

**ECOLOGICAL IMPACT
ASSESSMENT**

Hopkins Estates

Harvest Lane, Charlton Horethorne



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1. INTRODUCTION

Background

- 1.1 Grass Roots Ecology has been commissioned on behalf of Hopkins Estates to carry out an ecological impact assessment on land off Harvest Lane (the 'application site') in Charlton Horethorne, pursuant to detailed planning proposals for 31 residential units including three set-aside plots for self-build dwellings, employment space and associated access and green space (the 'proposals').
- 1.2 The proposals also include an area of land also within the ownership of Hopkins Estates which has been set-aside to offset the measurable biodiversity net loss on the application site itself and help achieve an overall 10% net gain in line with forthcoming Governmental targets. This area is referred to as the off-site biodiversity enhancement area and is located approximately 350m to the northwest of the application site.

Objectives

- 1.3 This ecological impact assessment sets out the findings of a desk study, various extended phase 1 habitat survey visits and a series of further (species-specific) surveys at the application site and off-site biodiversity enhancement area and in doing so:
- a) determines the main habitat types;
 - b) evaluates the ecological value;
 - 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; and
 - f) identifies potential opportunities to enhance the ecological value of the application site and off-site biodiversity enhancement area in line with forthcoming biodiversity net gain targets.

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 any statutory designated wildlife sites, such as Sites of Special Scientific Interest (SSSI), European or International 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 and anticipated to be adopted in November 2023). 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. Until the Biodiversity Net Gain Regulations, it is understood that the council's current position is to seek that proposals do not result in a net loss. Indeed, it is understood following recent advice issued from both DEFRA and Natural England that in the absence of any interim local planning policy, only planning applications submitted/validated after November 2023 will be required to achieve a measurable 10% net gain, with proposals submitted before this required to demonstrate no net loss in accordance with the latest biodiversity metric.

2.7 Other legislation relating to wildlife and biodiversity considered to be of 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.

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

3. METHODOLOGY

Background

- 3.1 A comprehensive ecological impact assessment has been performed and forms 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 off-site biodiversity enhancement area) and any nearby ecologically designated wildlife sites 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 by 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 over 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 Somerset Environmental Records Centre was contacted to provide information on protected/notable species and ecologically designated sites within a 2km search radius. Data received has informed this ecological impact assessment where required and (subject to any confidentiality restrictions) is 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.

Extended Phase 1 Habitat Survey

3.8 An extended Phase 1 habitat survey of the application site was initially undertaken on 14-April-2020 with further checks performed as part of numerous subsequent visits coordinated as part of a series of bat activity surveys (see further below) as follows:

- 06-May-2021: habitat survey check, bat activity survey
- 01-July-2021: habitat survey check, bat activity survey
- 04-August-2021: habitat survey check, bat activity survey
- 01-September-2021: habitat survey check, bat activity survey
- 12-October-2021: habitat survey check, bat activity survey (collection of deployed bat recording detector)
- 28-February-2023: phase 1 habitat check
- 16-August-2023: phase 1 habitat survey check including habitat survey of the off-site biodiversity enhancement area.

3.9 The Phase 1 habitat survey visits were performed in line with the methodology set out by the Joint Nature Conservation Committee ('JNCC')⁵, as recommended by Natural England, with all habitats and vegetation types recorded and mapped, as shown on Plan GRE 1, together with an indication of their relative abundance.

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

3.11 Target Notes (TN) were employed where necessary to identify any particular features/observations of interest, as shown on Plan GRE 1.

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*.

- 3.12 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.
- 3.13 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.
- 3.14 All survey visits were performed by Alexander Heath MCIEEM.

Protected and Notable Species Survey

- 3.15 All signs of protected species or faunal groups encountered during the various 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

- 3.16 The habitat suitability for bats was assessed as part of the 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.

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

- 3.17 The suitability of the application site for foraging/commuting bats was identified as being of low-moderate when considering the extent of suitable habitat on and surrounding the application site. Its suitability was tempered as the hedgerow within the application site is gappy and poorly connected, although boundary hedgerows do offer some (albeit limited) connectivity with the wider landscape. Accordingly, a total of four transect surveys together with the deployment of an automated bat recording detector was considered appropriate to assess the value of the application site for local bat populations.
- 3.18 Any trees and built structures likely to be affected by the proposals were also subject to a ground-level assessment for their potential to support roosting and/or hibernating bats in line with guidance produced by the Bat Conservation Trust⁷ and JNCC⁸. For built structures, this involved searching for any evidence of bats (e.g. droppings, stained areas) and any features capable of accommodating roosting bats (e.g. timber weatherboarding, roof voids and other concealed spaces). For trees, this involved searching for features such as peeling bark, cracks/split, compression joints and woodpecker holes and any other features which can present suitable roosting opportunities for crevice-dwelling bat species. Binoculars, ladders and a high-powered torch were utilised where required.
- 3.19 The transect surveys were performed on 06-May-2021, 01-July-2021, 04-August-2021 and 01-September-2021 and utilised two surveyors equipped with Titley Scientifics' Anabat Scout bat recording detectors. One surveyor was also employed during each visit to perform a dedicated dusk survey on the dilapidated building. In terms of the automated survey element, this involved deployment of an Anabat Express within the centre of the application site during periods in May (13 nights), July (8 nights), August (5 nights) and September 2021 (11 nights).
- 3.20 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.
- 3.21 These surveys were performed under the direction of Alexander Heath ACIEEM who holds a current Natural England Survey Licence (2015-15821-CLS-CLS).

⁷ 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
⁸ Mitchell-Jones, A.J. & McLeish, A.P. Ed., (2004), 3rd Edition Bat Workers' Manual, 178 pages b/w photos, softback, ISBN-1-86107-558-8

Badger Survey

- 3.22 Particular attention was given to any evidence indicating activity, such as the presence of a sett, well-worn paths/push-throughs, snagged hair, footprints, latrines and foraging signs. This survey covered land up to 30m from the boundary where access permitted.
- 3.23 Where any setts are identified, the following methodology was employed in identifying and recording the number of sett entrances:
- Active entrances: where these are free from debris and vegetation and show other signs of regular usage, e.g. snagger hairs, excavated spoil, footprints;
 - Inactive entrances: where there is evidence that the entrance is not in regular use, e.g. presence of debris such as leaves and twigs, living vegetation in or around entrance edge; and
 - Disused entrances: where there is no obvious evidence of use, is partly or completely blocked and cannot be used without excavation.

Hazel Dormouse Survey

- 3.24 The suitability of habitat to support Hazel Dormice was assessed.
- 3.25 It is known that population density is strongly correlated with hedgerow height and shrub diversity. Where there is a strongly connected network of hedgerows of the 'right type' and/or these are linked to sizable blocks of semi-natural broadleaved woodland (ancient woodland in particular) then the hedges are likely to support Hazel Dormice (when populations are known in the local area). Below summarises the features of hedges that make them more or less likely to support Hazel Dormice, based on Bright et al. 2006:

More likely:

- Tall, not cut too frequently
- Few gaps of more than 3m
- Cut and laid rather than flailed
- Double hedged or wide single hedges

- Diverse variety of woody species
- Abundant Hazel, Bramble, Honeysuckle, Dog-rose and/or Hawthorn
- Linked at present or in recent past to sites with Hazel Dormice records/blocks of ancient woodland over 20ha
- Connected to other 'good quality' hedgerows or scrub

Less likely:

- Displaying to opposite of the above traits (e.g. short, gappy, narrow etc.)
- Dominated by non-native species or by hedgerow plants seldom used by Hazel Dormice (e.g. dense Blackthorn)

3.26 This rationale has been applied to assess the potential for hedgerows to support Hazel Dormice and to categorise them as high, medium or low potential on the basis of how many positive and negative traits they exhibit.

Bird Survey

3.27 All bird species were recorded as part of the various survey visits which equated to eight visits in total. Particular attention was given to the potential for the application site to support any notable bird populations, such as those of conservation concern identified on the *Birds of Conservation Concern 4 (2015)*, published by RSPB *et al.* (i.e. the 'Red List') or any rarer, or particularly vulnerable bird species, afforded special protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Great Crested Newt Survey

3.28 Any ponds in close proximity to the application site and off-site biodiversity enhancement area were identified and appraised for their suitability to support Great Crested Newts. Whilst 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, it is habitat at much closer distance that is 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 smaller⁹. Accordingly, identification of any ponds within 250m was considered to be appropriate.

3.29 Where required, this involved a visual survey involving the recognised Habitat Suitability Index (HSI) assessment method as set out in Amphibian and Reptile Groups of the UK's guidance note¹⁰.

Ecological Evaluation and Impact Assessment

3.30 This ecological impact assessment has been performed with due regard to the methodology and approach set out in CIEEM's latest guidelines¹¹.

3.31 Identification of the zone of influence is the first stage of the assessment process. Whilst the potential ecological impacts of the proposals are largely confined to the application site itself consideration has also been given to the following potential impacts, which may spread beyond the application site:

- disturbance to populations within their audible range during the construction phase;
- fragmentation of 'dispersal corridors' utilised by adjacent populations;
- disruption to habitats/populations within receiving range of dust etc. during the construction phase;
- Disturbance to habitats/populations through recreation pressures (i.e. within walking distance or through dumping of rubbish etc.) during the operation phase; and
- Disturbance to species (e.g. bats) through increased urbanisation (principally lighting) during the operational phase.

3.32 Ecological receptors (i.e. habitats, species, populations and ecosystems) present within the application site and its zone of influence were then appraised following the desk study and planning application consultation together with the performed survey work with their ecological importance (value) determined in their geographical

⁹ 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.

¹⁰ ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index

¹¹ 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

context based on the following categories: international, UK, national, regional, county, district, local or site-level.

3.33 In identifying these ecological 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 potential impacts identified above in considering the zone of influence).

3.34 Once the relevant ecological receptors likely to be affected by the proposals have been identified, CIEEM's guidelines promote a transparent approach in which an impact is determined to be significant or not on the basis of a discussion of the factors that categorise it. This includes characterising the nature of the likely impacts on each important feature in terms of ecological structure and function, by considering the following parameters:

- positive or negative / beneficial or adverse;
- extent;
- magnitude;
- duration;
- reversibility; and
- timing and frequency.

3.35 Therefore, professional judgment has been applied to determine whether impacts would be significant or not on any identified ecological feature/receptor. Indeed, CIEEM's guidelines stated that:

"... 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)."

- 3.36 Accordingly, only ecological features which could undergo *significant impact* and which have been identified as being of sufficient value to be a material consideration in determining the planning application have been assessed and considered in relation to the need for mitigation in this ecological impact assessment.
- 3.37 Any identified significant impacts (both prior and after any mitigation) within a given geographical area have then been assigned the following categories: major, moderate, minor or negligible.

Assumptions and Limitations

- 3.38 This ecological impact assessment is based on the submitted detailed proposals plan prepared by orme architecture together with accompanying landscape plan and designated off-site biodiversity enhancements plan (see Plan GRE 3).
- 3.39 The trees and built structure were subject to visual assessments 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 is particularly so for the former, given their secretive nature and ability to occupy small concealed spaces which are not always visible.
- 3.40 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, although largely absent in this instance) as this can conceal features such as setts.
- 3.41 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.
- 3.42 Ecological data provided by Somerset Environmental Records Centre is not exhaustive and the potential for further protected/notable species to occur within the search area cannot be discounted. That said, the potential for any further protected/notable species considerations and constraints has been given full regard as part of the various survey visits.

- 3.43 Whilst the majority of the phase 1 habitat survey visits were performed within the optimum period, any assessment must be considered as a 'snapshot' of the existing conditions on the day and time of survey and therefore does not represent a comprehensive list of flora and fauna. 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 on the north-western edge of Charlton Horethorne village. Measuring approximately 3.5 hectares, it comprises agriculturally improved grassland pasture.
- 4.2 Outside of the settlement boundary, surrounding land comprises further agriculturally managed land interspersed by occasional hedgerows.
- 4.3 As already mentioned, the off-site biodiversity enhancement area is located approximately 350m to the northwest of the application site (see Plan GRE 3) and measures 1.37 hectares.

Ecologically Designated Sites

- 4.4 There are no statutory designated wildlife sites located in close proximity, the nearest being Sparkford Wood Site of Special Scientific Interest (SSSI) (semi-natural woodland habitat) located in excess of 5km to the northwest. Given the distance and the nature of the designating habitat, this statutory designated wildlife site is judged to be outside of the zone of influence in relation to the proposals.
- 4.5 In terms of non-statutory designed wildlife sites, The Cleeve Local Wildlife Site (unimproved calcareous grassland) is located approximately 175m to the south of the application site.

Habitats

- 4.6 Plan GRE 1 shows the habitats within the application site as mapped following the various survey visits. Photographs are included below for reference.

Poor Semi-improved Grassland

- 4.7 This habitat dominates the application site and was observed to be intensively (Sheep) grazed for the majority of the survey visits, although is understood to be cut for silage/haylage on occasion.

- 4.8 Perennial Rye-grass *Lolium perenne* and False Oatgrass *Arrhenatherum elatius* tend to dominate the sward with Red Fescue *Festuca rubra*, Cock's-foot *Dactylis glomerata* and Smooth Meadow-grass *Poa trivialis* also observed. Herbaceous species were rare and restricted to White Clover *Trifolium repens*, Dandelion *Taraxacum officinale* agg., Common Mouse-ear *Cerastium fontanum*, Field Bindweed *Convolvulus arvensis*, Broad-leaved Dock *Rumex obtusifolius*, Common Nettle *Urtica dioica*, Spear Thistle *Cirsium vulgare* and Creeping Thistle *Cirsium arvense*, the latter dominating in places.



Photograph: poor semi-improved grassland (looking south) (February 2013)

- 4.9 Margins were observed to be very limited with any rank vegetation absent owing to intensive management.
- 4.10 Further poor semi-improved grassland is included within the off-site biodiversity enhancement area. Cock's-foot and False Oat-grass dominates the sward with Timothy Phleum pratense, Common Couch *Elymus repens*, Smooth Meadow-grass and Red Fescue also observed. Herbaceous species comprise Broad-leaved Dock, Creeping Thistle, White Clover, Dandelion, Common Nettle, Creeping Buttercup *Ranunculus repens* and Hogweed *Heracleum sphondylium*.



Photograph: poor semi-improved grassland within off-site biodiversity enhancement area (August 2023)

- 4.11 Completion of the condition sheets within DEFRA's biodiversity metric (version 4.0) concludes that the grassland habitat is in poor condition on the basis that four essential criteria were passed but with failure to satisfy the required plant diversity/density (of 6-8 vascular plants per m², including at least two forbs) criterion. The completed condition sheet is appended to this ecological impact assessment.
- 4.12 Being poor in both botanical and condition terms, this grassland habitat is judged to be of value at the site-level only.

Hedgerows and trees

- 4.13 Part of the northern boundary of the application site is formed by a mature native hedgerow, as marked H1 on Plan GRE 1. It is flailed on occasion and measures on average approximately 6m in height. No particular species dominates with Hawthorn *Crataegus monogyna*, Elder *Sambucus nigra*, Field Maple and Blackthorn *Prunus spinosa* frequently observed along with occasional Dog-rose *Rosa canina* and Bramble *Rubus fruticosus* agg. also present along with occasional mature Ash *Fraxinus excelsior* (marked as individual trees on Plan GRE 1). The ground flora tends to be dominated by Ivy *Hedera helix* with Red Campion *Silene dioica*, Ground-ivy *Glechoma hederacea*, Lords-and-Ladies *Arum maculatum*, Cow Parsley *Anthriscus sylvestris*,

Garlic Mustard *Alliaria petiolata*, Dog's-mercury *Mercurialis perennis* and Common Nettle.

- 4.14 Hedgerow H₂ forms the remaining length of the northern boundary and continues along part of the eastern boundary and marks the boundary to adjacent residential properties. It is subject to more regular management measuring approximately 1.5m in height and comprises Hawthorn, Blackthorn and Ash. Ivy dominates the ground flora component.
- 4.15 Hedgerow H₃ also forms a boundary to an adjacent residential property along part of the eastern boundary, although is understood to be situated outside of the application site itself. Measuring approximately 2m in height it comprises entirely of early-mature Beech *Fagus sylvatica* and is managed on a regular basis.
- 4.16 Hedgerow H₄ forms the boundary with Harvest Lane and is subject to regularly management. It is dominated by Blackthorn with occasional Bramble, Hawthorn and Elm *Ulmus procera* and rare occurrences of Elder, Ash, Field Maple and Dog-rose. Ivy once again dominates the ground flora with Common Nettle, Ground-Ivy, Lords-and-Ladies and Cow Parsley also observed.
- 4.17 Hedgerow H₅ represents a largely defunct hedgerow which traverses the application site in a broadly east-west orientation. It is subject to regular management and poaching pressure and measures approximately 1.5m in height. Hawthorn tends to dominate with Elder, Blackthorn and Dog-rose also present with a ground flora comprising occasional Dog's-mercury.
- 4.18 A number of mature Ash form the boundary to Harvest Lane north of the dilapidated building and occasional trees neighbour/overhang part of the eastern boundary of the application site from adjacent residential gardens and include Cider Gum *Eucalyptus gunnii*, Monterey Cypress *Cupressus macrocarpa*, Silver Birch *Betula pendula* and Leyland Cypress *Cupressus × leylandii*.
- 4.19 Completion of the relevant condition sheets within DEFRA's biodiversity metric (version 4.0) concluded that all hedgerows, with the exception of H₃ which does not meet the required hedgerow habitat type being an ornamental hedgerow, are of moderate habitat condition.

- 4.20 None of the hedgerows are considered to be species-rich and are therefore not likely to qualify as being 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997. However, native hedgerows do qualify as a habitat of principal importance under Schedule 42 of the NERC Act. Accordingly, they are judged to be of value at the site/local-level.
- 4.21 In terms of the trees, value to a range of faunal species is afforded and they are judged to be of value at the site/local-level.

Other

- 4.22 A mix of timber and wire-post fencing form the boundaries to the adjacent residential properties along part of the eastern and southern boundaries of the application site. In addition, a length of partially collapsed dry-stone wall runs along part of the boundary to Harvest Lane, northwest of a dilapidated former stone barn, and continues within the northwest section of the application site.
- 4.23 The dilapidated former stone barn is located alongside the western boundary of the application site. All that remains is masonry with a now collapsed timber and metal sheeted roof structure.



Photograph: dilapidated stone barn (February 2023)

Protected and Notable Species

Bats

- 4.24 Somerset Environmental Records Centre returned records for Pipistrelle *Pipistrellus* sp., Brown Long-eared bat *Plecotus auratus*, Noctule bat *Nyctalus noctula*, Serotine bat *Eptesicus serotinus*, Natterer's bat *Myotis nattereri* and Whiskered bat *Myotis mystacinus* within the requested search area.
- 4.25 The mobile (transect) surveys were performed across May – September 2021 (five visits) are illustrated on Plan GRE 2. Overall, activity was very low and attributed to mainly common species such as Common Pipistrelle and Noctule bat, although some less common species such as Serotine bat were also observed.
- 4.26 During the static survey, monitoring was performed along hedgerow H5 within the centre of the application site in May (13 recorded nights), July (8 nights), August (5 nights) and September 2021 (11 nights), with full results appended to this ecological impact assessment. Recorded activity confirmed very low levels of activity attributed to mainly Common Pipistrelle with occasional Noctule bat and Serotine bat along with rare occurrences of *Myotis* (suspected Natterer's bat) and a single Greater Horseshoe bat *Rhinolophus ferrumequinum* in August.
- 4.27 The dilapidated building along the western boundary of the application site was subject to specific dusk surveys as part of the wider activity surveys given it was identified as offering moderate bat roosting potential given the presence of numerous opportunities for crevice-dwelling to roost within the matrix of the stone walls. However, no roosting activity was recorded.
- 4.28 In terms of the trees, whilst some screening from adjacent vegetation and the presence of Ivy can conceal/support suitable features on some trees, overall, they were assessed to be of negligible to low bat roosting potential given the general absence of suitable features (i.e. peeling bark, crack and splits). No specific survey work (e.g. in the form of emergence/re-entry surveys) was considered to be required. In any event, regard was had for any activity/behaviour which may suggest roosting on-site during the wider activity surveys and no evidence was observed. As such, it is considered that none of the trees support bat roosts.

- 4.29 Following the survey work performed, the application site is considered to be of value to local bat populations at the site-level only. The off-site ecological enhancements area is judged to be of similar value to local populations.

Badgers

- 4.30 Whilst no evidence of Badger was found during the various survey visits both the application site and off-site biodiversity enhancements areas are judged to be of value to local Badger populations at site-level given populations (and setts) are known in the vicinity.

Reptiles

- 4.31 No areas of rank vegetation were observed within the application site given its intensive management regime and the presence of this faunal group is not considered to be likely.
- 4.32 In terms of the off-site biodiversity enhancements area, the grassland was observed to be long (in August 2023) and connectively with field margin habitat in surrounding agricultural land does provide some opportunities for common reptiles.

Hazel Dormice

- 4.33 The hedgerows within the application site were assessed as having low potential to support this protected species given the absence of Hazel *Corylus avellana* and poor connectively with the wider hedgerow network and the absence of nearby woodland. No suitable habitat (in the form of hedgerows) is present within the off-site ecological enhancements area. Accordingly, the likelihood of encountering Hazel Dormice within the application site and the off-site ecological enhancements area is judged to be very low and no further consideration is therefore given in this ecological impact assessment.

Birds

- 4.34 Starling* *Sturnus vulgaris*, Woodpigeon *Columba palumbus*, Carrion Crow *Corvus corone*, Pheasant *Phasianus colchicus*, Magpie *Pica pica*, Goldfinch *Carduelis carduelis*, Blackbird *Turdus merula*, Dunnock *Prunella modularis*, Robin *Erithacus rubecula*,

Chiffchaff *Phylloscopus collybita*, Wren *Troglodytes troglodytes*, House Sparrow* *Passer domesticus*, Chaffinch *Fringilla coelebs*, Great Tit *Parus major*, Blue Tit *Cyanistes caeruleus*, Swallow *Hirundo rustica* and Tawny Owl *Strix aluco* (bat activity survey) were all seen/heard from the application site during the various survey visits. Those indicated with * are identified on the UK Birds of Conservation Concern Red List.

- 4.35 It is considered that a robust account of birds has been undertaken in order to assess the value of the application site and the off-site ecological enhancements area for breeding birds. In terms of other periods, both are not considered to provide optimum habitat for wintering bird species on account of its size and/or location adjacent to existing built development.
- 4.36 Overall, it is judged that the application site off-site ecological enhancements area are of value for breeding and foraging birds at the site-level only.

Great Crested Newts

- 4.37 Somerset Environmental Records Centre returned a single record for this protected species located approximately 1.8km to the northwest of the application site with no wider records known from consulting the NBN Atlas.
- 4.38 From consulting OS mapping no ponds are known within 250m of the application site (or off-site biodiversity enhancements area) and therefore the likelihood of encountering Great Crested Newts is judged to be very low and no further consideration is therefore given in this ecological impact assessment.

Other

- 4.39 Given the low value habitats within the application site and the off-site biodiversity enhancement area, no other protected or notable species considerations have been identified.

5. IMPACTS, MITIGATION AND ENHANCEMENTS

The Cleeve Local Wildlife Site

Potential Impacts

- 5.1 The Cleeve Local Wildlife Site is located approximately 175m to the south of the application site and comprises unimproved calcareous grassland.
- 5.2 The construction phase could result in impacts from dust deposition, contaminated run-off and other pollution sources and this has the potential to lead to an adverse impact of minor significance at this distance.
- 5.3 In terms of the operational phase, future occupiers may lead to some increased recreational pressure as this non-statutory designed wildlife site is accessible by public footpath. This could result in some damage to the grassland habitat, an adverse impact at the local-level of minor significance.

Mitigation Measures

- 5.4 A range of control measures during construction works would be set out within a Construction Environmental Management Plan (as further set out below) and this would ensure that the grassland habitat within The Cleeve Local Wildlife Site is safeguarded.
- 5.5 In terms of recreational pressure, a small commuted sum could be offered to allow the local planning authority to direct appropriate measures towards improved footpath signage, information boards etc.

Habitats

Potential Impacts

- 5.6 The proposals would result in the loss of the poor semi-improved grassland including a length of hedgerow along Harvest Lane (H4) to facilitate access including the defunct hedgerow traversing the application site (H5) to facilitate built form. The

dilapidated building would also be demolished. Remaining boundary hedgerows and trees would be retained.

5.7 In the absence of mitigation, retained/adjacent habitats could suffer physical damage as well as impacts from dust deposition, contaminated run-off and other pollution sources during the construction phase and this could lead to an adverse impact at the site-level of minor–moderate significance.

5.8 In terms of the operation of the proposals, the absence of appropriate management of the retained and newly created habitats could lead to a general decline in the ecological value – an adverse impact at the site-level of minor significance.

Mitigation Measures

Intrinsic Design Measures

5.9 Minimising the impact on biodiversity has been key to the design of the proposals from the outset with additional nearby land under the ownership of the applicant now set-aside to offset the measurable biodiversity net loss on the application site itself – the off-site biodiversity enhancement area is shown on Plan GRE 3. The off-site biodiversity enhancement area measures at least 1.37 hectares and was specifically identified in order to achieve an overall 10% biodiversity net gain. This involves enhancing the existing poor semi-improved grassland through initial mechanical scarification and overseeding using an appropriate species-rich grassland mix following by sensitive management together with 185m of new native hedgerow planting. The corresponding completed biodiversity metric (DEFRA, version 4.0) is submitted in raw spreadsheet format alongside this ecological impact assessment.

5.10 The proposals within the application site itself have also been designed to maximise opportunities for biodiversity through incorporating the following within the detailed landscape strategy:

- new species-rich grassland within informal green space;
- new native woodland planting;
- new orchard planting with associated species-rich grassland;
- Utilising native species of known value to wildlife.

Considerations for further Detailed Design/Reserved Matters

- 5.11 It is recommended that the drainage attenuation feature is designed with wildlife in mind through holding and element of permanent water and utilising a species-rich grassland mix tolerant of wet/ephemeral conditions.
- 5.12 The retained hedge along the northern boundary of the application site (H1) is gappy in places and would benefit from bolster planting using native woody species.

Construction Environmental Management Plan

- 5.13 Standard best practice pollution prevention measures, waste management and environmental monitoring will be routinely adopted and would be included within a specific Construction Environmental Management Plan (CEMP), which can be secured by way of planning condition and 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.
- 5.14 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 to safeguard retained and other adjacent habitat features. Further measures are discussed in the Arboricultural Impact Assessment which accompanies the planning application.
- 5.15 Further precautions are also recommended below in relation to the presence of various faunal species.

Habitat Management

- 5.16 New habitats will be managed to ensure their long-term ecological value with the predominant focus on managing the newly created species-rich grassland within the application site and the existing grassland within the off-site biodiversity enhancement area to maximise their value for wildlife.
- 5.17 For the newly created grassland, informal areas would be managed through an appropriate cutting regime which would likely involve 'hay meadow' management practices to maintain the botanical value in the long-term. This would involve summer cutting no earlier than mid-July with all arisings removed following by a cut in autumn and spring if required.
- 5.18 For the existing grassland within the off-site biodiversity enhancement area this would be brought under a similar 'hay meadow' management regime following an initial mechanical scarification and overseeding using a suitable species-rich grassland mix following consultation with an approved seed mixture supplier and any necessary soil testing.

- 5.19 Such management would be considered in more detail within a forthcoming Landscape and Ecological Management Plan (LEMP) which can also be secured through planning condition on any consent.

Bats

Potential Impacts

- 5.20 The application site is of some, albeit limited, value to local bat populations. Indeed, the new and enhanced habitats and their appropriate management would likely increase the invertebrate food source (within both the application site and off-site biodiversity enhancement area) and this is considered to represent an enhancement at the site/local-level of minor-moderate significance.
- 5.21 In terms of construction, some temporary lighting may be required for short periods and this could adversely affect some species. However, any impacts would be negligible as any lighting requirement would be during the period when bat activity is very low during the winter months (i.e. when the majority of bat species are hibernating).
- 5.22 In terms of the operational phase, in the absence of a sensitively designed lighting scheme, the proposals would likely lead to an adverse impact at the local-level of minor-moderate significance, this being particularly relevant to the light sensitive bat populations.

Mitigation Measures

- 5.23 A sensitively designed lighting strategy will be formulated at the detailed design and would be informed by the following lighting principles detailed within the Bat Conservation Trust's and Institution of Lighting Professional guidelines (September 2018):
- LEDs
 - warm white spectrum (<2,700K)
 - dimmable light or motion sensors (PIR) and short timers
 - 0% upward light ratio
 - careful consideration of position and height

- recessed internal lights
- screening measures (e.g. planting, hardscape, hoods or cowls)

5.24 To provide an enhancement for roosting bats, all new residential dwellings would incorporate inset bat boxes/tubes within masonry/cladding. The specification and precise location can be secured by way of planning condition.

Badgers

Potential Impacts

5.25 Populations are known in the local area and construction activities would could result in an adverse impact at the site-level of minor-moderate significance through presenting hazards (e.g. uncovered deep trenches/excavations) to any Badgers which may traverse the application site together with failure of necessary protective fencing.

Precautionary Measures

5.26 During the construction phase, any excavations/trenches will be backfilled nightly, boarded over, or have a ramp or similar protective measure to prevent any Badgers from becoming trapped overnight.

Reptiles

Potential Impacts

5.27 Proposed new hedgerow planting within the off-site biodiversity enhancement area may adversely impact any reptiles and in the absence of appropriate measures could result in an adverse impact at the site-level of minor significance.

Precautionary Measures

5.28 All works within the off-site biodiversity enhancement area should be performed under the direction of a suitably qualified ecologist.

Birds

Potential Impacts

- 5.29 The removal of hedgerows and other areas of dense vegetation may disturb nesting birds if performed during the months of March and August inclusive – an adverse impact at the site-level of moderate significance.
- 5.30 Retained and newly created habitats will maintain nesting and foraging opportunities for resident bird populations and this is judged to represent an enhancement at the site-level of minor significance as a mosaic of habitats for a wider range of bird species would be created.

Mitigation/Safeguarding Measures

- 5.31 Removal of dense vegetation would be undertaken outside of the nesting bird season (March–August inclusive). However, if removal is required within the nesting bird season then a check survey for nesting birds will be undertaken by the ecological clerk of works (or equivalent suitably qualified ecologist) immediately prior to works taking place with a safe method of clearance 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.
- 5.32 To provide an enhancement for nesting birds, all new residential buildings will incorporate inset bird nesting features within masonry/cladding. Again, the specification and precise location of these features can be secured by way of planning condition.
- 5.33 To provide wider enhancements for foraging birds, it is recommended that new planting includes a range of species which yield berry and fruits and those that provide a diverse structure and form. Trimming trees/shrubs should only be performed during January/February to retain a berry crop for birds and allow a bushy habit to develop. Suitable native specimens should also be encouraged to develop into standard trees to enhance opportunities for singing.

6. RESIDUAL IMPACTS

The Cleeve Local Wildlife Site

- 6.1 Any financial contribution directed towards improved management of this nearby local wildlife site would ensure that the proposals would not lead to any adverse impacts through increased recreational pressure.

Habitats

- 6.2 Provision of an off-site biodiversity enhancement area and completion of DEFRA's latest Biodiversity Metric (version 4.0) shows that the proposals would achieve over 10% biodiversity net gain. In terms of hedgerows, the loss of the existing native hedgerow along Harvest Lane and the defunct hedgerow within the centre of the application site would be compensated for through 185m new native hedgerow planting within the off-site biodiversity enhancement area and this would ensure a 30% net gain in hedgerow terms.
- 6.3 These biodiversity gains would be secured through implementation of the aforementioned LEMP.
- 6.4 Following the aforementioned precautions during construction, together with the intrinsic design measures already incorporated into the proposals together with the proposed off-site enhancements measures and associated future management, it is judged that habitats would achieve an enhancement at the local-level of minor significance.

Bats

- 6.5 Appropriately managed retained and newly created habitats including a sensitively designed lighting scheme would retain foraging and navigating opportunities for local bat populations. This, together with new roosting features on new buildings, is judged to result in an overall enhancement at the local-level of minor significance.

Badgers

- 6.6 Adoption of necessary precautions during the construction phase together with new/retained habitats would maintain opportunities for local populations and ensure that there would be no residual adverse impacts.

Reptiles

- 6.7 Adoption of appropriate precautions during works within the off-site biodiversity enhancements area together with sensitive management of the grassland would likely secure an enhancement at the local-level or minor significance.

Birds

- 6.8 Necessary precautions during vegetation clearance works would ensure that there would be no adverse impacts on nesting birds during the construction phase.
- 6.9 Provision of enhanced habitats together with appropriate management and new nesting opportunities on new buildings would provide enhanced foraging and nesting opportunities for local bird populations – an enhancement at the local-level of minor significance.

Conclusion

- 6.10 Following adoption of the recommendations and precautionary mitigation set out in this ecological impact assessment, there are considered to be no overriding ecological constraints that would preclude implementation of the proposals. Indeed, delivery of the proposed off-site enhancement measures together with management under a LEMP is judged to result in an overall biodiversity enhancement at the site/local-level of minor significance.

PLANS



HARVEST LANE, CHARLTON HORETHORNE
Plan GRE 1: Habitats Plan

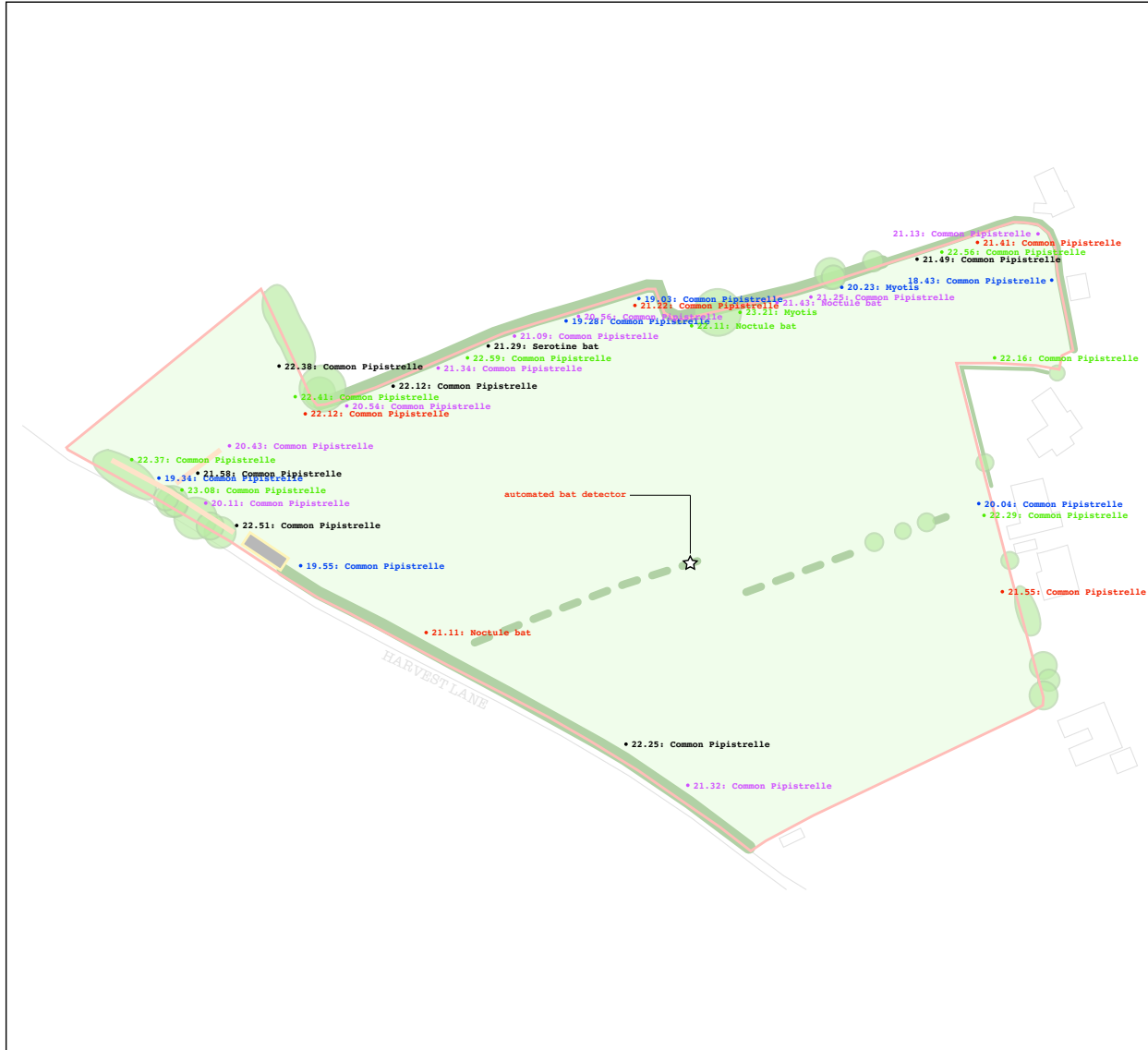


- KEY:
- APPLICATION SITE BOUNDARY
 - POOR SEMI-IMPROVED GRASSLAND
 - HARDSTANDING
 - HEDGEROW
 - DEFUNCT HEDGEROW
 - TREES
 - BUILDING
 - STONE WALL

CLIENT: Hopkins Estates
REF: 1291
REV: A
DATE: 21.08.2023
SCALE: nts



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HARVEST LANE, CHARLTON HORETHORNE
 Plan GRE 2: Bat Survey Plan



DATE: 06-May-2021
 WEATHER: clear, calm
 11-7 degrees Celsius
 SUNSET: 20.38
 DETECTOR(S): Titley Scientifics' Anabat Scout
 NO. SURVEYORS: two (2)
 START: 20.25
 FINISH: 22.40

DATE: 01-July-2021
 WEATHER: partly cloudy, light breeze
 19-16 degrees Celsius
 SUNSET: 21.27
 DETECTOR(S): Titley Scientifics' Anabat Scout
 NO. SURVEYORS: two (2)
 START: 21.15
 FINISH: 23.30

DATE: 04-August-2021
 WEATHER: clear, calm
 20-17 degrees Celsius
 SUNSET: 20.50
 DETECTOR(S): Titley Scientifics' Anabat Scout
 NO. SURVEYORS: two (2)
 START: 20.40
 FINISH: 22.55

DATE: 01-September-2021
 WEATHER: partly cloudy, light breeze
 18-16 degrees Celsius
 SUNSET: 19.55
 DETECTOR(S): Titley Scientifics' Anabat Scout
 NO. SURVEYORS: two (2)
 START: 19.45
 FINISH: 21.00

DATE: 12-October-2021
 WEATHER: partly cloudy, light breeze
 15-13 degrees Celsius
 SUNSET: 18.23
 DETECTOR(S): Titley Scientifics' Anabat Scout
 NO. SURVEYORS: two (2)
 START: 18.15
 FINISH: 20.30

CLIENT: Hopkins Estates

REF: 1291

REV: A

DATE: 21.08.2023

SCALE: nts



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HARVEST LANE, CHARLTON HORETHORNE
Plan GRE 3: Off-site Biodiversity Enhancements Plan



KEY:

-  OFF-SITE BIODIVERSITY ENHANCEMENT AREA
-  APPLICATION SITE

CLIENT: Hopkins Estates
REF: 1291
REV: A
DATE: 21.08.2023
SCALE: nts



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APPENDICES

HABITAT CONDITION SHEETS (FROM DEFRA'S BIODIVERSITY METRIC VERSION 4.0)

Condition sheet: HEDGEROW Habitat Types					
Habitat type					
Native hedgerow					
Native hedgerow - associated with bank or ditch					
Native hedgerow with trees					
Native hedgerow with trees - associated with bank or ditch					
Species-rich native hedgerow					
Species-rich native hedgerow - associated with bank or ditch					
Species-rich native hedgerow with trees					
Species-rich native hedgerow with trees - associated with bank or ditch					
Habitat Description					
Native hedgerow with trees					
See the Biodiversity Metric 4.0 User Guide Section 9. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.					
Site name and location	Application site (see Plan GRE 1)		On-site or off-site	On-site	
Limitations (if applicable)	None identified		Survey reference (if relating to a wider survey)	See submitted ecological impact assessment	
Grid reference	ST 66175 23611		Habitat parcel reference	H1 (see Plan GRE 1)	
Condition Assessment Criteria					
A series of ten attributes, representing key physical characteristics are used for this assessment. This assessment is based on the Hedgerow Survey Handbook ¹ and Favourable Conservation Status document ² . For further clarification please refer to the Hedgerow Survey Handbook. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.					
Hedgerow favourable condition attributes					
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for 'favourable condition'	Description	Criterion passed (Yes or No)	Notes (such as justification)	
Core groups - applicable to all hedgerow types					
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	yes	6m average
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	yes	4m average
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	yes	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	No	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow.	No	Management is tight to hedgerow edge, albeit wire-post fencing present (but tight)
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Gailum aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	No	Nettle dominates in many areas
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website ⁴ , as well as the BSBI website ⁵ where the 'Online Atlas of the British and Irish Flora' ⁶ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website ⁷ .	Yes	

D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).	Yes	
Additional group - applicable to hedgerows with trees only					
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and ancient ¹), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	No	
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Yes	
The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the metric. The scores for each are set out in the tables below.					
Condition categories for hedgerows without trees					
Category		Category Requirements	Metric Score		
Good		No more than 2 failures in total; AND No more than 1 failure in any functional group.	3		
Moderate		No more than 4 failures in total; AND <u>Does not fail both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and C2 = Moderate condition).	2		
Poor		Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1		
			Score achieved:		
Condition categories for hedgerows with trees					
Category		Category Requirements	Metric score		
Good		No more than 2 failures in total; AND No more than 1 failure in any functional group.	3		
Moderate		No more than 5 failures in total; AND <u>Does not fail both attributes</u> , in more than one functional group (e.g., fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2		
Poor		Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1		
			Score achieved:	2	
Suggested enhancement interventions to improve condition score					
Bolster planting of gaps using native species					
Footnotes					
<p>Footnote 1 – DEFRA (2007) <i>Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.</i> [online] Available on: layout.hedgebank.org.uk</p> <p>Footnote 2 – STALEY, J.T. ET AL. (2020) <i>Definition of Favourable Conservation Status for Hedgerows.</i> [online] Available on: Definition of Favourable Conservation Status for Hedgerows - RP2943 (naturalengland.org.uk)</p> <p>Footnote 3 – Wildlife and Countryside Act 1981 (as amended).</p> <p>Footnote 4 – CHEFFINGS, C. M. et al. (2005) <i>The Vascular Plant Red Data List for Great Britain.</i> Species Status 7: 1-116. [online] Available on: The Vascular Plant Red Data List for Great Britain (Species Status No. 7) JNCC Resource Hub</p> <p>Footnote 5 – BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). <i>Definitions: wild, native or alien?</i> [online] Available on: Definitions: wild, native or alien? – Botanical Society of Britain & Ireland (bsbi.org)</p> <p>Footnote 6 – BSBI and Biological Records Centre (BRC) (2022). <i>Online Atlas of the British and Irish Flora.</i> [online] Available on: Acknowledgements Online Atlas of the British and Irish Flora (brc.ac.uk)</p> <p>Footnote 7 – GB NON-NATIVE SPECIES SECRETARIAT (GBNNS) (2022) Available on: Home » NNS (nonnativespecies.org)</p> <p>Footnote 8 – See gov.uk standing advice on ancient and veteran trees. Available from: Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk) and Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)</p>					

Condition sheet: HEDGEROW Habitat Types					
Habitat type					
Native hedgerow					
Native hedgerow - associated with bank or ditch					
Native hedgerow with trees					
Native hedgerow with trees - associated with bank or ditch					
Species-rich native hedgerow					
Species-rich native hedgerow - associated with bank or ditch					
Species-rich native hedgerow with trees					
Species-rich native hedgerow with trees - associated with bank or ditch					
Habitat Description					
Native hedgerow					
See the Biodiversity Metric 4.0 User Guide Section 9. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.					
Site name and location	Application site (see Plan GRE 1)		On-site or off-site	On-site	
Limitations (if applicable)	None identified		Survey reference (if relating to a wider survey)	See submitted ecological impact assessment	
Grid reference	ST 66313 23626		Habitat parcel reference	H2 (see Plan GRE 1)	
Condition Assessment Criteria					
A series of ten attributes, representing key physical characteristics are used for this assessment. This assessment is based on the Hedgerow Survey Handbook ¹ and Favourable Conservation Status document ² . For further clarification please refer to the Hedgerow Survey Handbook. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.					
Hedgerow favourable condition attributes					
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for 'favourable condition'	Description	Criterion passed (Yes or No)	Notes (such as justification)	
Core groups - applicable to all hedgerow types					
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	yes	1.5m average
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn <i>Prunus spinosa</i> suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	yes	1.5m average
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	yes	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	yes	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow.	No	Management is tight to hedgerow edge, albeit wire-post fencing present (but tight)
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles <i>Urtica</i> spp., cleavers <i>Gailum aparine</i> and docks <i>Rumex</i> spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	No	Nettle dominates in many areas
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website ⁴ , as well as the BSBI website ⁵ where the 'Online Atlas of the British and Irish Flora' ⁶ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website ⁷ .	Yes	

D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).	Yes	
Additional group - applicable to hedgerows with trees only					
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient ¹), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.		
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.		
The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the metric. The scores for each are set out in the tables below.					
Condition categories for hedgerows without trees					
Category		Category Requirements	Metric Score		
Good		No more than 2 failures in total; AND No more than 1 failure in any functional group.	3		
Moderate		No more than 4 failures in total; AND <u>Does not fail both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and C2 = Moderate condition).	2		
Poor		Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1		
		Score achieved:	2		
Condition categories for hedgerows with trees					
Category		Category Requirements	Metric score		
Good		No more than 2 failures in total; AND No more than 1 failure in any functional group.	3		
Moderate		No more than 5 failures in total; AND <u>Does not fail both attributes</u> , in more than one functional group (e.g., fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2		
Poor		Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1		
		Score achieved:			
Suggested enhancement interventions to improve condition score					
Footnotes					
<p>Footnote 1 – DEFRA (2007) <i>Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.</i> [online] Available on: layout.hedgelinek.org.uk</p> <p>Footnote 2 – STALEY, J.T. ET AL. (2020) <i>Definition of Favourable Conservation Status for Hedgerows.</i> [online] Available on: Definition of Favourable Conservation Status for Hedgerows - RP2943 (naturalengland.org.uk)</p> <p>Footnote 3 – Wildlife and Countryside Act 1981 (as amended).</p> <p>Footnote 4 – CHEFFINGS, C. M. et al. (2005) <i>The Vascular Plant Red Data List for Great Britain.</i> Species Status 7: 1-116. [online] Available on: The Vascular Plant Red Data List for Great Britain (Species Status No. 7) JNCC Resource Hub</p> <p>Footnote 5 – BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). <i>Definitions: wild, native or alien?</i> [online] Available on: Definitions: wild, native or alien? – Botanical Society of Britain & Ireland (bsbi.org)</p> <p>Footnote 6 – BSBI and Biological Records Centre (BRC) (2022) <i>Online Atlas of the British and Irish Flora.</i> [online] Available on: Acknowledgements Online Atlas of the British and Irish Flora (brc.ac.uk)</p> <p>Footnote 7 – GB NON-NATIVE SPECIES SECRETARIAT (GBNNS) (2022) Available on: Home > NNS (nonnativespecies.org)</p> <p>Footnote 8 – See gov.uk standing advice on ancient and veteran trees. Available from: Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk) and Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)</p>					

Condition sheet: HEDGEROW Habitat Types				
Habitat type				
Native hedgerow				
Native hedgerow - associated with bank or ditch				
Native hedgerow with trees				
Native hedgerow with trees - associated with bank or ditch				
Species-rich native hedgerow				
Species-rich native hedgerow - associated with bank or ditch				
Species-rich native hedgerow with trees				
Species-rich native hedgerow with trees - associated with bank or ditch				
Habitat Description				
Native hedgerow				
See the Biodiversity Metric 4.0 User Guide Section 9. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.				
Site name and location	Application site (see Plan GRE 1)	On-site or off-site	On-site	
Limitations (if applicable)	None identified	Survey reference (if relating to a wider survey)	See submitted ecological impact assessment	
Grid reference	ST 66138 23485	Habitat parcel reference	H4 (see Plan GRE 1)	
Condition Assessment Criteria				
A series of ten attributes, representing key physical characteristics are used for this assessment. This assessment is based on the Hedgerow Survey Handbook ¹ and Favourable Conservation Status document ² . For further clarification please refer to the Hedgerow Survey Handbook. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.				
Hedgerow favourable condition attributes				
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for 'favourable condition'	Description	Criterion passed (Yes or No)	Notes (such as justification)
Core groups - applicable to all hedgerow types				
A1.	Height	>1.5 m average along length	yes	1.5m average
A2.	Width	>1.5 m average along length	yes	1.5m average
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	yes	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	yes	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length; Measured from outer edge of hedgerow; and Is present on one side of the hedgerow (at least).	No	Management is tight to hedgerow edge, albeit wire-post fencing present (but tight)
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	No	Nettle dominates in many areas
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Yes	

D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g., excessive hedgerow cutting).	Yes	
Additional group - applicable to hedgerows with trees only					
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient ¹), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.		
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.		
The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the metric. The scores for each are set out in the tables below.					
Condition categories for hedgerows without trees					
Category		Category Requirements	Metric Score		
Good		No more than 2 failures in total; AND No more than 1 failure in any functional group.	3		
Moderate		No more than 4 failures in total; AND <u>Does not fail both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and C2 = Moderate condition).	2		
Poor		Fails a total of more than 4 attributes; OR <u>Fails both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1		
			Score achieved: 2		
Condition categories for hedgerows with trees					
Category		Category Requirements	Metric score		
Good		No more than 2 failures in total; AND No more than 1 failure in any functional group.	3		
Moderate		No more than 5 failures in total; AND <u>Does not fail both attributes</u> , in more than one functional group (e.g., fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2		
Poor		Fails a total of more than 5 attributes; OR <u>Fails both attributes</u> , in more than one functional group (e.g. fails attributes A1, A2, B1 and B2 = Poor condition).	1		
			Score achieved:		
Suggested enhancement interventions to improve condition score					
Footnotes					
<p>Footnote 1 – DEFRA (2007) <i>Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.</i> [online] Available on: http://hedgelinek.org.uk</p> <p>Footnote 2 – STALEY, J.T. ET AL. (2020) <i>Definition of Favourable Conservation Status for Hedgerows.</i> [online] Available on: https://www.naturalengland.org.uk</p> <p>Footnote 3 – Wildlife and Countryside Act 1981 (as amended).</p> <p>Footnote 4 – CHEFFINGS, C. M. et al. (2005) <i>The Vascular Plant Red Data List for Great Britain.</i> Species Status 7: 1-116. [online] Available on: https://www.jncc.gov.uk</p> <p>Footnote 5 – BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). <i>Definitions: wild, native or alien?</i> [online] Available on: https://www.bsbi.org</p> <p>Footnote 6 – BSBI and Biological Records Centre (BRC) (2022) <i>Online Atlas of the British and Irish Flora.</i> [online] Available on: https://www.bsbi.org</p> <p>Footnote 7 – GB NON-NATIVE SPECIES SECRETARIAT (GBNNS) (2022) Available on: https://www.gbnns.org</p> <p>Footnote 8 – See gov.uk standing advice on ancient and veteran trees. Available from: https://www.gov.uk</p> <p>Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk) and Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)</p>					

Condition sheet: HEDGEROW Habitat Types				
Habitat Type				
Native hedgerow				
Native hedgerow - associated with bank or ditch				
Native hedgerow with trees				
Native hedgerow with trees - associated with bank or ditch				
Species-rich native hedgerow				
Species-rich native hedgerow - associated with bank or ditch				
Species-rich native hedgerow with trees				
Species-rich native hedgerow with trees - associated with bank or ditch				
Habitat Description				
Native hedgerow				
See the Biodiversity Metric 4.0 User Guide Section 9. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.				
Site name and location	Application site (see Plan GRE 1)		On-site or off-site	On-site
Limitations (if applicable)	None identified		Survey reference (if relating to a wider survey)	See submitted ecological impact assessment
Grid reference	ST 66188 23522		Habitat parcel reference	H5 (see Plan GRE 1)
Condition Assessment Criteria				
A series of ten attributes, representing key physical characteristics are used for this assessment. This assessment is based on the Hedgerow Survey Handbook ¹ and Favourable Conservation Status document ² . For further clarification please refer to the Hedgerow Survey Handbook. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.				
Hedgerow favourable condition attributes				
Attributes and functional groupings (A, B, C, D and E)	Criteria - the minimum requirements for 'favourable condition'	Description	Criterion passed (Yes or No)	Notes (such as justification)
Core groups - applicable to all hedgerow types				
A1.	Height	>1.5 m average along length	yes	1.5m average
A2.	Width	>1.5 m average along length	yes	1.5m average
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	yes	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	no	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length; · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	No	Management is tight to hedgerow edge, albeit wire-post fencing present (but tight)
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	No	Nettle dominates in many areas
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA ³) and recently introduced species.	Yes	

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
UK Habitat Classification (UKHab) Habitat Type(s)			
Grassland - Modified grassland			
Site name and location	Application site (see plan GRE 1)	On-site or off-site	On-site
Limitations (if applicable)	None identified	Survey reference (if relating to a wider survey)	See submitted ecological impact assessment
Grid reference	ST 66197 23538	Habitat parcel reference	
Habitat Description			
Poor semi-improved grassland (i.e. modified grassland) subject to intensive agricultural management			
ukhab – UK Habitat Classification			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m ² present, including at least 2 forbs (this may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness	No	poor species diversity/density
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No	sward is uniformly short being intensively grazed
C	Some scattered scrub (including bramble <i>Rubus fruticosus</i> agg.) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Yes	little./if any scattered scrub present
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Yes	no bare earth/poaching is present
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	No	no bare earth is present
F	Cover of bracken <i>Pteridium aquilinum</i> less than 20%.	Yes	No Bracken
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴).	Yes	None present
Essential criterion achieved (Yes or No)			Yes
Number of criteria passed			4
Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 6 or 7 criteria including passing essential criterion A	Good (3)		
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)		
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	Yes	
Suggested enhancement interventions to improve condition score			
Footnotes			
<p>Footnote 1 – Creeping thistle <i>Cirsium arvense</i>, spear thistle <i>Cirsium vulgare</i>, curled dock <i>Rumex crispus</i>, broad-leaved dock <i>Rumex obtusifolius</i>, common nettle <i>Urtica dioica</i>, creeping buttercup <i>Ranunculus repens</i>, greater plantain <i>Plantago major</i>, white clover <i>Trifolium repens</i> and cow parsley <i>Anthriscus sylvestris</i>.</p> <p>Footnote 2 – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.</p> <p>Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.</p> <p>Footnote 4 – Wildlife and Countryside Act 1981 (as amended).</p>			

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)			
UK Habitat Classification (UKHab) Habitat Type(s)			
Grassland - Modified grassland			
Site name and location	Off-site biodiversity enhancement are (see plan GRE 3)	On-site or off-site	Off-site
Limitations (if applicable)	None identified	Survey reference (if relating to a wider survey)	See submitted ecological impact assessment
Grid reference	ST 65917 23919	Habitat parcel reference	
Habitat Description			
Poor semi-improved grassland (i.e. modified grassland)			
ukhab – UK Habitat Classification			
Condition Assessment Criteria		Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m ² present, including at least 2 forbs (this may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness	No	poor species diversity/density
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No	sward is uniformly long
C	Some scattered scrub (including bramble <i>Rubus fruticosus</i> agg.) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Yes	little./if any scattered scrub present
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Yes	no bare earth/poaching is present
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) ² .	No	no bare earth is present
F	Cover of bracken <i>Pteridium aquilinum</i> less than 20%.	Yes	No Bracken
G	There is an absence of invasive non-native plant species ³ (as listed on Schedule 9 of WCA ⁴).	Yes	None present
Essential criterion achieved (Yes or No)			Yes
Number of criteria passed			4
Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved ×/✓	
Passes 6 or 7 criteria including passing essential criterion A	Good (3)		
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)		
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	Yes	
Suggested enhancement interventions to improve condition score			
Mechanical scarification and overseeding using appropriate species-rich grassland mix in consultation with approved seed supplier and any necessary soil testing together with sensitive hay meadow management			
Footnotes			
<p>Footnote 1 – Creeping thistle <i>Cirsium arvense</i>, spear thistle <i>Cirsium vulgare</i>, curled dock <i>Rumex crispus</i>, broad-leaved dock <i>Rumex obtusifolius</i>, common nettle <i>Urtica dioica</i>, creeping buttercup <i>Ranunculus repens</i>, greater plantain <i>Plantago major</i>, white clover <i>Trifolium repens</i> and cow parsley <i>Anthriscus sylvestris</i>.</p> <p>Footnote 2 – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.</p> <p>Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.</p> <p>Footnote 4 – Wildlife and Countryside Act 1981 (as amended).</p>			

STATIC BAT MONITORING RESULTS

Detector: Titley Scientifics' Anabat Express
 Trigger settings - sensitivity: 16 (medium), trigger window: 2s, min event: 2ms
 File length - 6s
 File mode - zero crossing
 Location: see Plan GRE 2
 Period: 05-18 May 2021 (13 nights)

Species	Registrations (average nightly totals)
Common Pipistrelle	279 (22)
Soprano Pipistrelle	38 (3)
Noctule bat	25 (2)
Brown Long-eared bat	11 (1)
Serotine bat	19 (2)
Myotis	29 (3)

Detector: Titley Scientifics' Anabat Express
 Trigger settings - sensitivity: 16 (medium), trigger window: 2s, min event: 2ms
 File length - 6s
 File mode - zero crossing
 Location: see Plan GRE 2
 Period: 01-09 July 2021 (8 nights)

Species	Registrations (average nightly totals)
Common Pipistrelle	134 (17)
Soprano Pipistrelle	22 (3)
Noctule bat	14 (2)
Brown Long-eared bat	11 (2)
Serotine bat	7 (1)
Myotis	6 (1)

Detector: Titley Scientifics' Anabat Express
 Trigger settings - sensitivity: 16 (medium), trigger window: 2s, min event: 2ms
 File length - 6s
 File mode - zero crossing
 Location: see Plan GRE 2
 Period: 04-09 August 2021 (5 nights)

Species	Registrations (average nightly totals)
Common Pipistrelle	69 (14)
Soprano Pipistrelle	9 (2)
Noctule bat	14 (3)
Brown Long-eared bat	4 (1)
Greater Horseshoe bat	1 (<1)
Myotis	8 (2)

Detector: Titley Scientifics' Anabat Express
Trigger settings - sensitivity: 16 (medium), trigger window: 2s, min event: 2ms
File length - 6s
File mode - zero crossing
Location: see Plan GRE 2
Period: 01-12 September 2021 (11 nights)

Species	Registrations (average nightly totals)
Common Pipistrelle	117 (11)
Soprano Pipistrelle	10 (1)
Noctule bat	61 (6)
Brown Long-eared bat	11 (1)
Serotine bat	30 (3)
Myotis	19 (2)