habitat and the requirement for any targeted habitat manipulation measures (to be performed under the direction of a suitably qualified ecologist) is recommended ahead of any impacting construction works. Such a measure can be secured by way of planning condition.

6. RESIDUAL IMPACTS AND CONCLUSIONS

Ecologically Designated Sites

- 6.1 Necessary precautions and practices would be implemented within a CEMP to ensure that there would be no adverse impacts on the adjacent ditch and nearby Garren Brook Local Wildlife Site and River Wye SAC situated further downstream.
- 6.2 Following the proposed mitigation to attenuate phosphates (on-site treatment plant with soakaway attenuation) the proposals would not result in any significant effects on the nearby River Wye SAC, either alone or in combination with any other plans/projects, pursuant to the tests set out within Regulation 63 of the Habitats Regulations. Indeed, Herefordshire Council, as competent authority under the Habitats Regulations, therefore has sufficient information to allow them to undertake their Habitats Regulations Assessment and can conclude that no further mitigation is required.

Habitats

- 6.3 Following the aforementioned precautions during construction to safeguard retained and adjacent habitats, together with newly created habitats, it is judged that the proposals would not lead to any adverse impacts in overall habitat terms.

Bats

- 6.4 Provision of new bat roosting features on the converted building and suitable retained mature trees is judged to result in a net gain in roosting provision for local crevice-dwelling bat populations of minor beneficial significance.
- 6.5 In terms of local horseshoe bat populations, with the application site being within a core sustenance zone associated with the nearby River Wye Woodlands SAC, the specific bat activity survey has not found significant numbers of bats which would suggest that the application site is not of any high value for these rarer bat species. However, following the surveys performed it has been recommended that there should be no external lighting erected on the converted building to ensure that horseshoe bats (and other species less tolerant to artificial light) can continue

passage through the application site in accessing their wider foraging grounds. Therefore, it can be concluded with confidence that the proposals would not result in any significant adverse effects on the nearby River Wye Woodlands SAC either alone or in combination with any other projects/plans, pursuant to Regulation 63 of the Habitats Regulations.

Birds

- 6.6 Necessary precautions during clearance of scrub/any trees and works to the building would ensure that there would be no adverse impacts on nesting birds during the construction phase.
- 6.7 Provision of nesting boxes to suitable retained mature trees is judged to more than compensate for the loss of the existing habitat.

Reptiles

- 6.8 Necessary precautions ahead of any impacting works along the slope of the southern boundary of the application site would ensure that there would be no adverse impacts on any resident reptiles.

Summary

- 6.9 Overall, the application site is judged to be of low value in ecological terms.
- 6.10 A specific mitigation strategy relating to foul water drainage involving attenuation at sufficient distance from nearby ditches/watercourses has been incorporated to ensure that there would be no significant adverse effects on the nearby River Wye SAC.
- 6.11 Recommendations for detailed design have been identified for bats (roosting boxes, no external lighting) and birds (nesting boxes) and can be secured by way of planning condition and these would further secure a net gain for biodiversity.
- 6.12 It is therefore concluded, following adoption of the recommendations and precautionary mitigation set out in this ecological impact assessment, that there

would be no overriding ecological constraints that would preclude implementation of the proposals.



BAT ANALYSIS

BAT DETECTOR: Titley Scientifics' Anabat
 Express
 Trigger settings: sensitivity - 16 (medium), trigger window - 2s, min event - 2ms
 File length: 6s
 File mode: zero crossing

HORSESHOE BAT REGISTRATIONS

	GHS	LHS					
26-Apr	21.18	21.19	23.06				
27-Apr	none	none					
28-Apr	none	none					
29-Apr	none	none					
30-Apr	none	01.33					
01-May	none	none					
02-May	none	22.36	02.09	02.25			
03-May	none	none					
04-May	none	none					
05-May	none	21.30	22.26				
06-May	none	02.03	02.05	02.07			
07-May	none	none					
08-May	none	22.03					
09-May	none	none					
10-May	none	22.41	23.08	23.32	02.07		
11-May	none	03.35					
12-May	03.09	none					
13-May	none	none					
14-May	none	none					
15-May	none	23.53					
16-May	none	22.26					
17-May	none	none					
18-May	03.40	22.52	23.27				
19-May	none	00.29					
20-May	none	21.56					
21-May	none	03.28					
22-May	none	22.40	22.41	00.15	00.33	02.48	03.36
23-May	none	22.08	22.16	22.29			
24-May	none	03.14					
25-May	none	22.15	22.47	01.20	01.42	02.09	02.47
26-May	none	02.16					
27-May	none	23.27					

28-May	none	none							
29-May	none	none							
30-May	none	23.17	01.15						
31-May	none	none							
01-Jun	none	none							
02-Jun	none	03.03							
03-Jun	03.54	23.47	00.28	00.56	01.54	02.18	02.27	03.11	
04-Jun	none	none							
05-Jun	none	none							
06-Jun	none	none							
07-Jun	none	23.06	23.48						
08-Jun	none	02.27							
09-Jun	none	none							
10-Jun	none	23.52	03.54						
11-Jun	none	02.20							
12-Jun	none	none							
13-Jun	none	23.37	23.58						
14-Jun	none	00.40							
15-Jun	none	none							
16-Jun	none	22.42	23.11						
17-Jun	none	02.10	02.32						
18-Jun	none	23.45							
19-Jun	none	00.04	02.17						
20-Jun	none	none							
21-Jun	none	none							
22-Jun	none	none							
23-Jun	none	none							
24-Jun	none	02.08	02.21	02.34					
25-Jun	none	00.05	00.35	00.42	01.41	02.03	02.07	02.43	
26-Jun	none	01.06	01.51	02.03	02.13	02.30			
27-Jun	none	none							
28-Jun	03.02	02.01	02.12						
29-Jun	22.26	none							
30-Jun	none	none							
01-Jul	none	02.06	02.13	02.46					
02-Jul	none	none							
03-Jul	03.54	22.58	23.47	00.28	00.56	01.54	02.18	02.27	03.11
04-Jul	none	00.06							
05-Jul	none	none							
06-Jul	none	02.04	03.01						
07-Jul	none	none							
08-Jul	none	none							
09-Jul	none	none							

10-Jul	none	none			
11-Jul	none	03.16			
12-Jul	none	none			
13-Jul	none	none			
14-Jul	none	none			
15-Jul	none	none			
16-Jul	none	none			
17-Jul	none	23.36			
18-Jul	none	none			
19-Jul	none	none			
20-Jul	none	22.51			
21-Jul	none	none			
22-Jul	none	23.31			
23-Jul	none	none			
24-Jul	none	04.09			
25-Jul	none	none			
26-Jul	22.03	22.42			
27-Jul	21.55	none			
28-Jul	none	22.39			
29-Jul	none	none			
30-Jul	none	none			
31-Jul	none	23.02	23.04		
01-Aug	none	none			
02-Aug	none	none			
03-Aug	none	none			
04-Aug	22.10	22.19	23.48	23.57	00.59
05-Aug	none	none			
06-Aug	none	22.19			
07-Aug	none	none			
08-Aug	none	00.51	01.12		
09-Aug	none	none			
10-Aug	02.05	22.40			
11-Aug	none	22.52			
12-Aug	none	22.00	23.57	02.20	
13-Aug	none	none			
14-Aug	none	22.44			
15-Aug	none	21.45	01.37		
16-Aug	none	none			
17-Aug	none	21.49	00.14		
18-Aug	none	none			