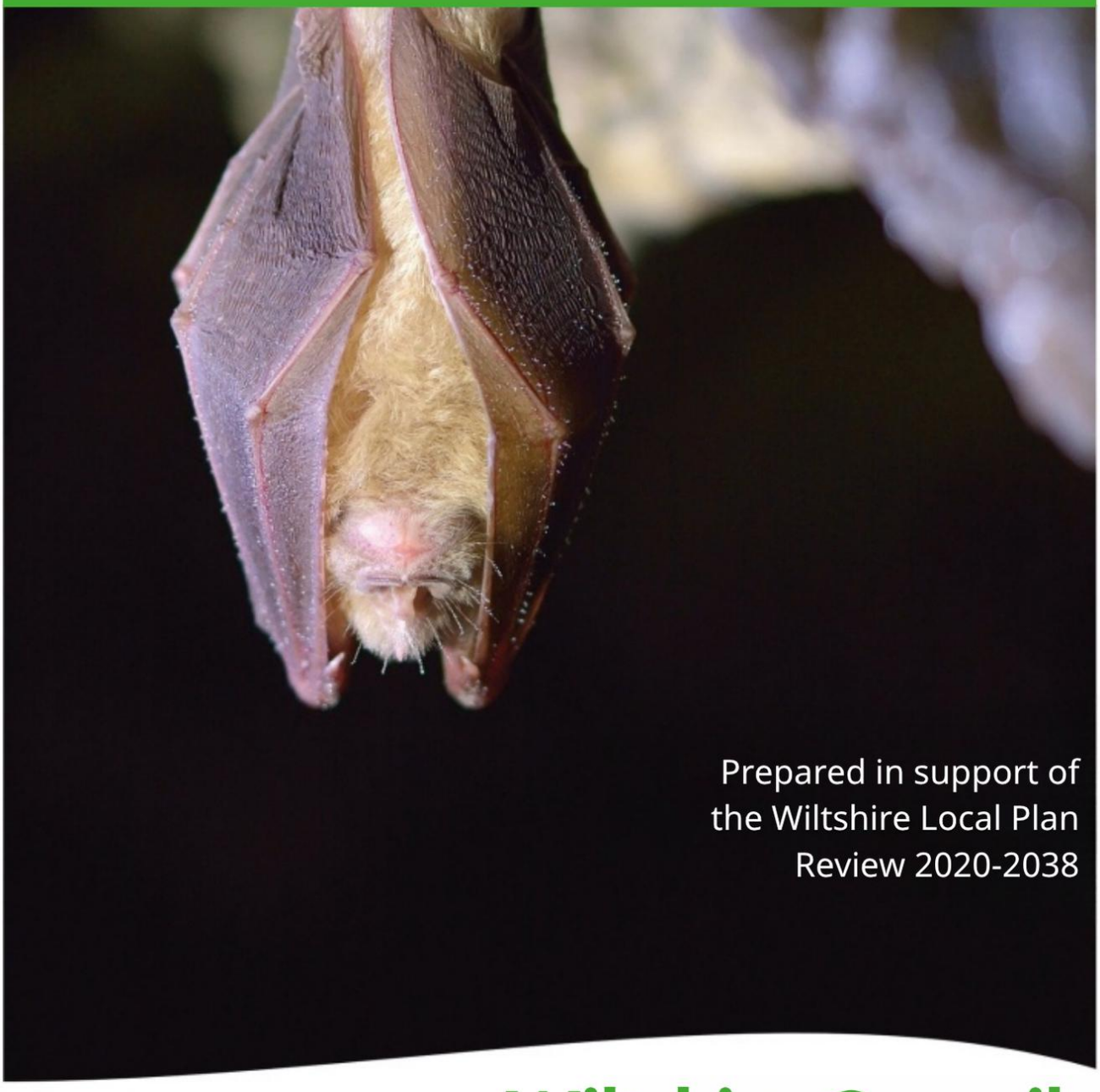
Trowbridge and Westbury Bat Mitigation Strategy



Prepared in support of
the Wiltshire Local Plan
Review 2020-2038

Wiltshire Council

DOCUMENT REVISIONS

Version	Details	Date
V1	Final Version of Trowbridge Bat Mitigation Strategy	12th February 2020
V2	Trowbridge and Westbury Bat Mitigation Strategy prepared to support the Wiltshire Local Plan Review 2020-2038. Version comprises draft for consultation with Natural England.	13th June 2025
V3	Trowbridge and Westbury Bat Mitigation Strategy prepared to support the Wiltshire Local Plan Review 2020-2038. Revised to incorporate amendments discussed with Natural England.	1st July 2025
V4	Revised to incorporate minor amendments ahead of Full Council.	9th July 2025

Acknowledgement

Wiltshire Council extends its appreciation to Johns Associates Limited for being instrumental to the production of the first version of this mitigation strategy (Trowbridge Bat Mitigation Strategy) and for kindly granting permission for the strategy to be updated and the figures reproduced and amended.

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1 SUMMARY

This Trowbridge and Westbury Bat Mitigation Strategy (TWBMS) is aimed at developers, consultants and planners involved in assessing development proposals in the landscapes in and surrounding Trowbridge and Westbury.

The overall aim is to provide a clear and detailed approach to considering the impact of development in the Trowbridge and Westbury area on the Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC). This will help inform strategic planning for the area's future housing needs.

The landscape surrounding Trowbridge and Westbury is known to be of high importance for bats, supporting at least 14 of the 18 UK bat species. This includes all four of the rarer UK species listed on Annex II of the Habitats Directive (European Council, 1992): greater horseshoe, lesser horseshoe, Bechstein's and barbastelle bats.

In particular, woodlands to the east and south-east of Trowbridge are known to support a large and internationally- significant breeding meta-population of Bechstein's bat that is functionally and demographically linked to the Bath and Bradford on Avon Bats SAC, including significant maternity colonies in Biss Wood, Green Lane Wood and Picket and Clanger Woods.

Significant potential effects to the SAC therefore include impacts to the foraging areas and commuting routes in the surrounding landscape used by the bats as well as roosts and can include:

- **Habitat degradation -** alteration / demolition / removal of a potential roost feature including changes to environmental conditions (temperature, humidity, internal light levels etc); loss, damage or change of management of potential foraging habitat; or removal / fragmentation / modification of habitats in a potential commuting corridor;
- ***Lighting*** – increased artificial lighting affecting potential roosting, foraging, commuting features as well as insect availability;
- ***Noise and vibration*** – construction / demolition activities close to potential roost features;
- ***Recreational disturbance*** – increasing the risk of recreational visits, both organised and informal. This can result in impacts such as: trampling of vegetation, leading to changes in species composition, loss of vegetation and erosion; disturbance from the presence of people and their activities; 'general' urban effects: dumping of waste, damage, vandalism, fires; and spread of plants including alien species.
- ***Pollution*** – dust and fumes close to potential roost features; and
- ***Mortality*** – e.g. predation by domestic cats at roost entrances, collision risk from road traffic and wind turbines.

In Wiltshire, the current Local Plan comprises the Wiltshire Core Strategy (WCS) which was adopted in January 2015. This incorporates saved policies from former District Local Plans, that were not replaced by the WCS, and will continue to be saved until replaced as part of the Local Plan Review process. It also includes the following plans and policies:

- Chippenham Site Allocations Plan
- Wiltshire Housing Site Allocations Plan
- Minerals and waste policies

The Local Plan, together with 'made' plans (including Neighbourhood Plans) forms the development plan for Wiltshire.

Core Policy 29 of the WCS anticipated a significant level of growth at Trowbridge over the period up to 2026, including 2,600 homes to the south-east of the town for a mixed-use allocation at Ashton Park. Moreover, the Wiltshire Housing Site Allocation Plan (WHSAP), which was adopted on 25th February 2020, allocated additional land for housing to support the strategy for the town and thereby help address the indicative housing requirements set out in Core Policy 29 of the WCS. The requirements of the housing being delivered under the WHSAP and in accordance with Core Policies 2 and 29 of the WCS up to 2026 were considered in the Trowbridge Bat Mitigation Strategy (TBMS) Supplementary Planning Document (SPD) (produced by Johns Associates on behalf of Wiltshire Council, February 2020)[1].

Wiltshire Council is currently undertaking its Local Plan review and the Wiltshire Local Plan Pre-Submission Draft 2020-2038

[1] The TBMS SPD can be downloaded from the following webpage: https://www.wiltshire.gov.uk/planning-bio-ecological-survey

(Regulation 19)[2] (hereafter referred to as the draft Local Plan) was submitted to the Secretary of State for the Ministry of Housing, Communities and Local Government for independent examination on 28th November 2024.

The TBMS discusses the current Local Plan review and specifies that the assessment of impacts on important bat populations and the provision of essential mitigation measures will need to be factored in when determining further allocations for housing in Trowbridge. It also states that the intended scope and direction of travel for the TBMS will evolve to set out the mitigation required for Trowbridge bat populations in association with proposals in the draft Local Plan. Furthermore, this requirement is identified in the Habitats Regulations Assessment (HRA) of the draft Local Plan[3], which has been carried out by Land Use Consultants Ltd (LUC) on behalf of Wiltshire Council, to ensure that plan-led development coming forward over the forthcoming plan period up to 2038 will be compliant with the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), as amended[4] and not result in adverse effects on the integrity of the Bath and Bradford-on-Avon Bats SAC.

This updated strategy document has been produced to address development in the Trowbridge and Westbury area; in particular, the plan-led development coming forward in the form of allocated sites detailed in the draft Local Plan but also estimated windfall and neighbourhood planning housing numbers over the next plan period up to 2038. The TWBMS sets out survey and mitigation requirements to ensure forthcoming development in the Trowbridge and Westbury areas will deliver robust mitigation and that planned development will not result in adverse effects on the integrity of the Bath and Bradford-on-Avon Bats SAC and functionally linked woodlands to the east and south-east of Trowbridge either alone or in combination with other plans and projects. Any planning applications for speculative development that fall within the bat sensitivity zones set out in this document would also need to adhere to the requirements detailed herein and would be assessed accordingly. This is notwithstanding the potential need for future changes to the survey and mitigation requirements detailed herein, such as due to the emergence of new evidence, which could necessitate future revisions to the document over the forthcoming plan period.

The recreational pressure mitigation requirements for the housing allocated by means of the WHSAP sites are covered by the strategy set out in the TBMS. In respect of the Ashton Park Urban Extension development which comprises a strategic allocation site in south-east Trowbridge (planning application 15/04736/OUT), a bespoke mitigation scheme was proposed alongside the planning application. The HRA of the development undertaken by Wiltshire Council in 2018 concluded that the project would not have an adverse effect on the integrity of the Bath and Bradford-on-Avon Bats SAC. Therefore, in respect of the outline application for the Ashton Park development, no further mitigation is required over and above that which is stipulated in the bespoke mitigation scheme.

For clarity and the avoidance of doubt, from the point of adoption, the requirements detailed within this strategy will be applicable to all development proposals. This requirement extends to planning applications for development at sites within the bat sensitivity zones detailed in this document that have already been submitted to the council, but which are yet to receive a decision notice. The only exceptions, as aforementioned, are applications for development at the WHSAP sites that are currently before the council for determination or yet to be submitted as the recreational pressure mitigation requirements for the housing allocated by means of the WHSAP sites are covered by the strategy set out in the TBMS; and the Ashton Park Urban Extension outline planning application (application number 15/04736/OUT).

The extents to which this strategy applies are therefore restricted to a combination of the Trowbridge and Westbury Community Areas and suitable buffer areas surrounding the strategic woodlands. Any development proposals outside of these zones, and therefore the scope of this document, will still be subject to detailed assessment in relation to the potential impacts on bats and will require separate mitigation measures independent of, and therefore beyond the scope of, those described within this document.

The areas to which this strategy applies are shown in Figure 4 and Figure 5. The key areas have been zoned according to the level and nature of bat sensitivity within each area.

[2] Pre-Submission Draft of the Wiltshire Local Plan can be downloaded from following webpage: Regulation 19 consultation autumn 2023 - Wiltshire Council

[3] Wiltshire Local Plan Review Habitats Regulations Assessment – Appropriate Assessment. Final report. Prepared by LUC, September 2023. Regulation 19 consultation autumn 2023 - Wiltshire Council

[4] The Conservation of Habitats and Species Regulations 2017 (SI 2017 No. 1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019 No. 579)

The requirements relating to each zone are:

RED ZONE

- New development unlikely to be granted permission.

YELLOW ZONE - permission only likely to be granted in accordance with the development plan for Wiltshire.

- Development proposals within this zone **must provide appropriate survey of bats** – see Section 6.
- Development proposals within this zone must **mitigate for all impacts on target bat species on site** through retaining and enhancing wide swathes of unlit bat habitat with associated buffer zones. Housing is expected to be provided at lower density to achieve this. See Section 8 for on-site mitigation requirements.
- Development proposals within this zone should expect to make a **payment for strategic habitat mitigation** – see Section 9.1.

GREY (HATCHED) ZONE

- Development proposals of less than 50 dwellings within this zone should expect to make a **payment for recreational mitigation** – see Figure 5 and Section 9.2. As a minimum, the Footprint Ecology Report on recreational pressures in relation to the important woodlands that support the bats[5], states that (paragraph 6.46) the outer limit of the zone of influence should comprise the settlements of Trowbridge and Westbury.
- Developments proposals of 50 or more dwellings within this zone will generally be expected **to provide a Suitable Alternative Natural Greenspace (SANG) / sufficient natural recreational focused greenspace** to ensure that new residents do not impact upon the important woodland sites. See Section 9.2.

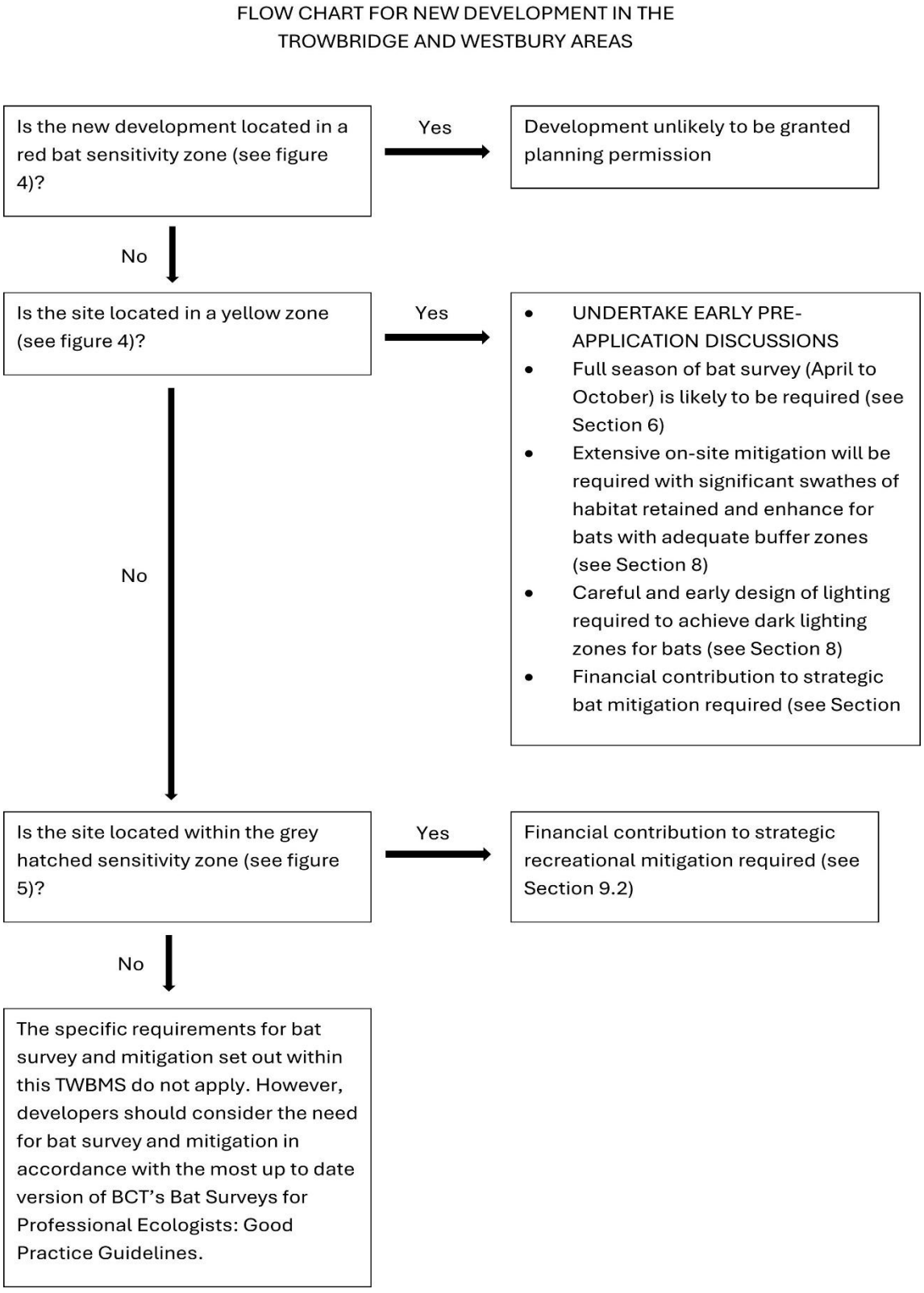
In respect of all the zones, development proposals will be assessed on a case-by-case basis by the council's ecology team.

Prior to submission of a planning application, ecological advice should be sought at an early stage through a formal pre-application request in order to obtain steer regarding the requirements and to reduce the risk of applications being unsuccessful or delayed. The necessary mitigation measures for bats will be effective when integrated as a fundamental component of the scheme design; but conversely, are unlikely to be successful when tacked on to a scheme retrospectively.

A flow chart summarising decision making and what is likely to be expected is presented in Figure 1 overleaf.

[5] Panter, C., Lake, S. & Liley D. (2018). Trowbridge Visitor Survey and Recreation Management Strategy. A report by Footprint Ecology for Wiltshire Council.

Figure 1 Decision Flowchart



N.B. Financial contributions will be bound by the provisions of the CIL Regulations 2010 (as amended by the Community Infrastructure Levy (Amendment) (England) (No. 2) Regulations 2019).

2 INTRODUCTION

2.1 The Trowbridge woodlands and the Bath and Bradford-on-Avon Bats SAC

1. The landscape surrounding Trowbridge is known to be of high importance for bats, supporting at least 14 of the 18 UK bat species. This includes rarer UK species listed on Annex II of the Habitats Directive (European Council, 1992): greater horseshoe, lesser horseshoe, and Bechstein's bats.

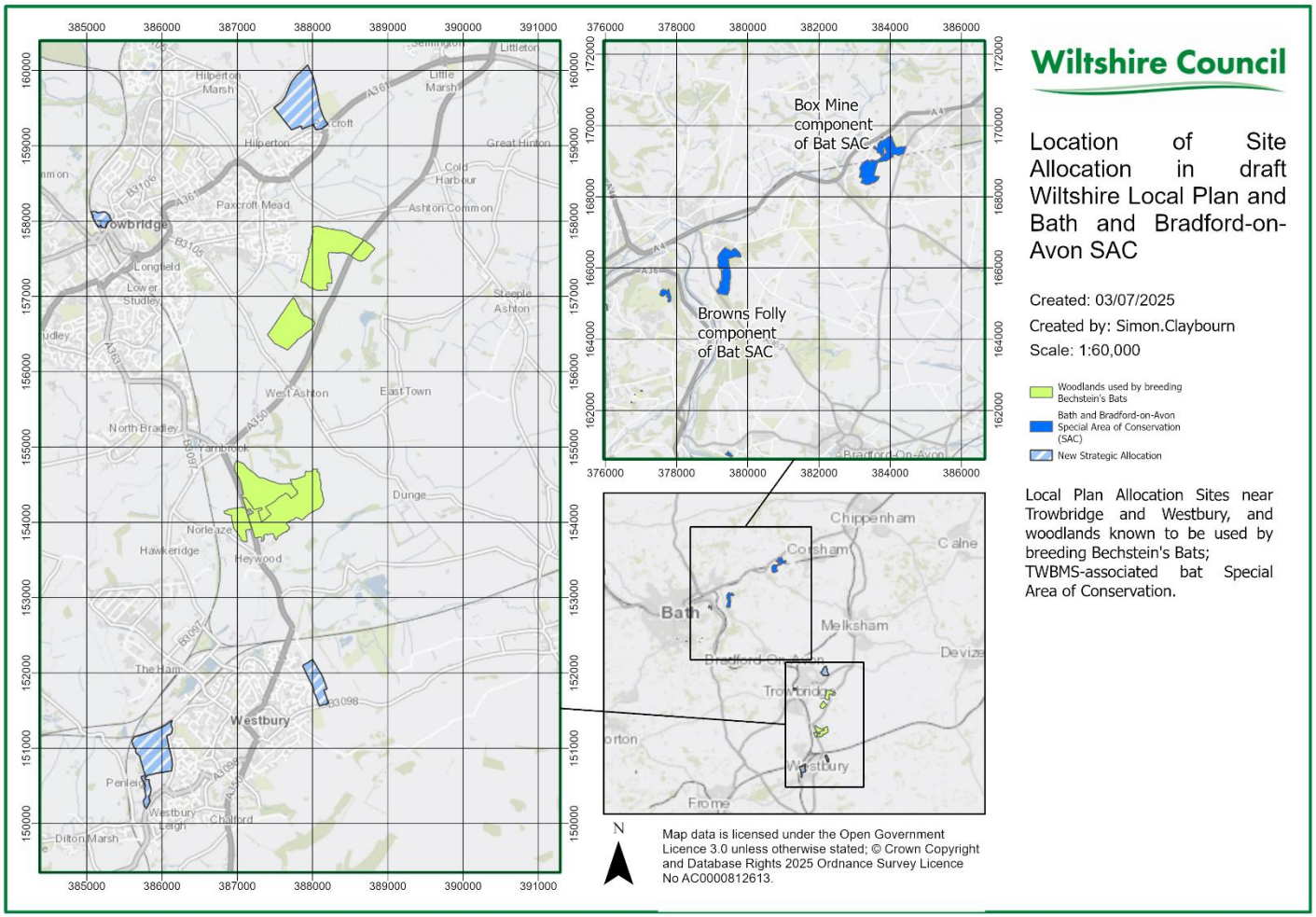
2. In particular, woodlands to the east and south-east of Trowbridge are known to support a large and internationally-significant breeding meta-population of Bechstein's bat, including significant maternity colonies in Biss Wood, Green Lane Wood and the woods extending to Picket and Clanger Woods (see Figure 3).

3. The meta-population of Bechstein's bats has been shown to be functionally linked to the internationally important designation of Bath and Bradford-on-Avon Bats Special Area of Conservation (SAC) located to the northwest (see Figure 2). The SAC is designated for supporting internationally important populations of hibernating greater horseshoe, lesser horseshoe and Bechstein's bat. The SAC is comprised of a network of significant underground sites in both the Wiltshire and Bath and North East Somerset (BANES) administrative areas, including four nationally important Sites of Special Scientific Interest (SSSIs), namely Box Mine, Winsley Mines, Combe Down and Bathampton Down Mines, and Brown's Folly. These component sites comprise extensive networks of caves, mines and man-made tunnels which are used by bats for hibernation, breeding, mating and as a staging post prior to dispersal. Box Mine SSSI is also known to support a breeding colony of greater horseshoe bat.

4. As aforementioned, the landscape surrounding Trowbridge is known to be important for greater and lesser horseshoe bats, with roosts of conservation significance recorded in the area. In addition, the landscape surrounding Westbury is known to be important for greater horseshoe bats and a roost of conservation significance is recorded in the area. It is highly likely that bat populations associated with these local roosts are also associated with the Bath and Bradford-on-Avon Bats SAC.

5. Figure 2 illustrates the location of the site allocations proposed in Trowbridge and Westbury in the draft Local Plan in the context of the SAC and woodlands to the east and south-east of Trowbridge.

Figure 2 Location of Site Allocations in the draft Wiltshire Local Plan



2.2 Potential impacts to the Bath and Bradford-on-Avon Bats SAC from development

6. The network of significant roosts for the species of bat associated with the Bath and Bradford-on-Avon Bats SAC includes sites that are not covered by any statutory designation, including the breeding colonies of Bechstein's bats associated with the Trowbridge woods. The landscape surrounding all significant roost sites is critical to maintain the populations. Foraging areas used by bats vary between species and throughout the year and include a wide range of habitats which support their invertebrate prey. Suitable semi-natural habitats such as woodlands, mature hedgerows, grazed pasture, rough grassland, watercourses and wetlands closest to bat roosts are most likely to be important to the bat populations, particularly for juveniles, however some species are highly mobile and may forage several kilometres from their roosts on a regular basis.

7. In order to migrate between the network of summer, winter and transitory roosts, autumn swarming sites and the commute to and from their numerous foraging areas, bats use established 'commuting corridors'. Although bats are capable of crossing (and frequently do cross) large open areas, good quality connective habitats are preferred. These are generally well vegetated, sheltered linear features that provide direct routes between foraging areas and roosts. They generally provide some protection from predators; and the sheltered conditions also ensure that the bats use less energy in flight rather than flying into the wind e.g. hedgerows, scrub along railway embankments.

8. Significant potential effects to the SAC therefore include impacts to the foraging areas and commuting routes in the surrounding landscape used by the bats as well as roosts and can include:

- **Habitat degradation -** alteration / demolition / removal of a potential roost feature including changes to environmental conditions (temperature, humidity, internals light levels etc); loss, damage or change of management of potential foraging habitat; or removal / fragmentation / modification of habitats in a potential commuting corridor;
- ***Lighting*** – increased artificial lighting affecting potential roosting, foraging and commuting features;
- ***Noise and vibration*** – construction / demolition activities close to potential roost features;
- ***Recreational disturbance*** – increasing the risk of recreational visits, both organised and informal. This can result in impacts such as: trampling of vegetation, leading to changes in species composition, loss of vegetation and erosion; disturbance from the presence of people and their activities; 'general' urban effects: dumping of waste, damage, vandalism, fires; and spread of plants including alien species.
- ***Pollution*** – dust and fumes close to potential roost features; and
- ***Mortality*** – e.g. predation by domestic cats at roost entrances, collision risk from road traffic and wind turbines.

3 WHY IS THERE A NEED FOR THE TROWBRIDGE AND WESTBURY BAT STRATEGY?

9. Evidence gathered to date has demonstrated that one of the most significant challenges to delivering growth at Trowbridge is the presence of Annex II bat species associated with the Bath and Bradford-on-Avon Bats SAC and their habitat around the town, particularly the woodlands to the east and south-east of the town. Habitats Regulations Assessment (HRA) work undertaken to date in respect of the planned strategy for growth, comprising the HRAs of the extant WCS and WHSAP and the HRA of the draft Local Plan currently at Examination, has identified potential risks to the Bath and Bradford-on-Avon Bats SAC. These risks relate to direct loss of habitat used by bats for foraging and commuting; recreation pressure in woodlands and other spaces used by the bats for breeding and foraging; and in-combination effects of applications in the Trowbridge and Westbury area (e.g. cumulative effects of lighting). While recreation impacts relate mainly to proposed residential development due to an increase in pressure on bat habitats from residents, direct impacts on habitats and cumulative effects also arise as a result of other land uses such as commercial and employment development. As such, future development proposals at Trowbridge and Westbury, whether planned or speculative, have the potential to adversely affect populations of Bechstein's, greater horseshoe and lesser horseshoe bat and therefore the designated features protected by the SAC designation that support these species.

10. This document seeks to address adverse impacts through avoidance and mitigation measures that ensure:

- The capacity and permeability of the landscape to support foraging and commuting Bechstein's, greater horseshoe and lesser horseshoe is maintained (through a network of habitat enhancement, restoration and creation, including the opportunity to create new roosts). This mitigation will support the viability of the bat populations; and ensure that they are sufficiently robust to respond dynamically to landscape change.
- Adequate mitigation is provided for the increased recreational pressures to the core woodland sites that will result from additional residential development. This will be aimed at diverting people away from the woodland sites to alternative countryside sites and will comprise development exclusion zones around the woodlands; improved management of the woodland sites themselves; and improvements to the recreational opportunities (away from the woods) available to the residents of Trowbridge and Westbury. As a minimum, the Footprint Ecology Report on recreational pressures in relation to the important woodlands that support the bats[6], states that (paragraph 6.46) the outer limit of the zone of influence for recreational pressure should comprise the settlements of Trowbridge and Westbury (see Figure 5).

11. This Strategy has therefore been produced to set out at a strategic level, the mitigation that will be required in association with development to provide assurance that significant adverse effects to the Bath and Bradford-on-Avon Bats SAC are avoided.

3.1 Legislative Background

12. The Bath and Bradford-on-Avon Bats SAC is a European Site designated under the Habitats Directive 92/43/EEC (European Council, 1992), which is transposed into UK law under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), as amended[7] (UK Government, 2017). The government has provided additional guidance[8] on how the Regulations should be implemented. The Citation that supports the SAC designation represents a formal description of the reasons why the site has been designated for its conservation importance. SACs are afforded stringent legal protection under Regulation 63 of the Habitats Regulations. The legal protection conferred to SACs is complex, however, in summary, permission cannot be granted for development which will adversely affect the integrity of a SAC unless the conditions of three prohibitive tests (the 'derogation tests') are met. When deciding whether the integrity of a SAC would be adversely affected by development, the legislation requires the application of the precautionary principle, i.e. where

[6] Panter, C., Lake, S. & Liley D. (2018). Trowbridge Visitor Survey and Recreation Management Strategy. A report by Footprint Ecology for Wiltshire Council.
[7] The Conservation of Habitats and Species Regulations 2017 (SI 2017 No. 1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019 No. 579)
[8] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

there is 'reasonable scientific doubt' as to whether an adverse effect on the integrity of the European site would occur, development should not be permitted (unless the three derogation tests are met).

13. Regulation 63 of the Habitats Regulations requires the decision-taker (or 'Competent Authority') to undertake a strict stepwise assessment of plans or projects to ascertain potential impacts on European sites and whether the 'integrity' of any European site will be adversely affected. This assessment process is known as 'Habitats Regulations Assessment' (HRA). It is important to note that HRA must be applied to 'plans' as well as 'projects'. This means that strategic development plan documents (including the draft Wiltshire Local Plan) must be subject to HRA as well as individual developments which are subject to planning applications. In practice, HRA at the strategic 'plan' level enables more meaningful consideration of potential 'in-combination' impacts; and means that strategic mitigation can be applied effectively to deal with such cumulative effects.

14. A series of Conservation Objectives for the SAC have been published for the Bath and Bradford-on-Avon Bats SAC, which provide a statutory framework for decision making in respect of development proposals and therefore help inform 'HRAs undertaken at the plan and project (planning application) level. In addition, they are to be used to inform the design and delivery of mitigation measures deemed necessary to conserve or restore the SAC and/or to prevent the deterioration or significant disturbance of its qualifying features as required by the provisions of Article 6(1) and 6(2) of the Habitats Directive. There should be due regard to Natural England's published Definitions of Favourable Conservation Status for each of the bat species that are qualifying species of the SAC. The Site Improvement Plan (SIP) prepared for the SAC by Natural England identifies an action for the identified delivery partners, including Wiltshire Council, to produce and promote advice and guidance to inform strategic planning; enable developers to take full account of the SAC at the outset of their schemes; and steer consultants towards an appropriate level of bat survey. The Trowbridge and Westbury Bat Mitigation Strategy helps to fulfil this priority requirement. NEs published Definition of Favourable Conservation Status of each of the bat species here

3.2 Policy background

3.2.1 National Planning Policy

15. National planning policy is set out within the National Planning Policy Framework (NPPF) (UK Government, published 12th December 2024, as amended on 7th February 2025). The NPPF is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment.

16. Paragraph 192 of the NPPF requires planning policy to plan for biodiversity at a landscape-scale across local authority boundaries. Planning policy should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping-stones that connect them and areas identified by local partnerships for habitat management, enhancement, restoration or creation. Paragraph 187requires planning policy and decisions to minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

17. Paragraphs 188, 192, 194 and 195 of the NPPF underline the overriding importance of European sites. Paragraph 195 specifies that the presumption in favour of sustainable development (that is set out in paragraph 11) does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans and projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

3.2.2 Wiltshire's Local Plan up to 2026: Wiltshire Core Strategy and Wiltshire Housing Site Allocations Plan

18. The development plan for Wiltshire provides the starting point for the consideration of development proposals within the county. The current development plan for Wiltshire comprises the suite of plans and policies that constitute the Wiltshire Local Plan, including the WCS (Wiltshire Council, adopted January 2015) and the Wiltshire Housing Site Allocations Plan (WHSAP) (Wiltshire Council, adopted February 2020), together with 'made' Neighbourhood Plans. The policies of the development plan need to be read as a whole.

19. The WCS presents a strategy for growth and housing numbers over the plan period of 2006 to 2026. In terms of the current development plan, for Trowbridge, the context for development is essentially established by Core Policies 1 (Settlement Strategy), 2 (Delivery Strategy), 28 (Trowbridge Central Areas of Opportunity) and 29 (Spatial Strategy: Trowbridge Community Area) of the WCS.

20. The WCS includes a strategic allocation for 2,600 homes and 15 hectares of employment land, namely the Ashton Park Urban Extension to the south-east of Trowbridge. Whilst this allocation constitutes the focus for planned housing delivery in Trowbridge, Core Policy 29 sets out the requirement for further housing to be delivered over the plan period up to 2026. Core Policy 29 states that it would be the role of a Housing Site Allocations Development Plan Document (the WHSAP discussed below), which was pending at the time the WCS was adopted, to identify and allocate further land for additional housing at the town. This was necessary because the extent of the residual requirement was significant (approximately 2,107 houses) and this was detailed within the Council's housing land supply information[9].

21. A HRA of the WCS was undertaken during its preparation (WSP, February 2012) (WSP, March 2013) (Wiltshire Council, April 2014). The HRA concluded, with agreement from Natural England, that in principle the Ashton Park development could be delivered without having an adverse effect upon the integrity of the local Bechstein's bat populations, subject to sensitive design and incorporation of mitigation measures identified in the Development Template for the strategic allocation in Appendix A of the WCS. Subsequently, the Council resolved to grant outline planning permission for this strategic allocation site on 25 April 2018 subject to the prior completion of a section 106 legal agreement. The application was subject to comprehensive ecological survey and assessment dating back to 2013 (Pegasus Group, August 2017). The HRA undertaken for the Ashton Park strategic allocation site (Wiltshire Council, February 2018) concluded that the range of mitigation to be provided for lesser horseshoe and Bechstein's bat and the mechanisms proposed to secure it were sufficient to remove any doubt that the Council may otherwise have had as to the absence of adverse effects on the integrity of the Bath and Bradford-on-Avon Bats SAC. As such, Wiltshire Council concluded that the Ashton Park project (as proposed in planning application 15/04736/OUT) would not have an adverse effect on the integrity of the Bath and Bradford-on-Avon Bats SAC, either alone or in combination with other plans and projects. Therefore, in respect of the outline planning application for the Ashton Park Urban Extension development, a bespoke mitigation scheme has already been proposed and is to be secured by the section 106 agreement for the development. Nonetheless, it will be necessary for a HRA to be undertaken for subsequent reserved matters applications for the Ashton Park development. Furthermore, the reserved matters application(s) for the Ashton Park development must adhere to the requirements detailed in this strategy in respect of lighting.

22. At the time the HRA of the WCS (Wiltshire Council, April 2014) was undertaken, the effects of the additional residential development to be put forward in the Housing Site Allocations Development Plan Document required by Core Policy 29, could not reasonably be assessed given that effects are dependent upon the location, scale and nature of the sites, and this was not specified in the WCS. Therefore, Core Policy 29 stipulated that provision of additional dwellings would require further assessment of effects on protected bat species and their habitats to ensure they are properly safeguarded. The HRA of the WCS therefore concluded that the effects of the additional housing to be provided within the Trowbridge Community Area should be further assessed in an HRA accompanying the subsequent Housing Site Allocations Development Plan Document, which comprises the WHSAP discussed below.

23. The WHSAP, adopted in February 2020, was prepared to support the delivery of housing within Wiltshire and to help address the residual housing requirements up to 2026 set out in Core Policy 29 of the WCS.

24. The WHSAP allocates six sites that will deliver approximately 1050 new homes on greenfield land over the plan period to 2026. The site allocations were rigorously tested through Sustainability Appraisal (SA) and HRA.

25. The HRA of the WHSAP (Wiltshire Council, February 2020)[10] concluded that:

[9] Source: Topic Paper 3 Housing Land Supply Addendum (July 2018)

[10] Wiltshire Housing Site Allocations Plan: Assessment under the Habitats Regulations (Wiltshire Council, February 2020) can be accessed at Wiltshire Housing Site Allocations Plan - Wiltshire Council

'*Recent evidence has shown that housing expansion on the eastern edge of Trowbridge is generating increased visitor pressure at ancient woodlands which support an important colony of Bechstein's bats associated with the SAC. Further allocations at the town could exacerbate this, particularly when considered in combination with planned growth such as the Ashton Park Urban Extension. The options closest to the woodlands, and therefore most likely to contribute to the number of visits, have been removed from the plan and the Council is currently preparing a Trowbridge Recreation Management Mitigation Strategy to address any residual effects in relation to this issue. It is therefore concluded that the plan would not have an adverse effect upon the SAC through increased recreational pressure, subject to the implementation of that mitigation strategy*.'

26. In addition, the HRA concluded that allocations at Trowbridge are within areas likely to be used by bat populations associated with the Bath and Bradford-on-Avon Bats SAC. It also concluded that the allocations are likely to contain habitat features used by these species and that development could lead to their deterioration through physical loss, as well as lack of, or inappropriate habitat management and higher ambient light levels. These effects potentially become more significant when the effects of the plan are considered as a whole, due to the potential for significant loss and deterioration at a landscape scale.

27. The TBMS (formerly referred to as the Trowbridge Recreation Management Mitigation Strategy in the HRA of the WCS), was therefore produced to set out the mitigation measures required by the HRA and was designed to ensure no adverse impact on the important bat populations associated with the Trowbridge landscape, and therefore no adverse impact on the integrity of the Bath and Bradford-on-Avon Bats SAC as a result of the site allocations in the WHSAP.

3.2.3 Local Plan Review

28. Wiltshire Council is currently undertaking its Local Plan review and the Wiltshire Local Plan Pre-Submission Draft 2020-2038 (Regulation 19)[11] (hereafter referred to as the draft Local Plan) was submitted to the Secretary of State for the Ministry of Housing, Communities and Local Government for independent examination on 28th November 2024.

29. During the Local Plan review process, it has been critical to assess the impacts on important bat populations, and the provision of essential mitigation measures has been factored in when determining allocations for housing in Trowbridge and Westbury. The TBMS specified that the intended scope and direction of travel for the mitigation strategy was for it to evolve alongside the Local Plan review so as to set out the mitigation required for Trowbridge bat populations in association with proposals in the draft Local Plan, hence the production of this updated strategy document. Furthermore, this requirement is identified in the Habitats Regulations Assessment (HRA) of the draft Local Plan[12], carried out by Land Use Consultants Ltd (LUC) on behalf of Wiltshire Council, to ensure that plan-led development coming forward over the plan period up to 2038 will be compliant with the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), as amended[13] and not result in adverse effects on the integrity of the Bath and Bradford-on-Avon Bats SAC.

30. Policy 88: Biodiversity and geodiversity, of the draft Local Plan provides protection for features of biodiversity and geological value. As a result of Policy 88, development potentially affecting the Bath and Bradford-on-Avon Bats SAC must provide avoidance and mitigation measures to ensure no adverse effect on the integrity of the European site. Policy 88 also requires development to be undertaken in accordance with the Bat SAC Planning Guidance for Wiltshire (Wiltshire Council, September 2015).

31. Provision of a coherent and linked landscape for bats is also in accordance with Policy 93: Green and blue infrastructure, of the draft Local Plan, which requires development to make provision for the retention and enhancement of the local green infrastructure network. This includes the requirement to identify and provide opportunities to enhance and improve linkages between the natural and historic landscapes of Wiltshire.

[11] Pre-Submission Draft of the Wiltshire Local Plan can be downloaded from following webpage: Regulation 19 consultation autumn 2023 - Wiltshire Council

[12] Wiltshire Local Plan Review Habitats Regulations Assessment – Appropriate Assessment. Final report. Prepared by LUC, September 2023. Regulation 19 consultation autumn 2023 - Wiltshire Council

[13] The Conservation of Habitats and Species Regulations 2017 (SI 2017 No. 1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019 No. 579)

32. This updated strategy document has therefore been produced to address development in the Trowbridge and Westbury area; in particular, development coming forward in the form of allocated sites detailed in the draft Local Plan but also the projected windfall and neighbourhood planning housing numbers over the plan period up to 2038. The strategy sets out survey and mitigation requirements to ensure forthcoming development in the Trowbridge and Westbury areas will deliver robust mitigation and that planned growth up to 2038 will not result in adverse effects on the integrity of the Bath and Bradford-on-Avon Bats SAC and functionally linked woodlands to the east and south-east of Trowbridge either alone or in combination with other plans and projects.

34. Any planning applications for speculative development that fall within the bat sensitivity zones set out in this document would also need to adhere to the requirements detailed herein and demonstrate that the development proposals would not result in adverse effects on the integrity of the SAC alone and / or in combination with other plans and projects. This would be assessed accordingly by means of HRA prior to determination of planning applications for any such development.

35. Notwithstanding the production of this updated mitigation strategy document to support the draft Local Plan, the potential need for future changes to the survey and mitigation requirements or other details contained herein, could prove necessary, such as due to the emergence of new evidence. This could necessitate future revisions to the document over the forthcoming plan period.

3.2.3.1 Housing Numbers and Local Plan Growth up to 2038

36. Wiltshire Council's draft Local Plan sets out the strategy for the Trowbridge Housing Market Area (HMA) (referred to in the Local Plan as the Trowbridge Area) which encompasses the Principal Settlement of Trowbridge, along with the three Market Towns of Bradford-on-Avon, Warminster and Westbury and surrounding rural area.

37. The emerging Local Plan stipulates that Trowbridge constitutes the primary focus for future growth in the Trowbridge Area, but that evidence supports a reduced emphasis than that in previous Plans, which in part reflects a lower need and environmental factors. There are relatively large areas of land already available for both employment and housing development, which have been slow to come forward and will continue to meet needs over the Plan period.

38. In terms of future growth in Trowbridge, the draft Local Plan specifies that Trowbridge has not grown as anticipated in terms of both housing and employment, and that significant extant allocations remain that will continue to help meet housing needs over the Plan period. These will be supplemented by a new allocation at north Trowbridge and delivery of homes through regeneration sites in the town centre. Policy 52: Trowbridge Principal Settlement, in the draft Local Plan sets out the detail.

39. The largest of the new Trowbridge Strategic Sites allocated in the draft Local Plan comprises the Land North-East of Hilperton, Trowbridge allocation to which Policy 53 pertains. This policy allocates a greenfield site for the development of approximately 600 dwellings. The other Strategic Site in Trowbridge allocated in the draft Local Plan by means of Policy 55 comprises the Land at Innox Mills, Trowbridge which comprises a brownfield site in the centre of Trowbridge. Policy 55 allocates the site for redevelopment and delivery of approximately 175 dwellings and mixed commercial, recreation and cultural uses. In terms of housing growth in Trowbridge that could come forward over the plan period (2020 to 2038) as a result of neighbourhood planning, draft Policy 52 stipulates a requirement of 300 dwellings.

40. In addition to the two Strategic Site allocations detailed above, Policy 56 of the draft Local Plan supports the regeneration and repurposing of Trowbridge town centre. The policy identifies seven opportunity sites and while some of these have been built out in full or part, a number have potential for regeneration over the Plan period and are referred to in the draft Local Plan as Areas of Opportunity. Policy 56 stipulates that proposals at these locations should generally support a mix of land uses and residential development, subject to detailed planning. The identified Areas of Opportunity are as follows: Court Street; Castle Street; Town Bridge/Wicker Hill; Asda and the Shires; Castle Place and car park; Riverway Industrial Estate; and East Wing.

41. The draft Local Plan specifies that Bradford-on-Avon is a constrained settlement, with its outward expansion severely

limited by green belt designation, and that development has in recent years largely used up opportunities with growth exceeding rates in the previous Plan. As such, growth is anticipated to be much lower during the forthcoming Plan period and will be met by existing commitments, and small sites will provide new homes in the order of less than ten dwellings. Policy 57: Bradford on Avon Market Town of the draft Local Plan does not allocate any sites for employment or residential development and states that 80 dwellings will be delivered on small sites of less than ten dwellings; this comprises residual housing numbers. The policy specifies that the neighbourhood area designation requirement is 15 dwellings. Policy 57 also specifies that the Principal Employment Areas of Treenwood Industrial Estate and Elm Cross Trading Estate will be supported in accordance with Policy 65 (Existing employment land). A reserve site of approximately 120 dwellings is identified on Land at the Former Golf Course, however, this will only be brought forward in accordance with Policy 3 (Reserve sites and broad locations for growth) which sets out precisely in what circumstances and under what conditions a reserve site may be released. The draft Local Plan specifies that reserve sites will only be released for development by Wiltshire Council should for any reason, other allocations be delayed, or the contribution from small sites fails to materialise and the council is required to maintain the land supply requirements set by national policy.

42. In respect of Warminster, the draft Local Plan states that similar to Trowbridge, the town has relatively large areas of land available for employment and housing. The West Warminster Urban Extension now largely directs the scale of housing and employment growth in the town and will continue to be the main source of supply for housing and employment needs at Warminster over the Plan period. It is supplemented with allocations in the WHSAP that are starting to come forward for development. As such, there is no strong justification for a more significant increase to the town's growth as judged by evidence[14] of housing and employment needs. The draft Local Plan indicates that additional land may be needed to provide a wider choice but envisages that such development would be modest and could be delivered by a review of the town's neighbourhood plan. This is because the Warminster Neighbourhood Plan identifies opportunities for regeneration within the central area of the town, which could help to strengthen the vitality and viability of the town centre. Therefore, Policy 58: Warminster Market Town of the draft Local Plan does not allocate any new sites for residential development but instead stipulates that over the plan period (2020 to 2038) approximately 1,780 homes and 5.6ha of employment land will be provided at Warminster, including dwellings and employment on existing allocations at West Warminster Urban Extension, Bore Hill Farm and Boreham Road. Policy 58 specifies that the neighbourhood area designation requirement is 90 dwellings. The policy also states that the Principal Employment Areas of Crusader Park, Warminster Business Park, Woodcock Road Industrial Estate and Northlands Industrial Estate will be supported in accordance with Policy 64 (Additional employment land).

43. The draft Local Plan specifies that Westbury has seen higher than expected rates of housebuilding in preceding years compared to the planned level of growth, and that this has combined with slower than expected economic development. Thus, the Plan proposes a period of steadier housing growth in Westbury, with rates lower than those achieved in recent years. In regard to future growth in Westbury, Policy 60: Westbury Market Town of the draft Local Plan sets out the detail.

44. The draft Local Plan puts forward two new allocations for major development in Westbury. Firstly, Policy 61: Land West of Mane Way, Westbury allocates a greenfield site for the development of approximately 220 dwellings and also carries forward the provisions of a 'saved' policy of the West Wiltshire District Plan 1st Alteration 2004. Policy 62: Land at Bratton Road, Westbury allocates a greenfield site for the development of approximately 260 dwellings. In respect of housing growth in Westbury that could come forward over the plan period (2020 to 2038) as a result of neighbourhood planning, draft Policy 60 stipulates a requirement for 90 dwellings.

45. In respect of the areas outside of the Main Settlements in the Trowbridge HMA, the draft Local Plan states that the overall scale of housing growth is broadly equivalent to past rates of housing development. New business and employment development is also significant but generally met over a large area by small scale developments outside the scope of the Plan, and that as occurs already, application for these developments would be guided by policies of the Plan. In addition, the Plan stipulates that land and sites for development may also be allocated by neighbourhood plans or brought forward as Neighbourhood Development Orders to suit individual community needs.

46. The distribution of housing and employment provision in the Trowbridge HMA is summarised in Tables 3.1 and 3.2.

[14] *Wiltshire Local Plan Review: Revising the Spatial Strategy*, Wiltshire Council (September 2023).

Table 3.1 Distribution of Housing Growth for the Trowbridge HMA

Settlement	Housing growth (2020-2038) (dwellings)	Completions & commitments (1 April 2020 – 31 March 2022)*	Residual at 1st April 2022**
Trowbridge	4,420	3,581	840
Bradford-on-Avon	140	59	80
Warminster	1,780	1,738	40
Westbury	1,400	833	570
Rural Area	910	532	380

*Includes major permissions post 1 April 2022, up to 31 May 2023
**Residual rounded to the nearest 10 dwellings

Table 3.2 Distribution of Employment Growth for the Trowbridge HMA

Settlement	Employment Land Supply (ha)
Trowbridge	27.4
Bradford-on-Avon	-
Warminster	5.6
Westbury	16.7
Rural	-

47. This strategy has been formulated alongside the Local Plan review to focus on addressing future growth and housing development in Trowbridge and Westbury and the surrounding rural areas over the next plan period up to 2038. It does not apply to all the Market Towns in the Trowbridge HMA and therefore does not specifically cover Bradford-on-Avon and Warminster. The geographical scope of the strategy and the area over which the requirements detailed herein are to be applied has been informed by the location of the woodlands that support Bechstein's bat maternity colonies to the east and south-east of Trowbridge and the areas that are covered by the bat sensitivity zones set out in this document in relation to the site allocations in Trowbridge and Westbury as proposed in the draft Local Plan. The area to which the strategy applies has also been informed by the projected scale and location of planned growth. As the evidence above indicates, there are site allocations for moderate numbers of new houses in Trowbridge and Westbury, whereas there will be limited future growth and new housing delivered in Bradford-on-Avon and Warminster over the plan period up to 2038 once existing completions and commitments have been subtracted from the housing growth projected for the period 2020 to 2038; and as of 1 April 2022, a low quantum of residual housing remains to be delivered in these settlements (80 houses in Bradford-on-Avon and 40 in Warminster).

48. Although the strategy pertains to Trowbridge, Westbury and the surrounding rural areas, any applications for development that come forward within Bradford-on-Avon or Warminster, whether that be at a reserve site or neighbourhood plan allocation site, or windfall or speculative development; or a modified neighbourhood plan with new allocations (given that both towns have 'made' neighbourhood plans in place), will still need to be subject to bespoke assessment. Proposals for development in Bradford-on-Avon and Warminster would need to be supported by adequate and appropriate bat survey where required, and where bat habitat could be impacted, appropriate and adequate mitigation will be needed. Thorough assessment of the potential for impacts of any proposals on bats would be required, including HRA where applicable. Moreover, the survey and mitigation requirements set out in this strategy provide suitable guidance to steer and inform the scope and design of bat survey and mitigation measures for any development proposals in Bradford-on-Avon and Warminster and as such should be given due regard by applicants, developers, consultants and local authority planning officers.

3.2.4 Windfall Development, Neighbourhood Plan Sites and Rural Exceptions Sites

49. In terms of windfall developments and the potential identification of new greenfield sites through neighbourhood plans or the application of rural exception policies, the main considerations in respect of the implications for the bat

populations associated with the Trowbridge and Westbury landscape are:

- The draft Local Plan indicates that windfall sites are expected to continue to come forward over the Plan period and there is strong evidence to show that there is a steady and predictable supply of new homes from small sites of less than ten dwellings. Additional homes also result from the conversion of buildings, sub-division and small-scale opportunities and redevelopment.
- Windfall sites have the potential to add to the cumulative pressures on the local bat populations. Greenfield development sites may contribute to both habitat and recreational pressures while pressures from brownfield housing sites are most likely to be restricted to recreational pressures alone.
- Therefore, mitigation provision for such new sites must be specified within this document.

50. This strategy will therefore provide guidance for small sites coming forward as rural exceptions sites under Policy 77 (Rural exceptions sites) and through neighbourhood planning. The location and number of such dwellings is difficult to predict and therefore a precautionary approach must be taken towards their mitigation. While the numbers coming forward can be expected to be relatively limited, all such sites will be subject to assessments to ensure compliance with the TWBMS and the Habitats Regulations.

51. Development of commercial, employment and other non-residential schemes will also be subject to bespoke assessments to ensure adherence with the bat survey requirements for development proposals set out in Section 6 and the on-site mitigation requirements stipulated in Section 8 of the strategy. Where such development is proposed on new greenfield sites, there will also be a requirement to contribute towards the off-site strategic habitat mitigation measures specified in Section 9 of this strategy. The principles established in this strategy for mitigating habitat loss and the requirement to comply with the Habitats Regulations will apply equally to such schemes. However, depending on the nature of the scheme, the potential for commercial, employment and other non-residential developments to result in additional recreational pressure on the important woodland sites to the east and south-east of Trowbridge are expected to be less significant. Nonetheless, any applications for commercial development that includes tourism / guest accommodation will be assessed to ascertain if mitigation would be required to ensure there would be no adverse effect on the integrity of the Bath and Bradford-on-Avon Bats alone or in-combination with other plans and projects.

3.2.5 Wiltshire Council's Bat SAC Planning Guidance

52. The Bat SAC Planning Guidance for Wiltshire (Wiltshire Council, September 2015) has been prepared jointly by Natural England (NE), Wiltshire Council and local experts and researchers. It is aimed at applicants, agents, consultants and planners involved in producing and assessing development proposals in the landscapes surrounding Wiltshire's most sensitive bat roosting sites which are protected by European wildlife legislation. The Bat SAC Planning Guidance for Wiltshire sets out a requirement for adequate survey information, mitigation and compensation for bats in order to demonstrate that development proposals will not impact on the designated bat populations. The guidance applies to all types of development that are subject to planning control.

53. The Bat SAC Planning Guidance for Wiltshire explains how development activities can affect Wiltshire's bat SACs and what must be done to avoid or mitigate any impacts. It aims to flag up the types and locations of development that present risks to the SACs so that the needs of bats can be taken into consideration as early as possible so as to avoid unnecessary delays to development projects.

54. This strategy must be read and interpreted alongside the Bat SAC Planning Guidance for Wiltshire or subsequent iteration of the Guidance. It has been written to complement the Guidance; and does not supersede the policy requirements contained therein.

3.2.6 The Evidence Base

55. The evidence base on which this document has been founded includes the sources listed below:

- Bat data compiled from existing ecological consultant's survey reports, which have been submitted in support of a number of planning applications for individual developments.
- Extensive bat surveys undertaken in support of the Ashton Park planning application 15/04736/OUT, including radio-tracking of ten Bechstein's bats associated with Green Lane and Biss Woods in 2013 (Pegasus Group, August 2017). Volume Two of the Environmental Statement includes an analysis of Bechstein's bat data for the local area compiled from a variety of sources, including historic surveys within Green Lane and Biss Wood undertaken by Wiltshire Bat Group and historic data from the Westbury Bypass planning application in 2005/06 (Aspect Ecology, August 2017).
- Shadow Habitats Regulations Assessments undertaken by DTA Ecology on behalf of Wiltshire Council relating to the Ashton Park planning application 15/04736/OUT (DTA Ecology, Oct 2016) (DTA Ecology, July 2017).
- Habitats Regulations Assessments undertaken by Wiltshire Council of the WCS and HSAP; and of the Ashton Park planning application 15/04736/OUT (WSP, February 2012) (WSP, March 2013) (Wiltshire Council, April 2014) (Wiltshire Council, June 2017) (Wiltshire Council, February 2018) (Wiltshire Council, May 2018).
- Data obtained from the Wiltshire and Swindon Biological Records Centre (WSBRC).
- Evidence and views obtained from a small consultative group of local expert batworkers.
- Castlemead S106 Ecology Monitoring reports undertaken at Green Lane and Biss Woods in 2014, 2015, 2016 (Cohen), 2017 (Cohen), (Cohen, Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016, 2017), (Cohen, Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2017, 2018), Cohen, K., (2019) Castlemead s.106 Ecology Monitoring Report 2018 surveys: Green Lane and Biss Woods, Cohen, K. (2020) Castlemead s.106 Ecology Monitoring Report, Green Lane & Biss Woods: 2019 surveys, Cohen, K. (2021) Castlemead s.106 Ecology Monitoring Report, Green Lane & Biss Woods: 2020 surveys, Cohen, K. (2021) Castlemead s.106 Ecology Monitoring Report, Green Lane & Biss Woods: 2021 surveys and Cohen, K. (2022) Bat Monitoring Report, Green Lane & Biss Woods: 2022 surveys report. A report to Wiltshire Wildlife Trust. November 2022.
- Further contextual information on the key bat species in Wiltshire and the Trowbridge area taken from the Wiltshire Mammal Atlas (Harris, March 2017).
- A Footprint Ecology Report (Footprint Ecology, November 2018) was commissioned by Wiltshire Council to consider recreation pressures on the nature conservation interest of woodland near to Trowbridge. The report includes the findings from a visitor survey of the East Trowbridge woods and other Trowbridge greenspaces, including information on levels of current use of different sites, why people choose different sites and what management might work to influence and change people's access patterns. The report also presents the results from semi-structured interviews with selected stakeholders to supplement the information from the face-face survey, to understand current issues with management of the woods and opportunities. Finally, the report contains a literature review which identifies issues relating to recreation use/urban effects on woodlands, focusing on bats and also reviews particular approaches to mitigation (exclusion zones and alternative greenspace).
- Panter, C., Bishop, E., Caals, Z. & Liley, D. (2023). Southwick Country Park Visitor Survey. Report by Footprint Ecology for Wiltshire Council.
- Wiltshire Wildlife Trust (February 2025). Green Lane and Biss Wood – Visitor Education and Engagement Report. Report and engagement project funded by Wiltshire Council since 14th August 2023 with a warden employed to undertake engagement role in Green Lane and Biss Wood.

4 WHAT THIS DOCUMENT SEEKS TO DO

56. The TWBMS is aimed at developers, consultants and local authority planners involved in assessing development proposals in the landscapes in and surrounding Trowbridge and Westbury.

57. The overall aim is to provide a clear and detailed approach to considering impacts of development in the Trowbridge and Westbury area on the Bath and Bradford-on-Avon Bats SAC. This will help inform strategic planning for the area's future housing needs.

58. The strategy will comprise a component of the development management process, to be considered in line with relevant policies listed above. It should be read alongside the Bat SAC Planning Guidance for Wiltshire (Wiltshire Council, September 2015), or later revision of the guidance, as it comprises a detailed local supplement to this document.

59. This version of the strategy has been produced alongside the Local Plan review to address the delivery of planned growth in Trowbridge and Westbury as proposed in the draft Local Plan. The TWBMS has therefore been prepared to support the draft Local Plan and development in accordance with Policy 52: Trowbridge Principal Settlement; Policy 53: Land North-East of Hilperton, Trowbridge; Policy 55: Land at Innox Mills, Trowbridge; Policy 60: Westbury Market Town; Policy 61: Land West of Mane Way, Westbury and Policy 62: Land at Bratton Road, Westbury. Site allocations and planned growth as proposed within the draft Local Plan must comply with the strategic approach detailed herein. The requirements set out in the strategy will likewise be applicable to any windfall and speculative development proposed over the forthcoming plan period.

60. This strategy sets out:

- Spatial areas (or Bat Sensitivity Zones) where development could have an effect on the Bath and Bradford-on-Avon Bats SAC and trigger the requirements of the Habitat Regulations. It is those areas to which this strategy relates.
- Survey requirements for bats and lighting that will be expected for development proposals located within the Bat Sensitivity Zones.
- Basic mitigation standards and principles that will be expected for development proposals located within the Bat Sensitivity Zones.
- Requirements for landscape-scale, strategic mitigation to support development proposals, covering both the impacts on core bat habitat; and recreational pressures on the key woodland bat sites east and south-east of Trowbridge. Key measures are identified, together with any funding required to implement the strategic mitigation.
- The mechanism for implementation of strategic mitigation – namely developer contributions via section 106 legal agreement, section 111 agreements or unilateral undertakings.

61. This strategy is based on best practice and learning from the preceding iteration of this strategy, namely the TBMS, and similar areas such as North Somerset and Mendip Bats Special Areas of Conservation (SAC) guidance (North Somerset Council, January 2018) and the best scientific information available at the time of writing the strategy. It has been developed with input from Natural England and the document and underpinning evidence base will be kept under review, with updates to be issued / updated iterations to be produced in the event of new evidence coming forward. A visitor survey will be undertaken in due course to update the evidence base regarding recreational pressure on the woodland bat sites. Following the updated visitor survey, the strategy will be reviewed with regard to the survey findings and updated where necessary, and mitigation requirements and costings also updated accordingly. Moreover, this version of the strategy has been produced to support the Wiltshire Local Plan Pre-Submission Draft 2020-2038 (Regulation 19) which is currently at Examination, and it is therefore possible that the outcome of the Examination of the Plan could necessitate subsequent changes to this strategy.

62. Throughout this document the term 'core bat habitat' is used to distinguish habitat which has been shown through surveys, or is otherwise assumed, to be used by one or more of the SAC bat species and which is therefore required to be retained, protected and buffered in accordance with this strategy. It also refers to habitat which is proposed to be created as a mitigation or enhancement for SAC species as detailed in Section 8 of this strategy. 'Bat habitat' is used more broadly

to refer to any habitat which may be used by any species of bats, the importance of which will require separate specific assessment but is not a key consideration within this strategy.

5 BAT ECOLOGY

5.1 Bat Ecology – General

63. Bats have a complex life-cycle in which they rely on a network of different sites for roosting throughout the year. Hibernation and maternity roosts are the most critical, but a series of other "transitory" roosts are also used as bats move around from one area to another, using different food sources from a variety of habitats as the seasons unfold. "Swarming" sites where bats congregate for socialising and mating in the autumn (and to a lesser degree also in spring) are also vitally important for maintaining populations. The roost network used by the SAC species throughout the year can include a wide range of features including:

- Mines, shafts and adits
- Caves
- Culverts and tunnels
- Buildings – particularly loft voids and cellars
- Trees – rot holes, flaking bark, woodpecker holes

64. Foraging areas used by bats vary between species and throughout the year and include a wide range of habitats which support their invertebrate prey. Suitable semi-natural habitats such as woodlands, mature hedgerows, grazed pasture, rough grassland, watercourses and wetlands closest to bat roosts are most likely to be important to the bat populations, particularly for juveniles, however some species are highly mobile and may forage several kilometres from their roosts on a regular basis.

65. In order to migrate between the network of summer, winter and transitory roosts, and commute to and from their numerous foraging areas, bats use established 'commuting corridors'. Although bats are capable of crossing (and frequently do cross) large open areas, good quality connective habitats are preferred. These are generally well vegetated, sheltered linear features that provide direct routes between foraging areas and roosts. They generally provide some protection from predators; and the sheltered conditions also ensure that the bats use less energy in flight rather than flying into the wind. Such connective linear habitat includes:

- Hedgerows, stone walls and tree lines
- Woodland edges and scrub belts
- Riparian corridors e.g. rivers, stream, brooks, canals etc
- Embankments and cuttings e.g. railways, roads, visibility bunds etc.

5.1.1 Impacts of lighting on bats

66. Artificial lighting is known to have severe impacts on bats, acting through a range of different mechanisms (Stone E., 2013). Light falling on a bat roost exit point, regardless of species, will at least delay bats from emerging, which shortens the amount of time available to them for foraging. As the main peak of nocturnal insect abundance occurs at and soon after dusk, a delay in emergence means this vital time for feeding is missed. At worst, the bats may feel compelled to abandon the roost. Bats are faithful to their roosts over many years and disturbance of this sort can have a significant effect on the future of the colony.

67. In addition to causing disturbance to bats at the roost, artificial lighting can also affect the feeding behaviour of bats and their use of commuting routes. There are two aspects to this: one is the attraction that short wavelength light (UV and blue light) has to a range of insects; the other is the presence of lit conditions.

68. Many night-flying species of insect are attracted to lamps that emit short wavelength component (Bruce-White, 2011). Studies have shown that, although noctules, serotines, pipistrelle and Leisler's bats, take advantage of the concentration of insects around white street lights as a source of prey, this behaviour is not true for all bat species. The slower flying, broad-winged species, such as long-eared bats, barbastelle, greater and lesser horseshoe bats and the *Myotis* species

(which include Brandt's, whiskered, Daubenton's, Natterer's and Bechstein's bats) generally avoid external lights (Bat Conservation Trust, 2009).

69. This means that light that spills onto bat commuting routes or foraging areas can cause avoidance behaviour by some light-sensitive species (including greater horseshoe, lesser horseshoe and Bechstein's) and isolate or fragment habitat in the landscape (Stone E., 2013). This will mean that bats may be forced to abandon foraging areas or commuting routes for sub-optimal habitat (which may ultimately result in abandonment of roosts if that alternative habitat is insufficient to sustain the colony). Lighting can be particularly harmful if it illuminates important foraging habitats such as river corridors, woodland edges and hedgerows used by bats. Studies have shown that continuous lighting along roads creates barriers which some bat species cannot cross (Fure, 2012).

70. It is also known that insects are attracted to lit areas from further afield. This could result in adjacent habitats supporting reduced numbers of insects, causing a further impact on the ability of light-avoiding bats to feed.

71. The introduction of new lighting is therefore a significant issue for greater horseshoe, lesser horseshoe and Bechstein's bats.

5.2 Bechstein's Bat

72. The information on Bechstein's bat ecology and local distribution has been obtained from several main sources:

- Aspect Ecology (August 2017) (within Pegasus Group, Ashton Park, Trowbridge Environmental Statement Volumes 1 & 2). Report in respect of Bechstein's Bats (including results of the 2013 radio-tracking study).
- Harris, G and Purgle, L (March 2017). Wiltshire Mammal Atlas Second Edition.
- Cohen, K. (2017). Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016.
- Cohen, K. (2018). Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2017.
- Cohen, K. (2019). Castlemead s.106 Ecology Monitoring Report 2018 surveys: Green Lane and Biss Woods.
- Cohen, K. (2020) Castlemead s.106 Ecology Monitoring Report, Green Lane & Biss Woods: 2019 surveys.
- Cohen, K. (2021) Castlemead s.106 Ecology Monitoring Report, Green Lane & Biss Woods: 2020 surveys.
- Cohen, K. (2021) Castlemead s.106 Ecology Monitoring Report, Green Lane & Biss Woods: 2021 surveys.
- Cohen, K. (2022) Bat Monitoring Report, Green Lane & Biss Woods: 2022 surveys report. A report to Wiltshire Wildlife Trust. November 2022.
- Froidevaux, J.S.P., Barbaro, L., Vinet, O. *et al.* Bat responses to changes in forest composition and prey abundance depend on landscape matrix and stand structure. *Sci Rep* **11**, 10586 (2021). https://doi.org/10.1038/s41598-021-89660-z

5.2.1 Ecology

73. A medium-sized bat, with a grey-brown dorsal surface and pale belly, the Bechstein's bat is usually easily distinguished from other species by the very long ears which extend beyond the nose when pushed forwards over the muzzle. The Bechstein's bat inhabits wooded landscapes across Europe, from southern England to central Europe and the Balkans, east to the Black Sea, Iran and the Caucasus, typically utilising broad-leaved woodlands, often with watercourses.

74. The Bechstein's bat is considered generally rare throughout its Great Britain range, sparsely distributed, and considered one of Great Britain's rarest mammals in part due to genuine scarcity but also a result of difficulties in achieving reliable surveys. In Great Britain, the species is restricted to southern England, with strongholds in southern counties, including Sussex, Hampshire and Dorset. British populations appear to favour mature deciduous woodlands with a high proportion of oak and ash species (Greenaway and Hill, 2004; Hill and Greenaway, 2008; Schofield and Mitchell-Jones, 2010), which offer a variety of natural roosting opportunities as well as providing important foraging habitat for this species; typically, larger woods are strongly favoured. However, European populations also adopt beech woods and conifer woodlands where adequate understorey is present.

75. The Bechstein's bat is difficult to differentiate from the other Myotis species by means of acoustic surveys and so trapping surveys with acoustic lures (such as the Sussex Autobat, Hill & Greenaway, 2005) are considered the most reliable survey method. This led to the national Bechstein's Bat Project, coordinated by the Bat Conservation Trust, building upon the

pilot studies of Dr David Hill and Frank Greenaway (Miller, 2011). In 2015 a joint postgraduate research project was launched by Exeter University and Vincent Wildlife Trust as a result of concerns over inbreeding of isolated populations (Wright, 2018). Whilst genetic diversity was found to be generally high across the species range, a differentiation was also found to exist between the northern and southern part of the Bechstein's range in the UK. The study reports that the absence of obvious physical barriers such as mountain ranges between both populations suggests that anthropogenic barriers may explain the differentiation. These two projects underpin current knowledge about Bechstein's ecology in Britain.

5.2.1.1 Summer roosts

76. The Bechstein's bat typically spends the summer and breeds in roosts within woodlands, using cavities such as woodpecker holes and bat boxes. In addition, bats are rarely recorded roosting in buildings. Bechstein's bats have also been recorded roosting within hedgerow trees. Palmer et al. found such hedgerow trees to be well used even by maternity groups close to Grafton Wood Site of Special Scientific Interest (SSSI) in Worcestershire, where there are thought to be ample suitable potential roost cavities (Palmer, E., 2013). More recent studies associated with the Trowbridge woodlands and Bere Forest in Hampshire have also found maternity colonies associated with mature trees outside of woodlands (Keith Cohen *pers com;* Tristan Norton *pers com*).

77. Maternity colonies range from 10-50 females, rarely to 100 bats, exhibiting fission-fusion societies, i.e. they subdivide and recombine frequently, changing roosting sites every few days. The frequent splitting and regrouping means that at any one time the breeding colony is split between more than one roost and an occupied roost may not contain all the members of the colony. This strategy allows Bechstein's bats to be flexible according to roost availability and suitability, colonising a number of smaller roosts, where necessary. Radio-tracking studies have recorded Bechstein's bats switching roosts every 2-3 days (Schofield and Morris, 2000) although results of radio-tracking at Green Lane Wood suggest the maternity colony can remain in the roost for longer (Cohen 2017, Cohen 2018, Cohen *pers. comm.*). A single maternity colony can use up to 50 different roosts within a maternity season (Koenig, 1999). Male Bechstein's bats typically roost individually or travel to different maternity roosts every year (Greenaway and Hill, 2004).

78. At a landscape scale, the location of roost sites appears to be broadly dictated by distance to individual foraging sites (see below). Bechstein's bats show strong fidelity to individual foraging areas, returning to the same sites on consecutive nights and even years regardless of roosting location (Kerth, G., 2001) and as such, roosting sites are often located close to foraging habitat, minimising travel distance and therefore reducing the energetic cost of commuting between roosts and foraging areas (ibid.)

5.2.1.2 Summer home range and foraging behaviour

79. Bechstein's bats have been recorded foraging mainly in deciduous woodland with a closed canopy (Schofield and Morris, 2000; Fitzsimons et al., 2002; BCT, 2011). Preferred woodland foraging habitats used by Bechstein's include those with a predominance of oak and ash in the woodland canopy, a dense understorey with a predominance of native species including hazel and hawthorn and large areas of contiguous woodland (either in one block or several smaller connected areas), of at least 25ha (Bat Conservation Trust, 2013). This estimate of 25ha as a minimum viable range has been taken from this model which assumed a minimum viable population of 25 breeding females each requiring 1ha of foraging territory.

80. A number of studies have also recorded foraging sites to be located within woodland in close proximity (up to 1 km) of water (Schofield and Morris, 2000; Fitzsimons et al., 2002, BCT, 2011). Bats have also been shown to use overgrown hedgerows and tree lines for foraging (Schofield and Mitchell-Jones, 2010). Recent radio-tracking studies at the Forest of Bere in Hampshire found that bats were also regularly foraging over grazed pasture and within conifer plantations (Tristan Nortan, *pers com*). That Bechstein's bats forage beyond the confines of the roost woodland, utilising the wider landscape, has been replicated by a number of recent radio tracking studies (e.g. Palmer et al., 2013 in Worcestershire and Cohen 2017, 2018, 2019 in Trowbridge).

81. In order to exploit all of the foraging resources available, Bechstein's bats forage throughout the vertical strata of the woodland or mature tree line, from close to the ground to high up in the canopy, catching insect prey both during flight (aerial hawking) and through gleaning invertebrates from the surface of vegetation (Schofield and Morris, 2000;

Altringham, 2003; Dietz et al., 2007; Schofield and Mitchell-Jones, 2010). The diet of Bechstein's bats changes throughout the season according to prey availability, whilst faecal analysis has recorded evidence of moths, beetles, crane flies, grasshoppers, dung flies, lacewings and non-flying arthropods such as spiders (Wolz, 1993, referenced in Kerth et al., 2001a; Altringham, 2003; Dietz et al., 2007). The presence of dung flies in the diet of Bechstein's bat also lends weight to the use of grazed pasture (potentially in a parkland setting) by foraging Bechstein's bat (Tristan Nortan, *pers com*).

82. Individual Bechstein's bats typically forage within their own distinct core foraging territories, largely but not always separate from those of neighbouring bats (Kerth et al., 2001a; Greenaway and Hill, 2004). As a result, some Bechstein's bats will travel greater distances from the same roost, through areas of suitable foraging habitat, in order to reach their own individual core foraging site. Studies have thus recorded bats travelling on average between 0.5km and 1.5km from roosts to foraging sites, although distances of up to 4km have been recorded in some instances (Steinhauser, 2002; Boye and Dietz, 2005) and by bats radio tracked as part of the monitoring study undertaken for the Castlemead development at Trowbridge (Cohen, Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016, 2017).

83. Research on foraging Bechstein's bats in the UK has recorded a range of different core foraging ranges, from 0.08ha in a 156ha deciduous woodland in Sussex and up to 103.27ha in Worcestershire (Fitzsimons et al., 2002; Palmer et al., 2013). Studies in extensive deciduous woodlands in Europe, which may represent optimum habitat conditions, have recorded smaller territory sizes of approximately 20 ha (Kerth et al., 2001a).

5.2.1.3 Flightlines

84. Studies in Sussex (Greenaway and Hill, 2004; Hill and Greenaway, 2006) reported that female Bechstein's bats generally stay under the canopy of woodland and dense hedgerows when commuting and foraging, which is consistent with the behaviour of other bat species (Entwistle et al., 1996; Brandt et al., 2007). However, radio-tracking studies in Wiltshire (Cohen 2017, 2018, 2019), Dorset (Schofield and Morris, 2000), the Isle of Wight (Ian Davidson-Watts*, pers.comm*.), and Worcestershire (James Hitchcock / Eric Palmer, *pers. comm*.) have reported observations of bats moving directly across open fields or farmland when travelling from, or returning to, roost sites and foraging areas.

85. In addition, a number of studies in the UK have recorded Bechstein's bats crossing roads, including the A422 in Worcestershire (Palmer et al., 2013) and the A350 in Trowbridge (Cohen 2017, 2018, 2019). Radio-tracking studies undertaken in woodlands in the vicinity of Trowbridge, including Green Lane Wood and Biss Wood, have recorded bats crossing the A350 (Laurence, 2003; Laurence, 2007, Aspect Ecology, August 2017, Annex 4). Although Bechstein's bats have been recorded crossing roads, there is evidence that for larger roads, such as motorways there may be a barrier effect (Kerth and Melber, 2009). In the vicinity of such roads, it is likely the retention of cluttered habitat is particularly important, to maintain habitat linkages.

5.2.1.4 Hibernation roosts

86. During winter in the UK, a small number of Bechstein's bats have been recorded hibernating in caves and mines. However, hibernating Bechstein's bats are rarely observed within the SAC mines, and it is unclear if these mines are a main hibernation site for them, although some individuals are likely to be hidden from view in narrow and inaccessible crevices. It is thought that Bechstein's bat is likely to utilise both underground sites (mines, caves, etc.) and woodland hibernation sites, such as deep holes or cavities within deciduous trees, and thus may remain in the breeding woodlands all year round.

5.2.1.5 Autumn swarming

87. In autumn, Bechstein's bats travel to swarming sites (which may be located some distance from their habitual summer foraging areas). There is evidence to suggest that swarming behaviour is a mating event (Kerth et al., 2002), where bats will chase one another, particularly at cave or mine entrances which are known hibernation sites for the species. The reason for swarming behaviour in bats is not fully understood. However, theories include social learning (i.e. swarming behaviour teaches juveniles to become familiar with suitable winter roost sites); and increasing genetic diversity (i.e. congregation of bats at autumn swarming increases the number of potential mates, which provides opportunities for genetic mixing between populations). Bechstein's bats tagged at swarming have been recorded returning to their maternity sites at the end of the night, rather than being temporarily resident near / at the underground sites (Dekeukeleire, 2016).

5.2.2 Local context

88. Records of Bechstein's bat within Wiltshire include a number of hibernating bats within a series of caves and mines in the West of Wiltshire located approximately 8 - 12km from Trowbridge (JNCC, 2011). These caves also support large numbers of hibernating greater horseshoe and lesser horseshoe bats and as such have been designated as the Bath and Bradford-on-Avon Bats SAC. Hibernating Bechstein's have also been recorded in Chilmark Quarries SAC.

89. Box Mine SSSI (a component site of the Bath and Bradford on-Avon Bats SAC) is also an important site for swarming Bechstein's which is likely to be frequented by bats whose core ranges are a considerable distance from the site. Bechstein's bats are regularly recorded during autumn swarming trapping surveys at a range of stone mines within the Bath & Bradford-on-Avon Bat SAC (40 records amounting to a total of 184 individual Bechstein's bats trapped and ringed during this time). Whilst the swarming function is not a qualifying feature of the SAC, it is nonetheless a vital element of the ecology of Bechstein's bat.

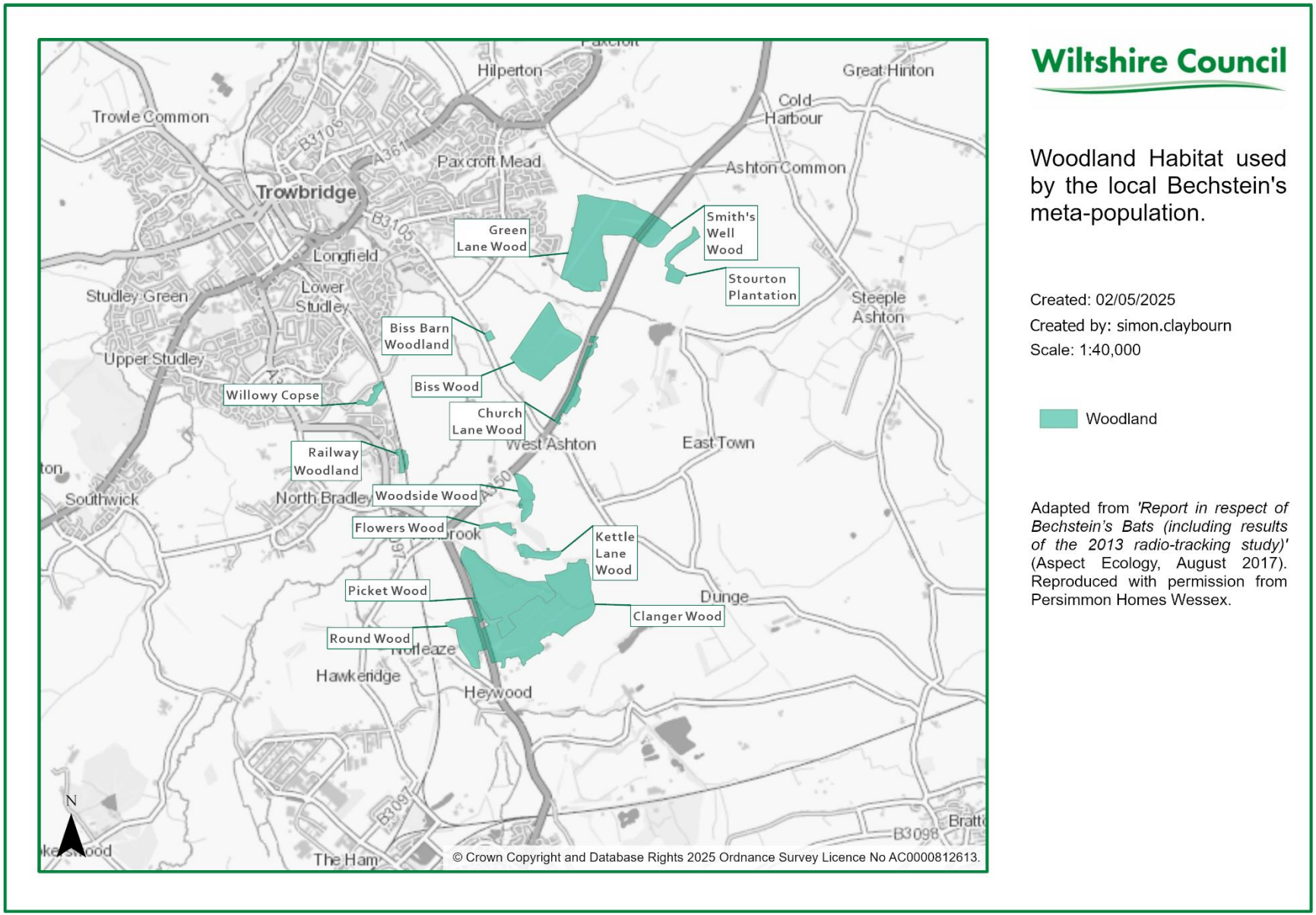
90. Ringing records obtained from Dr Danielle Linton have confirmed links between bats swarming at Box Mine and three additional sites in Wiltshire, comprising the maternity colonies at Green Lane and Biss Woods, Trowbridge; and a roost at Drews Pond Wood Local Nature Reserve (LNR), Devizes. These ringing records confirm a functional link between the Bechstein's bat roosts in Green Lane and Biss Wood and the Bath and Bradford-on-Avon Bats SAC; and it is therefore inferred that Bechstein's bats annually migrate between the SAC and other hibernation and breeding sites that constitute the wider SAC network. Other swarming sites such as Gripwood, that are not part of the SAC, are also recorded as being visited by ringed Bechstein's bats from Green Lane and Biss Woods (Linton / Cohen *pers. comm.);* individual populations of swarming bats of other species have been found to have high fidelity to individual swarming sites and as such each site has value to a distinct bat population (Dekeukeleire, 2016).

91. Wiltshire has seen extensive study in recent years on Bechstein's bats, focused in particular upon the breeding populations at Trowbridge, particularly the long-term studies at Green Lane Wood and Biss Wood, following their discovery here in 1999. A summary of the known habitat use and behaviour of the Bechstein's bat population in the Trowbridge area is provided below, mostly taken from the Aspect Ecology Environmental Statement (amended in 2017) (Pegasus Group, August, 2017):

- A number of tree roosts (most commonly woodpecker holes and rot holes) and bat box roosts have been recorded during radio tracking studies. The majority of these were located within woodland blocks, however, some day roosts were recorded outside the main woodlands, the most notable of which comprised a hedgerow tree located some 500m north of Green Lane Wood (with 100+ bats recorded emerging in 2016) (Cohen, K., Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2017, 2018) (Cohen, K., Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016, 2017) (Cohen, K., Castlemead s.106 Ecology Monitoring Report 2018 surveys: Green Lane and Biss Woods , 2019).
- Based on the observed regular use of roosts, together with the recorded ranging distances of individual bats and the flight behaviour of radio tracked bats, it is considered likely that the Bechstein's bats in the local area belong to several 'sub-colonies' associated with particular woodlands, namely Green Lane Wood-Stourton Plantation; Biss Wood; Church Lane; Woodside Wood; Clanger Wood; Round Wood; and Picket Wood (see Figure 3 below).
- The sub-colonies appeared to form relatively distinct female maternity groups. However, low levels of sub-colony mixing were recorded, with individuals recorded to move between various woodlands during the 2013 radio-tracking study and from previous survey work undertaken by other parties (as reported in Aspect Ecology (August 2017) e.g. Laurence, 2003; Laurence, 2004; Billington, 2006; Laurence, 2007). On this basis, all of the sub-colonies are considered likely to form one large and semi-linked meta-population across the local area and the local population is conjectured to be between 350 and 700 bats (Aspect Ecology, August 2017). Natural England has confirmed that this is one of the largest known Bechstein's breeding populations in the country and on this basis is currently considering whether to notify the woodlands as SSSI. It is possible that further sub-colonies which form part of the larger meta-population may be discovered with further research work. For example, radio-tracking by the Wiltshire Bat Group during the period 2003 to 2006 also found Bechstein's tree roosts at Kennel Wood, wooded copses associated with Rood Ashton Manor and near East Town.

- The recorded summer home ranges for radio tracked bats in the Trowbridge landscape in 2013 are particularly large in comparison to those reported in other radio-tracking studies in Worcestershire, Sussex and Dorset (recorded as an average of 150 ha, although ranging from 35 to 445 ha for individual bats) (Fitzsimons et al., 2002; Palmer et al., 2013). Further, the size of core foraging and feeding ground range was also recorded to be markedly higher, averaging 6.18ha and 55.52ha, respectively. Bats will only utilise as much habitat as is necessary to meet their foraging needs; and the larger summer ranges recorded for this population are likely to be due to the fragmented and sub-optimal nature of the wooded landscape, forcing bats to expand their summer home and foraging ranges in order to meet their foraging needs.
- The majority of foraging was recorded within and immediately adjacent to woodlands in the local area. However, the radio tracked bats were also recorded to make use of non-woodland habitats for foraging in the form of the River Biss corridor and occasionally hedgerows, varying in structure and composition, ranging from relatively dense outgrown hedgerows to box-cut hedges; two bats also foraged over cattle in farm sheds. Two bats radio tracked in 2016 travelled as far north as the Kennet and Avon Canal and spent time foraging along the canal (Cohen, K., Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016, 2017).
- The results of the radio-tracking study undertaken in 2013 indicate overlap in core foraging areas, between several bats. There is research evidence to suggest that there is a direct link between relatedness and the level of overlap of core foraging areas, indicating maternal inheritance of core foraging areas (Kerth et al., 2001a). On this basis, the considerable overlap in core foraging areas recorded, could indicate relatedness between the bats concerned. However, overlapping home ranges could also be an indication of the limitations of local foraging habitats.
- In 2013, relatively high-level foraging use of 'Willowy Copse' (a young deciduous plantation woodland, likely to have originated from the 1980s) was made by one radio tracked bat. Similar use of a young plantation sycamore copse to the north-west of East Town by a female Bechstein's bat radio tracked in September 2003 was recorded by Wiltshire Bat Group. The level of use made of such young plantation woodland raises the possibility that Bechstein's bats can gain significant sustenance from such small young new woodlands, a finding which could have important benefits for the maintenance and enhancement of this species at this site and across its range.
- Radio tracked Bechstein's bats in 2013 were recorded as using a range of (predominantly linear) habitat features for commuting, including the River Biss corridor, hedgerows, tree lines, woodland edges and the railway line. All linear features comprised dark unlit corridors. The linear features are likely to be important in providing connectivity between areas of optimal woodland habitat, such that the Bechstein's bats are likely to utilise these linear features out of necessity to maintain sufficient summer home ranges and to access the optimal roosting and foraging habitat available.
- All ten radio tracked Bechstein's bats in 2013 were recorded to cross roads, including the A350. The majority of individuals in this study were recorded to commute along linear features, in the form of hedgerows and tree lines, leading up to the A350. As well as crossing the unlit A350, Bechstein's bats were recorded to cross Bratton Road in West Ashton, lit by orange, low pressure sodium lights. In 2016 and 2017, bats were regularly recorded crossing Ashton Road adjacent to the junction with Green Lane, and in 2016 two bats also crossed the A361 east of Trowbridge (Cohen, K., Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016, 2017).
- Radio tracking studies have shown foraging and night-roost use of parkland and hedgerow trees, mainly mature oaks, within fields near to the core woods (<1km) (Cohen, K., Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2017, 2018) (Cohen, K., Castlemead s.106 Ecology Monitoring Report: Green Lane & Biss Woods 2016, 2017). Similar observations have been recorded by other recent radio tracking studies e.g. at Grafton Wood, Worcestershire (Palmer, E., 2013).

Figure 3 Woodland habitat utilised by the local Bechstein's 'meta-population', reproduced from (Aspect Ecology, August 2017) Reproduced with permission from Persimmon Homes Wessex.



5.3 Greater Horseshoe Bat

5.3.1 Ecology

92. The following information on greater horseshoe bat ecology and local distribution has been obtained from two main sources:

- Harris, G. and Purgle, L. (March 2017). Wiltshire Mammal Atlas Second Edition; and
- North Somerset Council (January 2018). North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document.

93. The horseshoe bats can be distinguished from other British bats by the 'noseleaf', which is thought to act as an 'acoustic lens', focusing echolocation pulses that are emitted from the nose. The greater horseshoe bat is the largest European horseshoe species. When roosting, they hang free with the wings enfolding their body, resembling small pears. They are long-lived animals and individuals have been known to live for up to 30 years. Greater horseshoe bats were originally cave dwellers, but most maternity colonies today are in buildings, choosing sites with large entrance holes which the bats can fly through with access to open roof spaces warmed by the sun. Greater horseshoe bats require a number of night roosts in the landscape near to the maternity roost (usually up to 4 km from the roost, but exceptionally up to 14 km) for resting between foraging bouts.

94. In winter, the greater horseshoe bat uses a series of caves, disused mines, cellars and tunnels as hibernation sites. These sites can be some distance from the breeding roost (> 50 km). Hibernation is interrupted between once a day and once every 6-10 days (depending on the temperature and time of year) to feed near the cave entrance or change roost site. Transitional roosts used during the spring and autumn are important staging posts for the population moving between breeding and hibernation roosts.

95. Greater horseshoe bats require a diverse habitat mosaic, including:

- ***Grazed pastures*** are critical foraging habitat for greater horseshoes. Cattle are preferred to smaller grazers, since they create the ideal structural conditions for perch-hunting bats in hedgerows and woodland edge. Large dung beetles, *Geotrupes* spp., can provide a major dietary component of greater horseshoe bats. Most favour cattle dung, but some also use sheep dung; and *Aphodius* dung beetles live in cow, sheep and horse dung. Short grazed habitat, such as produced by sheep, also benefits *Melontha* and *Tupilid* species which require short grass to oviposit. Within 1 kilometre of the roost the presence of permanent grazed pasture is critical for juvenile greater horseshoe bats. A high density of grazing animals should be present giving high presence of dung.
- ***Mature semi-natural woodlands*** including riparian woodland. Rides and footpaths are used by greater horseshoe bats when flying in woodland feeding areas. Grassy rides and glades in woodland increase the range of food and provide opportunity for perch hunting. Woodland supports high levels of moth abundances. Macro (and micro) moths are densest where there is grass or litter, less so where there are ferns, moss, bare ground or herbs. They are richer where there is native tree diversity and trees with larger basal areas. Species such as oak, willow and birch have large numbers of moths, whereas beech has small numbers even when compared to non-native species such as sycamore. Uniform stands of trees are poorer in invertebrates than more diversely structured woodland.
- ***Other grasslands***, including meadows kept for hay and silage; and flower-rich grasslands on road verges, grassy embankments and brownfield sites. Longer swards benefit the larvae of noctuid moths, for example, the main moth species eaten by greater horseshoe bats associated with the maternity roost at Woodchester Mansion, Gloucestershire are all species associated with grassland habitats, including large yellow underwing, small yellow underwing, heart and dart and dark arches (Ransome, 1997).
- ***Scrub***, for example, Billington (Billington G., 2000) recorded frequent foraging use of scrub habitat, particularly Buddleia scrub within disused quarries, during radio-tracking carried out for the Mells Valley SAC in June. However, large areas of continuous scrub are likely to be avoided by greater horseshoe bats.

- ***Well-developed hedgerows or lines of trees***. Larger hedgerows are required for commuting as well as foraging. Substantial broad hedgerows with frequent emergent trees can provide suitable structure for foraging conditions for greater horseshoe bats if woodland is scarce.
- ***Watercourses***. Tipulid larval development is favoured by damp conditions. Therefore, any aquatic environments and/or marshes can provide a secondary prey source. Aquatic environments could also favour the production of caddis flies in certain months, such as May and late August / September when other food supplies may be erratic. There is significant caddis fly consumption at roosts close to extensive river or lake habitats (Ransome, 1997). Extensive use of the Bristol Avon by greater horseshoes was recorded during radio-tracking in the Bradford-on-Avon area (Fiona Mathews, pers. comm.); and in Devon, the River Dart, a large river system, mostly banked by broadleaved woodland was also found to be a key habitat (Billington G., 2003).

96. These habitats are not used consistently throughout the year but change with the seasons. Woodlands and pasture adjoining wood are used in spring and early summer. As summer progresses, feeding switches to areas further away and tends to be over fields used for grazing cattle and other types of stock. Meadows that have been cut and where animals are grazing are also used. A balance of woodland and pasture of about 50% and 50% provides optimum resources for greater horseshoe bats.

97. Dietary analysis of greater horseshoe bat droppings shows that this species is conservative in its food sources and there are three main prey items: cockchafer *Melolontha melolontha*; dung beetles *Aphodius* sp. (Coleoptera: Scarabaeidae); and moths (Lepidoptera). Of these, moths form the largest part of the diet but the other two are important at certain times of year. Three secondary prey sources are also exploited: crane flies (Diptera: Tipulidae), ichneumonids (Hymenoptera: Ichneumonidae) of the *Ophian luteus* complex, and caddis flies (Trichoptera).

98. The preferred key prey in April for all bats that have survived the previous winter is the large dung beetle *Geotrupes*. In May, the preferred key prey is the cockchafer *Melolontha melolontha.* In June and early July, pregnant females feed on moths, their key prey at that time, and continue to do so after giving birth, until late August. Moth supplies usually fall steadily in August and September, due to phonological population declines, or rapidly at a particular dawn or dusk due to temporary low temperatures. If either happens, adult bats switch to secondary, single prey items, or combine moths with them. In very cold spells, ichneumonids, of the *Ophion luteus* complex are consumed. They are common prey in October and through the winter as they can fly at low ambient temperatures.

99. Juvenile bats do not feed at all until they are about 29 or 30 days old, when they normally feed on *Aphodius rufipes*, which is their key prey. This dung beetle species is a fairly small (90mg), easily caught and usually abundant prey, which reaches peak numbers at the time that the young normally start to feed in early August.

100. Favoured prey is caught on the wing or by gleaning prey from the surface of vegetation; flight is typically slow and often low above the ground. Greater horseshoe bats also frequently use a 'sit and wait' tactic whilst hanging from twigs and small branches within the vegetation, 'watching' from a regular perch and flying out to take passing insects.

5.3.2 Local context

101. The following information has been taken from Mammals in Wiltshire, Second Edition (Harris, G., March 2017) with supplementary local contextual information added where appropriate.

102. Only two maternity roosts were currently confirmed in Wiltshire at the time of writing the first iteration of the strategy: one in Box Mine SSSI and the other at a residential property in Westbury Leigh. Note that Iford Manor SSSI lies adjacent to the county boundary, just outside Wiltshire – this is one of the largest maternity colonies in Great Britain.

103. Between 1996 and 2016 over 4100 records of greater horseshoe bats had been submitted, of which over 3500 records relate to hibernation counts at Bath and Bradford-on-Avon Bats SAC and a lesser number at Chilmark Quarries SAC. Ongoing hibernation counts at sites within, and associated with, the Bath and Bradford-on-Avon SAC, coordinated by Dr Fiona Mathews and Wiltshire Bat Group, have confirmed that these sites continue to support significant numbers of greater horseshoe bats, and furthermore, ringing studies are now providing an insight into how individuals move regularly between sites during the winter. An approximate total of 19 separate hibernation sites (the large Box Mine complex has been treated as a single site) are represented in the records. Low numbers have been captured at some of these hibernation sites during autumn swarming surveys indicating that they are also used as mating and/or transitional roosts. Box Mine SSSI is also subject to more detailed monitoring, formerly by Ian Davidson-Watts, latterly by Roger

Martindale, whose more extensive surveys of the complex yield higher counts at this location. Sites monitored in the Bath and Bradford-on-Avon Bats SAC offer a 10-year peak mean of 414 greater horseshoe bats, with Box Mine SSSI supporting the majority of these. Peaks between winters and sites vary according to weather conditions and disturbance, with Box Mine alone ranging from 6 to 629 bats recorded during the period 2005/06 to 2015/16. More detailed analyses are required so these figures are provisional.

5.4 Lesser Horseshoe Bat

5.4.1 Ecology

104. The lesser horseshoe bat is the smallest European horseshoe species and when roosting they hang free with the wings enfolding their body, resembling small plums. Lesser horseshoe bats mainly roost in buildings that allow uninterrupted flight access during the summer months, often with stone walls and slate roofs. Maternity roosts are typically associated with buildings that offer a range of microclimates (e.g. attics, cellars and chimneys), thus allowing bats to shift location depending on the external temperature. Lesser horseshoe bats hibernate during the winter in underground caves, mines and cellars, which are humid and range between 4-12 degrees Centigrade. Hibernation roosts are typically within 5km of the maternity roost (maximum known distance is 32km away).

105. Lesser horseshoe bats are specialised for foraging in cluttered environments, particularly woodlands, wooded riparian corridors, and mature treelines and hedgerows, feeding within or below the canopy, mainly taking small flying insects including diptera (flies including midges, gnats and dung flies), tipulids (crane flies) and lepidoptera (moths). Landscapes which are of most importance for lesser horseshoe contain a high proportion of woodland, parkland and grazed pasture, linked with linear features, such as overgrown hedgerows.

106. Woodland, particularly broad-leaved woodland, comprises the most important foraging habitat for lesser horseshoe bat. However, radio-tracking research (Cresswell Associates, 2004) shows lesser horseshoe will forage over pasture, but cattle must be actively grazing the field. Once cattle are removed from a field, foraging by lesser horseshoe bats ceases immediately. However, pasture in such use offers a valuable and predictable food source at a time of year when bats are energetically stressed (pre- to post-weaning), because they are feeding their young. Scatophagidae (dung flies) can be one of the major prey categories in the diet of lesser horseshoe bats; and the larvae of the yellow dung-fly *Scatophaga stercoraria* develop in cattle dung. The presence of pasture is also indispensable to the larval stage of development for certain species (Tipulids), which form a significant proportion of the prey hunted by lesser horseshoe bats.

107. Lesser horseshoe bats fly an average of 2km per night from roosts during the summer. Band widths for foraging lesser horseshoe bats during the summer are derived from radio-tracking studies. Knight (Knight, 2006) found that the maximum distance travelled in one night in a lowland area in North Somerset was 4.1km for an adult female and 4.5km for a nulliparous female. The mean maximum range was 2.2km. Bontadina et al (Bontadina, 2002) found a similar maximum foraging range; and recommended that conservation management should be concentrated within 2.5km of the roost with special consideration within 600 metres of the roost where the colony foraged half the time.

108. Lesser horseshoes exhibit multi-modal behaviour and fly for just over 50% of the night, resting after each foraging bout in night roosts, which appear fundamental to the conservation of lesser horseshoe bats, particularly during pregnancy and lactation (Knight, 2006).

5.4.2 Local context

109. The following information has been taken from Mammals in Wiltshire, Second Edition (Harris and Linham, 2017) with supplementary local contextual information added where appropriate.

110. Between 1996 and 2016, a total of 925 records of lesser horseshoe bats had been submitted, of which 186 relate to hibernation counts at sites within the Bath and Bradford-on-Avon Bats SAC and 23 at Chilmark Quarries SAC. Ongoing hibernation counts continue at sites within, and associated with, the Bath and Bradford-on-Avon SAC, coordinated by Dr Fiona Mathews and Wiltshire Bat Group. Of the records from the Bath and Bradford-on-Avon Bats SAC, Box Mine SSSI supports significant numbers of hibernating lesser horseshoe, with hundreds of bats regularly recorded. Several other disused limestone quarry hibernation sites feature in the records in the vicinity of the Bath and Bradford-on-Avon Bats SAC.

111. At the time of writing the first iteration of the strategy, forty-eight of the recorded roosts within Wiltshire comprised maternity roosts of which several were in the area around Bradford-on-Avon, Corsham and Trowbridge (thereby close to known hibernation sites). The finding near Green Lane Wood of a ringed lesser horseshoe bat that had been ringed during swarming surveys at Gripwood in Bradford-on-Avon (referenced in Cohen, K., 2017), suggests there may be a functional link between the SAC and woodlands around South Trowbridge for lesser horseshoe bats.

6 BAT SURVEY REQUIREMENTS FOR DEVELOPMENT

112. Along with the survey requirements specified herein, the Bat SAC Planning Guidance for Wiltshire (Wiltshire Council, 2015) should also be referred to as the guidance sets out general requirements for bat surveys in association with development. A series of additional survey requirements that must be adhered to within the area covered by this Strategy have been set out below.

6.1 General survey requirements

113. Early engagement with and steer from ecological consultees (including Wiltshire Council and Natural England) is critical to ensure that survey and mitigation scope are adequate. Use of the Council's pre-application service is recommended, and use of the Ecology Team's enhanced pre-application service is also recommended for major or more complex applications. Each application for development will be assessed on its own merits by Wiltshire Council's ecology team and sound professional judgement will be applied when considering the survey undertaken.

114. Within all Bat Sensitivity Zones (see Section 7 below), a licensed bat ecologist should be commissioned to carry out a preliminary site visit and desk study to assess the risk and the need and scope of further survey work. **It should be noted that development of new sites in the Red Bat Sensitivity Zone is unlikely to be acceptable due to high impacts on the bat SAC populations – see Section 7 below.**

115. All bat survey work should be undertaken in accordance with the Bat Conservation Trust's (BCT) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). (Collins, J. (ed.), 2023).

116. Bat surveys are seasonally constrained. Furthermore, a comprehensive suite of surveys may take up to 12 months to complete and should therefore be programmed into the project timeframe / delivery plan at an early stage to avoid delays.

117. Mating sites are often overlooked. A single bat in a roost is often considered to be of low conservation value but actually could be essential to the favourable conservation status of the population if it is a male. Surveys in April and October can be critical to establishing whether the roost is a mating site, and it may be necessary to trap bats to establish gender. Any trapping must be carried out under the necessary license. In some instances, it may be prudent for the necessity for trapping to be discussed in advance with the Wiltshire Council's ecology team and potentially also with Natural England. Sufficient time to facilitate such discussions should be allowed for within the project timeframe.

6.2 Lighting survey

118. Some of the technical information in this section has been reproduced with the kind permission of Bath and North East Somerset Council from their WaterSpace Design Guidance: Protecting Bats in Waterside Development (Bath and North East Somerset Council, June 2018).

119. In addition to the guidance set out in this section, it is expected that the approach to lighting for new development, including lighting survey, is undertaken in accordance with *Guidance Note 08/23. Bats and Artificial Lighting at Night* (Bat Conservation Trust and Institution of Lighting Professionals, 2023) and *Guidelines for consideration of bats in lighting projects* taken from EUROBATS Publication Series No. 8 (Gazaryan, S., and Meyer-Cords, T. (Eds) (2018).

120. The introduction of new lighting can result in adverse impacts to populations of Bechstein's, greater horseshoe and lesser horseshoe bat. It is therefore critical to maintain functional dark foraging habitats and commuting corridors for these species. In order to achieve this alongside new development, it will be essential that the bats and lighting issue is acknowledged and integrated into the design process from the outset, and in an iterative way. It should not be left to later design stages or be retrofitted into development proposals. To demonstrate that the development has been designed to accommodate light-sensitive bats, it will be necessary to provide the baseline lighting survey and modelling information set out below.

121. Early consultation with Wiltshire Council is required to establish the need for surveys of existing light levels on the proposed development site, however, it is anticipated that baseline lighting surveys will be required for all allocated sites within the draft Local Plan. An understanding of baseline illuminance levels will allow accurate comparisons to be

undertaken during post development monitoring and compliance checks.

122. Where baseline lighting surveys are confirmed to be required in consultation with the Council, they must be undertaken by a suitably experienced and competent lighting professional (member of the Chartered Institution of Building Services Engineers (CIBSE), Society of Light and Lighting (SLL), Institution of Lighting Professionals (ILP) or similar). The lighting professional should determine the appropriate number and location for sample readings to be taken, taking into account the habitats of value to bats on site and the potential need for the samples to be repeated post-development as closely as possible.

123. Baseline measurements should be taken systematically across the site or features in question. That is, they will need to be repeated at intervals to sample across the site or feature, either in a grid or linear transect as appropriate. At each sample location, a reading should be taken at ground level on the horizontal plane (to give illuminance hitting the ground). Vertical readings should also be taken at each sample location at 1.5m (to replicate the height at which horseshoe bats will typically fly); and at 4m (to replicate the height at which Bechstein's bats will typically fly). The orientation for vertical readings should be perpendicular to the surface/edge of the habitat feature in question (such as a wall or hedgerow) in order to produce a 'worst case' reading. Further measurements at other orientations may prove beneficial in capturing influence of all luminaires in proximity to the feature or principal directions of flight used by bats. This should be discussed via the pre-application process with Wiltshire Council.

124. An appropriately high-quality light meter must be used which is V-Lambda and Cosine Corrected, and the type of light meter used for the survey must be specified in a baseline survey report (e.g. Minolta T10). Measurements should always be taken in the absence of moonlight, either on nights of a new moon or heavy cloud to avoid artificially raising the baseline. Baseline surveys must be undertaken with all existing luminaires switched on and undimmed, and where possible, with all internal lighting in buildings switched on and with blinds or screens over windows removed. Where possible, measurements should be taken during the spring and summer when vegetation is mostly in leaf, so as to accurately represent the baseline during the principal active season for bats and again to avoid artificially raising the baseline.

125. A horizontal illuminance contour plan (isolux plot) should be prepared by the lighting professional, plotted at ground level. Vertical illuminance contour plots for 1.5m above ground level and at 4m above ground level, or similar graphic representations of illuminance levels showing light spill on vertical planes, will also need to be submitted with the planning application. Each contour plan should be accompanied by a table showing their minimum and maximum lux values.

6.3 Surveys aimed at horseshoe bats

126. Following the initial site visit and desk study by a licensed bat ecologist (see 6.1 above), early consultation with Wiltshire Council is recommended to confirm the need for, and scope of, surveys aimed at horseshoe bats. Horseshoe bat surveys are likely to be required for any development of greenfield sites within the yellow bat sensitivity zones, including all the proposed allocations within the draft Local Plan that lie within this zone. Where required, horseshoe surveys should be undertaken in accordance with the specifications listed below.

127. All surveys targeted at horseshoe bats must be designed and undertaken by a qualified ecological consultant (employed by the developer) with experience of greater and lesser horseshoe survey and mitigation. A suitably experienced and licensed bat ecologist must produce and sign off the final bat report to be submitted to Wiltshire Council with the planning application.

128. It is expected that all potential roost structures for horseshoe bats will be subject to visual inspections and dusk emergence / dawn re-entry surveys in accordance with the BCT's Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition) (Collins, J. (ed.), 2023).

129. As a minimum, extensive static detector surveys will be required for any development in the yellow or red Bat Sensitivity zones identified in Section 7 below. Intensive survey effort in combination with appropriately positioned, high sensitivity microphones and devices that record in full spectrum format will be necessary to ensure that greater and lesser horseshoe bat will be detected (if present) (both species are more difficult to detect compared to most other British bat species due to the directionality and rapid attenuation of their echolocation calls). The primary objective of these surveys will be to

detect commuting routes and foraging areas rather than roosts. Enough static detectors need to be deployed to monitor all potential flyways (particularly linear habitat features) but also to sample all habitats within the development site, including open grasslands, woodland edge, woodland canopy, woodland shrub layer etc. The period of deployment at each location will be at least 50 days from April to October and will include at least one working week in each of the months of April, May, June, July, August, September and October (50 nights out of 214 ≈25%). Full details of equipment used as well as photographic evidence with a supporting diagram showing detection radii for horseshoe bats should be submitted to demonstrate that the site has been adequately surveyed.

130. As a minimum, manual transect surveys in any of the Bat Sensitivity Zones will require manual transect surveys to be carried out on ten separate evenings. At least one survey will be undertaken in each month from April to October, as the bat's movements vary through the year. Transects will cover all habitats likely to be affected by the proposed development, including a proportion away from commuting features in field.

6.4 Surveys aimed at Bechstein's bat

131. Bechstein's bats are associated most frequently with tree roosts. The local population has been shown to use trees outside the main woodland blocks for day and night roosting, as well as foraging, including a hedgerow tree that supports the largest recorded emergence count for any of the known maternity roosts. A number of tree roosts used by Bechstein's bats in the UK have also been found in small trees e.g. with a diameter at breast height (DBH) as low as 13cm (Andrews Ecology Ltd, 2017) and DBH of 8.5cm at Green Lane Wood (Keith Cohen *pers comm*).

132. As such, all planning applications for development that will affect trees within the bat sensitivity zones, either through direct loss or via indirect impacts such as lighting or fragmentation, must be supported by comprehensive bat tree surveys aimed at establishing the presence and conservation significance of tree roosts. In the first instance, this must comprise a thorough ground-based assessment, undertaken by a suitably experienced bat ecologist, to categorise any trees with potential to support roosting bats. Where trees are at risk, tree surveys should follow the Bat Roosts in Trees methodology (Bat Tree Habitat Key, 2018). Any such trees should be subject to endoscope surveys, potentially with multiple inspections over the year given the well-known low encounter rates of bats using tree roosts, and climbing surveys, as relevant, by an appropriately licensed bat ecologist. Further survey, comprising emergence and re-entry surveys of affected trees may be required, and early consultation with Wiltshire Council is advised to agree the full scope of tree surveys. **Unoccupied potential roost features are as important as occupied features. Wherever possible, trees in the early mature phase or older should be retained within the dark habitat network for bats regardless of whether they contain potential roost features as it is important to retain continuity of the future roosting resource, as well as foraging resource.**

133. The Bechstein's bat is difficult to differentiate from the other Myotis species through acoustic surveys. In addition, the bat echolocates very quietly, frequently from high in the canopy, and can often be missed during acoustic surveys. This means that standard acoustic survey techniques are **not** adequate to detect the likely presence or absence of this species from a development site.

134. Survey techniques for Bechstein's bat typically involve trapping surveys (using mist nets and harp traps) with acoustic lures. Further advanced survey techniques such as radio tracking may also be deployed to assess which habitat features in the landscape are used for foraging and commuting. However, due to the low density of this species and lack of experience of many bat ecologists in capturing it, unsuccessful surveys cannot on their own be interpreted as meaning this species is absent. In addition, advanced survey techniques such as trapping and radio tracking can be time-consuming and expensive; may require a project licence from Natural England; and also need to be deployed with care to avoid the excessive disturbance to local bat populations that could arise from trapping for multiple projects.

135. Trapping and radio tracking of Bechstein's bats associated with the Trowbridge woods have been undertaken and coordinated at a strategic level for a number of years. These surveys have yielded a wealth of information about important roost sites, foraging areas and commuting routes used by the local population. It is intended that these surveys will continue in future years and be supplemented by funding through this strategy in order to build on this baseline. Given the limitations of relying on individual site surveys, this strategic approach is likely to be more cost-effective to developing a baseline of Bechstein's presence and behaviour across the Trowbridge area.

136. The bat sensitivity zones described in Section 7 below have been developed based on existing survey information and current scientific knowledge about the species to denote those areas where habitat is of importance or is highly likely to be of importance for Bechstein's bat. It should be assumed that Bechstein's bat will be present in all red and yellow sensitivity zones and making use of all potential habitat features. Taking this into account, as well as the strategic surveys discussed above, it may not be necessary for specific surveys for Bechstein's bat to be undertaken in support of individual planning applications for development.

137. However, it is recommended that early consultation is undertaken with Wiltshire Council ecologists to confirm whether advanced survey techniques for Bechstein's bat are required to support a planning application. In situations where Wiltshire Council deem that Bechstein's surveys are nevertheless required, the survey methodology must be agreed with Wiltshire Council in advance (e.g. suitably competent staff, trapping dates, trap numbers, trap types and locations, sample size to be tagged, number of nights to track each tagged bat).

138. In these situations, the following minimum standards will apply:

- All surveys aimed at Bechstein's bats must be designed and undertaken by a suitably experienced and licensed bat ecologist with experience of Bechstein's survey and mitigation. This person will be registered on the Natural England Level 3/4 class licence; and must produce and sign off the final bat report to be submitted with the planning application.
- Trapping surveys must be undertaken with a Sussex Autobat acoustic lure, as this model has been shown to attract Bechstein's bats through use of synthesised Bechstein's social calls (Hill, 2005). Use of other types of acoustic lure must be justified, including provision of evidence that the call sequence is effective in attracting Bechstein's bats.
- Surveys for Bechstein's bats are likely to be required throughout the active season (April to October), although winter hibernation surveys may be necessary in some circumstances. It should be noted that swarming sites for Bechstein's can be missed if surveys are not undertaken in August to October. It is particularly difficult to assess the importance of these sites and / or possible to dismiss the presence of Bechstein's, therefore a precautionary approach is important.
- All Bechstein's bats caught will be ringed and the data shared, to support the ongoing strategic population studies.

7 BAT SENSITIVITY ZONES

7.1 What do bat sensitivity zones mean?

139. Figure 4 and Figure 5 show mapped Bat Sensitivity Zones for Trowbridge and Westbury and the surrounding area.

140. These sensitivity zones are accessible in high definition via the Wiltshire Planning Explorer map on Wiltshire Council's website to allow accurate identification of the boundaries of each zone with respect to individual sites.

141. The zones identify where development of new greenfield sites would cause a high or medium risk of negative impact on the bat populations associated with the Bath and Bradford-on-Avon Bats SAC (Bechstein's bat, lesser and greater horseshoe bats). The Bat Sensitivity Zones are divided into 3 levels, comprising the red, yellow and grey zone, which have been informed by two factors: the likely importance of the habitat for the SAC bat populations; and the potential for impacts due to increased recreational pressure on key woodland sites.

142. For each different Bat Sensitivity Zone, Table 7.1 below sets out the type of impact that could occur due to development and a description of the implications for development proposals within each zone. It should be noted that the red and yellow zones can overlap with the grey zone and therefore applications for development could fall into more than one zone. A summary of the main factors associated with each Sensitivity Zone is provided below. The evidence that has been used to derive the boundaries of each Bat Sensitivity Zone has been set out in Section 5 and Section 7.2.

143. The Red Zone comprises the 600m area around the edge of woodlands or trees known to support maternity roosts for Bechstein's bat. New development of greenfield or residential brownfield sites within this zone is likely to result in high and unacceptable risks to bat populations, due to increased recreational pressure on key woodland sites and/or as a result of habitat loss. As such, development of new sites within this zone is highly unlikely to be permitted, and there should be no net increase in new residential curtilage or light levels within the zone. Development proposals will, however, be assessed on a case-by-case basis by the council's ecology team.

144. The yellow medium risk zone represents the areas where habitat has been shown to be of importance, or is highly likely to be of importance, for Bechstein's, greater horseshoe and / or lesser horseshoe bat. Development of new greenfield sites is not precluded within this zone, and sites have been allocated in this zone within the draft Local Plan. However, such development is likely to require significant and appropriate habitat mitigation measures to be provided on site thereby reducing the developable area, and therefore the density of development as described in Section 8 below. Other factors such as light levels, noise etc. will also need careful design to demonstrate that they will have limited impact.

145. Within the yellow medium risk zone, it will be critical to ensure that adequate bat surveys have been undertaken to inform development in accordance with Section 6 of this Strategy. It will be expected that habitat features of importance for greater horseshoe, lesser horseshoe and Bechstein's bat, including roosts, foraging areas and commuting routes, are retained and enhanced *in-situ* ensuring full functionality*:* specific guidance on how this should be achieved is set out in Section 8 below.

146. Development within the yellow medium risk zone will be expected to firstly, fully mitigate on site for the loss of habitat by ensuring no net loss, to be demonstrated by use of an established metric (preferably the Statutory Biodiversity Metric or subsequent version) based on best practice. This is notwithstanding the need to adhere to Biodiversity Net Gain (BNG) requirements. The council's ecology team may, in certain instances, deem that the submission of a completed biodiversity metric alongside a planning application within the yellow medium risk zone is not critical for the purposes of ensuring compliance with the TWBMS and this would be decided on a case-by-case basis.

147. **Secondly, development within the yellow zone will be expected to make a financial contribution to mitigate against the in-combination effects of development on greenfield sites, through strategic habitat creation and enhancement (see Section 9 and Appendix 1).**

148. The dark grey hatched medium recreational risk zone represents the areas where new residential development is expected to result in increased recreational pressure on key woodland bat sites. This includes land to the north of Westbury on account of based on the evidence gathered in respect of visitor movements from Westbury to Picket and

Clanger Wood. **New residential development proposals for 50 or more houses within this zone will be expected to provide mitigation in the form of SANG / sufficient natural recreational focused greenspace; and new residential development proposals for less than 50 dwellings within this zone will be expected to make a financial contribution towards the delivery of strategic mitigation to address recreational pressure on the woodland sites (see Section 9 and Appendix 2).**

7.2 How bat sensitivity zones have been derived

149. The baseline sources from which the Bat Sensitivity Zones have been derived are listed in Section 3.2.6 of this document. The various bat data have been compiled on a GIS database. Table 7.2 sets out the criteria that have then been applied to determine the boundaries of each zone in accordance with the GIS database.

7.3 Review of bat sensitivity zones and potential future risks

150. The Bat Sensitivity maps that have been created during this process must be considered dynamic documents as the relative importance of landscape features will alter as the area is subject to further development and habitat change. The intention is that this document and the corresponding mapping outputs will be periodically reviewed to ensure that it remains relevant to the present landscape.

151. The importance of landscape features and habitats for bats, particularly relating to those species associated with the Bath and Bradford-on-Avon Bats SAC, has been assessed for the purposes of this document based on the current scientific research and understanding of the ecology of these species. As further research is published that alters our understanding, this assessment should be revised to accommodate any new information. For example, the 'Core Areas' sourced from the Bat SAC Planning Guidance for Wiltshire (Wiltshire Council, September 2015) are based on generic research for the SAC species. The actual location of key foraging elements may in some cases be beyond the currently mapped 'Core Area' range; and asymmetry in habitat dispersal may strongly influence bat activity. It is therefore essential to maintain a feedback loop in the process to allow additional areas to be added to the 'Core Areas' where necessary. Wiltshire Council reviews information relating to Core Roosts and Core Areas and updates its data sets accordingly. Where possible this information will continue to be made available to the public via the Wiltshire Planning Explorer map, the story board mapping and updated guidance.

152. It should be noted that the Wiltshire Council Bat SAC Guidance is due to be updated subsequent to receipt of the latest annual dataset update from the Wiltshire and Swindon Biological Records Centre (WSBRC). It will also be updated to take account of the latest scientific information and / or changes to legislation. Any changes to this overarching guidance may therefore result in further changes to the Bat Sensitivity Zones for Trowbridge, Westbury and the surrounding areas. For example, evidence is emerging that the local population of Bechstein's bat requires a larger summer range than other studied populations and Core Areas may therefore need to be extended around other woodlands that have been shown to support breeding sub-colonies (e.g. Woodside Wood).

153. An updated visitors survey will be undertaken in due course and the resultant findings and data obtained will be analysed to determine whether the Bat Sensitivity Zones need to be revised. The strategy document and associated mitigation requirements and costings would also be updated accordingly, where this proves necessary.

154. The Footprint Ecology report (2018) highlights that housing in proximity to woodlands can have an adverse effect on the associated fauna due to cat predation. The report references research by Ancillotto *et al.* (2013) which provides evidence that domestic cats can predate Bechstein's bat and can target species that breed/roost in trees and catch bats that are hunting. In terms of the distance that cats roam, this can vary markedly and has been subject to various studies. The report discusses the most up to date study conducted in the UK at the time the report was written, which suggested a maximum roaming distance of 400m (Thomas, baker and Fellowes, 2014). However, the study was conducted in urban Reading where physical barriers, such as roads, were found likely to reduce the distances cats travelled. The Footprint Ecology report therefore suggested that in areas such as Trowbridge, cats could potentially roam outside of the town, and that ranging distances of more than 400m may be possible.

155. The Footprint Ecology report specifies that in relation to cat predation, setting a definitive exclusion zone is a challenge given that the literature on cat roaming indicates a wide variation in roaming distances and doesn't provide clear

evidence, and that as such, a degree of pragmatism is required. The 600m exclusion zone which has been applied in this strategy as the red high risk bat sensitivity zone, is in accordance with the recommendations of the Footprint ecology report which had taken into account cat predation. Nevertheless, the issue of cat predation will be kept under review and if new / additional evidence comes to light regarding cat predation of Bechstein's bat at the woodland bat sites around Trowbridge, the red zone would be reviewed to investigate whether it needs to be extended, and where applicable the strategy document would be updated accordingly.

156. At present the 600m red high risk bat sensitivity zone has not been applied to Woodside Wood, Flowers Wood, Kettle Lane Wood, Church Lane Wood and Stourton Plantation (as shown on Figure 3) as it is understood that these woodlands are not open to the public and that although public rights of way are located in proximity, there are no rights of way through the woodlands and as such they are technically not accessible to the public. Nonetheless, it is recognised that future residential development in the locality of these smaller woodlands, particularly as Ashton Park Urban Extension is developed and the quantum of housing in the locality grows, could lead to an increase in accessing of these woodlands by residents as green spaces for walking / dog-walking and recreation are sought; thereby leading to an increase in recreational pressure on the woodlands. The mosaic of habitats immediately around these woodlands are important for Bechstein's bats, and a greater need to protect and enhance these areas could prove necessary in the future for the aforementioned reasons. As such, implementation of a 600m exclusion zone in the form of the red high risk bat sensitivity zone around these woodlands may be necessary in the future. This will be kept under review and may inform the geographical scope of the next visitor survey to be conducted in due course. The findings of the visitor survey will be analysed to determine whether revisions to the red zone are required.

Table 7.1 Bat Sensitivity Zones

Level of Impact/ Risk	Type of Impact/ Risk[2]	Implications for development
RED ZONE HIGH RISK (See Figure 4)	Impacts will arise as a result of: • Recreational pressure on woodlands used by breeding Bechstein's bats. • Loss of habitat of critical importance to supporting breeding Bechstein's bats. • Impacts will arise from developments considered alone and/or in-combination with other plans and projects.	Habitat within the red zone is likely to be critical now and / or in the future to sustain this breeding population of Bechstein's bats. It is unlikely that development in this zone will be able to provide adequate mitigation to enable an assessment under the Habitats Regulations to conclude, beyond reasonable scientific doubt, no adverse effect on the integrity of the Bath and Bradford-on-Avon Bats SAC. Development proposals will, however, be assessed on a case-by-case basis.
YELLOW ZONE MEDIUM RISK (See Figure 4)	Impacts will arise on individual sites and in-combination with other development as a result of: Loss and/or degradation of habitat of importance to Bechstein's, greater horseshoe and lesser horseshoe bats for foraging, commuting and roosting including: • Buildings • Grassland • Hedgerows • Trees • Scrub • Water bodies • Riparian corridors • Availability/access to roosts	Development on greenfield sites outside the settlement boundaries[2] will be able to demonstrate no adverse effect on site integrity of the SAC provided that: • There is no net loss of habitat within the allocation site boundary as demonstrated by use of The Statutory Biodiversity Metric or any subsequent revisions thereof (notwithstanding that use of the metric may not be critical in all instances, as detailed in paragraph 146; and notwithstanding the need to adhere to BNG requirements). • Retained core bat habitat remains connected to the wider habitat network and is adequately buffered in accordance with this strategy. • Core bat habitat remains relatively undisturbed by the effects of urbanisation in accordance with this strategy. • A financial contribution is made towards funding the LPA scheme detailed in Section 9.1 for mitigating residual in-combination effects from loss / degradation of bat habitat. This will need to be secured for residential development (a per dwelling contribution) and all other types of development (a per hectare contribution).
GREY HATCHED ZONE MEDIUM RISK (See Figure 5)	Impacts will arise in-combination with other development as a result of: • Recreational pressure on woodlands used by Bechstein's bats.	Residential development will be able to demonstrate no adverse effect on site integrity of the SAC provided that: • New residential development of 50 dwellings or more provides a SANG / sufficient natural recreational focused greenspace. • New residential development of less than 50 dwellings makes a financial contribution towards funding the LPA scheme detailed in Section 9.2 for mitigating residual in-combination effects from recreational pressure.

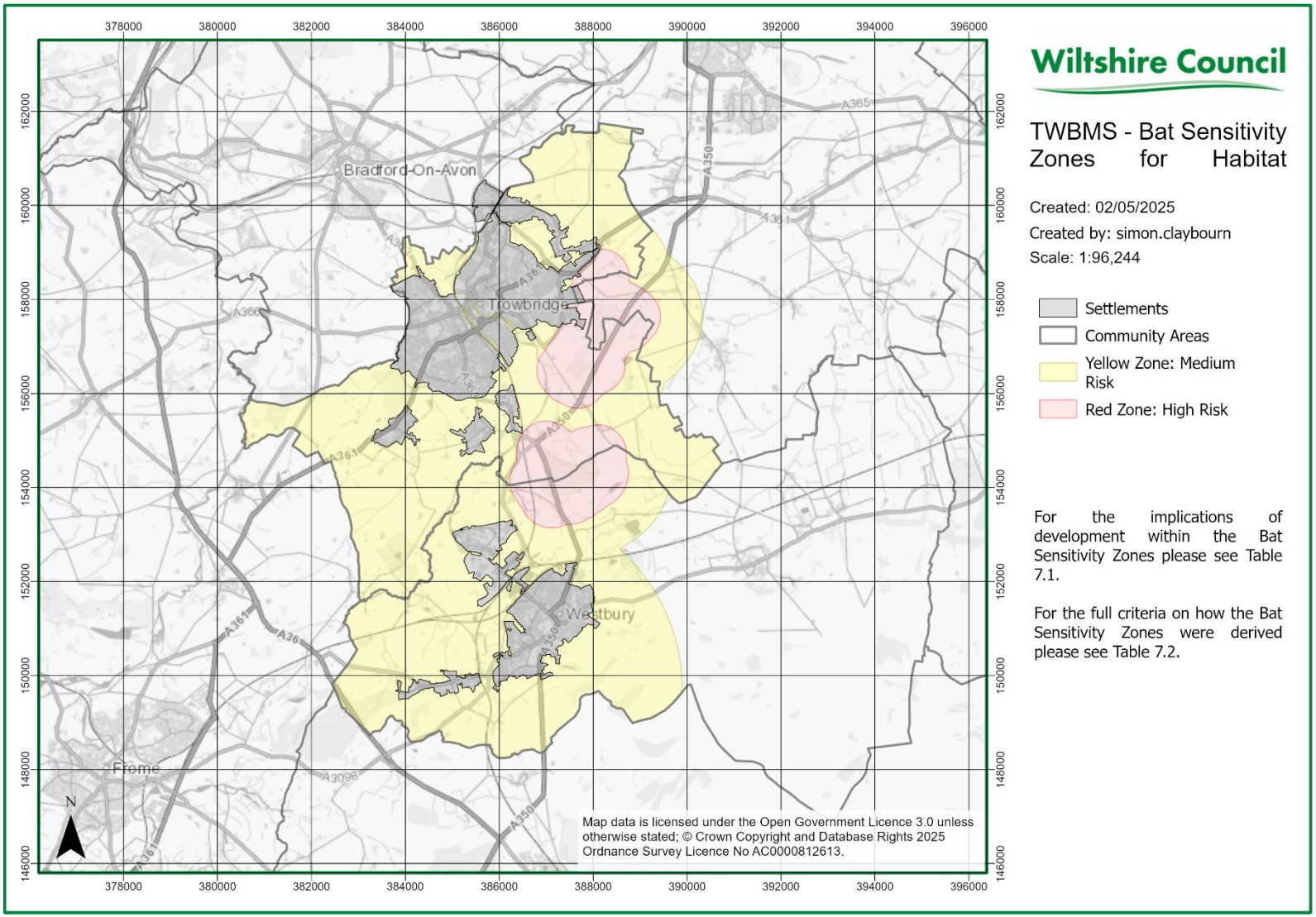
[2] Note that impacts arising from the Strategic Allocation for Ashton Park have already been addressed through a bespoke mitigation strategy and no further mitigation is required for the outline planning application for this allocation.

Table 7.2 Criteria applied to derive bat sensitivity zones

Level of Impact/Risk	Criteria
RED ZONE HIGH RISK (See Figure 4)	This includes land within 600m of identified woodlands containing 'Core Roosts'. The Footprint Ecology Report (Footprint Ecology, November 2018) showed that the woodland bat sites draw visitors on foot from a radius of around 600m; beyond this, visit rates reduce to a low and constant rate. Any new residential development within the 600m radius is likely to increase foot visitors to the woodlands and therefore increase recreational pressure within the woodland. Recreational pressure is already being shown to have negative impacts to the woodland site, including the bat populations, so any additional incremental residential pressure would have an adverse impact on the integrity of the Bath and Bradford-on-Avon Bat SAC. Records within the GIS database and contained in reports submitted to comply with the S106 agreement for Castlemead, show that habitat within the red zones comprises critical habitat within the core foraging and feeding ground ranges associated with Bechstein's maternity roosts providing key resources now and / or in the future, in part compensating for limitations in the core woodland habitat.
YELLOW ZONE MEDIUM RISK (See Figure 4)	This zone is a composite of: • A 1.5km buffer around 'Core Roosts[3].' for the Bechstein's breeding population in the Trowbridge area, including Green Lane Wood, Biss Wood and Picket and Clanger Wood. These buffers are referred to as 'Core Areas' in the Bat SAC Planning Guidance for Wiltshire page 7, section 3.2 (Wiltshire Council, September 2015). 'Core Areas' are of particular importance for foraging and commuting bats associated with the 'Core Roosts'. • A 4km buffer around 'Core Roosts' for greater horseshoe bats and a 2km buffer around 'Core Roosts' for lesser horseshoe bats where these overlap with the Trowbridge and Westbury Community Areas. • Key commuting corridors which link the above-mentioned Core Areas with the SAC and which lie beyond the Trowbridge and Westbury Community Area. These include: the River Biss and railway line through Trowbridge; the area known as the Hilperton Gap in north Trowbridge; land to the southwest of Trowbridge; land to the northeast of Trowbridge; and Biss Brook, Corn Leaze / Pond Bottom Wood and immediate surrounds in the north of the Westbury Community Area, and located west of Hawkeridge and north of the West Wilts Trading Estate. Evidence comes from radio tracking and verified records of Annex 2 species found in this locality. This zone is relevant to development at new greenfield sites and as such excludes existing urban areas as defined by settlement boundaries. Note that the Bat SAC Planning Guidance for Wiltshire is subject to review and this zone will need to be reconsidered if 'Core Areas' are amended in the light of new scientific information.
GREY HATCHED ZONE MEDIUM RISK (See Figure 5)	The Footprint Ecology Report has identified the zone of influence within which new residential development is likely to result in increased recreational use of the woodland bat sites. As a minimum, the Footprint Ecology Report states that (paragraph 6.46) the outer limit of the zone of influence should comprise the settlements of Trowbridge and Westbury. For areas outside the settlement boundary, the zone from which 75% of visitors originate has been mapped in accordance with recommendations in the Footprint Ecology Report (which comprises 3.356km for Clanger and Picket Wood and 2.656km for Green Lane Wood).

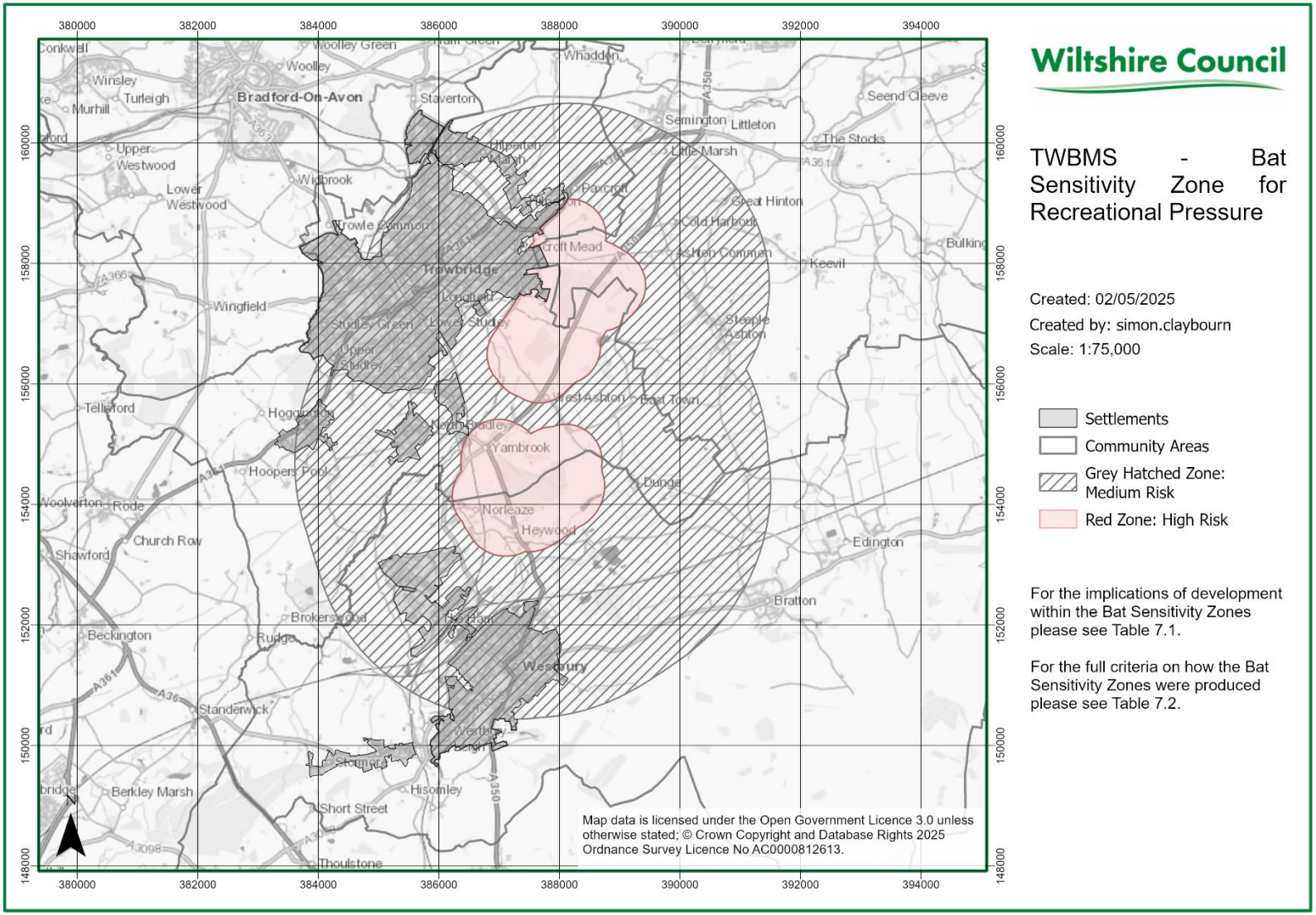
[3] The Bat SAC Planning Guidance for Wiltshire (Wiltshire Council, 2015) includes the following criteria for 'Core Roosts' relevant to this document: breeding or wintering roosts containing 50+ adult greater horseshoe bats; breeding roosts containing 100+ or wintering roosts containing 50+ adult lesser horseshoe bats; any traditional breeding roosts for Bechstein's bats.

Figure 4 Trowbridge and Westbury Bat Mitigation Strategy – Bat Sensitivity Zones for Habitat



N.B. This document has been created to address development in the Trowbridge and Westbury area and in particular the draft Local Plan. The extents to which this strategy applies are therefore restricted to a combination of the Community Areas and suitable buffer areas surrounding the woodland bat sites and core roosts of Annex 2 bat species. Any development proposals outside of these zones, and therefore the scope of this document, will still be subject to detailed assessment in relation to the potential impacts on bats and will require separate mitigation measures independent of those described within this document. These mitigation requirements are beyond the scope of this document.

Figure 5 Trowbridge and Westbury Bat Mitigation Strategy – Bat Sensitivity Zones for Recreational Pressure



N.B. This document has been created to address development in the Trowbridge and Westbury area and in particular the draft Local Plan. The extents to which this strategy applies are therefore restricted to a combination of the Community Areas and suitable buffer areas surrounding the woodland bat sites and core roosts of Annex 2 bat species. Any development proposals outside of these zones, and therefore the scope of this document, will still be subject to detailed assessment in relation to the potential impacts on bats and will require separate mitigation measures independent of those described within this document. These mitigation requirements are beyond the scope of this document.

8 ON SITE MITIGATION REQUIREMENTS

157. **This section sets out generic standards and guidance for all developments located within the Yellow Bat Sensitivity Zones** (and also the Red Zones on the rare occasion that a development is deemed acceptable in principle, for example for householder applications where bat habitat is not affected). It should be recognised that the standards set out in this section (including Figure 6) are intended as guidance to steer development proposals. Therefore, Wiltshire Council's ecology team reserve the right to use professional judgement when assessing a proposal for development and to assess it on its own merits. This section has been based on the guidance contained within the Bat SAC Planning Guidance (Wiltshire Council, September 2015), but includes additional specific requirements for the Trowbridge and Westbury area.

8.1 Recommended Approach and Information Required for Planning Applications

158. The requirements for ecological mitigation must be used to guide development design from the outset. The necessary mitigation measures for bats will work when integrated as a fundamental component of the scheme design; but conversely, are unlikely to be successful when tacked on to a scheme retrospectively. Developers are encouraged to seek pre-application advice through a formal pre-application request in order to understand how the Council Ecologists are approaching this matter and to reduce the risk of planning applications being unsuccessful.

159. Mitigation proposals must be developed in close consultation with other professionals such as highways / lighting engineers, landscape architects and urban designers to ensure that they are realistic, achievable and deliverable, and can be maintained in the long-term without creating conflicts with the needs or aspirations of highways uses and local residents.

160. Ecological mitigation design must be based on good standards of bat survey (in accordance with Section 6) and must address all habitat features of value for Bechstein's, greater horseshoe and lesser horseshoe bat (including roosts, foraging areas and commuting routes). The design must focus on retaining, protecting and buffering these habitat features so their key functionality can be retained in accordance with guidance set out in Section 8 of this document.

161. Development of site allocations and large neighbourhood plan sites are expected to be subject to a prior rigorous whole site masterplanning process, either via a Development Brief, or via an outline planning application that covers the entire allocation. The masterplanning process must incorporate core bat habitat features as a fundamental component of the site design. A Parameters Plan (PP) must be prepared identifying areas of the site where specific sensitive design measures or restrictions will be required and areas which are to remain undeveloped or form part of the landscaping. The Site Masterplan will demonstrate how the development proposals could be delivered in light of those constraints. In particular it will demonstrate that sufficient land can be set aside to achieve no net loss of in biodiversity by including area and buffer measurements. Outline planning permission, if granted, will be subject to compliance with the PP.

162. For full and reserved matters planning applications, an Ecological Mitigation Plan (EMP) must be submitted as a formal planning application drawing. This may incorporate other landscape details as appropriate. The EMP must be a scaled plan that clearly shows the following information:

    a. Location and dimensions of replacement roosts plus separate architectural drawings to show detailed design and materials for bat houses. Plans must demonstrate how replacement roosts are tied into the surrounding landscape in terms of providing suitable vegetation to shelter emerging bats and in terms of connectivity to commuting routes and foraging areas.
    b. The EMP should be based on topographical survey and must show the accurate location, extent (m) and area (m^2) of connective / foraging habitat to be retained, created or enhanced.
    c. Any proposed tree or shrub planting and areas of wildflower grassland to be seeded must be scaled and accurate with the extent and areas shown and with full landscape specifications. Further details are provided in Sections 8.2 and 8.3.
    d. The EMP must identify required temporary working areas as well as the boundary of the permanent built development. Accurate development boundaries should be overlaid on the EMP to allow accurate scaling and location of mitigation measures.

e. Detailed and scaled cross-sections linked to the EMP should be provided. These should show all structures and vegetation to be provided together with minimum widths and distances for each component (see also Section 8.2 below).
f. The timing of the delivery of measures included within the EMP is crucial to the assessment of the suitability of these measures, risks of delivery and the impact of any lag between habitat removal and the establishment of replacement habitats/features. As such, a detailed schedule of works should be submitted describing the delivery timescales for all measures included within the EMP.
g. A review process to ensure that failed measures are highlighted and can be remedied.

163. For development proposals affecting core bat habitat, the following additional information is likely to be required to support planning applications:

a. Pre and post development lux contours (see Section 6.2) plus details of lighting design (see Section 8.3);
b. A Construction Method Statement which sets out how impacts to bat habitat features, including core bat habitat will be managed during the construction phase. Consideration must be given to timescales for the new planting to become effective. New connective habitat should be in place at the earliest possible stage and conditions may be used to secure planting pre-commencement or before completion; and
c. A Landscape and Ecology Management Plan (LEMP) that includes a Habitat Management Plan (HMP) to ensure the successful long-term habitat management of bat habitat, including core bat habitat. This must identify who will be responsible for undertaking the management as well as mechanisms of funding together with aims and objectives of management. Initial management prescriptions and timescales should be specified together with a review mechanism for updating the HMP as required.

164. Commuting routes and foraging areas should be retained within the public realm where they can be effectively protected and appropriately managed for bats in accordance with the approved LEMP in perpetuity under the terms of an enforceable planning condition or legal agreement.

165. Implementation of the overarching mitigation strategy and submitted supporting information, including the PP and/or the EMP and/or the LEMP, will be secured either through a condition or legal agreement of any permission granted. A monitoring charge may also be required. If insufficient mitigation measures are provided to demonstrate that the bat populations would be adequately protected, the local authority will have no legal alternative but to refuse the application.

166. Further details of the information that will be expected on lighting, habitat creation and enhancement associated with connective and / or foraging habitat and associated buffer zones have been provided in Sections 8.2 and 8.3 below.

8.2 Standards for Habitat Mitigation Within the Site

167. This section sets out the standards for mitigation and creation of habitat for Bechstein's, greater horseshoe and lesser horseshoe bat, together with the minimum information that must be submitted to demonstrate that proposals will be effective. It should be recognised that the standards set out below and illustrated in Figure 6 comprise guidance to steer development proposals and that the council's ecology team will use professional judgement to assess development proposals on a case-by-case basis.

8.2.1 General principles

168. It is expected that all direct and indirect impacts on bat habitat lying within the site allocations in the draft Local Plan that lie within the yellow bat sensitivity zone will be mitigated within the respective allocated site. It is expected that core bat habitat will be retained, reinforced and enhanced as dark zones to retain connectivity for bats in the landscape. **The most important general principle is that wide swathes of land are required to be set aside as core bat habitat in order to retain a permeable and functioning landscape for the target species**. Therefore, as illustrated in Figure 6, dark buffer Zone B may be used for hard and soft landscaping provided that this use does not compromise the functioning and maintenance of the core bat habitat it protects.

169. The diagram in Figure 6 below provides an illustration of retention and enhancement of core bat habitat (Zone A) in relation to the development area.

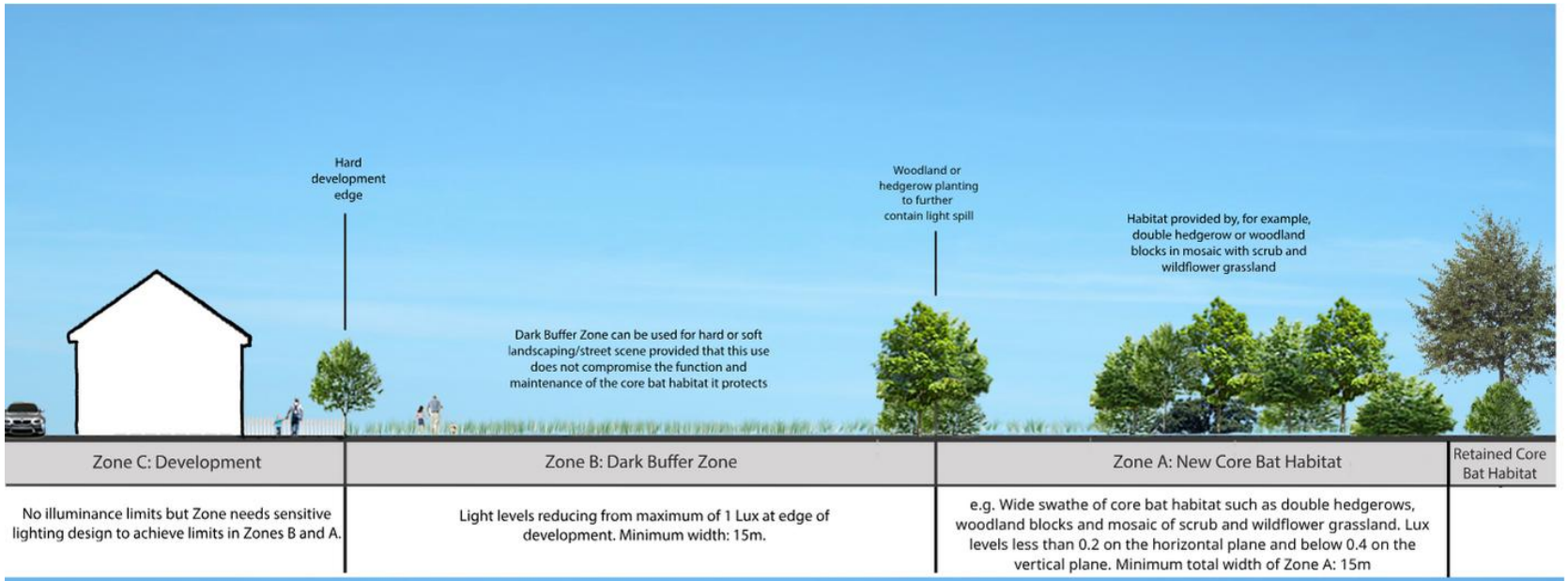
170. The core bat habitat (Zone A) must remain connected to the wider habitat network and remain relatively undisturbed by the effects of urbanisation. The core bat habitat (Zone A) must be expanded with new core bat habitat so that it is of minimum width 15m. In addition to retention and enhancement of core bat habitat, adequate buffer zones must be provided for retained, enhanced or newly created core bat habitat (see Figure 6 below). It is likely to be necessary to buffer bat habitat features considerably from development in order to secure suitable habitat conditions and suitable light levels, taking into account the potential for private owners to fit their own external/security lighting in the future. The minimum dark buffer zone (Zone B) that must be provided from core bat habitat features (Zone A) is 15m and is shown in Figure 6 below, together with associated lux level requirements. Further descriptions of acceptable land uses within the buffer zone is also provided in Section 8.2.

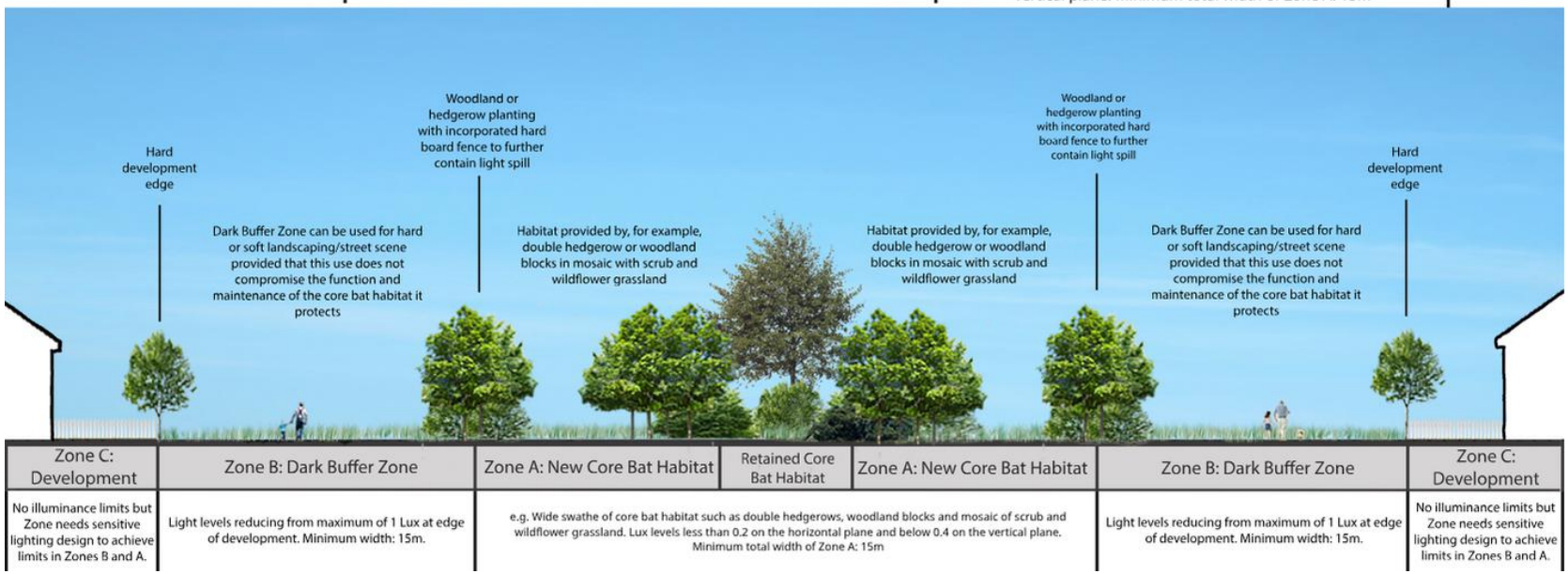
171. Figure 6 below, illustrates how these zones should look in practice and the remainder of Section 8.2 and Section 8.3 provides further detail.

172. The following general principles also apply for habitat creation and retention (see also Sections 8.2 and 8.3 below):

a. **Substrate:** using the correct planting substrate is critical to the eventual success of new habitat creation. For example, wildflower-rich grassland should be created on soils with low nutrient content, whereas good sub and topsoil depth and structure is required for tree and shrub planting. It is expected that full details of planting substrate must be provided with planning applications, including the results of soil testing in some instances.
b. **Species** to be planted or sown must be native and locally appropriate to the Trowbridge and Westbury area.
c. **Programme:** a timeframe for habitat creation and enhancement together with timing of expected management measures must be provided. It is expected that all habitat creation and enhancement measures will be implemented at the optimum time of year unless otherwise justified e.g. tree planting during the winter; and sowing seed in the spring or autumn.
d. **Detailed methodology** must be specified that sets out how habitats will be created or enhanced.
e. **Management methods** must be specified for immediate aftercare of created/ enhanced habitats. For example, maintenance of tree planting, with replacement of all failures after three years.
f. **Methods** for long-term management of created/ enhanced habitats must be specified.

Figure 6 Core bat habitat features and associated buffer zones indicated for both development boundary features (above) and within development features (below)





8.2.2 Hedgerows

173. Hedgerows act as commuting structures, foraging habitat and provide feeding perches for horseshoe bats and probably for Bechstein's bat. Priority should be given to enhancing existing hedges, particularly ancient hedges, through planting up gaps and implementing improved management regimes for the long-term. Methods for restoration of hedgerows such as coppicing or laying must be specified in detail. The breaching of some hedgerows will be unavoidable but mitigation will need to ensure that across the site as a whole, habitat continuity is maintained. Mitigation for individual hedgerows should be proportionate to their importance for bats. Residual in-combination impacts will be mitigated offsite through S106 contributions to the Council's bat habitat mitigation scheme.

174. New hedge lines may provide effective mitigation if they divide large fields into smaller units and/or provide links to other bat habitat such as blocks of woodland. Hedgerows must be considered as being located entirely in Zone A and the strict illuminance limits specified in Section 8.3 must apply. Hedgerows used for bat mitigation must be capable of being managed to meet the following criteria:

    a. Be at least 3 to 6 metres wide.
    b. Be at least 3 metres high.
    c. Contain standard trees planted frequently along their length.
    d. Cutting /trimming every 2-3 years.
    e. Sufficient space adjacent to the hedgerow to allow for 2-3 years growth and access for maintenance. This area to be managed as species-rich grassland.
    f. No spraying or mowing at hedge base.

8.2.3 Woodlands

175. Woodlands provide core foraging habitat for all three target species of bat. It is expected that all existing areas of woodland will be retained as part of development proposals. Mitigation may take the form of enhancement of woodland habitat in line with the principles outlined in this section.

176. Even recently-planted copses have been shown to provide value in the Trowbridge landscape for foraging Bechstein's bat and therefore inclusion of new woodland planting as part of development proposals should be considered as mitigation, either to extend existing woodland habitat or as new copses.

177. In general, woodland blocks should be as large as possible; and should be directly connected to suitable bat habitats in the surrounding landscape. They should support a diverse and species-rich mix of native tree and shrub species in the canopy and understory layers.

178. Trees and shrubs for new woodland should be planted in naturalistic non-linear patterns. Specifications for new woodlands must include adequate detail, including a planting schedule that specifies species, stock, ground preparation, planting density, timing, planting methodology, weed control, plant protection and long-term maintenance. Aftercare management, until such point that the woodland is established, will be particularly important.

179. When designing woodlands, the target species needs to be considered. For example, Bechstein's bat prefers woodland with a closed canopy and a dense understorey. Lesser horseshoe bats prefer to forage in the woodland interior where micromoth abundance is greatest: and therefore, require proportionally less woodland edge exposed to the surrounding matrix, but with constant canopy cover and a diverse understorey. Whereas greater horseshoe bats show a preference for large grassy rides and glades where macromoth abundance will be greatest.

180. Woodland edge should be managed with diverse structure. Scalloped edges and bays will provide sheltered areas with higher insect concentrations. Management should aim for a structured transitional edge with a variety of types of vegetation from trees to shrubs and rough grass.

181. Whilst formal access and anthropogenic disturbance (e.g. lighting, noise) is unacceptable within on-site mitigation woodlands, a degree of well managed informal access may be permitted, subject to an assessment as to the degree to which this recreational use would compromise the provision of high quality foraging habitat for bats.

8.2.4 Aquatic habitat

182. Aquatic habitat is used for foraging to a greater or lesser extent by all target species of bat. Bechstein's bat has been shown to prefer woodland in close proximity to water; whilst caddis flies (with an aquatic larval stage) are an important secondary food source for greater horseshoe. Prey favoured by lesser horseshoe includes mosquito, gnat and caddis fly, all of which have an aquatic life stage; and note that gnats and midges also use damp places near water to breed.

183. Therefore, incorporation of new ponds and waterbodies into habitat creation schemes should be considered, providing that these features are linked to other favoured habitat types, particularly woodland and hedgerows. Ponds or water bodies with permanent water should be created in dark areas. It is possible that these could form SuDS attenuation features as part of the surface water drainage design for a development.

184. The aim should be to achieve a varied and diverse habitat on the banks of ponds, including varied bank profiles with small bays and headlands, and a diverse structure to marginal vegetation (trees, shrubs and tall herbs and grasses). Ponds should be created with varying depths and undulating topography to the bed.

185. Where bank management is necessary, restrict it to a small area and work on one bank at a time. Carry out management sensitively, aiming to enhance variation and structure in vegetation.

8.2.5 Grasslands

186. Although good for bats, grazed pasture is unlikely to be a practical option for most development schemes. The creation of species rich grassland is likely to be more feasible for mitigation, particularly where impacts to horseshoe bats are predicted. This will need to be managed to produce a long sward to support an abundance of Noctuid moths, one of the main prey items hunted by greater horseshoe bats, as well as micromoths hunted by lesser horseshoe. Specified seed mixes should include food plants, as well as grasses, such as dandelion, dock, hawkweeds, plantains, ragwort, chickweed, fat hen, mouse-ear and red valerian and other herbaceous plants. Wildflower grassland creation must be specified in detail (including seed mix, ground preparation, sowing methodology and aftercare).

187. Management of grassland areas should aim to encourage development of a grassland-scrub mosaic to provide structured and sheltered habitat and to encourage a diverse range of prey species. Management should comprise rotational cutting with cuttings removed. Cutting should be undertaken in late autumn.

8.3 Lighting

188. Some of the technical information in this section has been reproduced with the kind permission of Bath and North East Somerset Council from their WaterSpace Design Guidance: Protecting Bats in Waterside Development (Bath and North East Somerset Council, June 2018).

189. In addition to the guidance set out in this section, it is expected that the approach to lighting for new development is undertaken in accordance with the *Guidance Note 08/23. Bats and Artificial Lighting at Night* (Bat Conservation Trust and Institution of Lighting Professionals, 2023)..

190. It is essential that the bats and lighting issue is acknowledged and integrated into the design process from the outset, and in an iterative way. It should not be left to later design stages or be retrofitted into development proposals.

191. As an overarching principle, dark corridors must be maintained around roosts, foraging areas and commuting corridors with no net increase in light levels as a result of the development in areas used by bats. It should be noted that enhancements over the existing baseline must also be built into scheme design wherever possible i.e. development schemes that actively reduce any existing elevated lux levels associated with bat habitat features.

192. Each development scheme is likely to require bespoke lighting mitigation, designed by a lighting engineer, working in collaboration with a specialist bat ecologist.

8.3.1 Illuminance Zones

193. Development sites should include a discrete buffer zone oriented parallel to each retained bat habitat feature. The zones shown on Figure 6 and described below must be used to determine the boundaries for the control of light spill to be imposed at the outset of scheme design.

194. It is critical that the bat habitat zone (Zone A) is maintained in 'completely dark' conditions, defined as where illuminance is at or below 0.2 lux on the horizontal plane, and at or below 0.4 lux on the vertical plane (measured at 1.5m and 4m) (Bat Conservation Trust and Institution of Lighting Professionals, 2023). There must be no glare impact from the development within this zone. Where baseline levels are above the lux levels stated here, the development design should ensure there is no increase above existing background light levels and ideally, where possible, reduce these towards completely dark conditions.

195. The dark buffer zone (Zone B) is the area where the urban environment gives way to softer landscaping and natural features. It is expected that habitat sympathetic to the bat habitat zone will be created in the dark buffer zone. However, the dark buffer zone can also be multi-functional in that it can be used as public open space, access for pedestrians and cyclists, soft landscaping with native species, or fencing. It is critical that the dark buffer zone is unlit, with strict illuminance targets to be met (within the range of <1 lux on the horizontal plane measured at the development edge of the buffer zone reducing to
<0.2 lux on the horizontal plane at the boundary with the bat habitat zone).

196. The development zone (Zone C) is characterised by a dominance of hardstanding and built structures. While lighting is required in this zone, sensitive lighting design will be required in order to achieve illuminance targets within the dark buffer zone (Zone B) and the bat habitat zone (Zone A) and to avoid upward spread of light and thereby minimise environmental impacts more generally.

8.3.2 Prediction of post-development lighting conditions

197. A detailed Lighting Impact Assessment (LIA), including modelled lux contour plots or similar plans displaying projected illuminance levels, is required and should be prepared by a suitably competent lighting professional. The LIA should show the number, location and specification of each luminaire within the development, including its orientation, dimming, shielding, height, recessing, tilt and its output. All luminaires apart from those solely used in emergency situations must be included within the modelling and be set to their intended normal output levels during active use. Motion-sensitive or security lighting e.g. for individual dwellings is not considered emergency lighting and should be included.

198. All areas of the development site must be modelled using a horizontal ground level calculation plane, with modelled contours shown on a horizontal illuminance contour plan. Additionally, separate calculation grids should be included where potential bat habitat features would be affected by increased light levels to show vertical plane illuminance at 1.5m and at 4m (with vertical illuminance contour plans provided). These directions and heights correspond to likely horseshoe and Bechstein's bat behaviour and enable light spill from all directions to be accounted for.

199. The potential for glare, source intensity in candelas, should be considered and a discussion of its potential to be felt (by humans) at locations beyond the site boundary should be given.

200. Software used should be an industry-recognised package operated by a lighting professional.

201. Illuminance calculations will need to combine the outputs of exterior and interior light sources, thereby including the component of light transmitted via windows and other openings. Interior lighting to be modelled in all areas where there is potential for light to emanate through glazing (including through roof lights), towards any sensitive bat habitat features. It is essential that the worst- case scenario is modelled i.e. all interior lighting switched on, and assuming no curtains or blinds in operation. Any light transmission factor applied to the glazing (tinting) should be clearly stated.

202. A maintenance factor of 1 should be applied to all lighting calculations and all lumen outputs must be based on a luminaire's Initial Lumens (IL) in order to show its 100% intended 'Day 1' output.

203. While soft landscaping planting is highly encouraged and can make a significant impact on attenuating glare and illumination, it cannot be factored in to the illumination models for several reasons. Newly planted vegetation may take several years to become established and may be removed in later years causing problems in enforcing planning conditions. The screening effects of immediate and more permanent barriers such as fences, walls and banks should be factored in by using topographical data within modelling.

8.3.3 Lighting design solutions

204. The following measures should be considered for incorporation within lighting schemes to reduce and minimise the impact from development. Lighting design must be undertaken by a suitably competent lighting professional.

8.3.3.1 Mitigating light spill from exterior lighting provision

205. Consider whether exterior lighting is absolutely required and avoid lighting where unnecessary. The likely uses of the external spaces/routes of a development must be fully understood to determine whether they should be lit after dark, and if so how, to what level and during which hours of use after dark. All of these should be articulated as part of a proposal.

206. Consider using barriers to light: light intensity can be reduced in some locations by creating a light barrier to restrict the amount of light spill reaching sensitive areas. Barriers can be in the form of walls, bunds or fences. Vegetation can be used to enhance these features but shouldn't be relied upon to achieve desired light levels.

207. Where lighting is unavoidable, seek to reduce light intensity and numbers of luminaires, and ensure the use of the most directional and focused luminaires available. Careful specification of optics and light shielding/shaping accessories fitted to luminaires as specified by a lighting professional can further reduce light spill. Aim to ensure that the Upward Light Ratio (ULR) of the installation is limited to 0% in order to stop poorly aimed luminaires and reduce glare. Mounting heights should be minimised to reduce the distance light can spill.

208. Light sources with low blue and low UV content to be employed. In preference, modern LEDs should be selected as these emit significantly less or no UV light so are less disruptive to both insects and bats. Warm colour temperature LED light sources to be employed preferably at 2700 Kelvin or lower to reduce blue light component (as this has been shown to cause less impact on bats) (Stone E. L., 2015; Stone E. L., 2009; Stone E. L.).

209. Installation by developers of specified security lighting will minimise the likelihood of new occupants installing their own devices. Such essential specified security lighting should exclusively use PIR (passive infrared sensors) motion-sensitive luminaires located and designed to avoid light spill into bat habitat and buffer zones. Security lighting must be specified to minimise above horizontal outputs and should comprise LED warm light sources (at 2700 Kelvin or lower).

210. Consider the use of Central Management Systems (CMS) to apply dimming regimes during the night to reduce levels of illuminance during periods of high bat activity (typically soon after dusk and the hours pre-dawn) or to ensure lighting only comes on when it is needed, e.g. when activated by the movement of pedestrians. Pre-programmed dimming must be included on all highway lighting with the dim level appropriate to the location and highway safety requirement. Even colour shifting can be considered. This should not be at the expense of public safety and could include the use of presence detectors to enable light levels to intensify or light colours to shift when required. E.g. Low levels of amber-red light could be employed along protected corridors, with warm white light with increased colour rendering activated to support pedestrian safety and security.

8.3.3.2 Mitigating light spill from interior lighting provision

211. Building set back and orientation can dramatically reduce the reach of light spill and the encroachment on sensitive bat habitat features so should be carefully considered with the input of a lighting professional.

212. The careful planning of internal building layout and proposed use may be an option for achieving the above standards near bat habitats where: there are space restrictions on small developments; existing buildings are being retrofitted; or in very limited circumstances for larger developments. The following factors should be taken into consideration. However, as many of these factors are difficult to enforce for the lifetime of the development, their suitability will be assessed against the particular significance of the bat feature concerned.

    a. The design and depth of window reveals and reduced transparency of glazing to substantially reduce light transmission.
    b. The use of balconies and louvered windows to reduce light transmission onto sensitive bat habitat features.
    c. Tight optical control must be applied to any luminaire within 1.5m of glazing. This includes the use of, for example, 'darklight' type downlights with deep recessed light sources and focused beams. Diffuse fluorescent type luminaires should be avoided alongside glazing.
    d. Light fittings can be set back away from windows and also recessed into ceilings rather than using pendant luminaires to further control light transmission.
    e. Light spill from ground floor spaces should not extend beyond 1.5m of the glazing line.
    f. In the case of office lighting, lighting to areas behind glazing should be controlled on a separate lighting circuit to enable them to be switched off or dimmed separately when a different area of the office floor is in use.
    g. All internal lighting must be switched off when the room is unoccupied – this is only relevant to commercial buildings and should be achieved through the use of lighting control systems and/or appropriate building management.
    h. The use of automated dimming circuits and automated blinds on windows to attenuate light spill is unacceptable due to concerns regarding their long-term maintenance.

8.3.4 Monitoring of lighting

213. In order to ensure the accuracy of modelled lighting and conformity with predicted lux contours, a post-development lighting survey should be carried out by a lighting professional using a calibrated cosine corrected light meter within three months following completion. This will be required by means of a planning condition provided that options for remediation are likely to be available. Otherwise, the planning authority will need to place the onus on the developer to demonstrate that a precautionary approach has been followed. A further compliance survey may also be required 2 years post-completion to check that no alterations have been made within the development.

214. The survey should be carried out with all lighting active (to replicate the lighting state within the modelling) and notes should be taken as to the output and activity of luminaires observed during the survey. Surveys should be timed to take place on evenings of little moonlight, either due to cloud cover or a new moon. Readings of illuminance should be taken at representative locations according to the planes and orientations used in the modelled calculations as chosen by the lighting professional. Results and discussion must be submitted to Wiltshire Council for approval.

215. Where lighting levels are greater than predicted, remedial measures must be put in place to reduce illuminance as per the lighting planning condition.

8.3.5 Summary of Submission Requirements for Planning

216. Under the Habitats Regulations 2017 (as amended) the planning authority is required to undertake an appropriate assessment before issuing planning authorisations. Developers will therefore need to satisfy TWBMS requirements at each stage of the planning process. In the time between granting outline permission and submission of a reserved matters application(s) (where this is applicable and a full application hasn't been submitted instead), it is possible these requirements may change, e.g. due to the results of new survey or other evidence becoming available. All applications will be judged against the most up to date evidence available.

Table 8.1 Guidance on expected information required for different planning application types

	Planning Application Type			
Submission requirement	**Outline**	**Full**	**Reserved Matters**	**Householder**
Seek pre-application advice	Helpful to establish whether the TWBMS constrains the principle of development	Helpful to establish the extent to which the TWBMS will drive layout and design of the development	Helpful to establish whether changes have occurred in relation to the TWBMS since planning permission was granted	Necessary if application lies in the Red Zone
Bat surveys	Yes	Yes	Yes, if more than 2 years since the outline / full planning application was granted permission	Potentially yes depending on nature of the proposals
Masterplan	Yes, to cover the entire allocation. Indicative test layouts required to demonstrate housing numbers are compatible with constraints	Only if permission is being sought for part of a larger allocation / development site	No	No
Parameters Plan incorporating TWBMS standards for habitat mitigation (Section 8.2)	Yes	No	No	No
Statutory Biodiversity Metric or any subsequent revision	Yes	Yes	Yes	Potentially, depending on extent and nature of proposals, whether there will be loss of bat habitat and whether development is exempt from mandatory Biodiversity Net Gain (BNG) (refer to paragraph 146)
Ecological Mitigation Plan	No	Yes	Yes	Potentially yes depending on the nature of the proposals
Baseline lighting surveys	Not usually, may be necessary where housing density suggests minimum standards may not be met	Yes	Yes, if not provided in outline application	Yes, if standards in Section 8.2 cannot be met
Lighting Impact Assessment, including lux contour plots, in line with Section 8.3 of TWBMS	Not usually, may be necessary where housing density suggests minimum standards may not be met	Yes	Yes, if not provided in outline application	Yes, if core bat habitat affected
Construction Ecological Management Plan	No	Yes, may be deferred to condition if requirements are straightforward	Yes, may be deferred to condition if requirements are straightforward	Not usually
Landscape and Ecological Management Plan	No	Yes, may be deferred to condition if requirements are straightforward	Yes, may be deferred to condition if requirements are straightforward	Not usually

9 OFF-SITE AND STRATEGIC MITIGATION

9.1 Habitat Mitigation Measures – The Batscape

217. One of the main aims of the strategic mitigation set out within this document is to ensure the capacity and permeability of the landscape to support foraging and commuting Bechstein's, greater horseshoe and lesser horseshoe is maintained (through a network of habitat enhancement, restoration and creation). This will support the viability of the bat populations; and ensure that they are sufficiently robust to respond dynamically to landscape change.

218. The strategic mitigation measures set out in this section are designed to address the potential 'in-combination' and residual impacts from development allocations within the draft Local Plan in the yellow medium risk bat sensitivity zone, primarily arising due to the incremental loss of areas of 'poor quality' habitat such as species-poor improved grassland or grazed pasture, but also the potential cumulative loss of connectivity arising through increasing levels of urbanisation. As such, the strategic mitigation measures detailed in this section are also applicable to windfall development, neighbourhood plan development and rural exceptions site. The measures will also be applicable to any applications for speculative development within the yellow bat sensitivity zone (and the red zones on the rare occasion that a development is deemed acceptable in principle) that will be assessed on a case-by-case basis to ascertain if proposals would adhere to the requirements herein and where such proposals would be consistent with the policies of the Local Plan. When assessing the impact of a single development, it may be reasonable to assume that loss of small quantities of poor-quality habitat will not result in an impact on the SAC when considered alone. However, such impacts considered at the landscape scale i.e. 'in-combination' with other developments may add up to a more significant impact due to cumulative loss of foraging habitat and connectivity for bats. These in- combination impacts are intangible and difficult to measure, and therefore the approach set out in this section adopts a precautionary approach to ensure adequate strategic mitigation is provided at the landscape-scale.

219. The existing detailed GIS database which has been compiled and used to date to deliver strategic habitat mitigation measures in accordance with the previous iteration of this strategy will be augmented to identify specific opportunities within the landscape around Trowbridge and Westbury for habitat enhancement, restoration and creation, based on known bat use of the landscape; expert opinion from local batworkers; and analysis of aerial photography to identify areas of poor or degraded habitat. It will be important that new habitat creation is planned carefully to avoid negative changes to existing bat habitat. For example, creation of new woodland on a grazed pasture site will need to consider any potential impact to foraging greater horseshoe bat.

220. Specific habitats that will be targeted for enhancement, restoration and creation will include those listed below. The overall principles and objectives for habitats are set out in Section 8.2 above:

    a. Woodland – expansion or new blocks. A target minimum of 6 ha will be provided over the period of the Wiltshire Local Plan to reflect actual numbers of new dwellings in greenfield sites that come forward.
    b. Hedgerows – gapping up, improved management (tall and bushy with more trees) or new hedgerows with trees. A target minimum 11km of new hedgerow will be planted over the period of the Wiltshire Local Plan to reflect actual numbers of new dwellings in greenfield sites that come forward.

221. In addition to woodland and hedgerows, other habitat types that are of importance to Bechstein's bat, greater and lesser horseshoe bat, including as a foraging resource, will also be targeted for enhancement, restoration and creation. This comprises the following habitats:

- Wood pasture,
- Parkland,
- Species rich grassland / meadow,
- Aquatic habitat (ponds / waterbodies),
- Orchards, and
- Watercourses / riparian corridors (scheme would look to take land adjacent to watercourses out of arable production and create grassland buffers).

222. The objective is to create a more diverse and favourable mosaic of habitats at a landscape scale for the Annex 2 bat species

associated with the Bath and Bradford-on-Avon Bats SAC. Prescriptive minimum targets haven't been set for these other habitat types in recognition that there is current uncertainty regarding landowner willingness to create, enhance and restore these habitats, and the capability to deliver this wider range of habitats will in large part, depend on the success of engagement with landowners. Therefore, a 'mix and match' approach could be taken to creation, enhancement and restoration of these other habitat types. Minimum viable areas for each habitat type would be discussed with Natural England where necessary.

223. The red and yellow bat sensitivity zones comprise the primary target areas for habitat enhancement, restoration and creation. Measures implemented in close proximity to the known important bat roosts will be prioritised over those located at greater distance, where such prioritisation proves necessary.

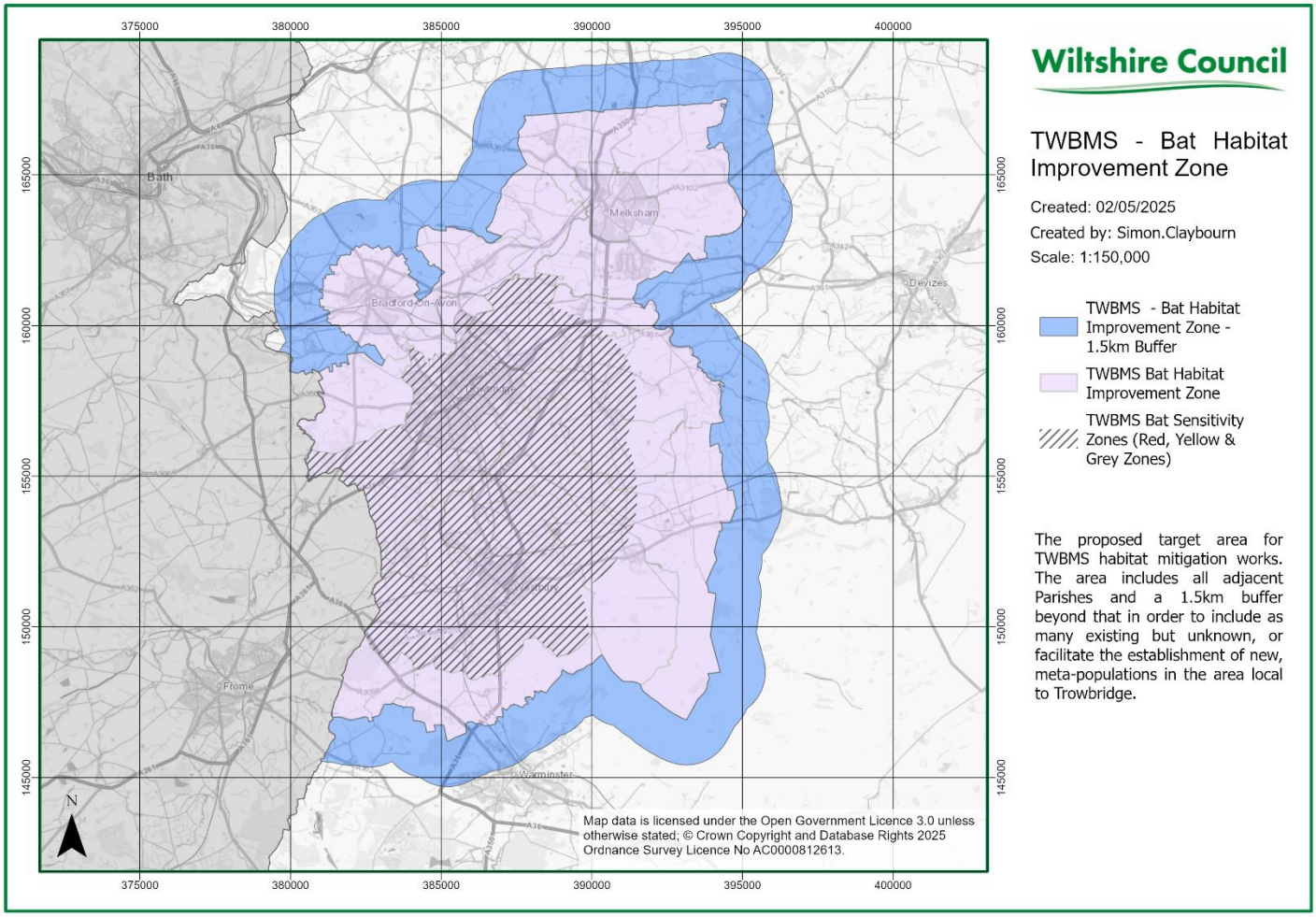
224. Habitat creation, enhancement and restoration can, however, be delivered outside of the red and yellow bat sensitivity zones where this would be within the Bat Habitat Improvement Zone illustrated on Figure 7 below.

225. Habitat creation, enhancement and restoration within the Bat Habitat Improvement Zone would need to be appropriately located such that it would be contiguous and have functional habitat connectivity with, core bat habitat in the yellow zone; it would improve / strengthen bat flightlines (foraging and commuting habitat) and connectivity to core roots and associated core bat habitat outside of the yellow zone; and where it would have a clear and demonstrable benefit to the Annex 2 bat species associated with the Bath and Bradford-on-Avon Bats SAC.

226. The delivery of strategic habitat mitigation outside of the red and yellow bat sensitivity zones, in appropriate locations in the Bat Habitat Improvement Zone, would ensure the adoption of a landscape scale approach to the creation and improvement of bat habitat. It would also aid attainment of the TWBMS objective to ensure that the landscape has the capacity and permeability to support foraging and commuting Bechstein's, greater horseshoe and lesser horseshoe bats, and to support the viability of bat populations.

227. Furthermore, implementation of this approach to the delivery of strategic habitat mitigation, entailing provision of and improvement to a range of habitats for bats, together with delivery of measures beyond the red and yellow bat sensitivity zones in appropriate locations within the Bat Habitat Improvement Zone, affords increased scope for landowner engagement and participation in the council's strategic habitat mitigation scheme.

Figure 7. Bat Habitat Improvement Zone



9.1.1 Delivery mechanism and implementation

228. In terms of the delivery mechanism to achieve habitat enhancement, restoration and creation, it will be co-ordinated and managed on the ground by a Project Officer hosted by Wiltshire Council. The Project Officer will be funded by developer contributions (see Appendix 1). This Officer will liaise with Natural England to agree an acceptable programme for delivery of the mitigation strategy.

229. The council's strategic habitat mitigation scheme will be administered by the Project Officer. Grants will be allocated to individual landowners, dependent on the type and quantum of habitat to be delivered. Funding will be dependent on long-term delivery of habitat management.

230. Additional habitat, particularly new woodland, will be delivered through a variety of means, including contributions towards off-site planting and land acquisition. It is intended that where Wiltshire Council purchase the land, the Project Officer would be responsible for woodland (or habitat) establishment. Land would then either be retained by Wiltshire Council or would be passed on to an appropriate organisation for long-term management.

229.The Project Officer will progress a package of work to deliver the strategic habitat mitigation measures and agreed Terms of Reference for the scheme. This will set out full details, including the following:

- The area covered by the scheme;
- How the council's strategic habitat mitigation scheme will work in parallel with and complement national stewardship schemes;
- Who will be eligible to apply;

- What land (and habitats) will be eligible;
- Criteria to be used for judging submitted applications;
- How long the agreements will operate;
- Options for capital works (e.g. new hedgerow planting);
- Options for management works (e.g. management of hedgerows);
- What will be paid for each option and when payments will be made;
- How individual agreements will be monitored and enforced.

231. The Project Officer will be responsible for administration of the scheme, farm visits and liaison with landowners, as well as monitoring and enforcement of agreements; and strategic monitoring across the scheme area.

232. The Project Officer will be responsible for undertaking, or facilitating, monitoring of the quantum and condition of habitats enhanced or created as part of the scheme for bat target species.

233. It is recognised that at this stage, there will be uncertainty in terms of which specific habitat enhancement, restoration or creation opportunities can be delivered and where, as most if not all land is within private ownership; and delivery therefore depends on successful engagement with landowners. As such, a multitude of potential opportunities will be identified taking a whole landscape approach to ensure there is sufficient scope to deliver the agreed quantum of habitat enhancement, restoration and creation improvements.

9.1.2 Developer contributions for strategic habitat mitigation

234. Any development of new greenfield sites (namely the respective site allocations in Trowbridge and Westbury in the draft Local Plan, neighbourhood plan or exception sites; and other uses consistent with Local Plan policies) located within the yellow Medium Risk Bat Sensitivity Zone (see Figure 4) must, where appropriate, expect to contribute to strategic habitat mitigation via a section 106 agreement (s106), a section 111 agreement (s111) or unilateral undertaking (UU) (legal fees will apply) as follows:

    - For residential development, £972.03 per dwelling, which will be payable through s106, s111 or unilateral undertaking.
    - For all other development types, £29,137.50 per hectare, which will be payable through s106, s111 or unilateral undertaking.

235. These costs will be subject to revision on an annual basis.

236. In order to ensure that the appropriate mitigation is delivered in a timely manner and that any adverse impacts on the sensitive woodlands are avoided, the developer financial mitigation contributions should be paid prior to determination (s111 agreements) or prior to commencement (s106 agreements and unilateral undertakings).

9.2 Recreational Pressure Mitigation

237. One of the main objectives of this strategy is to ensure adequate mitigation is provided for the increased recreational pressures to the core woodland sites that will result from additional residential development. This will be aimed at diverting people away from the woodland sites to alternative countryside sites and will comprise development exclusion zones around the woodlands; improvements to the recreational opportunities (away from the woods) available to the residents of Trowbridge and Westbury (known as 'off-site' measures); and improved management of the woodland sites themselves (known as 'on-site' measures).

238. The Footprint Ecology report (November 2018) that was commissioned by Wiltshire Council to consider effects of recreation on the nature conservation interest of woodland near to Trowbridge sets out a series of recommended measures aimed at avoiding and mitigating the impacts of increased recreational pressure arising from new residential

development at Trowbridge on important woodland bat sites.

239. The Footprint Ecology report recommends that the outer limit for a zone of influence should encompass the settlements of Trowbridge and Westbury. This recommendation has been implemented by Wiltshire Council as the grey hatched medium risk bat sensitivity zone illustrated on Figure 5 represents the zone of influence within which new residential development is likely to result in increased recreational use of the woodland bat sites, and it encompasses the settlements of Trowbridge and Westbury. The grey hatched medium risk bat sensitivity zone extends beyond the settlement boundaries to reflect the areas around Picket and Clanger Wood and Green Lane Wood wherein 75% of visitors originate, comprising 3.356km and 2.656km respectively.

240. The report also recommends that a 600m exclusion zone is established around important bat woodlands wherein residential development should be restricted (i.e. no net increase in new residential curtilage within the zone). This recommendation has been implemented in full within this document and is shown on Figure 5 which illustrates the bat sensitivity zones pertaining to recreational pressure.

241. Other mitigation and avoidance measures recommended within the Footprint Ecology Report, together with other mitigation measures that will be adopted through implementation of this Mitigation Strategy have been summarised below.

9.2.1 <u>On-site mitigation measures at the important bat woodlands</u>

242. In terms of mitigation measures to be implemented at the important woodland sites for bats in order to address recreational impacts of new development coming forward in Trowbridge and Westbury, such strategic measures are critical but will largely be implemented by means of funds secured through the s106 agreement associated with the Ashton Park Urban Extension development rather than via the mechanisms for securing developers contributions detailed in this mitigation strategy document.

243. On-site measures at European sites and /or important functionally linked sites that are often termed Strategic Access Management and Monitoring measures (SAMMs). The measures that will be delivered at the woodland bat sites, primarily as mitigation for the Ashton Park development, mainly comprise management improvements that aim to recognise the importance of the woodlands as nature reserves. These measures are summarised below for information, rather than being discussed in detail, given that the Ashton Park development has a bespoke mitigation strategy and lies somewhat beyond the scope of this strategy document.

- *Limiting parking* - additional parking in the general vicinity of the woodlands is unlikely to be acceptable due to the increased risk to the bat populations from higher visitor numbers.
- *New interpretation and signage at the woodland bat sites* - to provide information about the sites, inform visitors as to how to behave and to assist way-finding. New interpretation and signage would ensure visitors are aware the sites are important and managed for nature conservation rather than being managed primarily for access. There should be clear instructions/guidance relating to the issues of fires, camping, remaining on paths, dog fouling, dogs off leads etc. Improved way-marking will help people follow particular routes through the woods thereby minimising the area used for access and likely reducing disturbance to Bechstein's bats.
- *Improvements to paths / routes within the woodland bat sites* - to focus access within the woodland sites and limit desire lines/spread of access within the sites. Improvements should be low key, with the aim of containing access along particular routes and keeping areas of the wood quiet, rather than enhancing the sites to draw more visitors. Improvements to the path network should ensure the woodland sites are more robust in terms of absorbing any changes in recreation use in the future.
- *Fencing at woodland bat sites* - improvements to fencing and installation of new fencing around the woodland sites will serve two purposes. Management of deer within the woodlands is difficult where there is access and is therefore likely in the long term to be resolved by keeping deer out rather than culling. This will reduce damage to ground flora, coppice regrowth and overall woodland structure, and is particularly relevant at Biss Woods. Fencing also serves to limit desire lines and stops diffuse access; visitor use is then focused through gates and main paths, meaning signage, interpretation and engagement can be more effectively targeted and visitors are funnelled onto the main paths. This is particularly relevant along the western edge of Green Lane Wood.

- *Increased warden presence at woodland bat sites and other greenspace sites* - provision of a full-time dedicated warden employed by Wiltshire Wildlife Trust. The warden's duties will be defined in the S106 agreement for Ashton Park and will essentially seek to balance visitor and wildlife needs, with particular emphasis on enhancing conditions for Bechstein's bats. There will be an element of policing to avoid informal fire making, camping, dogs being out of control etc but also an emphasis on engagement to foster a fuller appreciation of the sensitivity of the area by local residents and visitors.

- *Engagement with visitors and the local community* (including schools) - will be undertaken by Wiltshire Wildlife Trust through arrangements agreed with Wiltshire Council and the Ashton Park developer. Examples of engagement to be undertaken include visits to local schools, community events, guided walks (e.g. with bat detectors) and establishing volunteer wardens or 'ambassadors' to help spread key messages such as dogs on leads or the need to pick-up dog mess.

- *Provision of outdoor learning space for schools* - to be sited away from areas that support bat roots and therefore potentially outside the woodland bat sites, although woodland cover is ideal for 'forest schools'.

244. As aforementioned, mitigation measures at the woodland bat sites will primarily be delivered through the bespoke mitigation strategy associated with the Ashton Park Urban Extension development. Nonetheless, Wiltshire Council may opt to use a proportion of the funds acquired via the developer contributions required for new development of less than 50 dwellings in the grey hatched medium risk recreational risk zone (detailed below) in order to deliver SAMM measures at the woodland bat sites.

9.2.2 Improvements to recreational opportunities away from the woodland bat sites (off-site mitigation measures)

9.2.2.1 Creation of additional green infrastructure (SANG)

245. Suitable Alternative Natural Greenspaces (SANGs) is the term given to greenspaces that are created or enhanced with the specific purpose of absorbing recreation pressure that would otherwise occur at designated nature conservation site, particularly European wildlife sites. SANGs are created, or existing greenspaces enhanced to create a SANG, in order to mitigate for the effects of new housing development, absorbing the level of additional recreation pressure associated with the new development.

246. A busy, overcrowded SANG is unlikely to provide that experience. The extent to which a SANG feels too busy is likely to be subjective, dependent on the vegetation, views, site lines, noise levels, the shape of the site and so forth.

For a site to be effective as a SANG it must provide an alternative to the site of nature conservation importance that is under pressure, and therefore (at least in part) replicate the experience gained from a visit there. Effective SANGs therefore potentially need to be relatively wild, semi-natural spaces and large.

247. The Footprint Ecology Report found that, at the time of writing, the total area of accessible greenspace around Trowbridge was around 278ha, of which 162ha was other greenspace away from the woodland sites of importance for Bechstein's bat. Footprint Ecology considered that some enhancement of existing greenspace sites such as Southwick Country Park could be undertaken to increase their capacity.

248. However, the Footprint Ecology Report concluded that the provision of additional green infrastructure needed to be considered in order to meet benchmarks for levels of accessible greenspace available for new residents. As such, there is a recognised need for new greenspace to be provided in association with new residential development at Trowbridge and Westbury. The Footprint Ecology Report also concluded that it should be possible for such additional greenspace land to be phased over time, and as such this is a long-term measure. Nonetheless, additional green infrastructure should be planned well in advance and implemented strategically to maximise its benefit. It also needs to be targeted to match the locations where housing will come forward, such that the greenspace is easily accessible.

249. **Therefore, in line with recreational mitigation strategies prepared for other SACs, major developments of 50 dwellings or more within the grey hatched medium recreational risk zone will generally be expected to deliver a SANG / sufficient natural recreational focused greenspace to ensure that new residents do not impact upon the important woodland sites. Applications submitted to Wiltshire Council for 50 dwellings or more within the grey hatched zone will need to demonstrate that SANG / natural recreational focused greenspace will be provided and will need to submit associated**

information.

250. SANGs / sufficient natural recreational focused greenspace being provided by applicants must be appropriately located to intercept and attract residents from the respective new development and as such should be located either on site or adjacent / close-by. These sites should be available prior to the occupation of the first dwelling at the associated residential development site. SANGs / sufficient greenspaces must be available and managed in perpetuity for the public to access for recreation and should comply with the quality criteria set out in Appendix 1. SANG proposals will need to be assessed as part of the associated planning application.

251. When determining applications for developments of 50 dwellings or more that will need to provide SANG / sufficient greenspace, it will also be necessary for a monitoring fee to be secured so that Wiltshire Council can organise for a visitor survey to be conducted at the SANG / greenspace following completion of the associated residential development (or the relevant phase of the residential development and /or SANG if either or both are to be brought forward in phases as permitted by means of the planning permission).

252. In terms of the draft Local Plan, in light of the above requirements and that the draft Local Plan puts forward site allocations for major residential development in Trowbridge and Westbury which have potential to increase recreational / visitor pressure on the woodlands that support Bechstein's bats, two strategic SANGs have likewise been allocated in the draft Local Plan; one in Trowbridge and one in Westbury. The strategic SANGs / Country Parks proposed in Trowbridge and Westbury have been allocated by means of Policy 54: North Trowbridge Country Park and Policy 63: Westbury Country Park respectively.

253. The location of the strategic SANGs / Country Parks has been selected so as to maximise the potential for use by new residents of the site allocations in Trowbridge and Westbury put forward in the draft Local Plan and will be located between the strategic site allocations for major residential development and the closest woodlands that support Bechstein's bat roosts. This is to ensure that the SANGs / Country Parks are appropriately located to intercept residents that may otherwise visit the woodlands.

254. The allocated SANGs / Country Parks will be designed to provide attractive greenspace alternatives to the sensitive woodlands. The sites accord with the requirement for 8 hectares of open greenspace per 1,000 new residents / people as detailed in guidelines on SANG creation (Natural England, August 2021)[15] and has been based on the average of 2.4 people per household (Office for National Statistics, 2021)[16]. The sites will be designed to have a 'natural feel' in order to increase their attractiveness to local residents, with a choice of circular routes being provided and paths should blend into the landscape and be appropriately way marked to facilitate visitor use and enjoyment of the Country Parks. The Country Parks should be accessible and adequate car parking should be provided.

255. In addition to the SANGs / Country Parks being designed to be attractive and accessible to local residents, habitat opportunities for the Annex 2 bat species associated with the Bath and Bradford-on-Avon Bats SAC will be maximised as far as practicable. The intention is for existing habitats within the proposed strategic SANG / Country Park sites to be enhanced and restored to optimise suitability for bats, such as through reinforcement of hedgerows and changes in grassland management to increase species diversity and potential to support invertebrates. Areas of existing habitat within the proposed SANGs / Country Parks that afford suitability as bat flightlines / commuting habitat, foraging habitat or provide roosting opportunities, such as any trees with potential roost features (PRFs), should be retained. This will ensure the provision of a mosaic of habitats that will be suitable for bats and other wildlife as well as providing sites that afford recreational opportunities for residents.

256. The strategic SANGs / Country Parks in Trowbridge and Westbury allocated in the draft Local Plan will serve as mitigation for the Local Plan site allocations in Trowbridge and Westbury in line with the requirements of this strategy and will be delivered by the respective developers. The objective of the strategic SANGs / Country Parks is to address and offset the potential increase in recreational / visitor pressure on the woodlands around Trowbridge as a result of the strategic residential allocations in the draft Local Plan. There has been and will continue to be ongoing liaison between the developers, Wiltshire Council and Natural England regarding the design and layout of the SANGs / Country Parks.

[15] *Guidelines for Creation of Suitable Alternative Natural Greenspace* (Natural England, August 2021).
[16] Household and resident characteristics, England and Wales - Office for National Statistics

9.2.2.2 Other off-site measures / Infrastructure Mitigation Project

257. For smaller developments of less than 50 dwellings within the grey hatched medium recreational risk zone where it could prove difficult for planning applicants to provide their own SANGS, an alternative solution will be necessary to mitigate for the recreational impacts on the woodland sites. This will necessitate the securing of developer contributions for these developments and will entail the setting up of an Infrastructure Mitigation Projects (IMP) system to combine funds from developments in order to deliver measures that will encourage new and existing users of the woodland bat sites to use alternative sites. This is similar to the approach used in the Dorset Heathlands Mitigation Strategy[17] and elsewhere.

258. Liaison with Natural England will be undertaken during the delivery of the scheme regarding the mitigation measures to be funded by the IMP.

259. Adopting this approach will allow for flexibility and for a variety of different measures to be delivered that can best deliver the required capacity over the plan period including improvement and enhancement of existing greenspaces and enhancement of public rights of way and path improvements.

260. It is intended that an updated visitor survey will be undertaken in due course, and this could be used to identify other greenspace sites that would benefit from infrastructure enhancements, and which are suitably located to be able to intercept residents that may otherwise visit the sensitive woodland sites to the east and south-east of Trowbridge. This would serve to assist the delivery of strategic mitigation to address recreational pressures on the woodland sites.

261. In order for other greenspace sites to provide a suitable and attractive alternative to the woodlands known to support Bechstein's bats, selected greenspace sites would need to be enhanced so that they provide similar characteristics to those of the woodlands. Such characteristics include being good for dog walking, not having too many other people present, being relatively quiet, having a rural / wild feel and being suitable in different weather conditions i.e. providing shade. Furthermore, the other greenspace sites would ideally function as a network, providing a range of different opportunities, so that visitors have a variety of potential sites to visit. A range of features could be provided and maintained across the network in order to enhance access provision and draw visitors away from the woods.

262. Measures that could be delivered by means of a combined fund accrued through developer contributions for developments of less than 50 dwellings in the grey zone could include (but not necessarily be limited to):

- The provision of new dedicated fenced dog training/exercising sites (where dogs can be safely let off the lead).
- Water for dogs, such as pools or ponds where dogs can swim and have access to water to drink (e.g. at Biss Meadows and Paxcroft Mead).
- Dog bins at sites, near / at main points.
- Improvements to existing, and creation of new footpaths, such as provision of surfaced all weather paths, drawing use in wet weather and when ground conditions are muddy. For example, the western bank of Biss Meadows, which could be encouraged to have more use.
- Enhancements/extensions of existing public recreational natural open spaces or creation of new ones.
- A range of safe, easily accessible off-road parking locations.
- Outdoor gym area/facilities for exercise, potentially drawing users who are seeking to exercise and wishing for space to 'get fit'. Fun, amusing gym like facilities for children and adults are enjoyable and combine health benefits of heart rate simulation, rather than solely low heart rate activities, such as walking.
- Creation and management of a range of habitats, especially ensuring a range of wooded habitats and mix of open areas and woodland, providing good space for dog walkers and others that are otherwise potentially attracted to the woods.
- Provision of signage and interpretation boards at the other greenspace sites in order to create a different feel and identity from the woodland bat sites. The objective would be to ensure that visitors recognise a clear distinction between sites where there is nature conservation interest and sites that are primarily managed for access and the benefit of people.
- Monitoring visitor numbers across the alternative greenspace sites by means of a visitor survey in year 5.

[17] https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning/mitigation/heathland-mitigation#:~:text=Mitigation%20delivery,education%20and%20monitoring%20the%20strategy

263. The package of measures deliverable over the plan period will provide sufficient certainty that development securing the mitigation measures may proceed and that where predicted housing delivery is exceeded, the measures may be scaled up accordingly using the agreed contribution rates.

9.2.3 Developer contributions for strategic recreational pressure mitigation

264. Any new residential development of less than 50 dwellings located within the grey hatched Medium Risk Bat Sensitivity Zone (see Figure 5) must, where appropriate, expect to contribute to strategic recreational pressure mitigation via a section 106 agreement (s106), a section 111 (s111) agreement or unilateral undertaking (UU) (legal fees will apply) as follows:

- For residential development, calculated at £925 per dwelling, which will be payable through s106, s111 or unilateral undertaking.

265. These costs will be subject to revision on an annual basis.

266. To ensure that the appropriate mitigation is delivered in a timely manner and that any adverse impacts on the sensitive woodlands are avoided, the developer financial mitigation contributions should be paid prior to determination (s111 agreements) or prior to commencement (s106 agreements and unilateral undertakings).

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APPENDIX 1 DESIGN STANDARDS FOR A SANG

- **Location**: needs to be accessible to residents of new development and potentially existing residents, such that the SANG is at least as easy to access as the European sites
- **Size**: sites ideally need to be in the order of 30ha to provide suitably long routes (visitor data from the European sites are necessary to indicate how far people typically walk). There may be potential to link to other sites or rights of way but ideally such route lengths should be entirely accommodated within the SANG.
- **Routes**: a range of routes should be possible, with longer walks (longer than 2.5km) possible. Routes should be easy to find, ideally way-marked and accessible at all times of year.
- **Types of access**: access provision needs to match the requirements of residents and the types of use on the European sites. Dog walkers are likely to be a major component, but requirements are site specific. There are SANGs in Dorset that are designed entirely for BMX riders.
- **Parking**: If the aim of the SANG is to draw people from a reasonable radius, good quality parking will need to be provided. Car parks need to be of appropriate size, free (assuming it is free to park at the European sites) and safe. Dog-walkers will prefer locations where the dog can be let out of the car safely.
- **Feel**: sites should be welcoming, clearly open to the public for access and safe. Adjacent busy roads, sewage works, industrial sites etc. are likely to detract from the appeal of the sites. SANGs should provide a suitable alternative to the ecologically sensitive sites and are therefore likely to need to be relatively wild and semi-natural in feel.
- **Features**: it may be possible to draw visitors and enhance sites with art installations (e.g. sculptures), infrastructure (screens to view wildlife, viewpoints, wild play facilities, benches etc.), however such features should not lead to the site being too urban in feel.
- **Facilities**: large sites may benefit from toilets, a café etc. but such facilities are unlikely to be essential components. Dog bins may be necessary. Some SANGs (e.g. Upton Country Park in Dorset) have dedicated facilities for dog walkers including a fenced dog training area and a stream area where dogs can drink and access the water).
- **Promotion**: it is important that SANGs are widely promoted to local residents. Good road signs, resident's packs, leaflets and promotion on the internet are important.
- **Management**: SANGs need to be permanent and management (e.g. maintenance, grass cutting, path surfacing) needs to be secured in-perpetuity. Some sites are owned by local authorities, other approaches include management by a trust or a suitable charity such as the local wildlife trust.
- **Monitoring**: visitor surveys of SANGs are likely to be necessary in the early days to check sites are being used and drawing the right types of access. Visitor survey results can provide the feedback necessary to modify or enhance the SANG. Any issues (anti-social behaviour, vandalism, poached ground etc.) need to be picked up andresolved.

Wiltshire Council